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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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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 {olsrv2LibOrigSetIpAddressType, olsrv2LibOrigSetIpAddress} - this index (pair) uniquely identifies recently used originator addresses found within the olsrv2LibOrigSetTable.
- o {olsrv2LibLocAttNetSetIpAddressType, olsrv2LibLocAttNetSetIpAddress, olsrv2LibLocAttNetSetIpAddressPrefixLen} - this index (triplet) uniquely identifies local attached networks reachable through local (non-OLSRv2) interfaces on this router. These are recorded in the olsrv2LibLocAttNetSetTable.

- o {olsrv2TibAdRemoteRouterSetIpAddrType, olsrv2TibAdRemoteRouterSetIpAddr} - this index (pair) uniquely identifies each router in the network that transmits TC messages received by this router. These records are recorded in the olsrv2TibAdRemoteRouterSetIpAddr.
- o {olsrv2TibRouterTopologySetFromOrigIpAddrType, olsrv2TibRouterTopologySetFromOrigIpAddr, olsrv2TibRouterTopologySetToOrigIpAddrType, olsrv2TibRouterTopologySetToOrigIpAddr} - this index (quadruplet) uniquely identifies discovered links within the network recorded by this router. Information associated with each link is stored in the olsrv2TibRouterTopologySetTable.
- o {olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType, olsrv2TibRoutableAddressTopologySetFromOrigIpAddr, olsrv2TibRoutableAddressTopologySetFromDestIpAddrType, olsrv2TibRoutableAddressTopologySetFromDestIpAddr} - this index (quadruplet) uniquely identifies reachable addresses within the network and the router's advertising these addresses. This information is stored in the olsrv2TibRoutableAddressTopologySetTable.
- o {olsrv2TibAttNetworksSetOrigIpAddrType, olsrv2TibAttNetworksSetOrigIpAddr, olsrv2TibAttNetworksSetNetIpAddrType, olsrv2TibAttNetworksSetNetIpAddr, olsrv2TibAttNetworksSetNetIpAddrPrefixLen} - this index (quintuplet) uniquely identifies the networks (which may be outside the MANET) and the routers through which these networks can be reached. This information is stored in the olsrv2TibAttNetworksSetTable.
- o {olsrv2TibRoutingSetDestIpAddrType, olsrv2TibRoutingSetDestIpAddr, olsrv2TibRoutingSetDestIpAddrPrefixLen} - this index (triplet) uniquely identifies the address of a reachable destination in the network. This indexes the olsrv2TibRoutingSetTable which contains the next hop information to reach the indexed addresses.

These tables and their indexing are:

- o olsrv2InterfaceTable - describes the OLSRv2 status on the NHDP interfaces of this router. This table augments nhdpInterfaceEntry and as such it is indexed by the {nhdpIfIndex} from the NHDP-MIB.
- o olsrv2IibLinkSetTable - records all links from other routers which are, or recently were, 1-hop neighbors. This table augments nhdpIibLinkSetEntry and as such it is indexed by nhdpIfIndex and

nhdpDiscIfIndex.

- o olsrv2Iib2HopSetTable - records network addresses of symmetric 2-hop neighbors and the links to the associated 1-hop neighbors. This table augments nhdpIib2HopSetEntry and as such it is indexed by {nhdpIfIndex, nhdpDiscIfIndex, nhdpIib2HopSetIpAddressType, nhdpIib2HopSetIpAddress}.
- o olsrv2LibOrigSetTable - records addresses that were recently used as originator addresses by this router. This table is indexed by {olsrv2LibOrigSetIpAddrType, olsrv2LibOrigSetIpAddr}.
- o olsrv2LibLocAttNetSetTable - records its local non-OLSRv2 interfaces via which it can act as gateways to other networks. This table is indexed by {olsrv2LibLocAttNetSetIpAddrType, olsrv2LibLocAttNetSetIpAddr, olsrv2LibLocAttNetSetIpAddrPrefixLen}.
- o olsrv2NibNeighborSetTable - records all network addresses of each 1-hop neighbor. This table augments nhdpNibNeighborSetEntry and as such it is indexed by the {nhdpDiscRouterIndex}.
- o olsrv2TibAdRemoteRouterSetTable - records information describing each remote router in the network that transmits TC messages. This table is indexed by {olsrv2TibAdRemoteRouterSetIpAddrType, olsrv2TibAdRemoteRouterSetIpAddr}.
- o olsrv2TibRouterTopologySetTable - records topology information about the network. This table is indexed by {olsrv2TibRouterTopologySetFromOrigIpAddrType, olsrv2TibRouterTopologySetFromOrigIpAddr, olsrv2TibRouterTopologySetToOrigIpAddrType, olsrv2TibRouterTopologySetToOrigIpAddr}.
- o olsrv2TibRoutableAddressTopologySetTable - records topology information about the routable addresses within the MANET, and via which routers they may be reached. This table is indexed by {olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType, olsrv2TibRoutableAddressTopologySetFromOrigIpAddr, olsrv2TibRoutableAddressTopologySetFromDestIpAddrType, olsrv2TibRoutableAddressTopologySetFromDestIpAddr}.
- o olsrv2TibAttNetworksSetTable - records information about networks (which may be outside the MANET) attached to other routers and their routable addresses. This table is indexed by {olsrv2TibAttNetworksSetOrigIpAddrType, olsrv2TibAttNetworksSetOrigIpAddr, olsrv2TibAttNetworksSetNetIpAddrType,

olsrv2TibAttNetworksSetNetIpAddr,
olsrv2TibAttNetworksSetNetIpAddrPrefixLen}.

- o olsrv2TibRoutingSetTable - records the first hop along a selected path to each destination for which any such path is known. This table is indexed by {olsrv2TibRoutingSetDestIpAddrType, olsrv2TibRoutingSetDestIpAddr, olsrv2TibRoutingSetDestIpAddrPrefixLen}.
- o olsrv2InterfacePerfTable - records performance counters for each active OLSRv2 interface on this device. This table augments nhdpInterfacePerfEntry and as such it is indexed by {nhdpIfIndex} from the NHDP-MIB.

6. Relationship to Other MIB Modules

This section specifies the relationship of the MIB modules contained in this document to other standards, particularly to standards containing other MIB modules. MIB modules and specific definitions imported from MIB modules that SHOULD be implemented in conjunction with the MIB module contained within this document are identified in this section.

6.1. Relationship to the SNMPv2-MIB

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

6.2. Relationship to the NHDP-MIB

OLSRv2 depends on the neighborhood information that is discovered by [RFC6130]. An instance of OLSRv2 MUST have an associated instance of NHDP running on the same device for proper operations of the discovery and routing system. In order for the OLSRv2-MIB module to correctly populate the objects relating to discovered neighbors, the State Group tables of the NHDP-MIB [RFC6779] module are aligned with the State Group tables of this MIB module. This is accomplished through the use of the AUGMENTS capability of SMIV2 (where appropriate). This will allow for cross referencing of information between the two MIB modules within a given SNMP context.

6.3. MIB modules required for IMPORTS

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

[RFC2580], IF-MIB [RFC2863] and INET-ADDRESS-MIB [RFC4001].

7. Definitions

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

```
OLSRv2-MIB DEFINITIONS ::= BEGIN

IMPORTS

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

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

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

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

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

--     IANAolsrv2LinkMetricType
--     FROM IANAolsrv2LinkMetricType-MIB
;

manetOlsrv2MIB MODULE-IDENTITY
    LAST-UPDATED "201306091800Z" --09 June 2013
    ORGANIZATION "IETF MANET Working Group"
    CONTACT-INFO
        "WG E-Mail: manet@ietf.org

        WG Chairs: sratliff@cisco.com
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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 "201306091800Z" -- 09 June 2013

DESCRIPTION

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

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

```
--
```

```
-- TEXTUAL CONVENTIONS
```

```
--
```

```
IANAolsrv2LinkMetricType ::= TEXTUAL-CONVENTION
```

```
  STATUS      current
```

```
  DESCRIPTION
```

```
    "This data type is used as the syntax of the
     olsrv2LinkMetricType object in the definition
     of the OLSRv2-MIB module.
```

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

```
    OLSRv2 has established a registry for the LINK_METRIC_TYPES
     (denoted 'LINK_METRIC Address Block TLV Type Extensions'):
```

```
      http://www.iana.org/assignments/manet-parameters/
      manet-parameters.xml#
      link-metric-address-block-tlv-type-extension
```

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

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

```
    Requests for new values should be made to IANA via
     email (iana@iana.org)."
```

```
SYNTAX  INTEGER {
          unknown(0)      -- Link metric meaning assigned
                          -- by administrative action.
```

```

-- 1-223 Unassigned, allocation
-- by Expert Review.
-- 224-255 Unassigned, reserved
--for Experimental Use.
}

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

    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  $\wedge$  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       "milliseconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "olsrv2TcInterval corresponds to
        TC_INTERVAL of OLSRv2 and represents the
        maximum time between the transmission of
        two successive TC messages by this router.

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

- o olsrv2TcInterval > 0
- o olsrv2TcInterval >= olsrv2TcMinInterval

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

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

REFERENCE

"Section 5 on Representing Time.
RFC 5497 - Representing Multi-Value Time in Mobile Ad Hoc Networks (MANETs),
Clausen, T. and C. Dearlove, March 2009.

and

Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

DEFVAL { 5000 }

::= { olsrv2ConfigurationGroup 6 }

olsrv2TcMinInterval OBJECT-TYPE

SYNTAX Unsigned32
UNITS "milliseconds"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"olsrv2TcMinInterval corresponds to TC_MIN_INTERVAL of OLSRv2 and represents the minimum interval between transmission of two successive TC messages by this router.

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

- o olsrv2TcInterval >= olsrv2TcMinInterval

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

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

REFERENCE

"Section 5 on Representing Time.
RFC 5497 - Representing Multi-Value Time in
Mobile Ad Hoc Networks (MANETs),
Clausen, T. and C. Dearlove, March 2009.

and

Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol
version 2, Clausen, T., Dearlove, C., Jacquet, P.
and U. Herberg, March 2013."

DEFVAL { 1250 }

::= { olsrv2ConfigurationGroup 7 }

--
-- Advertised information validity times
--

olsrv2THoldTime OBJECT-TYPE

SYNTAX 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.

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

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

REFERENCE

"Section 5 on Representing Time.
RFC 5497 - Representing Multi-Value Time in
Mobile Ad Hoc Networks (MANETs),
Clausen, T. and C. Dearlove, March 2009.

and

Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol
version 2, Clausen, T., Dearlove, C., Jacquet, P.
and U. Herberg, March 2013."

```
DEFVAL { 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 $\geq 3 \times$ olsrv2TcInterval is RECOMMENDED.

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

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

REFERENCE

"Section 5 on Representing Time.
RFC 5497 - Representing Multi-Value Time in Mobile Ad Hoc Networks (MANETs),
Clausen, T. and C. Dearlove, March 2009.

and

Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

```
DEFVAL { 15000 }
 ::= { olsrv2ConfigurationGroup 9 }
```

```
--
-- Received message validity times
--
```

```
olsrv2RxHoldTime OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "milliseconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
```

"olsrv2RxHoldTime corresponds to RX_HOLD_TIME of OLSRv2 and represents the period after receipt of a message by the appropriate OLSRv2 interface of this router for which that information is recorded, in order that the message is recognized as having been previously received on this OLSRv2 interface.

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

- o olsrv2RxHoldTime > 0
- o This parameter SHOULD be greater than the maximum difference in time that a message may take to traverse the MANET, taking into account any message forwarding jitter as well as propagation, queuing, and processing delays.

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

REFERENCE

"Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

DEFVAL { 30000 }

::= { olsrv2ConfigurationGroup 10 }

olsrv2PHoldTime OBJECT-TYPE
SYNTAX Unsigned32
UNITS "milliseconds"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"olsrv2PHoldTime corresponds to P_HOLD_TIME of OLSRv2 and represents the period after receipt of a message that is processed by this router for which that information is recorded, in order that the message is not processed again if received again.

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

- o olsrv2PHoldTime > 0
- o This parameter SHOULD be greater

than the maximum difference in time that a message may take to traverse the MANET, taking into account any message forwarding jitter as well as propagation, queuing, and processing delays.

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

REFERENCE

"Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

DEFVAL { 30000 }

::= { olsrv2ConfigurationGroup 11 }

olsrv2FHoldTime OBJECT-TYPE

SYNTAX Unsigned32
UNITS "milliseconds"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"olsrv2FHoldTime corresponds to F_HOLD_TIME of OLSRv2 and represents the period after receipt of a message that is forwarded by this router for which that information is recorded, in order that the message is not forwarded again if received again.

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

- o olsrv2FHoldTime > 0
- o This parameter SHOULD be greater than the maximum difference in time that a message may take to traverse the MANET, taking into account any message forwarding jitter as well as propagation, queuing, and processing delays.

This parameter SHOULD be greater than the maximum difference in time that a message may take to traverse the MANET, taking into account any message forwarding jitter as well as propagation, queuing, and processing delays.

This object is persistent and when written


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

--
-- Jitter times
--

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

        For constraints on these parameters see RFC 5148.

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

olsrv2TtMaxJitter OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "milliseconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "olsrv2TtMaxJitter corresponds to
        TT_MAXJITTER of OLSRv2 and represents the value
        of MAXJITTER used in RFC5148 for externally
```

triggered TC messages sent by this router.

For constraints on these parameters see RFC 5148.

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

REFERENCE

"Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

DEFVAL { 500 }

::= { olsrv2ConfigurationGroup 14 }

olsrv2FMaxJitter OBJECT-TYPE

SYNTAX Unsigned32
UNITS "milliseconds"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"olsrv2FMaxJitter corresponds to F_MAXJITTER of OLSRv2 and represents the default value of MAXJITTER used in RFC 5148 for messages forwarded by this router.

For constraints on these parameters see RFC 5148.

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

REFERENCE

"Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol version 2, Clausen, T., Dearlove, C., Jacquet, P. and U. Herberg, March 2013."

DEFVAL { 500 }

::= { olsrv2ConfigurationGroup 15 }

--
-- Hop limits
--

olsrv2TcHopLimit OBJECT-TYPE

SYNTAX Unsigned32 (0..255)
UNITS "hops"

```
MAX-ACCESS read-write
STATUS current
DESCRIPTION
    "olsrv2TcHopLimit corresponds to
    TC_HOP_LIMIT of OLSRv2.

    Guidance for setting this object may be found
    in Section 5 of the OLSRv2 specification (RFC XXXX),
    which indicates that:
        o The maximum value of
          olsrv2TcHopLimit >= the network diameter
          in hops, a value of 255 is RECOMMENDED.
        o All values of olsrv2TcHopLimit >= 2.

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

--
-- Willingness
--

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

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

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

```
"Section 5 on Protocol Parameters.
RFC XXXX - The Optimized Link State Routing Protocol
version 2, Clausen, T., Dearlove, C., Jacquet, P.
and U. Herberg, March 2013."
DEFVAL { 7 }
 ::= { olsrv2ConfigurationGroup 17 }
```

```
olsrv2WillFlooding      OBJECT-TYPE
SYNTAX      WillingnessTC
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
"olsrv2WillFlooding corresponds to
WILL_FLOODING of OLSRv2.

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

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

```
olsrv2LinkMetricType   OBJECT-TYPE
SYNTAX      IANAolsrv2LinkMetricType
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
"olsrv2LinkMetricType corresponds to
LINK_METRIC_TYPE of OLSRv2.

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

```

    in RFC XXXX.

    This object is persistent and when written
    the entity SHOULD save the change to
    non-volatile storage."
REFERENCE
    "Section 5 on Protocol Parameters.
    RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
DEFVAL { unknown }
 ::= { 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 (olsrv2IibLinkSetInMetric),
         L_out_metric (olsrv2IibLinkSetOutMetric),
         L_mpr_selector (olsrv2IibLinkSetMprSelector))"
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    AUGMENTS { nhdpIibLinkSetEntry }
 ::= { olsrv2IibLinkSetTable 1 }

Olsrv2IibLinkSetEntry ::=
    SEQUENCE {
        olsrv2IibLinkSetInMetric
            Olsrv2MetricValueCompressedFormTC,
        olsrv2IibLinkSetOutMetric
            Olsrv2MetricValueCompressedFormTC,
        olsrv2IibLinkSetMprSelector
            TruthValue
    }

olsrv2IibLinkSetInMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    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.
        The L_neighbor_iface_addr_list is identified by
        the nhdpDiscIfIndex which is an index to the
        nhdpIibLinkSetTable which this table augments."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2IibLinkSetEntry 1 }

```

```
olsrv2IibLinkSetOutMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    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.
        The L_neighbor_iface_addr_list is identified by
        the nhdpDiscIfIndex which is an index to the
        nhdpIibLinkSetTable which this table augments."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2IibLinkSetEntry 2 }

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

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

olsrv2Iib2HopSetTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Olsrv2Iib2HopSetEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A 2-Hop Set of an interface records network
        addresses of symmetric 2-hop neighbors, and
        the symmetric links to symmetric 1-hop neighbors
        through which these symmetric 2-hop neighbors
        can be reached. It consists of 2-Hop Tuples."
    REFERENCE
```

```
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2StateGroup 2 }

olsrv2Iib2HopSetEntry OBJECT-TYPE
    SYNTAX      Olsrv2Iib2HopSetEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "olsrv2Iib2HopSetTable consists of 2-Hop Tuples,
        each representing a single network address of
        a symmetric 2-hop neighbor, and a single MANET
        interface of a symmetric 1-hop neighbor.
        Each 2-Hop Set from NHDP is extended by
        OLSRv2 by the following fields:

        (N2_in_metric (olsrv2Iib2HopSetInMetric),
         N2_out_metric (olsrv2Iib2HopSetOutMetric))"
    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
            Olsrv2MetricValueCompressedFormTC,
        olsrv2Iib2HopSetOutMetric
            Olsrv2MetricValueCompressedFormTC
    }

olsrv2Iib2HopSetInMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    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.

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


The N2_neighbor_iface_addr_list is defined by the nhdpDiscIfIndex which is an index of the nhdpIibLinkSetTable which this table augments."

REFERENCE

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

and

RFC 6779 - Definition of Managed Objects for the Neighborhood Discovery Process, Herberg, U., Cole, R. and I. Chakeres, October 2012."

```
::= { olsrv2Iib2HopSetEntry 1 }
```

olsrv2Iib2HopSetOutMetric OBJECT-TYPE

SYNTAX Olsrv2MetricValueCompressedFormTC

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.

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

The N2_neighbor_iface_addr_list is defined by the nhdpDiscIfIndex which is an index of the nhdpIibLinkSetTable which this table augments."

REFERENCE

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

and

RFC 6779 - Definition of Managed Objects for the Neighborhood Discovery Process, Herberg, U., Cole, R. and I. Chakeres, October 2012."

```
::= { olsrv2Iib2HopSetEntry 2 }
```

--

-- Local Information Base - as defined in RFC 6130,

```
-- extended by the addition of an Originator Set,  
-- defined in Section 6.1 and a Local Attached  
-- Network Set, defined in Section 6.2.  
--  
--  
-- Originator Set  
--  
olsrv2LibOrigSetTable OBJECT-TYPE  
    SYNTAX      SEQUENCE OF Olsrv2LibOrigSetEntry  
    MAX-ACCESS  not-accessible  
    STATUS      current  
    DESCRIPTION  
        "A router's Originator Set records addresses  
        that were recently used as originator addresses  
        by this router."  
    REFERENCE  
        "RFC XXXX - The Optimized Link State Routing Protocol  
        version 2, Clausen, T., Dearlove, C., Jacquet, P.  
        and U. Herberg, March 2013."  
 ::= { olsrv2StateGroup 3 }  
  
olsrv2LibOrigSetEntry OBJECT-TYPE  
    SYNTAX      Olsrv2LibOrigSetEntry  
    MAX-ACCESS  not-accessible  
    STATUS      current  
    DESCRIPTION  
        "A router's Originator Set consists of  
        Originator Tuples:  
  
        (O_orig_addr (olsrv2LibOrigSetIpAddressType  
        and olsrv2LibOrigSetIpAddress),  
        O_time (olsrv2LibOrigSetExpireTime))."  
    REFERENCE  
        "RFC XXXX - The Optimized Link State Routing Protocol  
        version 2, Clausen, T., Dearlove, C., Jacquet, P.  
        and U. Herberg, March 2013."  
    INDEX { olsrv2LibOrigSetIpAddressType,  
            olsrv2LibOrigSetIpAddress }  
 ::= { olsrv2LibOrigSetTable 1 }  
  
Olsrv2LibOrigSetEntry ::=  
    SEQUENCE {  
        olsrv2LibOrigSetIpAddressType  
        InetAddressType,  
        olsrv2LibOrigSetIpAddress  
        InetAddress,
```

```

        olsrv2LibOrigSetExpireTime
            TimeStamp
    }

olsrv2LibOrigSetIpAddressType OBJECT-TYPE
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The type of the olsrv2LibOrigSetIpAddress,
         as defined in the InetAddress MIB (RFC4001).

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

olsrv2LibOrigSetIpAddress OBJECT-TYPE
    SYNTAX      InetAddress (SIZE(4|16))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An originator address recently employed
         by this router."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
    ::= { olsrv2LibOrigSetEntry 2 }

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

             O_time := current time + O_HOLD_TIME

         where O_time is olsrv2LibOrigSetExpireTime,"

```

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

--
-- Local Attached Network Set
--

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

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

    (AL_net_addr, AL_dist, AL_metric)

    where:

    AL_net_addr is the network address
    of an attached network which can
    be reached via this router.  The
    AL_net_addr is defined in this MIB
    module by the tuple
```

```
(olsrv2LibLocAttNetSetIpAddressType,
 olsrv2LibLocAttNetSetIpAddress,
 olsrv2LibLocAttNetSetIpAddressPrefixLen).
```

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

AL_metric is the metric of the link to the attached network with address AL_net_addr from this router. The AL_metric is defined in this MIB module by the olsrv2LibLocAttNetSetMetric object.

OLSRv2 (RFC XXXX) defines the rules for managing entries within this table, e.g., populating and purging entries. Specific instructions for the olsrv2LibLocAttNetSetEntry(s) are found in Section 7.2 and Section 17 of OLSRv2 (RFC XXXX)."

REFERENCE

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

```
INDEX { olsrv2LibLocAttNetSetIpAddressType,
         olsrv2LibLocAttNetSetIpAddress,
         olsrv2LibLocAttNetSetIpAddressPrefixLen }
 ::= { olsrv2LibLocAttNetSetTable 1 }
```

```
Olsrv2LibLocAttNetSetEntry ::=
 SEQUENCE {
   olsrv2LibLocAttNetSetIpAddressType
     InetAddressType,
   olsrv2LibLocAttNetSetIpAddress
     InetAddress,
   olsrv2LibLocAttNetSetIpAddressPrefixLen
     InetAddressPrefixLength,
   olsrv2LibLocAttNetSetDistance
     Unsigned32,
   olsrv2LibLocAttNetSetMetric
     Olsrv2MetricValueCompressedFormTC
 }

```

```
olsrv2LibLocAttNetSetIpAddressType OBJECT-TYPE
 SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
 MAX-ACCESS  not-accessible
```

```
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 1 }

olsrv2LibLocAttNetSetIpAddress OBJECT-TYPE
SYNTAX      InetAddress (SIZE(4|16))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
  "This is the network address of an attached
  network which can be reached via this router."
REFERENCE
  "RFC XXXX - The Optimized Link State Routing Protocol
  version 2, Clausen, T., Dearlove, C., Jacquet, P.
  and U. Herberg, March 2013."
 ::= { olsrv2LibLocAttNetSetEntry 2 }

olsrv2LibLocAttNetSetIpAddressPrefixLen 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
  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 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
    olsrv2LibLocAttNetSetIpAddress from this router."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2LibLocAttNetSetEntry 4 }

olsrv2LibLocAttNetSetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object specifies the metric of the
        link to the attached network with
        address AL_net_addr from this router.  The
        AL_net_addr is defined by the tuple
        (olsrv2LibLocAttNetSetIpAddressType,
         olsrv2LibLocAttNetSetIpAddress,
         olsrv2LibLocAttNetSetIpAddressPrefixLen)."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2LibLocAttNetSetEntry 5 }

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

olsrv2NibNeighborSetTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Olsrv2NibNeighborSetEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A router's Neighbor Set records all network
        addresses of each 1-hop neighbor. It consists
        of Neighbor Tuples, each representing a single
        1-hop neighbor. "
REFERENCE
```

```

    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2StateGroup 5 }

olsrv2NibNeighborSetEntry OBJECT-TYPE
    SYNTAX      Olsrv2NibNeighborSetEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each Neighbor Tuple in the Neighbor Set, defined
        in RFC 6130, has these additional elements:
            N_orig_addr (olsrv2NibNeighborSetNOrigIpAddrType,
                        olsrv2NibNeighborSetNOrigIpAddr)
            N_in_metric (olsrv2NibNeighborSetNInMetric)
            N_out_metric (olsrv2NibNeighborSetNOutMetric)
            N_will_flooding (olsrv2NibNeighborSetNWillFlooding)
            N_will_routing (olsrv2NibNeighborSetNWillRouting)
            N_flooding_mpr (olsrv2NibNeighborSetNFloodingMpr)
            N_routing_mpr (olsrv2NibNeighborSetNRoutingMpr)
            N_mpr_selector (olsrv2NibNeighborSetNMprSelector)
            N_advertised (olsrv2NibNeighborSetNAdvertised)
        defined here as extensions."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    AUGMENTS { nhdpNibNeighborSetEntry }
 ::= { olsrv2NibNeighborSetTable 1 }

Olsrv2NibNeighborSetEntry ::=
    SEQUENCE {
        olsrv2NibNeighborSetNOrigIpAddrType
            InetAddressType,
        olsrv2NibNeighborSetNOrigIpAddr
            InetAddress,
        olsrv2NibNeighborSetNInMetric
            Olsrv2MetricValueCompressedFormTC,
        olsrv2NibNeighborSetNOutMetric
            Olsrv2MetricValueCompressedFormTC,
        olsrv2NibNeighborSetNWillFlooding
            WillingnessTC,
        olsrv2NibNeighborSetNWillRouting
            WillingnessTC,
        olsrv2NibNeighborSetNFloodingMpr
            TruthValue,
        olsrv2NibNeighborSetNRoutingMpr
            TruthValue,
```



```

        olsrv2NibNeighborSetNMprSelector
            TruthValue,
        olsrv2NibNeighborSetNAdvertised
            TruthValue
    }

olsrv2NibNeighborSetNOrigIpAddress OBJECT-TYPE
    SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The type of the olsrv2NibNeighborSetNOrigIpAddress, 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 }

olsrv2NibNeighborSetNOrigIpAddress 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      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is the neighbor metric of any
         link from this neighbor to an OLSRv2 interface
         of this router, i.e., the minimum of all corresponding
         L_in_metric (olsrv2IibLinkSetInMetric)
         with L_status = SYMMETRIC and
         L_in_metric (olsrv2IibLinkSetInMetric) != 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 Olsrv2MetricValueCompressedFormTC
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
(olsrv2IibLinkSetOutMetric) with L_status =
SYMMETRIC and L_out_metric
(olsrv2IibLinkSetOutMetric) != UNKNOWN_METRIC,
UNKNOWN_METRIC if there are no such Link Tuples.
UNKNOWN_METRIC has a value of 0."

REFERENCE

"RFC XXXX - The Optimized Link State Routing Protocol
version 2, Clausen, T., Dearlove, C., Jacquet, P.
and U. Herberg, March 2013."
 ::= { olsrv2NibNeighborSetEntry 4 }

olsrv2NibNeighborSetNWillFlooding OBJECT-TYPE
SYNTAX WillingnessTC
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object is the neighbor's willingness to be
selected as a flooding MPR, in the range from
WILL_NEVER to WILL_ALWAYS, both inclusive, taking
the value WILL_NEVER if no OLSRv2 specific
information is received from this neighbor."

REFERENCE

"RFC XXXX - The Optimized Link State Routing Protocol
version 2, Clausen, T., Dearlove, C., Jacquet, P.
and U. Herberg, March 2013."
 ::= { olsrv2NibNeighborSetEntry 5 }

olsrv2NibNeighborSetNWillRouting OBJECT-TYPE
SYNTAX WillingnessTC
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object is the neighbor's willingness to be

selected as a routing MPR, in the range from
WILL_NEVER to WILL_ALWAYS, both inclusive, taking
the value WILL_NEVER if no OLSRv2 specific
information is received from this neighbor."

REFERENCE

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

::= { olsrv2NibNeighborSetEntry 6 }

olsrv2NibNeighborSetNfloodingMpr OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is a boolean flag, recording whether
this neighbor is selected as a flooding MPR
by this router."

REFERENCE

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

::= { olsrv2NibNeighborSetEntry 7 }

olsrv2NibNeighborSetNRoutingMpr OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is a boolean flag, recording whether
this neighbor is selected as a routing MPR
by this router."

REFERENCE

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

::= { olsrv2NibNeighborSetEntry 8 }

olsrv2NibNeighborSetNMprSelector OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is a boolean flag,
recording whether this neighbor has selected this router
as a routing MPR, i.e., is a routing MPR
selector of this router."

```

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

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

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

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

```
--
-- Advertising Remote Router Set
--

olsrv2TibAdRemoteRouterSetTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Olsrv2TibAdRemoteRouterSetEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A router's Advertising Remote Router Set records
        information describing each remote router in the
        network that transmits TC messages."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2StateGroup 7 }

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

        (AR_orig_addr (olsrv2TibAdRemoteRouterSetIpAddressType,
                      olsrv2TibAdRemoteRouterSetIpAddress),
         AR_seq_number (olsrv2TibAdRemoteRouterSetMaxSeqNo),
         AR_time (olsrv2TibAdRemoteRouterSetExpireTime).

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

        OLSRv2 (RFC XXXX) defines the rules for managing
        entries within this table, e.g., populating
        and purging entries. Specific instructions for the
        olsrv2TibAdRemoteRouterSetEntry(s) are found in
        Section 10.1 and Section 17 of OLSRv2 (RFC XXXX)."
```

REFERENCE

```
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    INDEX { olsrv2TibAdRemoteRouterSetIpAddressType,
            olsrv2TibAdRemoteRouterSetIpAddress }
 ::= { olsrv2TibAdRemoteRouterSetTable 1 }

Olsrv2TibAdRemoteRouterSetEntry ::=
```

```
SEQUENCE {
    olsrv2TibAdRemoteRouterSetIpAddrType
        InetAddressType,
    olsrv2TibAdRemoteRouterSetIpAddr
        InetAddress,
    olsrv2TibAdRemoteRouterSetMaxSeqNo
        Unsigned32,
    olsrv2TibAdRemoteRouterSetExpireTime
        TimeStamp
}

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

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

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

olsrv2TibAdRemoteRouterSetMaxSeqNo OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65535)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the greatest 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 3 }

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

--
-- Router Topology Set
--

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

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

```

(TR_from_orig_addr
  (olsrv2TibRouterTopologySetFromOrigIpAddrType,
   olsrv2TibRouterTopologySetFromOrigIpAddr),
TR_to_orig_addr
  (olsrv2TibRouterTopologySetToOrigIpAddrType,
   olsrv2TibRouterTopologySetToOrigIpAddr),
TR_seq_number (olsrv2TibRouterTopologySetSeqNo),
TR_metric (olsrv2TibRouterTopologySetMetric),
TR_time (olsrv2TibRouterTopologySetExpireTime)).

```

OLSRv2 (RFC XXXX) defines the rules for managing entries within this table, e.g., populating and purging entries. Specific instructions for the olsrv2TibRouterTopologySetEntry(s) are found in Section 10.2 and Section 17 of OLSRv2 (RFC XXXX)."

REFERENCE

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

```

INDEX { olsrv2TibRouterTopologySetFromOrigIpAddrType,
        olsrv2TibRouterTopologySetFromOrigIpAddr,
        olsrv2TibRouterTopologySetToOrigIpAddrType,
        olsrv2TibRouterTopologySetToOrigIpAddr }
 ::= { olsrv2TibRouterTopologySetTable 1 }

```

Olsrv2TibTopologySetEntry ::=

```

SEQUENCE {
  olsrv2TibRouterTopologySetFromOrigIpAddrType
    InetAddressType,
  olsrv2TibRouterTopologySetFromOrigIpAddr
    InetAddress,
  olsrv2TibRouterTopologySetToOrigIpAddrType
    InetAddressType,
  olsrv2TibRouterTopologySetToOrigIpAddr
    InetAddress,
  olsrv2TibRouterTopologySetSeqNo
    Unsigned32,
  olsrv2TibRouterTopologySetMetric
    Olsrv2MetricValueCompressedFormTC,
  olsrv2TibRouterTopologySetExpireTime
    TimeStamp
}

```

olsrv2TibRouterTopologySetFromOrigIpAddrType OBJECT-TYPE

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

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The type of the olsrv2TibRouterTopologySetFromOrigIpAddr, as defined in the InetAddress MIB module (RFC4001).

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

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 1 }

olsrv2TibRouterTopologySetFromOrigIpAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This is the originator address of a router which can reach the router with originator address TR_to_orig_addr in one hop."

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 2 }

olsrv2TibRouterTopologySetToOrigIpAddrType OBJECT-TYPE

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

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

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

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

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 3 }

olsrv2TibRouterTopologySetToOrigIpAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This is the originator address of a router which can be reached by the router with originator address

TR_to_orig_addr in one hop."

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 4 }

olsrv2TibRouterTopologySetSeqNo OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the greatest Assigned Neighbor Sequence Number (ANSN) in any TC message received which originated from the router with originator address TR_from_orig_addr, i.e., which contributed to the information contained in this Tuple and is defined by the objects:

(olsrv2TibRouterTopologySetFromOrigIpAddressType, olsrv2TibRouterTopologySetFromOrigIpAddress).

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 5 }

olsrv2TibRouterTopologySetMetric OBJECT-TYPE

SYNTAX Olsrv2MetricValueCompressedFormTC

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the neighbor metric from the router
with originator address TR_from_orig_addr
(olsrv2TibRouterTopologySetFromOrigIpAddrType,
olsrv2TibRouterTopologySetFromOrigIpAddr) to
the router with originator address TR_to_orig_addr
(olsrv2TibRouterTopologySetToOrigIpAddrType,
olsrv2TibRouterTopologySetToOrigIpAddr)."

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 6 }

olsrv2TibRouterTopologySetExpireTime OBJECT-TYPE

SYNTAX TimeStamp

UNITS "centiseconds"

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"olsrv2TibRouterTopologySetExpireTime specifies the value
of sysUptime when this entry SHOULD expire and be
removed from the olsrv2TibRouterTopologySetTable."

REFERENCE

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

::= { olsrv2TibRouterTopologySetEntry 7 }

--
-- Routable Address Topology Set
--

```

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

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

        (TA_from_orig_addr
         (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
          olsrv2TibRoutableAddressTopologySetFromOrigIpAddr),
         TA_dest_addr
         (olsrv2TibRoutableAddressTopologySetFromDestIpAddrType
          olsrv2TibRoutableAddressTopologySetFromDestIpAddr),
         TA_seq_number (olsrv2TibRoutableAddressTopologySetSeqNo)
         TA_metric (olsrv2TibRoutableAddressTopologySetMetric)
         TA_time (olsrv2TibRoutableAddressTopologySetExpireTime)
        )

        OLSRv2 (RFC XXXX) defines the rules for managing
        entries within this table, e.g., populating
        and purging entries.  Specific instructions for the
        olsrv2TibRoutableAddressTopologySetEntry(s) are found
        in Section 10.3 and Section 17 of OLSRv2 (RFC XXXX)."
```

REFERENCE

```

        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
INDEX { olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType,
        olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
        olsrv2TibRoutableAddressTopologySetDestIpAddrType,
        olsrv2TibRoutableAddressTopologySetDestIpAddr }
 ::= { olsrv2TibRoutableAddressTopologySetTable 1 }

Olsrv2TibRoutableAddressTopologySetEntry ::=
```

```

SEQUENCE {
    olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
        InetAddressType,
    olsrv2TibRoutableAddressTopologySetFromOrigIpAddr
        InetAddress,
    olsrv2TibRoutableAddressTopologySetDestIpAddrType
        InetAddressType,
    olsrv2TibRoutableAddressTopologySetDestIpAddr
        InetAddress,
    olsrv2TibRoutableAddressTopologySetSeqNo
        Unsigned32,
    olsrv2TibRoutableAddressTopologySetMetric
        Olsrv2MetricValueCompressedFormTC,
    olsrv2TibRoutableAddressTopologySetExpireTime
        TimeStamp
}

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

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

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

```

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

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

olsrv2TibRoutableAddressTopologySetDestIpAddr OBJECT-TYPE
SYNTAX      InetAddress (SIZE(4|16))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This is a routable address of a router which can be
    reached by the router with originator address
    TA_from_orig_addr in one hop. The TA_from_orig_addr
    is defined by the tuple
    (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
     olsrv2TibRoutableAddressTopologySetFromOrigIpAddr)."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
    version 2, Clausen, T., Dearlove, C., Jacquet, P.
    and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 4 }

olsrv2TibRoutableAddressTopologySetSeqNo OBJECT-TYPE
SYNTAX      Unsigned32 (0..65535)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the greatest ANSN in any TC message
    received which originated from the router
    with originator address TA_from_orig_addr,
    i.e., which contributed to the information
    contained in this Tuple. The TA_from_orig_addr
    is defined by the tuple
    (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
     olsrv2TibRoutableAddressTopologySetFromOrigIpAddr)."
REFERENCE
    "RFC XXXX - The Optimized Link State Routing Protocol
```

```
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 5 }

olsrv2TibRoutableAddressTopologySetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the neighbor metric from the router
        with originator address TA_from_orig_addr (defined
        by the tuple
        (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
         olsrv2TibRoutableAddressTopologySetFromOrigIpAddr))
        to the router with OLSRv2 interface address TA_dest_addr
        (defined by the tuple
        (olsrv2TibRoutableAddressTopologySetFromDestIpAddrType
         olsrv2TibRoutableAddressTopologySetFromDestIpAddr))."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibRoutableAddressTopologySetEntry 6 }

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

--
-- Attached Network Set
--

olsrv2TibAttNetworksSetTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Olsrv2TibAttNetworksSetEntry
    MAX-ACCESS  not-accessible
```

```

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

```

```

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

  (AN_orig_addr
   (olsrv2TibAttNetworksSetOrigIpAddressType,
    olsrv2TibAttNetworksSetOrigIpAddress),
   AN_net_addr
   (olsrv2TibAttNetworksSetNetIpAddressType,
    olsrv2TibAttNetworksSetNetIpAddress,
    olsrv2TibAttNetworksSetNetIpAddressPrefixLen),
   AN_seq_number (olsrv2TibAttNetworksSetSeqNo),
   AN_dist (olsrv2TibAttNetworksSetDist),
   AN_metric (olsrv2TibAttNetworksSetMetric),
   AN_time (olsrv2TibAttNetworksSetExpireTime)
  )

  OLSRv2 (RFC XXXX) defines the rules for managing
  entries within this table, e.g., populating
  and purging entries.  Specific instructions for the
  olsrv2TibRoutableAddressTopologySetEntry(s) are found
  in Section 10.4 and Section 17 of OLSRv2 (RFC XXXX)."
```

```

REFERENCE
  "RFC XXXX - The Optimized Link State Routing Protocol
  version 2, Clausen, T., Dearlove, C., Jacquet, P.
  and U. Herberg, March 2013."
INDEX { olsrv2TibAttNetworksSetOrigIpAddressType,
        olsrv2TibAttNetworksSetOrigIpAddress,
        olsrv2TibAttNetworksSetNetIpAddressType,
        olsrv2TibAttNetworksSetNetIpAddress,
        olsrv2TibAttNetworksSetNetIpAddressPrefixLen }
 ::= { olsrv2TibAttNetworksSetTable 1 }

```

```

Olsrv2TibAttNetworksSetEntry ::=

```



```

SEQUENCE {
    olsrv2TibAttNetworksSetOrigIpAddrType
        InetAddressType,
    olsrv2TibAttNetworksSetOrigIpAddr
        InetAddress,
    olsrv2TibAttNetworksSetNetIpAddrType
        InetAddressType,
    olsrv2TibAttNetworksSetNetIpAddr
        InetAddress,
    olsrv2TibAttNetworksSetNetIpAddrPrefixLen
        InetAddressPrefixLength,
    olsrv2TibAttNetworksSetSeqNo
        Unsigned32,
    olsrv2TibAttNetworksSetDist
        Unsigned32,
    olsrv2TibAttNetworksSetMetric
        Olsrv2MetricValueCompressedFormTC,
    olsrv2TibAttNetworksSetExpireTime
        TimeStamp
}

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

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

olsrv2TibAttNetworksSetOrigIpAddr OBJECT-TYPE
    SYNTAX      InetAddress (SIZE(4|16))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the originator address, of type
        olsrv2TibAttNetworksSetOrigIpAddrType, of a
        router which can act as gateway to the
        network with address AN_net_addr. The
        AN_net_addr is defined by the tuple

```

```
(olsrv2TibAttNetworksSetNetIpAddressType,
 olsrv2TibAttNetworksSetNetIpAddress,
 olsrv2TibAttNetworksSetNetIpAddressPrefixLen)."
```

REFERENCE

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

```
::= { olsrv2TibAttNetworksSetEntry 2 }
```

olsrv2TibAttNetworksSetNetIpAddressType OBJECT-TYPE

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

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The type of the olsrv2TibAttNetworksSetNetIpAddress,
as defined in the InetAddress MIB module (RFC 4001).

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

REFERENCE

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

```
::= { olsrv2TibAttNetworksSetEntry 3 }
```

olsrv2TibAttNetworksSetNetIpAddress OBJECT-TYPE

SYNTAX InetAddress (SIZE(4|16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This is is the network address,of type
olsrv2TibAttNetworksSetNetIpAddressType, of an
attached network, which may be reached via
the router with originator address AN_orig_addr.
The AN_orig_addr is defined by the tuple
(olsrv2TibAttNetworksSetOrigIpAddressType,
olsrv2TibAttNetworksSetOrigIpAddress)."

REFERENCE

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

```
::= { olsrv2TibAttNetworksSetEntry 4 }
```

olsrv2TibAttNetworksSetNetIpAddressPrefixLen 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 olsrv2TibAttNetworksSetNetIpAddress field."

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

::= { olsrv2TibAttNetworksSetEntry 5 }

olsrv2TibAttNetworksSetSeqNo OBJECT-TYPE
SYNTAX Unsigned32 (0..65535)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"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). The AN_orig_addr is defined by the tuple (olsrv2TibAttNetworksSetOrigIpAddressType, olsrv2TibAttNetworksSetOrigIpAddress)."

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

::= { olsrv2TibAttNetworksSetEntry 6 }

olsrv2TibAttNetworksSetDist OBJECT-TYPE
SYNTAX Unsigned32 (0..255)
UNITS "hops"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of hops to the network with address AN_net_addr from the router with originator address AN_orig_addr. The AN_orig_addr is defined by the tuple (olsrv2TibAttNetworksSetOrigIpAddressType, olsrv2TibAttNetworksSetOrigIpAddress)."

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

::= { olsrv2TibAttNetworksSetEntry 7 }

```
olsrv2TibAttNetworksSetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The metric of the link from the router with
        originator address AN_orig_addr to the attached
        network with address AN_net_addr.
        The AN_net_addr is defined by the tuple
        (olsrv2TibAttNetworksSetNetIpAddressType,
         olsrv2TibAttNetworksSetNetIpAddress,
         olsrv2TibAttNetworksSetNetIpAddressPrefixLen)."
    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 {
  olsrv2TibRoutingSetDestIpAddressType
    InetAddressType,
  olsrv2TibRoutingSetDestIpAddress
    InetAddress,
  olsrv2TibRoutingSetDestIpAddressPrefixLen
    InetAddressPrefixLength,
  olsrv2TibRoutingSetNextIfIpAddressType
    InetAddressType,
  olsrv2TibRoutingSetNextIfIpAddress
    InetAddress,
  olsrv2TibRoutingSetLocalIfIpAddressType
    InetAddressType,
  olsrv2TibRoutingSetLocalIfIpAddress
    InetAddress,
  olsrv2TibRoutingSetDist
    Unsigned32,
  olsrv2TibRoutingSetMetric
    Olsrv2MetricValueCompressedFormTC
}
```

```
olsrv2TibRoutingSetDestIpAddressType OBJECT-TYPE
SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
```

```
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "The type of the olsrv2TibRoutingSetDestIpAddress,
    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 }

olsrv2TibRoutingSetDestIpAddress 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 }

olsrv2TibRoutingSetLocalIfIpAddressType 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 }
```

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

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

olsrv2TibRoutingSetMetric OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is the metric of the route
         to the destination with address R_dest_addr."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
 ::= { olsrv2TibRoutingSetEntry 9 }
```

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



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

olsrv2PerformanceObjGrp OBJECT IDENTIFIER ::= {olsrv2MIBObjects 3}

--
--   Objects per local interface
--

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

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

Olsrv2InterfacePerfEntry ::=
    SEQUENCE {
        olsrv2IfTcMessageXmits
            Counter32,
        olsrv2IfTcMessageRecvd
            Counter32,
        olsrv2IfTcMessageXmitAccumulatedSize
            Counter64,
        olsrv2IfTcMessageRecvdAccumulatedSize
            Counter64,
        olsrv2IfTcMessageTriggeredXmits
```

```
        Counter32,
    olsrv2IfTcMessagePeriodicXmits
        Counter32,
    olsrv2IfTcMessageForwardedXmits
        Counter32,
    olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount
        Counter32
}

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

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

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

olsrv2IfTcMessageRecvdAccumulatedSize OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "octets"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A counter is incremented by the number of octets in
```

```
        a TC message each time a TC message has been received.
        This excludes all messages that are ignored due to
        OLSRV2 protocol procedures."
 ::= { olsrv2InterfacePerfEntry 4 }

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

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

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

olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "advertised MPR selectors"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A counter is incremented by the number of advertised
        MPR selectors in a TC each time a TC
        message has been sent."
 ::= { olsrv2InterfacePerfEntry 8 }
```

```
--
-- Objects concerning the Routing set
--

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

--
-- Objects concerning the MPR set
--

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

--
-- Notifications
--

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

-- olsrv2NotificationsObjects

olsrv2RouterStatusChange NOTIFICATION-TYPE
```

```

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

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

olsrv2RoutingSetRecalculationCountChange NOTIFICATION-TYPE
OBJECTS { olsrv2OrigIpAddrType, -- The address type of
                                -- the originator of
                                -- the notification.
          olsrv2OrigIpAddr,     -- The originator of
                                -- the notification.
          olsrv2RoutingSetRecalculationCount -- Number
                                -- of the
                                -- routing set
        }

```

```

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

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

-- olsrv2NotificationsControl

olsrv2RoutingSetRecalculationCountThreshold OBJECT-TYPE
  SYNTAX      Integer32 (0..255)

```

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

               It is RECOMMENDED that the value of this
               threshold be set to at least 20 and higher
               in dense topologies with frequent expected
               topology changes."
 ::= { 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
an olsrv2MPRSetRecalculationCountChange notification
is generated.

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

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

olsrv2PreviousOrigIpAddrType OBJECT-TYPE

SYNTAX InetAddressType { ipv4(1) , ipv6(2) }
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The type of the olsrv2PreviousOrigIpAddr,
as defined in the InetAddress MIB module (RFC 4001).

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

This object MUST have the same persistence
characteristics as olsrv2PreviousOrigIpAddr."

REFERENCE


```

        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2NotificationsStates 1 }

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

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

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

--
-- Compliance Statements
--

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

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

olsrv2FullCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The full implementation requirements for

```

```
        managed network entities that implement
        the OLSRv2 routing process."
MODULE -- this module
MANDATORY-GROUPS { olsrv2ConfigObjectsGroup,
                    olsrv2StateObjectsGroup,
                    olsrv2PerfObjectsGroup,
                    olsrv2NotificationsObjectsGroup,
                    olsrv2NotificationsGroup }
 ::= { olsrv2Compliances 2 }

--
-- Units of Conformance
--

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

olsrv2StateObjectsGroup OBJECT-GROUP
OBJECTS {
    olsrv2LibOrigSetExpireTime,
    olsrv2LibLocAttNetSetDistance,
    olsrv2LibLocAttNetSetMetric,
```

```

    olsrv2IibLinkSetInMetric,
    olsrv2IibLinkSetOutMetric,
    olsrv2IibLinkSetMprSelector,
    olsrv2Iib2HopSetInMetric,
    olsrv2Iib2HopSetOutMetric,
    olsrv2NibNeighborSetNOrigIpAddrType,
    olsrv2NibNeighborSetNOrigIpAddr,
    olsrv2NibNeighborSetNInMetric,
    olsrv2NibNeighborSetNOutMetric,
    olsrv2NibNeighborSetNWillFlooding,
    olsrv2NibNeighborSetNWillRouting,
    olsrv2NibNeighborSetNFloodingMpr,
    olsrv2NibNeighborSetNRoutingMpr,
    olsrv2NibNeighborSetNMprSelector,
    olsrv2NibNeighborSetNAdvertised,
    olsrv2NibNeighborSetTableAnsn,
    olsrv2TibAdRemoteRouterSetMaxSeqNo,
    olsrv2TibRouterTopologySetSeqNo,
    olsrv2TibRouterTopologySetMetric,
    olsrv2TibRoutableAddressTopologySetExpireTime,
    olsrv2TibRoutableAddressTopologySetSeqNo,
    olsrv2TibRoutableAddressTopologySetMetric,
    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 `olsrv2TibRouterTopologySetFromOrigIpAddress` and `olsrv2TibRouterTopologySetToOrigIpAddress` 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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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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