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Definition of Managed Objects for the Optimized Link State Routing
Protocol version 2
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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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Table of Contents

1. Introduction	3
2. The Internet-Standard Management Framework	3
3. Conventions	3
4. Overview	3
4.1. Terms	4
5. Structure of the MIB Module	4
5.1. The Configuration Group	5
5.2. The State Group	5
5.3. The Performance Group	5
5.4. The Notifications Group	6
5.5. Tables and Indexing	6
6. Relationship to Other MIB Modules	8
6.1. Relationship to the SNMPv2-MIB	8
6.2. Relationship to the NHDP-MIB	8
6.3. MIB modules required for IMPORTS	9
7. Definitions	9
8. Security Considerations	75
9. Applicability Statement	78
10. IANA Considerations	79
11. Acknowledgements	79
12. References	80
12.1. Normative References	80
12.2. Informative References	81
Appendix A. Note to the RFC Editor	82

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 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 process in the router.
- o Performance Objects - automatically generated values which help an administrator or automated tool to assess the performance of the OLSRv2 routing process on the router.
- 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 are 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 olsrv2LibOrigSetIndex - an incrementing number representing a distinct index for the olsrv2LibOrigSetTable.
- o olsrv2LibLocAttNetSetIndex - an incrementing number representing a distinct index for the olsrv2LibLocAttNetSetTable.
- o olsrv2TibAdRemoteRouterSetRouterId - this is an additional index for each Remote Router's interface address associated with the olsrv2TibAdRemoteRouterSetIpAddr.

- o `olsrv2TibRouterTopologySetIndex` - an incrementing number representing a distinct index for the `olsrv2TibRouterTopologySetTable`.
- o `olsrv2TibAttNetworksSetIndex` - an incrementing number representing a distinct index for the `olsrv2TibAttNetworksSetTable`.
- o `olsrv2TibRoutingSetDestIpAddressType`, `olsrv2TibRoutingSetDestIpAddress` and `olsrv2TibRoutingSetDestIpAddressPrefixLen` - 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.

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` and `nhdpIib2HopSetIpAddress`.
- o `olsrv2LibOrigSetTable` - records addresses that were recently used as originator addresses by this router. This table is indexed by `olsrv2LibOrigSetIndex`.
- o `olsrv2LibLocAttNetSetTable` - records its local non-OLSRv2 interfaces via which it can act as gateways to other networks. This table is indexed by `olsrv2LibLocAttNetSetIndex`.
- 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 `olsrv2TibAdRemoteRouterSetRouterId`.
- o `olsrv2TibRouterTopologySetTable` - records topology information about the network. This table is indexed by `olsrv2TibRouterTopologySetIndex`.

- 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 `olsrv2TibRoutableAddressTopologySetIndex`.
- 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 `olsrv2TibAttNetworksSetIndex`.
- 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 `olsrv2TibRoutingSetDestIpAddressType`, `olsrv2TibRoutingSetDestIpAddress`, and `olsrv2TibRoutingSetDestIpAddressPrefixLen`.
- 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]. In order to access the Objects relating to discovered neighbors, the State Group tables of the NHDP-MIB [RFC6779] module are aligned with this MIB module. This is accomplished through the use of the AUGMENTS capability of SMIv2 and the definition of TEXTUAL-CONVENTIONS in the NHDP-MIB module: specifically the `NeighborRouterIndex`. These object types are used to develop indexes into common NHDP-MIB module and routing protocol State Group tables.

The values of these objects and the semantics of each individual value SHOULD be identical for the two MIB modules within a given SNMP context. This will allow for improved cross referencing of information across 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].

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

    NeighborRouterIndex, nhdpInterfaceEntry,
    nhdpLibLinkSetEntry, nhdpLib2HopSetEntry,
    nhdpNibNeighborSetEntry, nhdpInterfacePerfEntry
        FROM NHDP-MIB -- RFC 6779
;

manetOlsrv2MIB MODULE-IDENTITY
    LAST-UPDATED "201305251800Z" --25 May 2013
    ORGANIZATION "IETF MANET Working Group"
    CONTACT-INFO
        "WG E-Mail: manet@ietf.org
```

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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.

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This version of this MIB module is part of RFC YYYY; see the RFC itself for full legal notices."

```
-- Revision History
REVISION      "201305251800Z"   -- 25 May 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
--

Olsrv2MetricCompressedFormTC ::= TEXTUAL-CONVENTION
  DISPLAY-HINT "x"
  STATUS      current
  DESCRIPTION
    "OLSRv2 Mertics are expressed in terms of a Link Metric
     Compressed Form. This textual convention defines
     the syntax of the metric objects consistent with
     the definitions of the OLSRv2 Link Metric Compressed Form.

     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."
  SYNTAX      Unsigned32 (0..16776960)

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 NHDP 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 either 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      Unsigned32
    UNITS       "centiseconds"
    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 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 Unsigned32

UNITS "centiseconds"

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

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 { 1250 }

::= { olsrv2ConfigurationGroup 7 }

```
--
-- Advertised information validity times
--

olsrv2THoldTime OBJECT-TYPE
    SYNTAX      Unsigned32
    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.

        olsrv2THoldTime MUST be representable by way of the
        exponent-mantissa notation as described in RFC 5497.

        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 { 15000 }
 ::= { olsrv2ConfigurationGroup 8 }

olsrv2AHoldTime OBJECT-TYPE
    SYNTAX      Unsigned32
    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 $\geq 3 \times \text{olsrv2TcInterval}$ is RECOMMENDED.

`olsrv2AHoldTime` MUST be representable by way of the exponent-mantissa notation as described in RFC 5497.

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 { 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       "centiseconds"
    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       "centiseconds"
    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       "centiseconds"
    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      Unsigned32 (0..255)
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
  "olsrv2LinkMetricType corresponds to
  LINK_METRIC_TYPE of OLSRv2.

  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, L_out_metric, L_mpr_selector)"
    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 {
        olsrv2IibLinkSetInMetric
            Olsrv2MetricCompressedFormTC,
        olsrv2IibLinkSetOutMetric
            Olsrv2MetricCompressedFormTC,
        olsrv2IibLinkSetMprSelector
            TruthValue
    }

olsrv2IibLinkSetInMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "olsrv2IibLinkSetInMetric is the metric of the link
        from the OLSRv2 interface with addresses
        L_neighbor_iface_addr_list to this OLSRv2 interface."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2IibLinkSetEntry 1 }

olsrv2IibLinkSetOutMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "olsrv2IibLinkSetOutMetric is the metric of the
        link to the OLSRv2 interface with addresses
        L_neighbor_iface_addr_list from this OLSRv2 interface."
    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, N2_out_metric)"
    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 {

```

```
        olsrv2Iib2HopSetInMetric
            Olsrv2MetricCompressedFormTC,
        olsrv2Iib2HopSetOutMetric
            Olsrv2MetricCompressedFormTC
    }

olsrv2Iib2HopSetInMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "olsrv2Iib2HopSetInMetric 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."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2Iib2HopSetEntry 1 }

olsrv2Iib2HopSetOutMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "olsrv2Iib2HopSetOutMetric 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."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { 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, O_time)"
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
    INDEX { olsrv2LibOrigSetIndex }
 ::= { olsrv2LibOrigSetTable 1 }

Olsrv2LibOrigSetEntry ::=
    SEQUENCE {
        olsrv2LibOrigSetIndex
            Unsigned32,
        olsrv2LibOrigSetIpAddrType
            InetAddressType,
        olsrv2LibOrigSetIpAddr
            InetAddress,
        olsrv2LibOrigSetExpireTime
            TimeStamp
    }

olsrv2LibOrigSetIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..65535)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The index for this table. The entries in this
```

table expire according to the value of the `olsrv2LibOrigSetExpireTime` object. Further, the lifetime of each entry within this table is set by the `O_HOLD_TIME` parameter of the OLSRv2 protocol. So they timeout in the order that they are added to this table.

The maximum value of this index is set to allow for the possibility of an extremely large number or addresses to be assigned to this OLSRv2 router. This should not be an issue for MANET router deployments and configurations in the foreseeable future.

The index values assigned to new entries SHOULD be assigned in numerical order, beginning from 1. New entries should be assigned the next available value, until the maximum value is assigned. Following this, the next assigned value SHOULD go back to 1 and begin incrementing again. If the table is full, then the next entry SHOULD be assigned an index value in sequence, replacing an existing entry (expiring this entry pre-maturely).

OLSRv2 (RFC XXXX) defines the rules for managing entries within this table, e.g., populating and purging entries."

REFERENCE

"RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

::= { olsrv2LibOrigSetEntry 1 }

`olsrv2LibOrigSetIpAddrType` OBJECT-TYPE

SYNTAX InetAddressType { ipv4(1) , ipv6(2) }

MAX-ACCESS read-only

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 2 }

olsrv2LibOrigSetIpAddress OBJECT-TYPE
    SYNTAX      InetAddress (SIZE(4|16))
    MAX-ACCESS  read-only
    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 3 }

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 4 }

--
-- 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, AL_dist, AL_metric)

                where:

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

                AL_dist is the number of hops to
                the network with address AL_net_addr
                from this router.

                AL_metric is the metric of the link to
                the attached network with address
                AL_net_addr from this router.

                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 { olsrv2LibLocAttNetSetIndex }
 ::= { olsrv2LibLocAttNetSetTable 1 }
```

```
Olsrv2LibLocAttNetSetEntry ::=
    SEQUENCE {
        olsrv2LibLocAttNetSetIndex
            Unsigned32,
        olsrv2LibLocAttNetSetIpAddressType
            InetAddressType,
        olsrv2LibLocAttNetSetIpAddress
            InetAddress,
        olsrv2LibLocAttNetSetIpAddressPrefixLen
            InetAddressPrefixLength,
        olsrv2LibLocAttNetSetDistance
            Unsigned32,
        olsrv2LibLocAttNetSetMetric
            Olsrv2MetricCompressedFormTC
    }

olsrv2LibLocAttNetSetIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..65535)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The index for this table.

        The maximum value of this index is set to allow
        for the possibility of an extremely large number
        interfaces acting as gateways to non-OLSRv2
        networks.  This should allow for anticipated MANET
        router deployments and configurations in the
        foreseeable future.

        The index values assigned to new entries should
        be assigned to the lowest available, un-assigned
        index value.  This will keep the assigned index
        set tightly packed near the lowest available
        index value of 1.

        OLSRv2 (RFC XXXX) defines the rules for managing
        entries within this table, e.g., populating
        and purging entries."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 1 }

olsrv2LibLocAttNetSetIpAddressType OBJECT-TYPE
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS  read-only
```

```
STATUS          current
DESCRIPTION
  "The type of the olsrv2LibLocAttNetSetIpAddress, 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 2 }

olsrv2LibLocAttNetSetIpAddress OBJECT-TYPE
SYNTAX          InetAddress (SIZE(4|16))
MAX-ACCESS      read-only
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 3 }

olsrv2LibLocAttNetSetIpAddressPrefixLen OBJECT-TYPE
SYNTAX          InetAddressPrefixLength
UNITS           "bits"
MAX-ACCESS      read-only
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
  olsrv2LibLocAttNetSetIpAddress field."
REFERENCE
  "RFC XXXX - The Optimized Link State Routing Protocol
  version 2, Clausen, T., Dearlove, C., Jacquet, P.
  and U. Herberg, March 2013."
 ::= { olsrv2LibLocAttNetSetEntry 4 }

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 5 }

olsrv2LibLocAttNetSetMetric OBJECT-TYPE
SYNTAX      Olsrv2MetricCompressedFormTC
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."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2LibLocAttNetSetEntry 6 }

--
-- 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
            N_in_metric
            N_out_metric
            N_will_flooding
            N_will_routing
            N_flooding_mpr
            N_routing_mpr
            N_mpr_selector
            N_advertised
        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 {
        olsrv2NibNeighborSetNOrigIpAddressType
            InetAddressType,
        olsrv2NibNeighborSetNOrigIpAddress
            InetAddress,
        olsrv2NibNeighborSetNInMetric
            Olsrv2MetricCompressedFormTC,
        olsrv2NibNeighborSetNOutMetric
            Olsrv2MetricCompressedFormTC,
        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 }

olsrv2NibNeighborSetNInMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    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 with L_status = SYMMETRIC and
         L_in_metric != 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 }

olsrv2NibNeighborSetNOutMetric OBJECT-TYPE
```

```
SYNTAX      Olsrv2MetricCompressedFormTC
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object is 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 with
    L_status = SYMMETRIC and
    L_out_metric != 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, 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, AR_seq_number, AR_time)
```

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 { olsrv2TibAdRemoteRouterSetRouterId }
::= { olsrv2TibAdRemoteRouterSetTable 1 }
```

```
Olsrv2TibAdRemoteRouterSetEntry ::=
    SEQUENCE {
        olsrv2TibAdRemoteRouterSetIpAddressType
            InetAddressType,
        olsrv2TibAdRemoteRouterSetIpAddress
            InetAddress,
        olsrv2TibAdRemoteRouterSetRouterId
            NeighborRouterIndex,
        olsrv2TibAdRemoteRouterSetMaxSeqNo
            Unsigned32,
        olsrv2TibAdRemoteRouterSetExpireTime
            TimeStamp
    }
```

```
olsrv2TibAdRemoteRouterSetIpAddressType OBJECT-TYPE
SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The type of the olsrv2TibAdRemoteRouterSetIpAddress,
    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 }

olsrv2TibAdRemoteRouterSetIpAddress OBJECT-TYPE
SYNTAX      InetAddress (SIZE(4|16))
MAX-ACCESS  read-only
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 }

olsrv2TibAdRemoteRouterSetRouterId OBJECT-TYPE
SYNTAX      NeighborRouterIndex
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This object is an index for each remote router's
    interface address associated with the
    olsrv2TibAdRemoteRouterSetIpAddress.

    The NeighborRouterIndex should be assigned in
    sequence beginning at a value of 1. The value
    for each discovered remote router's index MUST
    remain constant at least from one re-initialization
    of the entity's network management agent to the next
    re-initialization, except if an application is
    deleted and re-created.

    OLSRv2 (RFC XXXX) defines the rules for managing
    entries within this table, e.g., populating
```

```
        and purging entries."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibAdRemoteRouterSetEntry 3 }

olsrv2TibAdRemoteRouterSetMaxSeqNo 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
    olsrv2TibAdRemoteRouterSetIpAddr."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibAdRemoteRouterSetEntry 4 }

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 5 }

--
-- 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, TR_to_orig_addr,
TR_seq_number, TR_metric, TR_time).

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 { olsrv2TibRouterTopologySetIndex }

::= { olsrv2TibRouterTopologySetTable 1 }

Olsrv2TibTopologySetEntry ::=

SEQUENCE {

olsrv2TibRouterTopologySetIndex
Unsigned32,
olsrv2TibRouterTopologySetFromOrigIpAddrType
InetAddressType,
olsrv2TibRouterTopologySetFromOrigIpAddr
InetAddress,
olsrv2TibRouterTopologySetToOrigIpAddrType
InetAddressType,
olsrv2TibRouterTopologySetToOrigIpAddr
InetAddress,
olsrv2TibRouterTopologySetSeqNo
Unsigned32,
olsrv2TibRouterTopologySetMetric
Olsrv2MetricCompressedFormTC,
olsrv2TibRouterTopologySetExpireTime
TimeStamp

```
}  
  
olsrv2TibRouterTopologySetIndex OBJECT-TYPE  
    SYNTAX      Unsigned32 (1..16777215)  
    MAX-ACCESS  not-accessible  
    STATUS      current  
    DESCRIPTION  
        "The index for this table.  The entries in this  
        table expire according to the value of the  
        olsrv2TibRouterTopologySetExpireTime object.  
        Further, the lifetime of each entry within this  
        table is set by the validity time in the  
        OLSRv2 TC message.  As such, they are expected  
        to timeout roughly in the order that they are  
        added to this table.  
  
        The maximum value of this index is set to allow  
        for the possibility of an extremely large number  
        Topology Set tuples to be added to this OLSRv2  
        router.  This should not be an issue for MANET  
        router deployments and configurations in the  
        foreseeable future.  
  
        The index values assigned to new entries SHOULD  
        be assigned in numerical order, beginning from  
        1.  New entries should be assigned the next  
        available value, until the maximum value is  
        assigned.  Following this, the next assigned value  
        SHOULD go back to 1 and begin incrementing again.  
        If the table is full, then the next entry SHOULD  
        be assigned an index value in sequence, replacing  
        an existing entry (expiring this entry  
        pre-maturely).  
  
        OLSRv2 (RFC XXXX) defines the rules for managing  
        entries within this table, e.g., populating  
        and purging entries."  
    REFERENCE  
        "RFC XXXX - The Optimized Link State Routing Protocol  
        version 2, Clausen, T., Dearlove, C., Jacquet, P.  
        and U. Herberg, March 2013."  
 ::= { olsrv2TibRouterTopologySetEntry 1 }  
  
olsrv2TibRouterTopologySetFromOrigIpAddressType OBJECT-TYPE  
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }  
    MAX-ACCESS  read-only  
    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 2 }

olsrv2TibRouterTopologySetFromOrigIpAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS read-only

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 3 }

olsrv2TibRouterTopologySetToOrigIpAddrType OBJECT-TYPE

SYNTAX InetAddressType { ipv4(1) , ipv6(2) }

MAX-ACCESS read-only

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 4 }

olsrv2TibRouterTopologySetToOrigIpAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS read-only

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 5 }

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).

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."
 ::= { olsrv2TibRouterTopologySetEntry 6 }

olsrv2TibRouterTopologySetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the neighbor metric from the router
        with originator address TR_from_orig_addr to
        the router with originator address
        TR_to_orig_addr."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibRouterTopologySetEntry 7 }

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 8 }

--
-- Rountable Address Topology Set
--

olsrv2TibRountableAddressTopologySetTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Olsrv2TibRountableAddressTopologySetEntry
    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, TA_dest_addr,
TA_seq_number, TA_metric, TA_time)
```

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 { olsrv2TibRoutableAddressTopologySetIndex }
```

```
::= { olsrv2TibRoutableAddressTopologySetTable 1 }
```

```
Olsrv2TibRoutableAddressTopologySetEntry ::=
SEQUENCE {
olsrv2TibRoutableAddressTopologySetIndex
    Unsigned32,
olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
    InetAddressType,
olsrv2TibRoutableAddressTopologySetFromOrigIpAddr
    InetAddress,
olsrv2TibRoutableAddressTopologySetDestIpAddrType
    InetAddressType,
olsrv2TibRoutableAddressTopologySetDestIpAddr
    InetAddress,
olsrv2TibRoutableAddressTopologySetSeqNo
    Unsigned32,
olsrv2TibRoutableAddressTopologySetMetric
    Olsrv2MetricCompressedFormTC,
olsrv2TibRoutableAddressTopologySetExpireTime
```

```

        TimeStamp
    }

olsrv2TibRoutableAddressTopologySetIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..16777215)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The index for this table.  The entries in this
        table expire according to the value of the
        olsrv2TibRoutableAddressTopologySetExpireTime object.
        Further, the lifetime of each entry within this
        table is set by the validity time in the
        OLSRv2 TC message.  As such, they are expected
        to timeout roughly in the order that they are
        added to this table.

        The maximum value of this index is set to allow
        for the possibility of an extremely large number
        Routable Address Topology Set tuples to be
        added to this OLSRv2 router.  This should not be
        an issue for MANET router deployments and
        configurations in the foreseeable future.

        The index values assigned to new entries SHOULD
        be assigned in numerical order, beginning from
        1.  New entries should be assigned the next
        available value, until the maximum value is
        assigned.  Following this, the next assigned value
        SHOULD go back to 1 and begin incrementing again.
        If the table is full, then the next entry SHOULD
        be assigned an index value in sequence, replacing
        an existing entry (expiring this entry
        pre-maturely).

        OLSRv2 (RFC XXXX) defines the rules for managing
        entries within this table, e.g., populating
        and purging entries."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 1 }

olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType OBJECT-TYPE
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS  read-only
    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 2 }

olsrv2TibRoutableAddressTopologySetFromOrigIpAddr OBJECT-TYPE
SYNTAX InetAddress (SIZE(4|16))
MAX-ACCESS read-only
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 3 }

olsrv2TibRoutableAddressTopologySetDestIpAddrType OBJECT-TYPE
SYNTAX InetAddressType { ipv4(1) , ipv6(2) }
MAX-ACCESS read-only
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 4 }

olsrv2TibRoutableAddressTopologySetDestIpAddr OBJECT-TYPE
SYNTAX InetAddress (SIZE(4|16))
MAX-ACCESS read-only
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."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 5 }

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)."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 6 }

olsrv2TibRoutableAddressTopologySetMetric OBJECT-TYPE
SYNTAX      Olsrv2MetricCompressedFormTC
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the neighbor metric from the router
    with originator address TA_from_orig_addr to the
    router with OLSRv2 interface address TA_dest_addr."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 7 }

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 8 }

--
-- 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, AN_net_addr, AN_seq_number,
         AN_dist, AN_metric, AN_time).

        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 { olsrv2TibAttNetworksSetIndex }
 ::= { olsrv2TibAttNetworksSetTable 1 }
```

```

Olsrv2TibAttNetworksSetEntry ::=
SEQUENCE {
    olsrv2TibAttNetworksSetIndex
        Unsigned32,
    olsrv2TibAttNetworksSetOrigIpAddressType
        InetAddressType,
    olsrv2TibAttNetworksSetOrigIpAddress
        InetAddress,
    olsrv2TibAttNetworksSetNetIpAddressType
        InetAddressType,
    olsrv2TibAttNetworksSetNetIpAddress
        InetAddress,
    olsrv2TibAttNetworksSetNetIpAddressPrefixLen
        InetAddressPrefixLength,
    olsrv2TibAttNetworksSetSeqNo
        Unsigned32,
    olsrv2TibAttNetworksSetDist
        Unsigned32,
    olsrv2TibAttNetworksSetMetric
        Olsrv2MetricCompressedFormTC,
    olsrv2TibAttNetworksSetExpireTime
        TimeStamp
}

```

```

olsrv2TibAttNetworksSetIndex OBJECT-TYPE
SYNTAX      Unsigned32 (1..16777215)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION

```

"The index for this table. The entries in this table expire according to the value of the olsrv2TibAttNetworksSetExpireTime object. Further, the lifetime of each entry within this table is set by the validity time in the OLSRv2 TC message. As such, they are expected to timeout roughly in the order that they are added to this table.

The maximum value of this index is set to allow for the possibility of an extremely large number Attached Networks Set tuples to be added to this OLSRv2 router. This should not be an issue for MANET router deployments and configurations in the foreseeable future.

The index values assigned to new entries SHOULD be assigned in numerical order, beginning from 1. New entries should be assigned the next

available value, until the maximum value is assigned. Following this, the next assigned value SHOULD go back to 1 and begin incrementing again. If the table is full, then the next entry SHOULD be assigned an index value in sequence, replacing an existing entry (expiring this entry pre-maturely).

OLSRv2 (RFC XXXX) defines the rules for managing entries within this table, e.g., populating and purging entries."

REFERENCE

"RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

::= { olsrv2TibAttNetworksSetEntry 1 }

olsrv2TibAttNetworksSetOrigIpAddrType OBJECT-TYPE

SYNTAX InetAddressType { ipv4(1) , ipv6(2) }

MAX-ACCESS read-only

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 2 }

olsrv2TibAttNetworksSetOrigIpAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS read-only

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."

REFERENCE

"RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

::= { olsrv2TibAttNetworksSetEntry 3 }

```
olsrv2TibAttNetworksSetNetIpAddrType OBJECT-TYPE
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS  read-only
    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 4 }

olsrv2TibAttNetworksSetNetIpAddr OBJECT-TYPE
    SYNTAX      InetAddress (SIZE(4|16))
    MAX-ACCESS  read-only
    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."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 5 }

olsrv2TibAttNetworksSetNetIpAddrPrefixLen OBJECT-TYPE
    SYNTAX      InetAddressPrefixLength
    UNITS       "bits"
    MAX-ACCESS  read-only
    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 6 }

olsrv2TibAttNetworksSetSeqNo OBJECT-TYPE
```

```
SYNTAX      Unsigned32 (0..65535)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The greatest 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)."
```

REFERENCE

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

```
::= { olsrv2TibAttNetworksSetEntry 7 }
```

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."
```

REFERENCE

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

```
::= { olsrv2TibAttNetworksSetEntry 8 }
```

olsrv2TibAttNetworksSetMetric OBJECT-TYPE

```
SYNTAX      Olsrv2MetricCompressedFormTC
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."
```

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 { olsrv2TibRoutingSetDestIpAddressType,
        olsrv2TibRoutingSetDestIpAddress,
        olsrv2TibRoutingSetDestIpAddressPrefixLen }

```

```

 ::= { olsrv2TibRoutingSetTable 1 }

Olsrv2TibRoutingSetEntry ::=
SEQUENCE {
    olsrv2TibRoutingSetDestIpAddrType
        InetAddressType,
    olsrv2TibRoutingSetDestIpAddr
        InetAddress,
    olsrv2TibRoutingSetDestIpAddrPrefixLen
        InetAddressPrefixLength,
    olsrv2TibRoutingSetNextIfIpAddrType
        InetAddressType,
    olsrv2TibRoutingSetNextIfIpAddr
        InetAddress,
    olsrv2TibRoutingSetLocalIfIpAddrType
        InetAddressType,
    olsrv2TibRoutingSetLocalIfIpAddr
        InetAddress,
    olsrv2TibRoutingSetDist
        Unsigned32,
    olsrv2TibRoutingSetMetric
        Olsrv2MetricCompressedFormTC
}

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 }

olsrv2TibRoutingSetDestIpAddressPrefixLen 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
olsrv2TibRoutingSetDestIpAddress 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 }

olsrv2TibRoutingSetNextIfIpAddressType OBJECT-TYPE
SYNTAX InetAddressType { ipv4(1) , ipv6(2) }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The type of the olsrv2TibRoutingSetNextIfIpAddress,
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 }

olsrv2TibRoutingSetNextIfIpAddress 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 }

olsrv2TibRoutingSetLocalIfIpAddress OBJECT-TYPE

SYNTAX InetAddressType { ipv4(1) , ipv6(2) }

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The type of the olsrv2TibRoutingSetLocalIfIpAddress and olsrv2TibRoutingSetNextIfIpAddress, 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 }

olsrv2TibRoutingSetLocalIfIpAddress 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 }

olsrv2TibRoutingSetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricCompressedFormTC
    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."
 ::= { 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."

::= { 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."

::= { 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 `olsrv2MPRSetRecalculationCountChange` notification is generated.

It is RECOMMENDED that the value for this window be set to at least 5 times the `nhdpHelloInterval`."

```
::= { olsrv2NotificationsControl 4 }
```

```
olsrv2PreviousOrigIpAddressType OBJECT-TYPE
SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The type of the olsrv2PreviousOrigIpAddress,
    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 olsrv2PreviousOrigIpAddress."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
::= { olsrv2NotificationsStates 1 }
```

```
olsrv2PreviousOrigIpAddress 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 olsrv2OrigIpAddress 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 {
    olsrv2LibOrigSetIpAddrType,
    olsrv2LibOrigSetIpAddr,
    olsrv2LibOrigSetExpireTime,
    olsrv2LibLocAttNetSetIpAddrType,
    olsrv2LibLocAttNetSetIpAddr,
    olsrv2LibLocAttNetSetIpAddrPrefixLen,
    olsrv2LibLocAttNetSetDistance,
    olsrv2LibLocAttNetSetMetric,
    olsrv2IibLinkSetInMetric,
    olsrv2IibLinkSetOutMetric,
    olsrv2IibLinkSetMprSelector,
    olsrv2Iib2HopSetInMetric,
    olsrv2Iib2HopSetOutMetric,
    olsrv2NibNeighborSetNOrigIpAddrType,
    olsrv2NibNeighborSetNOrigIpAddr,
    olsrv2NibNeighborSetNInMetric,
    olsrv2NibNeighborSetNOutMetric,
    olsrv2NibNeighborSetNWillFlooding,
    olsrv2NibNeighborSetNWillRouting,
    olsrv2NibNeighborSetNFloodingMpr,
    olsrv2NibNeighborSetNRoutingMpr,
    olsrv2NibNeighborSetNMprSelector,
```

```

    olsrv2NibNeighborSetNAdvertised,
    olsrv2NibNeighborSetTableAnsn,
    olsrv2TibAdRemoteRouterSetIpAddrType,
    olsrv2TibAdRemoteRouterSetIpAddr,
    olsrv2TibAdRemoteRouterSetMaxSeqNo,
    olsrv2TibRouterTopologySetFromOrigIpAddrType,
    olsrv2TibRouterTopologySetFromOrigIpAddr,
    olsrv2TibRouterTopologySetToOrigIpAddrType,
    olsrv2TibRouterTopologySetToOrigIpAddr,
    olsrv2TibRouterTopologySetSeqNo,
    olsrv2TibRouterTopologySetMetric,
    olsrv2TibRoutableAddressTopologySetExpireTime,
    olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType,
    olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
    olsrv2TibRoutableAddressTopologySetDestIpAddrType,
    olsrv2TibRoutableAddressTopologySetDestIpAddr,
    olsrv2TibRoutableAddressTopologySetSeqNo,
    olsrv2TibRoutableAddressTopologySetMetric,
    olsrv2TibAttNetworksSetOrigIpAddrType,
    olsrv2TibAttNetworksSetOrigIpAddr,
    olsrv2TibAttNetworksSetNetIpAddrType,
    olsrv2TibAttNetworksSetNetIpAddr,
    olsrv2TibAttNetworksSetNetIpAddrPrefixLen,
    olsrv2TibAttNetworksSetSeqNo,
    olsrv2TibAttNetworksSetDist,
    olsrv2TibAttNetworksSetMetric,
    olsrv2TibAttNetworksSetExpireTime,
    olsrv2TibRoutingSetNextIfIpAddrType,
    olsrv2TibRoutingSetNextIfIpAddr,
    olsrv2TibRoutingSetLocalIfIpAddrType,
    olsrv2TibRoutingSetLocalIfIpAddr,
    olsrv2TibRoutingSetDist,
    olsrv2TibRoutingSetMetric
}
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 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

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12.2. Informative References

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Appendix A. Note to the RFC Editor

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*****
* 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. *
*
*****

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