Definition of Managed Objects for the Optimized Link State Routing Protocol version 2
draft-ietf-manet-olsrv2-mib-04

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 state information, performance metrics, and notifications. 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.

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1. Introduction

This document defines the Management Information Base (MIB) module for configuring and managing the Optimized Link State Routing protocol version 2 (OLSRv2). The OLSRv2-MIB module is structured into state information, performance metrics, 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 regularly. 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 deployment.
As OLSRv2 relies on the neighborhood information discovered by NHDP
[RFC6130], the OLSRv2-MIB module is aligned with the NHDP-MIB
[NHDP-MIB] module. 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:

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

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

- Performance Objects - automatically generated values which help an
  administrator or automated tool to assess the performance of the
  OLSRv2 routing process on the router.

- 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:

- olsrv2Objects - 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.

- olsrv2Notifications - objects defining OLSRv2-MIB module
  notifications.
o olsrv2Conformance - 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 [NHDP-MIB] module. Further, the State Group tables defined in this MIB module are aligned with the according tables in the NHDP-MIB [NHDP-MIB] 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 Subtree 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 [NHDP-MIB]. The Notifications Group contains Control, Objects and States, where the Control contains definitions of objects to control
the frequency of notifications being sent. The Objects define the supported notifications and the State is used to define additional information to be carried within the notifications.

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. Definitions imported from other MIB modules and other MIB modules that SHOULD be implemented in conjunction with the MIB module contained within this document are identified in this section.

6.1. Relationship to the SNMPv2-MIB

The ‘system’ group in the SNMPv2-MIB [RFC3418] 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 access the Objects relating to discovered neighbors, the State Group tables of the NHDP-MIB [NHDP-MIB] module are aligned with this MIB module. This is accomplished through the definition of two TEXTUAL-CONVENTIONS in the NHDP-MIB module: the NeighborInterfaceId and the NeighborRouterId. These object types are used to develop indexes into common NHDP-MIB module and routing protocol State Group tables. These objects are locally significant but should be locally common to the NHDP-MIB module and the OLSRv2-MIB module implemented on a common networked router. This will allow for improved cross referencing of information across the two MIB modules.

6.3. MIB modules required for IMPORTS

The following OLSRv2-MIB module IMPORTS objects from NHDP-MIB [NHDP-MIB], SNMPv2-SMI [RFC2578], SNMPv2-TC [RFC2579], SNMPv2-CONF [RFC2580], IF-MIB [RFC2863], INET-ADDRESS-MIB [RFC4001], SMIng [RFC3781], and FLOAT-TC-MIB [RFC6340].

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 -- RFC2578

TimeStamp, TruthValue, RowStatus
FROM SNMPv2-TC -- RFC2579

MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
FROM SNMPv2-CONF -- STD58

InetAddressType, InetAddress,
InetAddressPrefixLength
FROM INET-ADDRESS-MIB -- RFC3291

InterfaceIndexOrZero
FROM IF-MIB -- RFC2863

Float32TC
FROM FLOAT-TC-MIB -- RFC6340

NeighborRouterId, NeighborIfIndex
FROM NHDP-MIB -- draft-ietf-manet-nhdp-mib
;

manetOlsrv2MIB MODULE-IDENTITY
LAST-UPDATED "201205111000Z" -- May 11, 2012
ORGANIZATION "IETF MANET Working Group"
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DESCRIPTION
"This MIB module contains managed object definitions
for the Manet OLSRv2 routing process defined in the
Optimized Link State Routing Protocol version 2
defined in RFCXXXX.

Copyright (C) The IETF Trust (2012). This version
of this MIB module is part of RFC xxxx; see the RFC
itself for full legal notices."

-- Revision History
REVISION    "201205111000Z"   -- May 11, 2012
DESCRIPTION
"The first version of this MIB module,
published as RFCXXXX."

-- RFC-Editor assigns XXXX
::= { mib-2 1234 }   -- 1234 is just an example
-- and to be assigned by IANA

--
-- Top-Level Object Identifier Assignments
--
olsrv2MIBNotifications OBJECT IDENTIFIER ::= { manet0lsrv2MIB 0 }
olsrv2MIBObjects     OBJECT IDENTIFIER ::= { manet0lsrv2MIB 1 }
olsrv2MIBConformance OBJECT IDENTIFIER ::= { manet0lsrv2MIB 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}

olsrv2OrigIpAddrType OBJECT-TYPE
SYNTAX      InetAddressType
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
 "The type of the olsrv2OrigIpAddr, as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported.
"
REFERENCE
 "The OLSRv2 draft."
 ::= { olsrv2ConfigurationGroup 1 }

olsrv2OrigIpAddr OBJECT-TYPE
SYNTAX      InetAddress
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
 "An address which is unique (within the MANET) to a router.

This object is persistent and when written the entity SHOULD save the change to non-volatile storage."
REFERENCE
 "The OLSRv2 draft."
 ::= { olsrv2ConfigurationGroup 2 }

--
-- 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.

This object is persistent and when written
the entity SHOULD save the change to
non-volatile storage."

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."

DEFVAL { 30000 }
::= { olsrv2ConfigurationGroup 3 }

--
-- Message intervals
--

olsrv2TcInterval OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "milliseconds"
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
"olsrv2TcInterval corresponds to
TC_INTERVAL of OLSRv2 and represents the
maximum time between the transmission of
two successive TC messages by this router.

The following constraints apply to this
parameter:

    o olsrv2TcInterval &gt; 0
    o olsrv2TcInterval &gt;= olsrv2TcMinInterval

This object is persistent and when written
the entity SHOULD save the change to
non-volatile storage."

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."

DEFVAL { 5000 }
::= { olsrv2ConfigurationGroup 4 }

olsrv2TcMinInterval OBJECT-TYPE
SYNTAX      Unsigned32
o olsrv2TcMinInterval \&gt;= olsrv2TcInterval

This object is persistent and when written
the entity SHOULD save the change to
non-volatile storage.

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."

DEFVAL \{ 1250 \}

\::= \{ olsrv2ConfigurationGroup 5 \}

---

-- 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.

The following constraint applies to this
parameter:

\ o olsrv2THoldTime \&gt;= olsrv2TcInterval

If TC messages can be lost, then
olsrv2THoldTime SHOULD be
olsrv2AHoldTime MUST be representable as described in RFC5497.

This object is persistent and when written the entity SHOULD save the change to non-volatile storage.

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 15000 }
::= { olsrv2ConfigurationGroup 6 }

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.

If TC messages can be lost, then olsrv2AHoldTime SHOULD be significantly greater than olsrv2TcInterval; a value &gt;= 3 x olsrv2TcInterval is RECOMMENDED.

olsrv2AHoldTime MUST be representable as described in RFC5497.

This object is persistent and when written the entity SHOULD save the change to non-volatile storage.

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 15000 }
::= { olsrv2ConfigurationGroup 7 }

--
-- 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.

The following constraint applies to this parameter:

  o olsrv2RxHoldTime > 0

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
"The OLSRv2 draft.
   Section 5 on Protocol Parameters."
DEFVAL { 30000 }
::= { olsrv2ConfigurationGroup 8 }

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.

The following constraint applies to this parameter:

  o olsrv2PHoldTime > 0

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
"The OLSRv2 draft. Section 5 on Protocol Parameters."

DEFVAL { 30000 }
::= { olsrv2ConfigurationGroup 9 }

olsrv2FHoldTime  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 that is forwarded by this router for which that information is recorded, in order that the message is not forwarded again if received again.

The following constraint applies to this parameter:

  o olsrv2FHoldTime > 0

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
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 30000 }
::= { olsrv2ConfigurationGroup 10 }

--
-- Jitter times
--

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

This object is persistent and when written
the entity SHOULD save the change to non-volatile storage."
REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 500 }
::= { olsrv2ConfigurationGroup 11 }

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

This object is persistent and when written
the entity SHOULD save the change to non-volatile storage."
REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 500 }
::= { olsrv2ConfigurationGroup 12 }

olsrv2FMaxJitter  OBJECT-TYPE
SYNTAX     Unsigned32
UNITS       "milliseconds"
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
"olsrv2FMaxJitter corresponds to F_MAXJITTER of OLSRv2 and represents the
default value of MAXJITTER used in RFC5148 for messages forwarded by this router.

This object is persistent and when written the entity SHOULD save the change to
non-volatile storage."
REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 500 }
::= { olsrv2ConfigurationGroup 13 }

--
-- 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.

The following constraint applies to this parameter:

  o The maximum value of
    olsrv2TcHopLimit &gt;= the network diameter
    in hops, a value of 255 is RECOMMENDED.

  o All values of olsrv2TcHopLimit &gt;= 2.
This object is persistent and when written the entity SHOULD save the change to non-volatile storage.

REFERENCE
"The OLSRv2 draft. Section 5 on Protocol Parameters."

DEFVAL { 255 }

::= { olsrv2ConfigurationGroup 14 }

--
-- Willingness
--

olsrv2WillRouting OBJECT-TYPE
SYNTAX Unsigned32 (0..15)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"olsrv2WillRouting corresponds to WILL_ROUTING of OLSRv2.

The following constraint applies to this parameter:

   o WILL_NEVER (0) &lt;= olsrv2WillRouting &lt;= WILL_ALWAYS (15)

This object is persistent and when written the entity SHOULD save the change to non-volatile storage.

REFERENCE
"The OLSRv2 draft. Section 5 on Protocol Parameters."

DEFVAL { 7 }

::= { olsrv2ConfigurationGroup 15 }

olsrv2WillFlooding OBJECT-TYPE
SYNTAX Unsigned32 (0..15)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"olsrv2WillFlooding corresponds to WILL_FLOODING of OLSRv2.

The following constraint applies to this parameter:
o WILL_NEVER (0) \&lt;= olsrv2WillFlooding \&lt;=
WILL_ALWAYS (15)

This object is persistent and when written
the entity SHOULD save the change to
non-volatile storage.

REFERENCE
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 7 }
::= { olsrv2ConfigurationGroup 16 }

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
"The OLSRv2 draft.
Section 5 on Protocol Parameters."
DEFVAL { 255 }
::= { olsrv2ConfigurationGroup 17 }

--
-- olsrv2StateGroup
--

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

olsrv2StateGroup OBJECT IDENTIFIER ::= { olsrv2MIBObjects 2 }

olsrv2RouterStatus OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The current status of the OLSRv2 routing process."
::= { olsrv2StateGroup 1 }

-- Interface Information Base (IIB)

-- Link Set from RFC6130, 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 "The OLSRv2 draft."
::= { olsrv2StateGroup 2 }

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. The Link Set from NHDP is extended by OLSRv2 by the following fields:

(L_in_metric, L_out_metric, L_mpr_selector)."
REFERENCE "The OLSRv2 draft."
INDEX { nhdpIfIndex, nhdpDiscIfIndex }
::= { olsrv2IibLinkSetTable 1 }

Olsrv2IibLinkSetEntry ::= SEQUENCE {
  olsrv2IibLinkSetInMetric Float32,
  olsrv2IibLinkSetOutMetric Float32,
olsrv2IibLinkSetMprSelector

TruthValue

}

olsrv2IibLinkSetInMetric  OBJECT-TYPE
SYNTAX      Float32
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
"The OLSRv2 draft."
 ::= { olsrv2IibLinkSetEntry 1 }

olsrv2IibLinkSetOutMetric  OBJECT-TYPE
SYNTAX      Float32
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
"The OLSRv2 draft."
 ::= { olsrv2IibLinkSetEntry 2 }

olsrv2IibLinkSetMprSelector  OBJECT-TYPE
SYNTAX      TruthValue
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"olsrv2IibLinkSetMprSelector is a boolean flag,
describing if this neighbor has selected this router
as a flooding MPR, i.e., is a flooding MPR selector
of this router."
REFERENCE
"The OLSRv2 draft."
 ::= { olsrv2IibLinkSetEntry 3 }

--
-- 2-Hop Set; from RFC6130, extended by OLSRv2 by the
-- following fields: N2_in_metric, N2_out_metric
--
olsrv2Iib2HopSetTable OBJECT-TYPE
SYNTAX      SEQUENCE OF Olsrv2Iib2HopSetEntry
MAX-ACCESS   not-accessible
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. The Set is extended by OLSRv2 by the following fields: N2_in_metric, N2_out_metric.

The OLSRv2 draft.

INDEX { nhdpIfIndex, olsrv2Iib2HopSetIpAddressType, olsrv2Iib2HopSetIpAddress }

::= { olsrv2Iib2HopSetTable 1 }

Olsrv2Iib2HopSetEntry ::= SEQUENCE {
  olsrv2Iib2HopSetIpAddressType
    InetAddressType,
  olsrv2Iib2HopSetIpAddress
    InetAddress,
  olsrv2Iib2HopSet1HopIfIndex
    NeighborIfIndex,
  olsrv2Iib2HopSetInMetric
    Float32,
  olsrv2Iib2HopSetOutMetric
    Float32
}

olsrv2Iib2HopSetIpAddressType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "The type of the olsrv2Iib2HopSetIpAddress
in the InetAddress MIB module (RFC4001).

    Only the values ipv4(1) and
    ipv6(2) are supported."
REFERENCE    "The OLSRv2 draft."
::= { olsrv2Iib2HopSetEntry 1 }

olsrv2Iib2HopSetIpAddress  OBJECT-TYPE
SYNTAX      InetAddress
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "olsrv2Iib2HopSetIpAddr corresponds
to N2_2hop_addr of NHDP and is a network
address of a symmetric 2-hop neighbor that
has a symmetric link (using any MANET
interface) to the indicated symmetric
1-hop neighbor."
REFERENCE    "The OLSRv2 draft."
::= { olsrv2Iib2HopSetEntry 2 }

olsrv2Iib2HopSet1HopIfIndex  OBJECT-TYPE
SYNTAX      NeighborIfIndex
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "olsrv2Iib2HopSet1HopIfIndex is
nhdpDiscIfIndex of the 1-hop
neighbor which communicated the ipAddress
of the 2-hop neighbor in this row entry."
REFERENCE    "The OLSRv2 draft."
::= { olsrv2Iib2HopSetEntry 3 }

olsrv2Iib2HopSetInMetric  OBJECT-TYPE
SYNTAX      Float32
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
"The OLSRv2 draft."
::= { olsrv2Iib2HopSetEntry 4 }

olsrv2Iib2HopSetOutMetric OBJECT-TYPE
SYNTAX Float32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"olsrv2Iib2HopSetN2Time 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
"The OLSRv2 draft."
::= { olsrv2Iib2HopSetEntry 5 }

--
-- Local Information Base - as defined in RFC6130,
-- 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 obsolete
DESCRIPTION
"A router’s Originator Set records addresses
that were recently used as originator addresses
by this router."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2StateGroup 4 }
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
    "The OLSRv2 draft."
INDEX { olsrv2LibOrigSetIpAddrType,
    olsrv2LibOrigSetIpAddr }
 ::= { olsrv2LibOrigSetTable 1 }

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

olsrv2LibOrigSetIpAddrType  OBJECT-TYPE
SYNTAX   InetAddressType
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
    "The OLSRv2 draft."
 ::= { olsrv2LibOrigSetEntry 1 }

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

olsrv2LibOrigSetExpireTime OBJECT-TYPE
SYNTAX       TimeStamp
UNITS        "milliseconds"
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
 "olsrv2LibOrigSetExpireTime specifies the sysUpTime
when to expire this entry and remove it from the
'olsrv2LibOrigSetTable'."
REFERENCE     "The OLSRv2 draft."
::= { olsrv2LibOrigSetEntry 3 }

--
-- Local Attached Network Set
--

olsrv2LibLocAttNetSetTable OBJECT-TYPE
SYNTAX       SEQUENCE OF Olsrv2LibLocAttNetSetEntry
MAX-ACCESS   not-accessible
STATUS       obsolete
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     "The OLSRv2 draft."
::= { olsrv2StateGroup 5 }

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."

REFERENCE
"The OLSRv2 draft."

INDEX { olsrv2LibLocAttNetSetIpAddrType,
        olsrv2LibLocAttNetSetIpAddr,
        olsrv2LibLocAttNetSetIpAddrPrefixLen }
::= { olsrv2LibLocAttNetSetTable 1 }

Olsrv2LibLocAttNetSetEntry ::= 
SEQUENCE 
{
    olsrv2LibLocAttNetSetIpAddrType
        InetAddressType,
    olsrv2LibLocAttNetSetIpAddr
        InetAddress,
    olsrv2LibLocAttNetSetIpAddrPrefixLen
        InetAddressPrefixLength,
    olsrv2LibLocAttNetSetDistance
        Unsigned32,
    olsrv2LibLocAttNetSetMetric
        Float32,
    olsrv2LibLocAttNetSetRowStatus
        RowStatus
}

olsrv2LibLocAttNetSetIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The type of the olsrv2LibLocAttNetSetIpAddr, as defined in the InetAddress MIB (RFC4001).

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

REFERENCE
"The OLSRv2 draft."
::= { olsrv2LibLocAttNetSetEntry 1 }

olsrv2LibLocAttNetSetIpAddr OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This is the network address of an attached
network which can be reached via this router.

REFERENCE
"The OLSRv2 draft."

::= { olsrv2LibLocAttNetSetEntry 2 }

olsrv2LibLocAttNetSetIpAddrPrefixLen OBJECT-TYPE
SYNTAX      InetAddressPrefixLength
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Indicates the number of leading one bits that form the
mask to be logical-ANDed with the destination address
before being compared to the value in the
olsrv2LibLocAttNetSetIpAddr field."

REFERENCE
"The OLSRv2 draft."

::= { olsrv2LibLocAttNetSetEntry 3 }

olsrv2LibLocAttNetSetDistance OBJECT-TYPE
SYNTAX      Unsigned32 (1..255)
UNITS      "hops"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This object specifies the number of hops
to the network with address
olsrv2LibLocAttNetSetIpAddr from this router."

REFERENCE
"The OLSRv2 draft."

::= { olsrv2LibLocAttNetSetEntry 4 }

olsrv2LibLocAttNetSetMetric OBJECT-TYPE
SYNTAX      Float32
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
"The OLSRv2 draft."

::= { olsrv2LibLocAttNetSetEntry 5 }

olsrv2LibLocAttNetSetRowStatus OBJECT-TYPE
SYNTAX      RowStatus
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object permits management of the table by facilitating actions such as row creation, construction, and destruction. The value of this object has no effect on whether other objects in this conceptual row can be modified."

::= { olsrv2LibLocAttNetSetEntry 6 }

-- -- Neighbor Information Base - as defined in RFC6130,
-- extended by the addition of five elements to
-- each Neighbor Tuple, as defined in Section 8.
--
-- -- Neighbor Set
--
olsrv2NibNeighborSetTable OBJECT-TYPE
SYNTAX    SEQUENCE OF Olsrv2NibNeighborSetEntry
MAX-ACCESS not-accessible
STATUS    obsolete
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
   "The OLSRv2 draft."
::= ( olsrv2StateGroup 6 )

olsrv2NibNeighborSetEntry  OBJECT-TYPE
SYNTAX    Olsrv2NibNeighborSetEntry
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
   "Each Neighbor Tuple in the Neighbor Set, defined in RFC6130, has these additional elements:
   N_orig_addr
   N_willingness
   N_mpr
   N_mpr_selector
   N_advertised
   defined here as extensions."
REFERENCE
   "The OLSRv2 draft."
INDEX { olsrv2NibNeighborSetRouterId }
 ::= { olsrv2NibNeighborSetTable 1 }

Olsrv2NibNeighborSetEntry ::= SEQUENCE {
   olsrv2NibNeighborSetRouterId   
      NeighborRouterId,
   olsrv2NibNeighborSetNOrigIpAddrType   
      InetAddressType,
   olsrv2NibNeighborSetNOrigIpAddr   
      InetAddress,
   olsrv2NibNeighborSetNInMetric   
      Float32,
   olsrv2NibNeighborSetNOutMetric   
      Float32,
   olsrv2NibNeighborSetNWillFlooding   
      Unsigned32,
   olsrv2NibNeighborSetNWillRouting   
      Unsigned32,
   olsrv2NibNeighborSetNFloodingMpr   
      TruthValue,
   olsrv2NibNeighborSetNRoutingMpr   
      TruthValue,
   olsrv2NibNeighborSetNMprSelector   
      TruthValue,
   olsrv2NibNeighborSetNAdvertised   
      TruthValue
}

olsrv2NibNeighborSetRouterId OBJECT-TYPE
 SYNTAX      NeighborRouterId
 MAX-ACCESS  not-accessible
 STATUS      current
 DESCRIPTION
 "The object olsrv2NibNeighborSetRouterId is
 the locally assigned ID of the remote router
 referenced in this row. The IP addr
 associated with this router is contained
 in the NHDP-MIB module’s ‘nhdpDiscIfSetTable’."

REFERENCE
 "The OLSRv2 draft."
 ::= { olsrv2NibNeighborSetEntry 1 }

olsrv2NibNeighborSetNOrigIpAddrType OBJECT-TYPE
 SYNTAX      InetAddressType
 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
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 2 }

olsrv2NibNeighborSetNOrigIpAddr OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This is the originator IP address of that
neighbor."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 3 }

olsrv2NibNeighborSetNInMetric OBJECT-TYPE
SYNTAX Float32
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."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 4 }

olsrv2NibNeighborSetNOutMetric OBJECT-TYPE
SYNTAX Float32
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."
```plaintext
REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 5 }

olsrv2NibNeighborSetNWillFlooding OBJECT-TYPE
SYNTAX     Unsigned32 (0..15)
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
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 6 }

olsrv2NibNeighborSetNWillRouting OBJECT-TYPE
SYNTAX     Unsigned32 (0..15)
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
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 7 }

olsrv2NibNeighborSetNFloodingMpr OBJECT-TYPE
SYNTAX     TruthValue
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
  "This object is a boolean flag, describing if
this neighbor is selected as a flooding MPR
by this router."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 8 }

olsrv2NibNeighborSetNRoutingMpr OBJECT-TYPE
SYNTAX     TruthValue
MAX-ACCESS read-only
STATUS     current
```

DESCRIPTION
"This object is a boolean flag, describing if this neighbor is selected as a routing MPR by this router."

REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 9 }

olsrv2NibNeighborSetNMprSelector OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is a boolean flag, describing if 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
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 10 }

olsrv2NibNeighborSetNAdvertised OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object, N_mpr_selector, is a boolean flag, describing if this router has elected to advertise a link to this neighbor in its TC messages."

REFERENCE
"The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 11 }

olsrv2NibNeighborSetTableAnsn OBJECT-TYPE
SYNTAX Unsigned32
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
"The OLSRv2 draft."

::= { olsrv2StateGroup 7 }

--
-- Topology Information Base - this Information
-- Base is specific to OLSRv2, and is defined in
-- Section 9.
--

--
-- Advertising Remote Router Set
--

olsrv2TibAdRemoteRouterSetTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Olsrv2TibAdRemoteRouterSetEntry
MAX-ACCESS  not-accessible
STATUS   obsolete
DESCRIPTION
"A router’s Advertising Remote Router Set records information describing each remote router in the network that transmits TC messages."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2StateGroup 8 }

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’."
REFERENCE
"The OLSRv2 draft."
INDEX { olsrv2TibAdRemoteRouterSetRouterId }
::= { olsrv2TibAdRemoteRouterSetTable 1 }

Olsrv2TibAdRemoteRouterSetEntry ::=
SEQUENCE {
  olsrv2TibAdRemoteRouterSetIpAddrType
     InetAddressType,
  olsrv2TibAdRemoteRouterSetIpAddr
     InetAddress,
  olsrv2TibAdRemoteRouterSetRouterId
     NeighborRouterId,
  olsrv2TibAdRemoteRouterSetMaxSeqNo
     Unsigned32,
  olsrv2TibAdRemoteRouterSetExpireTime
     TimeStamp
}

olsrv2TibAdRemoteRouterSetIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The type of the olsrv2TibAdRemoteRouterSetIpAddr,
as defined in the InetAddress MIB module (RFC4001).
Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE
"The OLSRv2 draft."
 ::= { olsrv2TibAdRemoteRouterSetEntry 1 }

olsrv2TibAdRemoteRouterSetIpAddr OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This is the originator address of a received
TC message."
REFERENCE
"The OLSRv2 draft."
 ::= { olsrv2TibAdRemoteRouterSetEntry 2 }

olsrv2TibAdRemoteRouterSetRouterId OBJECT-TYPE
SYNTAX NeighborRouterId
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This object is an additional index for each
Remote Router’s IfAddr associated with the
olsrv2TibAdRemoteRouterSetIpAddr."
REFERENCE
"The OLSRv2 draft."
::= { 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
"The OLSRv2 draft."
::= { olsrv2TibAdRemoteRouterSetEntry 4 }

olsrv2TibAdRemoteRouterSetExpireTime OBJECT-TYPE
SYNTAX      TimeStamp
UNITS       "milliseconds"
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"olsrv2TibAdRemoteRouterSetExpireTime specifies the sysuptime
when to expire this entry and remove it from the
'olsrv2TibAdRemoteRouterSetTable'."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibAdRemoteRouterSetEntry 5 }

--

-- Router Topology Set
--

olsrv2TibRouterTopologySetTable OBJECT-TYPE
SYNTAX      SEQUENCE OF Olsrv2TibTopologySetEntry
MAX-ACCESS  not-accessible
STATUS      obsolete
DESCRIPTION
"A router’s Router Topology Set records topology
information about the network."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2StateGroup 9 }

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, R_time)"
REFERENCE     "The OLSRv2 draft."

INDEX { olsrv2TibRouterTopologySetFromOrigIpAddrType,
         olsrv2TibRouterTopologySetFromOrigIpAddr }
 ::= { olsrv2TibRouterTopologySetTable 1 }

Olsrv2TibTopologySetEntry ::= SEQUENCE {
    olsrv2TibRouterTopologySetFromOrigIpAddrType
        InetAddressType,
    olsrv2TibRouterTopologySetFromOrigIpAddr
        InetAddress,
    olsrv2TibRouterTopologySetToOrigIpAddrType
        InetAddressType,
    olsrv2TibRouterTopologySetToOrigIpAddr
        InetAddress,
    olsrv2TibRouterTopologySetSeqNo
        Unsigned32,
    olsrv2TibRouterTopologySetMetric
        Float32,
    olsrv2TibRouterTopologySetExpireTime
        TimeStamp
}

olsrv2TibRouterTopologySetFromOrigIpAddrType OBJECT-TYPE
SYNTAX       InetAddressType
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     "The OLSRv2 draft."
 ::= { olsrv2TibRouterTopologySetEntry 1 }

olsrv2TibRouterTopologySetFromOrigIpAddr OBJECT-TYPE
SYNTAX       InetAddress
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
"The OLSRv2 draft."
::= { olsrv2TibRouterTopologySetEntry 2 }

olsrv2TibRouterTopologySetToOrigIpAddrType OBJECT-TYPE
SYNTAX    InetAddressType
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
"The OLSRv2 draft."
::= { olsrv2TibRouterTopologySetEntry 3 }

olsrv2TibRouterTopologySetToOrigIpAddr  OBJECT-TYPE
SYNTAX     InetAddress
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
"The OLSRv2 draft."
::= { olsrv2TibRouterTopologySetEntry 4 }

olsrv2TibRouterTopologySetSeqNo  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 TR_from_orig_addr (i.e., which contributed to the information contained in this Tuple)."

REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibRouterTopologySetEntry 5 }

olsrv2TibRouterTopologySetMetric OBJECT-TYPE
   SYNTAX       Float32
   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
      "The OLSRv2 draft."
 ::= { olsrv2TibRouterTopologySetEntry 6 }

olsrv2TibRouterTopologySetExpireTime OBJECT-TYPE
   SYNTAX       TimeStamp
   UNITS       "milliseconds"
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION
      "olsrv2TibRouterTopologySetExpireTime specifies
      the sysUptime
      when to expire this entry and remove it from the
      'olsrv2TibRouterTopologySetTable'."
   REFERENCE
      "The OLSRv2 draft."
 ::= { olsrv2TibRouterTopologySetEntry 7 }

--
-- Routable Address Topology Set
--

olsrv2TibRoutableAddressTopologySetTable OBJECT-TYPE
   SYNTAX       SEQUENCE OF Olsrv2TibRoutableAddressTopologySetEntry
   MAX-ACCESS   not-accessible
   STATUS       obsolete
   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
      "The OLSRv2 draft."
 ::= { olsrv2StateGroup 10 }

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

(TA_from_orig_addr, TA_to_orig_addr,
 TA_seq_number, TA_metric, TA_time)"
REFERENCE "The OLSRv2 draft."
INDEX { olsrv2TibRouterTopologySetFromOrigIpAddrType,
      olsrv2TibRouterTopologySetFromOrigIpAddr }
::= { olsrv2TibRoutableAddressTopologySetTable 1 }

Olsrv2TibRoutableAddressTopologySetEntry ::= SEQUENCE {
  olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
      InetAddressType,
  olsrv2TibRoutableAddressTopologySetFromOrigIpAddr
      InetAddress,
  olsrv2TibRoutableAddressTopologySetToOrigIpAddrType
      InetAddressType,
  olsrv2TibRoutableAddressTopologySetToOrigIpAddr
      InetAddress,
  olsrv2TibRoutableAddressTopologySetSeqNo
      Unsigned32,
  olsrv2TibRoutableAddressTopologySetMetric
      Float32,
  olsrv2TibRoutableAddressTopologySetExpireTime
      TimeStamp }

olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The type of the olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 1 }

olsrv2TibRoutableAddressTopologySetFromOrigIpAddr OBJECT-TYPE
SYNTAX InetAddress
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:
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 2 }

olsrv2TibRoutableAddressTopologySetToOrigIpAddrType OBJECT-TYPE
SYNTAX: InetAddressType
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:
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 3 }

olsrv2TibRoutableAddressTopologySetToOrigIpAddr OBJECT-TYPE
SYNTAX: InetAddress
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:
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 4 }

olsrv2TibRoutableAddressTopologySetSeqNo OBJECT-TYPE
SYNTAX: Unsigned32 (0..65535)
MAX-ACCESS: read-only
STATUS: current
DESCRIPTION:
"This is the greatest ANSN in any TC message received which originated from the router with originator address TA_from_orig_addr (i.e., which contributed to the information contained in this Tuple)."
REFERENCE:
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 5 }

olsrv2TibRoutableAddressTopologySetMetric OBJECT-TYPE
SYNTAX      Float32
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
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 6 }

olsrv2TibRoutableAddressTopologySetExpireTime OBJECT-TYPE
SYNTAX      TimeStamp
UNITS       "milliseconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"olsrv2TibRoutableAddressTopologySetExpireTime specifies the sysUptime when to expire this entry and remove it from the 'olsrv2TibRoutableAddressTopologySetTable'."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibRoutableAddressTopologySetEntry 7 }

--
-- Attached Network Set
--

olsrv2TibAttNetworksSetTable OBJECT-TYPE
SYNTAX      SEQUENCE OF Olsrv2TibAttNetworksSetEntry
MAX-ACCESS  not-accessible
STATUS      obsolete
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
"The OLSRv2 draft."
::= { olsrv2StateGroup 11 }

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_time)"

REFERENCE
"The OLSRv2 draft."
INDEX { olsrv2TibAttNetworksSetNetIpAddrType,
          olsrv2TibAttNetworksSetNetIpAddr,
          olsrv2TibAttNetworksSetNetIpAddrPrefixLen }
 ::= { olsrv2TibAttNetworksSetTable 1 }

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

olsrv2TibAttNetworksSetOrigIpAddrType OBJECT-TYPE
SYNTAX      InetAddressType
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
"The OLSRv2 draft."
 ::= { olsrv2TibAttNetworksSetEntry 1 }

olsrv2TibAttNetworksSetOrigIpAddr OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS read-only
STATUS     current
DESCRIPTION "This is the originator address of a router which can act as gateway to the network with address AN_net_addr."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 2 }

olsrv2TibAttNetworksSetNetIpAddrType OBJECT-TYPE
SYNTAX     InetAddressType
MAX-ACCESS read-only
STATUS     current
DESCRIPTION "The type of the olsrv2TibAttNetworksSetNetIpAddr, as defined in the InetAddress MIB module (RFC4001). Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 3 }

olsrv2TibAttNetworksSetNetIpAddr OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS read-only
STATUS     current
DESCRIPTION "This is the network address of an attached network, which may be reached via the router with originator address AN_orig_addr."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 4 }

olsrv2TibAttNetworksSetNetIpAddrPrefixLen OBJECT-TYPE
SYNTAX     InetAddressPrefixLength
MAX-ACCESS read-only
STATUS     current
DESCRIPTION "Indicates the number of leading one bits that form the mask to be logical-ANDed with the destination address before being compared to the value in the olsrv2TibAttNetworksSetNetIpAddr field."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 5 }
::= { olsrv2TibAttNetworksSetEntry 5 }

olsrv2TibAttNetworksSetSeqNo OBJECT-TYPE
SYNTAX      Unsigned32 (0..65535)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The is the greatest ANSN in any TC
message received which originated from the
router with originator address AN_orig_addr
(i.e. which contributed to the information
contained in this Tuple)."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 6 }

olsrv2TibAttNetworksSetDist OBJECT-TYPE
SYNTAX      Unsigned32 (0..255)
UNITS       "hops"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The is the number of hops to the network
with address AN_net_addr from the router with
originator address AN_orig_addr."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 7 }

olsrv2TibAttNetworksSetExpireTime OBJECT-TYPE
SYNTAX      TimeStamp
UNITS       "milliseconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"olsrv2TibAttNetworksSetExpireTime
specifies the sysUptime
when to expire this entry and remove it from the
'olsrv2TibAttNetworksSetTable'."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 8 }

--
-- Routing Set
olsrv2TibRoutingSetTable OBJECT-TYPE  
SYNTAX        SEQUENCE OF Olsrv2TibRoutingSetEntry  
MAX-ACCESS    not-accessible  
STATUS        obsolete  
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     "The OLSRv2 draft."  
::= { olsrv2StateGroup 12 }

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     "The OLSRv2 draft."  
INDEX          { olsrv2TibRoutingSetDestIpAddrType,  
olsrv2TibRoutingSetDestIpAddr,  
olsrv2TibRoutingSetDestIpAddrPrefLen }  
::= { olsrv2TibRoutingSetTable 1 }

Olsrv2TibRoutingSetEntry ::=  
SEQUENCE  
{ olsrv2TibRoutingSetDestIpAddrType  
  InetAddressType,  
olsrv2TibRoutingSetDestIpAddr  
  InetAddress,  
olsrv2TibRoutingSetDestIpAddrPrefLen  
  InetAddressPrefixLength,  
olsrv2TibRoutingSetNextIfIpAddrType  
  InetAddressType,  
olsrv2TibRoutingSetNextIfIpAddr  
  InetAddress,  
olsrv2TibRoutingSetLocalIfIpAddrType  
  InetAddressType,  
olsrv2TibRoutingSetLocalIfIpAddr  
  InetAddress,  
olsrv2TibRoutingSetDist  
  Unsigned32,}
olsrv2TibRoutingSetMetric
Float32
}

olsrv2TibRoutingSetDestIpAddrType OBJECT-TYPE
SYNTAX InetSocketAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The type of the olsrv2TibRoutingSetDestIpAddr
and olsrv2TibRoutingSetNextIfIpAddr,
as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 1 }

olsrv2TibRoutingSetDestIpAddr OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
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
"The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 2 }

olsrv2TibRoutingSetDestIpAddrPrefLen OBJECT-TYPE
SYNTAX InetAddressPrefixLength
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the number of leading one bits that form the
mask to be logical-ANDed with the destination address
before being compared to the value in the
olsrv2TibRoutingSetDestNetIpAddr field.

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

olsrv2TibRoutingSetNextIfIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The type of the olsrv2TibRoutingSetNextIfIpAddr and olsrv2TibRoutingSetNextIfIpAddr, as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 4 }

olsrv2TibRoutingSetNextIfIpAddr OBJECT-TYPE
SYNTAX InetAddress
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 "The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 5 }

olsrv2TibRoutingSetLocalIfIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The type of the olsrv2TibRoutingSetLocalIfIpAddr and olsrv2TibRoutingSetNextIfIpAddr, as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported."
REFERENCE "The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 6 }

olsrv2TibRoutingSetLocalIfIpAddr OBJECT-TYPE
SYNTAX InetAddress
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
"The OLSRv2 draft."
::= { 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
"The OLSRv2 draft."
::= { olsrv2TibRoutingSetEntry 8 }

olsrv2TibRoutingSetMetric OBJECT-TYPE
SYNTAX Float32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is the metric of the route
to the destination with address R_dest_addr."
REFERENCE
"The OLSRv2 draft."
::= { 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 local OLSRv2 interface."
REFERENCE
"The OLSRv2 draft."
::= { olsrv2PerformanceObjGrp 1 }

Olsrv2InterfacePerfEntry OBJECT-TYPE
SYNTAX  Olsrv2InterfacePerfEntry
MAX-ACCESS not-accessible
STATUS  current
DESCRIPTION
"A single entry contains performance counters for
a local OLSRv2 interface."
INDEX  { olsrv2IfPerfIndex }
::= { olsrv2InterfacePerfTable 1 }

Olsrv2InterfacePerfEntry ::= SEQUENCE {
olsrv2IfPerfIndex
   InterfaceIndexOrZero,
olsrv2IfTcMessageXmits
   Counter32,
olsrv2IfTcMessageRecvd
   Counter32,
olsrv2IfTcMessageXmitAccumulatedSize
   Counter64,
olsrv2IfTcMessageRecvdAccumulatedSize
   Counter64,
olsrv2IfTcMessageTriggeredXmits
   Counter32,
olsrv2IfTcMessagePeriodicXmits
   Counter32,
olsrv2IfTcMessageForwardedXmits
   Counter32,
olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount
   Counter32
}

olsrv2IfPerfIndex OBJECT-TYPE
SYNTAX  InterfaceIndexOrZero
MAX-ACCESS not-accessible
```
STATUS      current
DESCRIPTION
  "The ID of an interface. Used for cross
  indexing into other OLSRv2 tables and other
  MIB modules."
::= { olsrv2InterfacePerfEntry 1 }

olsrv2IfTcMessageXmits  OBJECT-TYPE
SYNTAX        Counter32
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
  "A counter is incremented each time a TC
  message has been transmitted on that interface."
::= { olsrv2InterfacePerfEntry 2 }

olsrv2IfTcMessageRecvd  OBJECT-TYPE
SYNTAX        Counter32
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
  "A counter is incremented each time a
  TC message has been received on that interface."
::= { olsrv2InterfacePerfEntry 3 }

olsrv2IfTcMessageXmitAccumulatedSize  OBJECT-TYPE
SYNTAX        Counter64
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 4 }

olsrv2IfTcMessageRecvdAccumulatedSize  OBJECT-TYPE
SYNTAX        Counter64
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."
::= { olsrv2InterfacePerfEntry 5 }

olsrv2IfTcMessageTriggeredXmits  OBJECT-TYPE
SYNTAX        Counter32
MAX-ACCESS    read-only
```
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STATUS       current
DESCRIPTION   "A counter is incremented each time a triggered
              TC message has been sent."
::= { olsrv2InterfacePerfEntry 6 }

olsrv2IfTcMessagePeriodicXmits  OBJECT-TYPE
SYNTAX       Counter32
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "A counter is incremented each time a periodic
              TC message has been sent."
::= { olsrv2InterfacePerfEntry 7 }

olsrv2IfTcMessageForwardedXmits  OBJECT-TYPE
SYNTAX       Counter32
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "A counter is incremented each time a
              TC message has been forwarded."
::= { olsrv2InterfacePerfEntry 8 }

olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount  OBJECT-TYPE
SYNTAX       Counter32
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 9 }

--
-- Objects concerning the Routing set
--

olsrv2RoutingSetRecalculationCount  OBJECT-TYPE
SYNTAX       Counter32
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
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This counter increments each time the MPRs of this router have been recalculated."
::= { olsrv2PerformanceObjGrp 3 }

Notifications

olsrv2NotificationsControl OBJECT IDENTIFIER ::= { olsrv2MIBNotifications 1 }

olsrv2NotificationsObjects OBJECT IDENTIFIER ::= { olsrv2MIBNotifications 2 }

olsrv2NotificationsStates OBJECT IDENTIFIER ::= { olsrv2MIBNotifications 3 }

olsrv2RoutingSetRecalculationCountThreshold OBJECT-TYPE
SYNTAX Integer32 (0..255)
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 sent."
::= { olsrv2NotificationsControl 1 }

olsrv2RoutingSetRecalculationCountWindow OBJECT-TYPE
SYNTAX  TimeTicks
MAX-ACCESS read-write
STATUS   current
DESCRIPTION
"A time window for the
olsrv2RoutingSetRecalculationCount object.
If the number of occurrences exceeds the
olsrv2RoutingSetRecalculationCountThreshold
within the previous
olsrv2RoutingSetRecalculationCountWindow,
then the
olsrv2RoutingSetRecalculationCountChange
notification is to be sent.
This object represents the time in hundredths
of a second.
"
::= { olsrv2NotificationsControl 2 }

olsrv2MPRSetRecalculationCountThreshold OBJECT-TYPE
SYNTAX       Integer32 (0..255)
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 sent.
"
::= { olsrv2NotificationsControl 3 }

olsrv2MPRSetRecalculationCountWindow OBJECT-TYPE
SYNTAX       TimeTicks
MAX-ACCESS   read-write
STATUS       current
DESCRIPTION
"A time window for the
olsrv2MPRSetRecalculationCount object.
If the number of occurrences exceeds the
olsrv2MPRSetRecalculationCountThreshold
within the previous
olsrv2MPRSetRecalculationCountWindow,
then the
olsrv2MPRSetRecalculationCountChange
notification is to be sent.

This object represents the time in hundredths of a second.

::= { olsrv2NotificationsControl 4 }

-- olsrv2NotificationsObjects

olsrv2RouterStatusChange NOTIFICATION-TYPE
OBJECTS { olsrv2OrigIpAddrType, -- The address type of
      -- the originator of
      olsrv2OrigIpAddr,     -- The originator of
      -- the notification.
      olsrv2RouterStatus    -- The new state.
    }
STATUS       current
DESCRIPTION
"olsrv2RouterStatusChange is a notification sent when a the OLSRv2 router changes it status.
The router status is maintained in the olsrv2RouterStatus object.
"
::= { olsrv2NotificationsObjects 1 }

olsrv2OrigIpAddrChange NOTIFICATION-TYPE
OBJECTS { olsrv2OrigIpAddrType, -- The address type of
      -- the originator of
      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
"olsrv2RouterStatusChange is a notification sent when a the OLSRv2 router changes it status. The router
status is maintained in the olsrv2RouterStatus
object.

::= { olsrv2NotificationsObjects 2 }

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

olsrv2OrigIpAddr, -- The originator of
-- the notification.

olsrv2RoutingSetRecalculationCount  -- The
-- new count of the
-- routing set
-- recalculations.
}

STATUS       current

DESCRIPTION
"olsrv2RoutingSetRecalculationCountChange is
a notification sent when a significant number of
routing set recalculations have occurred.
The network administrator should select
appropriate values for ‘significant number of
neighbors’ 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  -- The new
-- MPR set
-- recalculation
-- count.
}

STATUS       current

DESCRIPTION
"olsrv2MPRSetRecalculationCountChange is
a notification sent when a significant number of
MPR set recalculations have occurred.
The network administrator should select
appropriate values for ‘significant number of
neighbors’ and ‘short time’ through the settings
of the olsrv2MPRSetRecalculationCountThreshold and olsrv2MPRSetRecalculationCountWindow objects.

::= { olsrv2NotificationsObjects 4 }

-- olsrv2NotificationStates

olsrv2PreviousOrigIpAddrType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The type of the olsrv2PreviousOrigIpAddr, as defined in the InetAddress MIB module (RFC4001).

Only the values ipv4(1) and ipv6(2) are supported.
"
REFERENCE "The OLSRv2 draft."
::= { olsrv2NotificationsStates 1 }

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

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

This object is persistent and when written the entity SHOULD save the change to non-volatile storage.
"
REFERENCE "The OLSRv2 draft."
::= { 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 }

-- Configuration Group
OBJECT olsrv2OrigIpAddrType
SYNTAX InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION "An implementation is only required to support
IPv4 and IPv6 addresses."

OBJECT olsrv2OrigIpAddr
SYNTAX InetAddress (SIZE(4|16))
DESCRIPTION "An implementation is only required to support
IPv4 and IPv6 addresses."

OBJECT olsrv2LibOrigSetIpAddrType
SYNTAX InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION "An implementation is only required to support
IPv4 and IPv6 addresses."

OBJECT olsrv2LibOrigSetIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2LibLocAttNetSetIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2LibLocAttNetSetIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2NibNeighborSetNOrigIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2NibNeighborSetNOrigIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibAdRemoteRouterSetIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibAdRemoteRouterSetIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRouterTopologySetFromOrigIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRouterTopologySetFromOrigIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRouterTopologySetToOrigIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRouterTopologySetToOrigIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutableAddressTopologySetFromOrigIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutableAddressTopologySetToOrigIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutableAddressTopologySetToOrigIpAddr
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutingSetNextIfIpAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
"An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutingSetNextIfIpAddr
SYNTAX   InetAddress (SIZE(4|16))
DESCRIPTION  "An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutingSetLocalIfIpAddrType
SYNTAX   InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION  "An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2TibRoutingSetLocalIfIpAddr
SYNTAX   InetAddress (SIZE(4|16))
DESCRIPTION  "An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2PreviousOrigIpAddrType
SYNTAX   InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION  "An implementation is only required to support IPv4 and IPv6 addresses."

OBJECT  olsrv2PreviousOrigIpAddr
SYNTAX   InetAddress (SIZE(4|16))
DESCRIPTION  "An implementation is only required to support IPv4 and IPv6 addresses."

::= { olsrv2Compliances 2 }
--
-- Units of Conformance
--

olsrv2ConfigObjectsGroup OBJECT-GROUP
OBJECTS {
   olsrv2OrigIpAddrType,
   olsrv2OrigIpAddr,
   olsrv2OHoldTime,
   olsrv2TcInterval,
   olsrv2TcMinInterval,
   olsrv2THoldTime,
   olsrv2AHoldTime,
   olsrv2RxHoldTime,
   olsrv2PHoldTime,
   olsrv2FHoldTime,
}
olsrv2TpMaxJitter,
olsrv2TtMaxJitter,
olsrv2FMaxJitter,
olsrv2TcHopLimit,
olsrv2WillFlooding,
olsrv2WillRouting,
olsrv2LinkMetricType
}

STATUS  current
DESCRIPTION
"Set of OLSRv2 configuration objects implemented
in this module."
::= { olsrv2MIBGroups 1 }

olsrv2StateObjectsGroup  OBJECT-GROUP
OBJECTS {
  olsrv2RouterStatus,
  olsrv2LibOrigSetIpAddrType,
  olsrv2LibOrigSetIpAddr,
  olsrv2LibLocAttNetSetIpAddrType,
  olsrv2LibLocAttNetSetIpAddr,
  olsrv2LibLocAttNetSetIpAddrPrefixLen,
  olsrv2LibLocAttNetSetNetDistance,
  olsrv2LibLocAttNetSetMetric,
  olsrv2LibLocAttNetSetRowStatus,
  olsrv2LibLinkSetInMetric,
  olsrv2LibLinkSetOutMetric,
  olsrv2LibLinkSetMprSelector,
  olsrv2Lib2HopSetIpAddressType,
  olsrv2Lib2HopSetIpAddress,
  olsrv2Lib2HopSet1HopIfIndex,
  olsrv2Lib2HopSetInMetric,
  olsrv2Lib2HopSetOutMetric,
  olsrv2NibNeighborSetNOrigIpAddrType,
  olsrv2NibNeighborSetNOrigIpAddr,
  olsrv2NibNeighborSetNInMetric,
  olsrv2NibNeighborSetNOutMetric,
  olsrv2NibNeighborSetNWillFlooding,
  olsrv2NibNeighborSetNWillRouting,
  olsrv2NibNeighborSetNFloodingMpr,
  olsrv2NibNeighborSetNRoutingMpr,
  olsrv2NibNeighborSetNMprSelector,
  olsrv2NibNeighborSetNAadvertised,
  olsrv2NibNeighborSetTableAnsn,
  olsrv2TibAdRemoteRouterSetIpAddrType,
  olsrv2TibAdRemoteRouterSetIpAddr,
  olsrv2TibAdRemoteRouterSetMaxSeqNo,
  olsrv2TibRouterTopologySetFromOrigIpAddrType,
olsrv2TibRouterTopologySetFromOrigIpAddr,
olsrv2TibRouterTopologySetToOrigIpAddrType,
olsrv2TibRouterTopologySetToOrigIpAddr,
olsrv2TibRouterTopologySetSeqNo,
olsrv2TibRouterTopologySetMetric,
olsrv2TibRouteableAddressTopologySetExpireTime,
olsrv2TibRouteableAddressTopologySetFromOrigIpAddrType,
olsrv2TibRouteableAddressTopologySetFromOrigIpAddr,
olsrv2TibRouteableAddressTopologySetToOrigIpAddrType,
olsrv2TibRouteableAddressTopologySetToOrigIpAddr,
olsrv2TibRouteableAddressTopologySetSeqNo,
olsrv2TibRouteableAddressTopologySetMetric,
olsrv2TibAttNetworksSetOrigIpAddrType,
olsrv2TibAttNetworksSetOrigIpAddr,
olsrv2TibAttNetworksSetNetIpAddr,
olsrv2TibAttNetworksSetNetIpAddrPrefixLen,
olsrv2TibAttNetworksSetSeqNo,
olsrv2TibAttNetworksSetDist,
olsrv2TibAttNetworksSetExpireTime,
olsrv2TibRoutingSetDestIpAddrType,
olsrv2TibRoutingSetDestIpAddr,
olsrv2TibRoutingSetDestIpAddrPrefLen,
olsrv2TibRoutingSetNextIfIpAddrType,
olsrv2TibRoutingSetNextIfIpAddr,
olsrv2TibRoutingSetLocalIfIpAddrType,
olsrv2TibRoutingSetLocalIfIpAddr,
olsrv2TibRoutingSetDist,
olsrv2TibRoutingSetMetric
}

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

olsrv2PerfObjectsGroup OBJECT-GROUP
OBJECTS {
  olsrv2IfTcMessageXmits,
  olsrv2IfTcMessageRecvd,
  olsrv2IfTcMessageXmitAccumulatedSize,
  olsrv2IfTcMessageRecvdAccumulatedSize,
  olsrv2IfTcMessageTriggeredXmits,
  olsrv2IfTcMessagePeriodicXmits,
  olsrv2IfTcMessageForwardedXmits,
  olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount,
  olsrv2RoutingSetRecalculationCount,
  olsrv2MPRSetRecalculationCount
}
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:

- 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.

- 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.

- olsrv2OHoldTime, olsrv2THoldTime, olsrv2AHoldTime, olsrv2RHHoldTime, 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.

- 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.

- 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.

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:

- 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.

olsrv2TibRouterTopologySetFromOrigIpAddr is the index into the table, and has a MAX-ACCESS of 'not-accessible’. However, this information can be exposed using SNMP operations.

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.

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

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

9. IANA Considerations

This memo does not include any request to IANA.

10. References

10.1. Normative References


[RFC3418] Presuhn, R., "Management Information Base (MIB) for the


10.2. Informative References


Appendix A. Note to the RFC Editor

********************************************************************************
* Note to the RFC Editor (to be removed prior to publication) *
*   *
*   1) The reference to RFCXXXX within the DESCRIPTION clauses *
*   of the MIB module point to this draft and are to be *
*   assigned by the RFC Editor. *
*   *
*   2) The reference to RFCXXXX2 throughout this document point *
*   to the current draft-ietf-manet-olsrv2-xx.txt. This *
*   need to be replaced with the XXX RFC number. *
*   *
********************************************************************************

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