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TRILL OAM MIB
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Abstract

This document specifies the Management Information Base (MIB) for the IETF TRILL (Transparent Interconnection of Lots of Links) OAM objects.

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1. Introduction

Overall, TRILL OAM is intended to meet the requirements given in [RFC6905]. The general framework for TRILL OAM is specified in [TRILLOAMFRM]. The details of the Fault Management [FM] solution, conforming to that framework, are presented in [TRILLOAMFM]. The solution leverages the message format defined in Ethernet Connectivity Fault Management (CFM) [802.1Q] as the basis for the TRILL OAM message channel.

This document uses the CFM MIB modules defined in [802.1Q] as the basis for TRILL OAM MIB, and augments the existing tables to add new TRILL managed objects required by TRILL. This document further specifies a new table with associated managed objects for TRILL OAM specific capabilities.

2. The Internet-Standard Management Framework

For a detailed overview of the Internet-Standard Management Framework, please refer to [RFC3410]. Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the Structure of Management Information (SMI) specification. This memo specifies a MIB module that is compliant to SMIV2 [RFC2578], [RFC2579] and [RFC2580].

3. Overview

The TRILL-OAM-MIB module is intended to provide an overall framework for managing TRILL OAM. It leverages the IEEE8021-CFM-MIB and IEEE8021-CFM-V2-MIB modules defined in [802.1Q], and augments the Mep and Mep Db entries. It also adds a new table for TRILL OAM specific messages.

4. Conventions

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

5. Structure of the MIB module

Objects in this MIB module are arranged into subtrees. Each subtree is organized as a set of related objects. The various subtrees are shown below, supplemented with the required elements of the IEEE8021-CFM-MIB module.

5.1. Textual Conventions

Textual conventions are defined to represent object types relevant to the TRILL OAM MIB.

5.2. TRILL-OAM-MIB relationship to IEEE8021-TC-MIB

In TRILL, traffic labeling can be done using either a 12-bit VLAN or a 24-bit fine grain label [RFCfg1].

IEEE8021-TC-MIB defines IEEE8021ServiceSelectorType with two values:

- 1 representing a vlanId, and
- 2 representing a 24 bit isid.

We propose to use value 2 for TRILL's fine grain label. As such, TRILL-OAM-MIB will import IEEE8021ServiceSelectorType,

IEEE8021ServiceSelectorValueOrNone, and IEEE8021ServiceSelectorValue from IEEE8021-TC-MIB.

5.3. TRILL OAM MIB Tree

TRILL-OAM-MIB

```
|--trillOamNotifications
  |--trillOamFaultAlarm
    |--trillOamMibObjects
      |--trillOamMep
        |--trillOamMepTable
          |--trillOamMepFlowCfgTable
            |--trillOamPtrTable
              |--trillOamMtrTable
                |--trillOamMepDbTable
```

5.3.1. Notifications

Notification (fault alarm) is sent to the management entity with the OID of the MEP that has detected the fault.

5.3.2. TRILL OAM MIB Per MEP Objects

The TRILL OAM MIB Per MEP Objects are defined in the trillOamMepTable. The trillOamMepTable augments the dotlagCfmMepEntry (please see section 6.1) defined in IEEE8021-CFM-MIB. It includes objects that are locally defined for an individual MEP and its associated Flow.

5.3.2.1. trillOamMepTable Objects

- o trillOamMepRName - This object contains the Rbridge Nickname as defined in [RFC6325] section 3.7.

- o trillOamMepPtmTid - indicates the next sequence number/transaction identifier to be sent in a Path Trace message. The sequence number may be zero because it wraps around.

- o trillOamMepNexttMtmTId - indicates the next sequence number/transaction identifier to be sent in a Multi-destination message. The sequence number may be zero because it wraps around.
- o trillOamMepMepPtrIn - indicates the total number of valid, in-order, Path Trace Replies received.
- o trillOamMepPtrInOutOfOrder - indicates the total number of valid, out-of-order, Path Trace Replies received.
- o trillOamMepPtrOut - indicates the total number of valid Path Trace Replies transmitted.
- o trillOamMepMtrIn - indicates the total number of valid, in-order, Multi-destination Replies received.
- o trillOamMepMtrInOutOfOrder - indicates the total number of valid, out-of-order, Multi-destination Replies received.
- o trillOamMepMtrOut - indicates the total number of valid Multi-destination Replies transmitted.
- o trillOamMepTxLbmDestRName - indicates the target destination Rbridge NickName as defined in [RFC6325] section 3.7.
- o trillOamMepTxLbmHC - indicates the hop count field to be transmitted.
- o trillOamMepTxLbmReplyModeOob - True indicates that the Reply Mode of the Loopback message is requested to be out-of-band, and that the "Out of band IP address" TLV is to be transmitted. False indicates that in-band reply is transmitted.
- o trillOamMepTransmitLbmReplyIp - indicates the IP address to be transmitted in the "Out of band IP Address TLV" in the Loopback message.
- o trillOamMepTxLbmFlowEntropy - indicates the 128 bytes Flow entropy to be transmitted, as defined in [TRILLOAMFM].
- o trillOamMepTxPtmDestRName - indicates the target Destination Rbridge Nickname to be transmitted, as defined in [RFC6325] section 3.7.
- o trillOamMepTxPtmHC - indicates the hop count field to be transmitted.

- o trillOamMepTxPtmReplyModeOob - True indicates that the Reply Mode of the Path Trace message is requested to be out-of-band, and that the "Out of band IP address TLV" is to be transmitted. False indicates that in-band reply is transmitted.
- o trillOamMepTransmitPtmReplyIP - indicates the IP address to be transmitted in the "Out of band IP Address TLV" in the Path Trace message.
- o trillOamMepTranmitPtmFlowEntropy - indicates the 128 bytes Flow entropy to be transmitted, as defined in [TRILLOAMFM].
- o trillOamMepTxPtmStatus - A Boolean flag set to True by the MEP Path Trace Initiator State Machine or a MIB manager to indicate that another Path trace message is being transmitted. Reset to false by the MEP Initiator State Machine.
- o trillOamMepTxPtmResultOK - Indicates the result of the operation, True : The Path Trace Message(s) will be (or has been) sent, False: The Path Trace Message(s) will not be sent.
- o trillOamMepTxPtmMessages - The number of Path Trace messages to be transmitted.
- o trillOamMepTxPtmSeqNumber - Indicates the Path Trace Transaction Identifier of the first PTM (to be) sent. The value returned is undefined if trillOamMepTxPtmResultOK is false.
- o trillOamMepTxMtmTree - Indicates the Multi-destination Tree identifier as defined in RFC6325.
- o trillOamMepTxMtmHC - Indicates the hop count field to be transmitted.
- o trillOamMepTxMtmReplyModeOob - True indicates that the Reply of the Multi-destination message is requested to be out-of-band, and that the "Out of band IP address TLV" is to be transmitted. False indicates that in-band reply is transmitted.
- o trillOamMepTransmitMtmReplyIp - the IP address to be transmitted in the "Out of band IP address TLV" in the Multi-destination message.
- o trillOamMepTxMtmFlowEntropy - 128 Byte Flow Entropy to be transmitted, as defined in [TRILL-FM].
- o trillOamMepTxMtmStatus - A Boolean flag set to True by the MEP Multi-Destination Initiator State Machine or a MIB manager

to indicate that another Multicast trace message is being transmitted. Reset to False by the MEP Initiator State Machine.

o trillOamMepTxMtmResultOK - Indicates the result of the operation: -True The Multi-destination Message(s) will be (or has been) sent. -False The Multi-destination Message(s) will not be sent.

o trillOamMepTxMtmMessages -The number of Multi-Destination Messages to be transmitted.

o trillOamMepTxMtmSeqNumber - The Sequence Number of the first Multi-destination message (to be) sent. The value returned is undefined if trillOamMepTxMtmResultOK is false.

o trillOamMepTxMtmScopeList - The Multi-destination Rbridge Scope list, 2 octets per Rbridge.

5.3.2.2. trillOamMepFlowCfgTable Objects

Each row in this table represents a Flow Configuration Entry for the associated MEP. The table uses four indices. The first three indices are the indices of the Maintenance Domain, MaNet, and MEP tables. The fourth index is the specific Flow Configuration Entry on the selected MEP. Some write-able objects in this table are only applicable in certain cases (as described under each object below), and attempts to write values for them in other cases will be ignored.

o trillOamMepFlowCfgIndex - an index to the TRILL OAM Mep flow configuration table which indicates the specific Flow for the MEP. The index is never reused for other flow sessions on the same MEP while this session is active. The index value keeps increasing until it wraps to 0. This value can also be used in Flow-identifier TLV.

o trillOamMepFlowCfgFlowEntropy - This is 96 bytes of flow entropy as described in [TRILL-FM].

o trillOamMepFlowCfgDestRname - The target Rbridge nickname field to be transmitted as defined in [RFC6325] section 3.7.

o trillOamMepFlowCfgFlowHC - indicates the time to live field to be transmitted.

o trillOamMepFlowCfgRowStatus - indicates the status of row. The write-able columns in a row cannot be changed if the row is active. All columns MUST have a valid value before a row can be

activated.

5.3.2.3. trillOamPtrTable Objects

Each row in the table represents a Path Trace Reply Entry for the defined MEP and Transaction. This table uses four indices. The first three indices identify the MEP and the fourth index specifies the Transaction Identifier, and this transaction identifier uniquely identifies the response for a MEP which can have multiple flow.

- o trillOamMepPtrTransactionId - indicates Transaction identifier/sequence number returned by a previous transmit path trace message command, indicating which PTM's response is going to be returned.

- o trillOamPtrHC - indicates hop count field value for a returned PTR.

- o trillOamMepPtrFlag - indicates FCOI field value for a returned PTR.

- o trillOamMepPtrErrorCode - indicates the Return code and Return sub-code value for a returned PTR.

- o trillOamMepPtrTerminalMep - indicates a Boolean value stating whether the forwarded PTM reached a MEP enclosing its MA, as returned in the Terminal MEP flag field.

- o trillOamMepPtrNextEgressIdentifier - An integer field holding the last Egress Identifier returned in the PTR Upstream Rbridge nickname TLV of the PTR. The Last Egress identifies the Upstream Nickname.

- o trillOamMepPtrIngress - The value returned in the Ingress Action field of the PTM. The value ingNoTlv(0) indicates that no Reply Ingress TLV was returned in the PTM.

- o trillOamMepPtrIngressMac - indicates the MAC address returned in the ingress MAC address field.

- o trillOamMepIngressPortIdSubtype - indicates ingress Port ID. The format of this object is determined by the value of the trillOamMepPtrIngressPortIdSubtype object.

- o trillOamMepIngressPortId - indicates the ingress port ID. The format of this object is determined by the value of the trillOamMepPtrIngressPortId object.

o trillOamMepPtrEgressPortIdSubtype - indicates the value returned in the Egress Action field of the PTM. The value `ingNoTlv(0)` indicates that no Reply Egress TLV was returned in the PTM.

o trillOamMepPtrEgressPortId - indicates the egress port ID. The format of this object is determined by the value of trillOamMepPtrEgressPortId object.

o trillOamMepPtrChassisIdSubtype - This object specifies the format for the Chassis ID returned in the Sender ID TLV of the PTR, if any. This value is ignored if the trillOamMepPtrChassiId has a length of 0.

o trillOamMepPtrChassisId - indicates the chassis ID returned in the Sender ID TLV of the PTR, if any. The format of this object is determined by the value of the trillOamMepPtrChassisIdSubtype object.

o trillOamMepPtrOrganizationSpecificTlv - indicates all Organization specific TLVs returned in the PTR, if any. Includes all octets including and following the TLV length field of each TLV, concatenated together.

o trillOamMepPtrNextHopNicknames - indicates Next hop Rbridge List TLV returned in the PTR, if any. Includes all octets including and following the TLV length concatenated together.

5.3.2.4. trillOamMtrTable Objects

This table includes Multi-destination Reply managed objects. Each row in the table represents a Multi-destination Reply Entry for the defined MEP and Transaction. This table uses five indices: The first three indices are the indices of the Maintenance Domain, MaNet, and MEP tables. The fourth index is the specific Transaction Identifier on the selected MEP. The fifth index is the receive order of Multi-destination replies. Some write-able objects in this table are only applicable in certain cases (as described under each object below), and attempts to write a value for them in other cases will be ignored.

o trillOamMepMtrTransactionId - indicates Transaction identifier/sequence number returned by a previous transmit Multi-destination message command, indicating which MTM's response is going to be returned.

o trillOamMepMtrReceiveOrder - indicates an index to

distinguish among multiple MTR with same same MTR Transaction Identifier field value. `trillOamMepMtrReceiveOrder` are assigned sequentially from 1, in the order that the Multi-destination Tree Initiator received the MTRs.

- o `trillOamMepMtrFlag` - indicates FCOI field value for a returned MTR.

- o `trillOamMepMtrErrorCode` - indicates return code and return sub code value for a returned MTR.

- o `trillOamMepMtrLastEgressIdentifier` - indicates an integer field holding the Last Egress Identifier returned in the MTR Upstream Rbridge Nickname TLV of the MTR. The Last Egress Identifier identifies the Upstream Nickname.

- o `trillOamMepMtrIngress` - indicates the value returned in the Ingress Action Field of the MTR. The value `ingNoTlv(0)` indicates that no Reply Ingress TLV was returned in the MTM.

- o `trillOamMepMtrIngressMac` - indicates the MAC address returned in the ingress MAC address field.

- o `trillOamMepMtrIngressPortIdSubtype` - indicates the ingress Port ID. The format of this object is determined by the value of the `trillOamMepMtrIngressPortIdSubtype` object.

- o `trillOamMepMtrIngressPortId` - indicates the ingress Port Id. The format of this object is determined by the value of the `trillOamMepMtrIngressPortId` object.

- o `trillOamMepMtrEgress` - indicates the value returned in the Egress Action field of the MTR. The value `ingNoTLv(0)` indicates that no Reply Egress TLV was returned in the MTR.

- o `trillOamMepMtrEgressMac` - indicates the MAC address returned in the egress MAC address field.

- o `trillOamMepMtrEgressPortIdSubtype` - indicates the egress Port ID. The format of this object is determined by the value of the `trillOamMepMtrEgressPortIdSubtype` object.

- o `trillOamMepMtrEgressPortId` - indicates the egress port ID. The format of this object is determined by the value of the `trillOamMepMtrEgressPortId` object.

- o `trillOamMepMtrChassisIdSubtype` - indicates the format of the chassis ID returned in the Sender ID TLV of the MTR, if any.

The value is ignored if the `trillOamMepMtrChassisId` has length of 0.

- o `trillOamMepMtrChassisId` - indicates the chassis ID returned in the Sender ID TLV of the MTR, if any. The format of this object is determined by the value of the `trillOamMepMtrChassisIdSubtype` object.

- o `trillOamMepMtrOrganizationSpecificTlv` - indicates all Organization specific TLVs returned in the MTR, if any. Includes all octets including and following the TLV length field of each TLV, concatenated together.

- o `trillOamMepMtrNextHopNicknames` - indicates next hop Rbridge List TLV returned in the PTR, if any. Includes all octets including and following the TLV length field of each TLV, concatenated together.

- o `trillOamMepMtrNextHopTotalReceivers` - indicates value indicating that MTR response contains Multicast receiver availability TLV.

- o `trillOamMepMtrReceiverCount` - indicates the number of Multicast receivers available on responding Rbridge on the VLAN specified by the diagnostic VLAN.

5.3.2.4. `trillOamMepDbTable` Objects

This table is an augmentation of the `dotlagCfmMepDbTable`, and rows are automatically added or deleted from this table based upon row creation and destruction of the `dotlagCfmMepDbTable`.

- o `trillOamMepDbFlowIndex` - This object identifies the Flow. If the Flow Identifier TLV is received than index received can also be used.

- o `trillOamMepCfgFlowEntropy` - indicates 96 bytes of Flow entropy.

- o `trillOamMepDbFlowState` - indicates the operational state of the remote MEP (flow based) IFF state machines.

- o `trillOamMepDbRmepFailedOkTime` - indicates the time (`sysUpTime`) at which the Remote Mep Flow State machine last entered either the `RMEP_FAILED` or `RMEP_OK` state.

- o `trillOamMepDbRbridgeName` - indicates Remote MEP Rbridge Nickname.

6. Relationship to other MIB module

The IEEE8021-CFM-MIB, IEEE801-CFM-V2-MIB and LLDP-MIB contain objects relevant to TRILL OAM MIB. Management objects contained in these modules are not duplicated here, to reduce overlap to the extent possible.

6.1. Relationship to IEEE8021-CFM-MIB

TRILL OAM MIB Imports the following management objects from IEEE8021-CFM-MIB:

- o dotlagCfmMdIndex
- o dotlagCfmMaIndex
- o dotlagCfmMepIdentifier
- o dotlagCfmMepEntry
- o dotlagCfmMepDbEntry
- o DotlagCfmIngressActionFieldValue
- o DotlagCfmEgressActionFieldValue
- o DotlagCfmRemoteMepState

trillOamMepTable Augments dotlagCfmMepEntry. Implementation of IEEE-CFM-MIB is required as we are Augmenting the IEEE-CFM-MIB Table. Objects/Tables that are not applicable to a TRILL implementation have to be handled by the TRILL implementation back end and appropriate values as described in IEEE-CFM-MIB have to be returned.

6.2. MIB modules required for IMPORTS

The following MIB module IMPORTS objects from SNMPv2-SMI [RFC2578], SNMPv2-TC [RFC2579], SNMPv2-CONF [RFC2580], IEEE-8021-CFM-MIB, LLDP-MIB.

7. Definition of the TRILL OAM MIB module

```
TRILL-OAM-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
MODULE-IDENTITY,
```

```

OBJECT-TYPE,
NOTIFICATION-TYPE,
Counter32,
Unsigned32,
Integer32
    FROM SNMPv2-SMI
RowStatus,
TruthValue,
TimeStamp,
MacAddress
    FROM SNMPv2-TC
OBJECT-GROUP,
NOTIFICATION-GROUP,
MODULE-COMPLIANCE
    FROM SNMPv2-CONF
dotlagCfmMdIndex,
dotlagCfmMaIndex,
dotlagCfmMepIdentifier,
dotlagCfmMepEntry,
dotlagCfmMepDbEntry,
DotlagCfmIngressActionFieldValue,
DotlagCfmEgressActionFieldValue,
DotlagCfmRemoteMepState
    FROM IEEE8021-CFM-MIB
LldpChassisId,
LldpChassisIdSubtype,
LldpPortId
    FROM LLDP-MIB;

trilloamMib MODULE-IDENTITY
LAST-UPDATED      "201310191200Z"
ORGANIZATION      "TBD"
CONTACT-INFO
    "E-mail:  dekumar@cisco.com
     Postal:  510 McCarthy Blvd
              Milpitas, CA 95035
              U.S.A.
     Phone:   +1 408 853 9760"
DESCRIPTION
    "This MIB module contains the management objects for the
     management of Trill Services Operations, Administration
     and Maintenance.
     Initial version. Published as RFC xxxx.

```

Reference Overview

A number of base documents have been used to create the

Textual Conventions MIB. The following are the abbreviations for the baseline documents:

[CFM] refers to 'Connectivity Fault Management', IEEE 802.1ag-2007, December 2007

[Q.840.1] refers to 'ITU-T Requirements and analysis for NMS-EMS management interface of Ethernet over Transport and Metro Ethernet Network (EoT/MEN)', March 2007

[Y.1731] refers to ITU-T Y.1731 'OAM functions and mechanisms for Ethernet based networks', February 2011

Abbreviations Used

| Term | Definition |
|-------|--|
| CCM | Continuity Check Message |
| CFM | Connectivity Fault Management |
| CoS | Class of Service |
| IEEE | Institute of Electrical and Electronics Engineers |
| IETF | Internet Engineering Task Force |
| ITU-T | International Telecommunication Union - Telecommunicatio |

n

Standardization Bureau

| | |
|--------------|--|
| MAC | Media Access Control |
| MA | Maintenance Association (equivalent to a MEG) |
| MD | Maintenance Domain (equivalent to a OAM Domain in MEF 17 |
| MD Level | Maintenance Domain Level (equivalent to a MEG level) |
| ME | Maintenance Entity |
| MEG | Maintenance Entity Group (equivalent to a MA) |
| MEG Level | Maintenance Entity Group Level (equivalent to MD Level) |
| MEP | Maintenance Association End Point or MEG End Point |
| MIB | Management Information Base |
| MIP | Maintenance Domain Intermediate Point or MEG Intermediate Point |
| MP | Maintenance Point. One of either a MEP or a MIP |
| OAM | Operations, Administration, and Maintenance On-Demand |
| OAM actions | that are initiated via manual intervention for a limited time to carry out diagnostics. On-Demand OAM can result in singular or periodic OAM actions during the diagnostic time interval |
| PDU | Protocol Data Unit |
| RFC | Request for Comment |
| SNMP | Simple Network Management Protocol |
| SNMP Agent | An SNMP entity containing one or more command responder and/or notification originator applications (along with their associated SNMP engine). Typically implemented in an NE. |
| SNMP Manager | An SNMP entity containing one or more command generator |

and/or notification receiver applications (along with their associated SNMP engine). Typically implemented in an EMS or NMS.

TLV Type Length Value, a method of encoding Objects
 UTC Coordinated Universal Time
 UNI User-to-Network Interface
 VLAN Virtual LAN"
 REVISION "201310191200Z"
 DESCRIPTION "Initial version. Published as RFC xxxx."
 ::= { mib-2 xxx }

-- RFC Ed.: assigned by IANA, see section 9 for details
 --
 -- *****
 -- Object definitions in the TRILL OAM MIB Module
 -- *****

trilloamNotifications OBJECT IDENTIFIER
 ::= { trilloamMib 0 }

trilloamMibObjects OBJECT IDENTIFIER
 ::= { trilloamMib 1 }

trilloamMibConformance OBJECT IDENTIFIER
 ::= { trilloamMib 2 }

-- *****
 -- Groups in the TRILL OAM MIB Module
 -- *****

trilloamMep OBJECT IDENTIFIER
 ::= { trilloamMibObjects 1 }

-- *****
 -- TRILL OAM MEP Configuration
 -- *****

trilloamMepTable OBJECT-TYPE
 SYNTAX SEQUENCE OF TrilloamMepEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This table is an extension of the dotlagCfmMepTable and rows are automatically added or deleted from this table based upon row creation and destruction of the dotlagCfmMepTable.

This table represents the local MEP TRILL OAM configuration table. The primary purpose of this table is provide local parameters for the TRILL OAM function found in [TRILL-FM] and instantiated at a MEP."

REFERENCE "[TRILL-FM]"
 ::= { trillOamMep 1 }

trillOamMepEntry OBJECT-TYPE
 SYNTAX TrillOamMepEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "The conceptual row of trillOamMepTable."
 AUGMENTS { dotlagCfmMepEntry }
 ::= { trillOamMepTable 1 }

TrillOamMepEntry ::= SEQUENCE {
 trillOamMepRName Unsigned32,
 trillOamMepNextPtmTid Unsigned32,
 trillOamMepNextMtmTid Unsigned32,
 trillOamMepPtrIn Counter32,
 trillOamMepPtrInOutOfOrder Counter32,
 trillOamMepPtrOut Counter32,
 trillOamMepMtrIn Counter32,
 trillOamMepMtrInOutOfOrder Counter32,
 trillOamMepMtrOut Counter32,
 trillOamMepTxLbmDestRName Unsigned32,
 trillOamMepTxLbmHC Unsigned32,
 trillOamMepTxLbmReplyModeOob TruthValue,
 trillOamMepTransmitLbmReplyIp OCTET STRING,
 trillOamMepTxLbmFlowEntropy OCTET STRING,
 trillOamMepTxPtmDestRName Unsigned32,
 trillOamMepTxPtmHC Unsigned32,
 trillOamMepTxPtmReplyModeOob TruthValue,
 trillOamMepTransmitPtmReplyIp OCTET STRING,
 trillOamMepTxPtmFlowEntropy OCTET STRING,
 trillOamMepTxPtmStatus TruthValue,
 trillOamMepTxPtmResultOK TruthValue,
 trillOamMepTxPtmMessages Integer32,
 trillOamMepTxPtmSeqNumber Unsigned32,
 trillOamMepTxMtmTree Unsigned32,
 trillOamMepTxMtmHC Unsigned32,
 trillOamMepTxMtmReplyModeOob TruthValue,
 trillOamMepTransmitMtmReplyIp OCTET STRING,
 trillOamMepTxMtmFlowEntropy OCTET STRING,
 trillOamMepTxMtmStatus TruthValue,
 trillOamMepTxMtmResultOK TruthValue,
 trillOamMepTxMtmMessages Integer32,

```
        trillOamMepTxMtmSeqNumber      Unsigned32,
        trillOamMepTxMtmScopeList      OCTET STRING
    }

trillOamMepRName OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65471)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object contains Rbridge NickName of TRILL Rbridge as
        defined in RFC 6325 section 3.7."
    REFERENCE  "TRILL-FM and RFC 6325 section 3.7"
    ::= { trillOamMepEntry 1 }

trillOamMepNextPtmTid OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Next sequence number/transaction identifier to be sent in a
        Path Trace message. This sequence number can be zero because it
        wraps around. Implementation should be unique to identify
        Transaction Id for a MEP with multiple flows."
    REFERENCE  "TRILL-FM 11.1.1.1"
    ::= { trillOamMepEntry 2 }

trillOamMepNextMtmTid OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Next sequence number/transaction identifier to be sent in a
        Multi-destination message. This sequence number can be zero
        because it wraps around. Implementation should be unique to
        identify Transaction Id for a MEP with multiple flows."
    REFERENCE  "TRILL-FM 12.2.1"
    ::= { trillOamMepEntry 3 }

trillOamMepPtrIn OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of valid, in-order Path Trace Replies received."
    REFERENCE  "TRILL-FM section 11"
    ::= { trillOamMepEntry 4 }

trillOamMepPtrInOutOfOrder OBJECT-TYPE
```

```
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "Total number of valid, out-of-order Path Trace Replies received."
REFERENCE "TRILL-FM section 11"
 ::= { trillOamMepEntry 5 }

trillOamMepPtrOut OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "Total number of valid, Path Trace Replies transmitted."
REFERENCE "TRILL-FM section 11"
 ::= { trillOamMepEntry 6 }

trillOamMepMtrIn OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "Total number of valid, in-order Multi-destination Replies
received."
REFERENCE "TRILL-FM section 12"
 ::= { trillOamMepEntry 7 }

trillOamMepMtrInOutOfOrder OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "Total number of valid, out-of-order Multi-destination Replies
received."
REFERENCE "TRILL-FM section 12"
 ::= { trillOamMepEntry 8 }

trillOamMepMtrOut OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "Total number of valid, Multi-destination Replies
transmitted."
REFERENCE "TRILL-FM section 12"
 ::= { trillOamMepEntry 9 }

trillOamMepTxLbmDestRName OBJECT-TYPE
```

```
SYNTAX          Unsigned32 (0..65471)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "The Target Destination Rbridge NickName Field as
                defined in RFC 6325 section 3.7 to be transmitted."
REFERENCE      "TRILL-FM and RFC6325 section 3.7"
 ::= { trilloamMepEntry 10 }

trilloamMepTxLbmHC OBJECT-TYPE
SYNTAX          Unsigned32(1..63)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "The Hop Count to be transmitted.
                "
REFERENCE      "TRILL-FM section 3"
 ::= { trilloamMepEntry 11 }

trilloamMepTxLbmReplyModeOob OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "True Indicates that Reply of Lbm is out of band and
                out of band IP Address TLV is to be transmitted.
                False indicates that In band reply is transmitted."
REFERENCE      "TRILL-FM 10.1.2.1"
 ::= { trilloamMepEntry 12 }

trilloamMepTransmitLbmReplyIp OBJECT-TYPE
SYNTAX          OCTET STRING
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "IP address for out of band IP Address TLV is to be transmitted."
REFERENCE      "TRILL-FM 10.1.2.1"
 ::= { trilloamMepEntry 13 }

trilloamMepTxLbmFlowEntropy OBJECT-TYPE
SYNTAX          OCTET STRING
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "128 Byte Flow Entropy as defined in TRILL-FM to be transmitted."
REFERENCE      "TRILL-FM section 3"
 ::= { trilloamMepEntry 14 }
```

```
trilloamMepTxPtmDestRName OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65471)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Target Destination Rbridge NickName Field
        as defined in RFC 6325 section 3.7 to be transmitted."
    REFERENCE  "TRILL-FM and RFC6325 section 3.7"
    ::= { trilloamMepEntry 15 }

trilloamMepTxPtmHC OBJECT-TYPE
    SYNTAX      Unsigned32 (1..63)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Hop Count field to be transmitted.
        "
    REFERENCE  "TRILL-FM section 3"
    ::= { trilloamMepEntry 16 }

trilloamMepTxPtmReplyModeOob OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "True Indicates that Reply of Ptm is out of band and
        out of band IP Address TLV is to be transmitted.
        False indicates that In band reply is transmitted."
    REFERENCE  "TRILL-FM section 11"
    DEFVAL     { false }
    ::= { trilloamMepEntry 17 }

trilloamMepTransmitPtmReplyIp OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "IP address for out of band IP Address TLV is to be transmitted."
    REFERENCE  "TRILL-FM section 11"
    ::= { trilloamMepEntry 18 }

trilloamMepTxPtmFlowEntropy OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "128 Byte Flow Entropy as defined in TRILL-FM to be transmitted."
    REFERENCE  "TRILL-FM section 3"
```

```
 ::= { trillOamMepEntry 19 }

trillOamMepTxPtmStatus OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "A Boolean flag set to true by the MEP Path Trace Initiator State
        Machine or an MIB manager to indicate that another Ptm is being
        transmitted.
        Reset to false by the MEP Initiator State Machine."
    REFERENCE "TRILL-FM section 11"
    DEFVAL          { false }
 ::= { trillOamMepEntry 20 }

trillOamMepTxPtmResultOK OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "Indicates the result of the operation:
        - true The Path Trace Message(s) will be (or has been) sent.
        - false The Path Trace Message(s) will not be sent."
    REFERENCE "TRILL-FM section 11"
    DEFVAL          { true }
 ::= { trillOamMepEntry 21 }

trillOamMepTxPtmMessages OBJECT-TYPE
    SYNTAX          Integer32 (1..1024)
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The number of Path Trace messages to be transmitted."
    REFERENCE "TRILL-FM section 11"
 ::= { trillOamMepEntry 22 }

trillOamMepTxPtmSeqNumber OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The Path Trace Transaction Identifier of the first PTM (to be)
        sent. The value returned is undefined if
        trillOamMepTxPtmResultOK is false."
    REFERENCE "TRILL-FM section 11"
 ::= { trillOamMepEntry 23 }

trillOamMepTxMtmTree OBJECT-TYPE
```

```
SYNTAX          Unsigned32
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "The Multi-destination Tree is identifier for tree as defined in
                RFC6325."
 ::= { trillOamMepEntry 24 }

trilloamMepTxMtmHC OBJECT-TYPE
SYNTAX          Unsigned32(1..63)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "The Hop Count field to be transmitted.
                "
REFERENCE      "TRILL-FM section 3, RFC 6325 section 3"
 ::= { trillOamMepEntry 25 }

trilloamMepTxMtmReplyModeOob OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "True Indicates that Reply of Mtm is out of band and
                out of band IP Address TLV is to be transmitted.
                False indicates that In band reply is transmitted."
REFERENCE      "TRILL-FM section 12"
 ::= { trillOamMepEntry 26 }

trilloamMepTransmitMtmReplyIp OBJECT-TYPE
SYNTAX          OCTET STRING
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "IP address for out of band IP Address TLV is to be transmitted."
REFERENCE      "TRILL-FM section 12"
 ::= { trillOamMepEntry 27 }

trilloamMepTxMtmFlowEntropy OBJECT-TYPE
SYNTAX          OCTET STRING
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION     "128 Byte Flow Entropy as defined in TRILL-FM to be transmitted."
REFERENCE      "TRILL-FM section 3"
 ::= { trillOamMepEntry 28 }

trilloamMepTxMtmStatus OBJECT-TYPE
```

```

SYNTAX          TruthValue
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "A Boolean flag set to true by the MEP Multi Destination Initiator State
ate
    Machine or an MIB manager to indicate that another Mtm is being
    transmitted.
    Reset to false by the MEP Initiator State Machine."
REFERENCE "TRILL-FM section 12"
DEFVAL          { false }
 ::= { trilloamMepEntry 29 }

trilloamMepTxMtmResultOK OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "Indicates the result of the operation:
    - true  The Multi-destination Message(s) will be (or has been) sent.
    - false The Multi-destination Message(s) will not be sent."
REFERENCE "TRILL-FM section 12"
DEFVAL          { true }
 ::= { trilloamMepEntry 30 }

trilloamMepTxMtmMessages OBJECT-TYPE
SYNTAX          Integer32 (1..1024)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "The number of Multi Destination messages to be transmitted."
REFERENCE "TRILL-FM section 12"
 ::= { trilloamMepEntry 31 }

trilloamMepTxMtmSeqNumber OBJECT-TYPE
SYNTAX          Unsigned32
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "The Multi-destination Transaction Identifier of the first MTM (to be
)
    sent. The value returned is undefined if
    trilloamMepTxMtmResultOK is false."
REFERENCE "TRILL-FM section 12"
 ::= { trilloamMepEntry 32 }

trilloamMepTxMtmScopeList OBJECT-TYPE
SYNTAX          OCTET STRING
MAX-ACCESS      read-create
STATUS          current

```

DESCRIPTION

"The Multi-destination Rbridge Scope list, 2 OCTET per Rbridge."

REFERENCE "TRILL-FM section 12"

::= { trillOamMepEntry 33 }

```
-- *****
-- TRILL OAM Tx Measurement Configuration Table
-- *****
```

trillOamMepFlowCfgTable OBJECT-TYPE

SYNTAX SEQUENCE OF TrillOamMepFlowCfgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table includes configuration objects and operations for the Trill OAM [TRILL-FM]."

Each row in the table represents a Flow configuration Entry for the defined MEP. This table uses four indices. The first three indices are the indices of the Maintenance Domain, MaNet, and MEP tables. The fourth index is the specific Flow configuration Entry on the selected MEP.

Some writable objects in this table are only applicable in certain cases (as described under each object), and attempts to write values for them in other cases will be ignored."

REFERENCE "[TRILL-FM]"

::= { trillOamMep 2 }

trillOamMepFlowCfgEntry OBJECT-TYPE

SYNTAX TrillOamMepFlowCfgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The conceptual row of trillOamMepFlowCfgTable."

```
INDEX {
    dotlagCfmMdIndex,
    dotlagCfmMaIndex,
    dotlagCfmMepIdentifier,
    trillOamMepFlowCfgIndex
}
```

::= { trillOamMepFlowCfgTable 1 }

TrillOamMepFlowCfgEntry ::= SEQUENCE {

trillOamMepFlowCfgIndex Unsigned32,

trillOamMepFlowCfgFlowEntropy OCTET STRING,

trillOamMepFlowCfgDestRName Unsigned32,

```
trilloamMepFlowCfgFlowHC      Unsigned32,  
trilloamMepFlowCfgRowStatus  RowStatus  
}
```

```
trilloamMepFlowCfgIndex OBJECT-TYPE  
SYNTAX      Unsigned32 (1..65535)  
MAX-ACCESS  not-accessible  
STATUS      current  
DESCRIPTION  
    "An index to the Trill OAM Mep Flow Configuration table which  
    indicates the specific Flow for the MEP.  
  
    The index is never reused for other flow sessions on the same  
    MEP while this session is active.  The index value keeps  
    increasing until it wraps to 0.  
    This value can also be used in Flow-identifier TLV [TRILL-FM]"  
REFERENCE "TRILL-FM"  
 ::= { trilloamMepFlowCfgEntry 1 }
```

```
trilloamMepFlowCfgFlowEntropy OBJECT-TYPE  
SYNTAX      OCTET STRING  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
    "This is 128 byte of Flow Entropy as described in  
    TRILL OAM [TRILL-FM]."  
REFERENCE "TRILL-FM section 3"  
 ::= { trilloamMepFlowCfgEntry 2 }
```

```
trilloamMepFlowCfgDestRName OBJECT-TYPE  
SYNTAX      Unsigned32 (0..65471)  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
    "The Target Destination Rbridge NickName Field as  
    defined in RFC 6325 section 3.7 to be transmitted."  
REFERENCE "TRILL-FM section 3 and RFC 6325 section 3.7"  
 ::= { trilloamMepFlowCfgEntry 3 }
```

```
trilloamMepFlowCfgFlowHC OBJECT-TYPE  
SYNTAX      Unsigned32  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
    "The Time to Live field to be transmitted.  
    to be transmitted."  
REFERENCE "TRILL-FM section 3 and RFC 6325 section 3.7"  
 ::= { trilloamMepFlowCfgEntry 4 }
```

trilloamMepFlowCfgRowStatus OBJECT-TYPE

SYNTAX RowStatus
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"The status of the row.

The writable columns in a row cannot be changed if the row is active. All columns MUST have a valid value before a row can be activated."

::= { trilloamMepFlowCfgEntry 5 }

-- *****
 -- TRILL OAM Path Trace Reply Table
 -- *****

trilloamPtrTable OBJECT-TYPE

SYNTAX SEQUENCE OF TrilloamPtrEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"This table includes Path Trace Reply objects and operations for the Trill OAM [TRILL-FM].

Each row in the table represents a Path Trace Reply Entry for the defined MEP and Transaction. This table uses four indices. The first three indices are the indices of the Maintenance Domain, MaNet, and MEP tables. The fourth index is the specific Transaction Identifier on the selected MEP.

Some writable objects in this table are only applicable in certain cases (as described under each object), and attempts to write values for them in other cases will be ignored."

REFERENCE "TRILL-FM"
 ::= { trilloamMep 3 }

trilloamPtrEntry OBJECT-TYPE

SYNTAX TrilloamPtrEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"The conceptual row of trilloamPtrTable."

INDEX {
 dotlagCfmMdIndex,
 dotlagCfmMaIndex,
 dotlagCfmMepIdentifier,
 trilloamMepPtrTransactionId

```

    }
    ::= { trillOamPtrTable 1 }

TrillOamPtrEntry ::= SEQUENCE {
    trillOamMepPtrTransactionId      Unsigned32,
    trillOamMepPtrHC                 Unsigned32,
    trillOamMepPtrFlag                Unsigned32,
    trillOamMepPtrErrorCode           Unsigned32,
    trillOamMepPtrTerminalMep        TruthValue,
    trillOamMepPtrLastEgressId       Unsigned32,
    trillOamMepPtrIngress             DotlagCfmIngressActionFieldValu
e,
    trillOamMepPtrIngressMac          MacAddress,
    trillOamMepPtrIngressPortIdSubtype LldpPortId,
    trillOamMepPtrIngressPortId      LldpPortId,
    trillOamMepPtrEgress              DotlagCfmEgressActionFieldValue
,
    trillOamMepPtrEgressMac           MacAddress,
    trillOamMepPtrEgressPortIdSubtype LldpPortId,
    trillOamMepPtrEgressPortId       LldpPortId,
    trillOamMepPtrChassisIdSubtype    LldpChassisIdSubtype,
    trillOamMepPtrChassisId           LldpChassisId,
    trillOamMepPtrOrganizationSpecificTlv OCTET STRING,
    trillOamMepPtrNextHopNicknames    OCTET STRING
}

trillOamMepPtrTransactionId OBJECT-TYPE
    SYNTAX      Unsigned32 (0..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Transaction identifier/sequence number returned by a previous
        transmit path trace message command, indicating which PTM's
        response is going to be returned."
    REFERENCE   "TRILL-FM section 11"
    ::= { trillOamPtrEntry 1 }

trillOamMepPtrHC OBJECT-TYPE
    SYNTAX      Unsigned32 (1..63)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Hop Count field value for a returned PTR."
    REFERENCE   "TRILL-FM"
    ::= { trillOamPtrEntry 2 }

trillOamMepPtrFlag OBJECT-TYPE
    SYNTAX      Unsigned32 (0..15)
    MAX-ACCESS  read-only
    STATUS      current

```

```
DESCRIPTION
    "FCOI (TRILL OAM Message TLV) field value for a
    returned PTR."
REFERENCE      "TRILL-FM, 9.4.2.1"
 ::= { trilloamPtrEntry 3 }

trilloamMepPtrErrorCode OBJECT-TYPE
SYNTAX        Unsigned32 (0..65535)
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "Return Code and Return Sub code value for a returned PTR."
REFERENCE     "TRILL-FM, 9.4.2.1"
 ::= { trilloamPtrEntry 4 }

trilloamMepPtrTerminalMep OBJECT-TYPE
SYNTAX        TruthValue
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "A boolean value stating whether the forwarded PTM reached a
MEP enclosing its MA, as returned in the Terminal MEP flag of
the Flags field."
REFERENCE     "TRILL-FM"
 ::= { trilloamPtrEntry 5 }

trilloamMepPtrLastEgressId OBJECT-TYPE
SYNTAX        Unsigned32 (0..65535)
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "An Integer field holding the Last Egress Identifier returned
in the PTR Upstream Rbridge nickname TLV of the PTR.
The Last Egress Identifier identifies the Upstream Nickname"
REFERENCE     "TRILL-FM 9.4.3.4"
 ::= { trilloamPtrEntry 6 }

trilloamMepPtrIngress OBJECT-TYPE
SYNTAX        DotlagCfmIngressActionFieldValue
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "The value returned in the Ingress Action Field of the PTM.
The value ingNoTlv(0) indicates that no Reply Ingress TLV was
returned in the PTM."
REFERENCE     "TRILL-FM 9.4.1"
 ::= { trilloamPtrEntry 7 }
```

```

trilloamMepPtrIngressMac OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "MAC address returned in the ingress MAC address field."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 8 }

trilloamMepPtrIngressPortIdSubtype OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Ingress Port ID. The format of this object is determined by
         the value of the trilloamMepPtrIngressPortIdSubtype object."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 9 }

trilloamMepPtrIngressPortId OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Ingress Port ID. The format of this object is determined by
         the value of the trilloamMepPtrIngressPortId object."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 10 }

trilloamMepPtrEgress OBJECT-TYPE
    SYNTAX          DotlagCfmEgressActionFieldValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The value returned in the Egress Action Field of the PTM.
         The value ingNoTlv(0) indicates that no Reply Egress TLV was
         returned in the PTM."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 11 }

trilloamMepPtrEgressMac OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "MAC address returned in the egress MAC address field."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 12 }

```

```
trilloamMepPtrEgressPortIdSubtype OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Egress Port ID. The format of this object is determined by
         the value of the trilloamMepPtrEgressPortIdSubtype object."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 13 }

trilloamMepPtrEgressPortId OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Egress Port ID. The format of this object is determined by
         the value of the trilloamMepPtrEgressPortId object."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 14 }

trilloamMepPtrChassisIdSubtype OBJECT-TYPE
    SYNTAX          LldpChassisIdSubtype
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the format of the Chassis ID returned
         in the Sender ID TLV of the PTR, if any. This value is
         meaningless if the trilloamMepPtrChassisId has a length of 0."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 15 }

trilloamMepPtrChassisId OBJECT-TYPE
    SYNTAX          LldpChassisId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The Chassis ID returned in the Sender ID TLV of the PTR, if
         any. The format of this object is determined by the
         value of the trilloamMepPtrChassisIdSubtype object."
    REFERENCE       "TRILL-FM 9.4.1"
    ::= { trilloamPtrEntry 16 }

trilloamMepPtrOrganizationSpecificTlv OBJECT-TYPE
    SYNTAX          OCTET STRING (SIZE (0..0 | 4..1500))
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "All Organization specific TLVs returned in the PTR, if
```

any. Includes all octets including and following the TLV Length field of each TLV, concatenated together."
 REFERENCE "TRILL-FM 9.4.1"
 ::= { trillOamPtrEntry 17 }

trillOamMepPtrNextHopNicknames OBJECT-TYPE
 SYNTAX OCTET STRING (SIZE (0..0 | 4..1500))
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "Next hop Rbridge List TLV returned in the PTR, if any. Includes all octets including and following the TLV Length field of each TLV, concatenated together."
 REFERENCE "TRILL-FM 9.4.3.5"
 ::= { trillOamPtrEntry 18 }

-- *****
 -- TRILL OAM Multi Destination Reply Table
 -- *****

trillOamMtrTable OBJECT-TYPE
 SYNTAX SEQUENCE OF TrillOamMtrEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This table includes Multi-destination Reply objects and operations for the Trill OAM [TRILL-FM].

 Each row in the table represents a Multi-destination Reply Entry for the defined MEP and Transaction.
 This table uses five indices.
 The first three indices are the indices of the Maintenance Domain, MaNet, and MEP tables. The fourth index is the specific Transaction Identifier on the selected MEP.
 The fifth index is the receive order of Multi-destination replies.

 Some writable objects in this table are only applicable in certain cases (as described under each object), and attempts to write values for them in other cases will be ignored."
 REFERENCE "TRILL-FM"
 ::= { trillOamMep 4 }

trillOamMtrEntry OBJECT-TYPE
 SYNTAX TrillOamMtrEntry
 MAX-ACCESS not-accessible
 STATUS current

```

DESCRIPTION
    "The conceptual row of trillOamMtrTable."
INDEX
    {
        dotlagCfmMdIndex,
        dotlagCfmMaIndex,
        dotlagCfmMepIdentifier,
        trillOamMepPtrTransactionId,
        trillOamMepMtrReceiveOrder
    }
 ::= { trillOamMtrTable 1 }

TrillOamMtrEntry ::= SEQUENCE {
    trillOamMepMtrTransactionId      Unsigned32,
    trillOamMepMtrReceiveOrder      Unsigned32,
    trillOamMepMtrFlag              Unsigned32,
    trillOamMepMtrErrorCode         Unsigned32,
    trillOamMepMtrLastEgressId     Unsigned32,
    trillOamMepMtrIngress          DotlagCfmIngressActionFieldValu
e,
    trillOamMepMtrIngressMac        MacAddress,
    trillOamMepMtrIngressPortIdSubtype LldpPortId,
    trillOamMepMtrIngressPortId    LldpPortId,
    trillOamMepMtrEgress           DotlagCfmEgressActionFieldValue
,
    trillOamMepMtrEgressMac        MacAddress,
    trillOamMepMtrEgressPortIdSubtype LldpPortId,
    trillOamMepMtrEgressPortId    LldpPortId,
    trillOamMepMtrChassisIdSubtype LldpChassisIdSubtype,
    trillOamMepMtrChassisId       LldpChassisId,
    trillOamMepMtrOrganizationSpecificTlv OCTET STRING,
    trillOamMepMtrNextHopNicknames OCTET STRING,
    trillOamMepMtrReceiverAvailability TruthValue,
    trillOamMepMtrReceiverCount    TruthValue
}

trillOamMepMtrTransactionId OBJECT-TYPE
    SYNTAX      Unsigned32 (0..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Transaction identifier/sequence number returned by a previous
        transmit Multi-destination message command, indicating
        which MTM's response is going to be returned."
    REFERENCE   "TRILL-FM section 12"
    ::= { trillOamMtrEntry 1 }

trillOamMepMtrReceiveOrder OBJECT-TYPE
    SYNTAX      Unsigned32 (1..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current

```

DESCRIPTION

"An index to distinguish among multiple MTR with same MTR Transaction Identifier field value. trillOamMepMtrReceiveOrder are assigned sequentially from 1, in the order that the Multi-destination Tree Initiator received the MTRs."

REFERENCE "TRILL-FM"
 ::= { trillOamMtrEntry 2 }

trillOamMepMtrFlag OBJECT-TYPE

SYNTAX Unsigned32 (0..15)
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"FCOI (TRILL OAM Message TLV) field value for a returned MTR."

REFERENCE "TRILL-FM, 9.4.2.1"
 ::= { trillOamMtrEntry 3 }

trillOamMepMtrErrorCode OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Return Code and Return Sub code value for a returned MTR."

REFERENCE "TRILL-FM, 9.4.2.1"
 ::= { trillOamMtrEntry 4 }

trillOamMepMtrLastEgressId OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"An Integer field holding the Last Egress Identifier returned in the MTR Upstream Rbridge Nickname TLV of the MTR. The Last Egress Identifier identifies the Upstream Nickname."

REFERENCE "TRILL-FM 9.4.3.4"
 ::= { trillOamMtrEntry 5 }

trillOamMepMtrIngress OBJECT-TYPE

SYNTAX DotlagCfmIngressActionFieldValue
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The value returned in the Ingress Action Field of the MTR. The value ingNoTlv(0) indicates that no Reply Ingress TLV was returned in the MTM."

REFERENCE "TRILL-FM 12.2.3"

```
 ::= { trillOamMtrEntry 6 }

trillOamMepMtrIngressMac OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "MAC address returned in the ingress MAC address field."
    REFERENCE       "TRILL-FM 12.2.3"
    ::= { trillOamMtrEntry 7 }

trillOamMepMtrIngressPortIdSubtype OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Ingress Port ID. The format of this object is determined by
         the value of the trillOamMepMtrIngressPortIdSubtype object."
    REFERENCE       "TRILL-FM 12.2.3"
    ::= { trillOamMtrEntry 8 }

trillOamMepMtrIngressPortId OBJECT-TYPE
    SYNTAX          LldpPortId
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Ingress Port ID. The format of this object is determined by
         the value of the trillOamMepMtrIngressPortId object."
    REFERENCE       "TRILL-FM 12.2.3"
    ::= { trillOamMtrEntry 9 }

trillOamMepMtrEgress OBJECT-TYPE
    SYNTAX          DotlagCfmEgressActionFieldValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The value returned in the Egress Action Field of the MTR.
         The value ingNoTlv(0) indicates that no Reply Egress TLV was
         returned in the MTR."
    REFERENCE       "TRILL-FM 12.2.3"
    ::= { trillOamMtrEntry 10 }

trillOamMepMtrEgressMac OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "MAC address returned in the egress MAC address field."
```

```
REFERENCE          "TRILL-FM 12.2.3"
 ::= { trillOamMtrEntry 11 }

trillOamMepMtrEgressPortIdSubtype OBJECT-TYPE
SYNTAX             LldpPortId
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "Egress Port ID. The format of this object is determined by
    the value of the trillOamMepMtrEgressPortIdSubtype object."
REFERENCE          "TRILL-FM 12.2.3"
 ::= { trillOamMtrEntry 12 }

trillOamMepMtrEgressPortId OBJECT-TYPE
SYNTAX             LldpPortId
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "Egress Port ID. The format of this object is determined by
    the value of the trillOamMepMtrEgressPortId object."
REFERENCE          "TRILL-FM 12.2.3"
 ::= { trillOamMtrEntry 13 }

trillOamMepMtrChassisIdSubtype OBJECT-TYPE
SYNTAX             LldpChassisIdSubtype
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "This object specifies the format of the Chassis ID returned
    in the Sender ID TLV of the MTR, if any. This value is
    meaningless if the trillOamMepMtrChassisId has a length of 0."
REFERENCE          "TRILL-FM 12.2.3"
 ::= { trillOamMtrEntry 14 }

trillOamMepMtrChassisId OBJECT-TYPE
SYNTAX             LldpChassisId
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "The Chassis ID returned in the Sender ID TLV of the MTR, if
    any. The format of this object is determined by the
    value of the trillOamMepMtrChassisIdSubtype object."
REFERENCE          "TRILL-FM 12.2.3"
 ::= { trillOamMtrEntry 15 }

trillOamMepMtrOrganizationSpecificTlv OBJECT-TYPE
SYNTAX             OCTET STRING (SIZE (0..0 | 4..1500))
MAX-ACCESS         read-only
```

```

STATUS          current
DESCRIPTION
  "All Organization specific TLVs returned in the MTR, if
  any. Includes all octets including and following the TLV
  Length field of each TLV, concatenated together."
REFERENCE       "TRILL-FM 12.2.3"
 ::= { trilloamMtrEntry 16 }

trilloamMepMtrNextHopNicknames OBJECT-TYPE
SYNTAX          OCTET STRING (SIZE (0..0 | 4..1500))
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
  "Next hop Rbridge List TLV returned in the PTR, if
  any. Includes all octets including and following the TLV
  Length field of each TLV, concatenated together."
REFERENCE       "TRILL-FM 9.4.3.5"
 ::= { trilloamMtrEntry 17 }

trilloamMepMtrReceiverAvailability OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
  "True value indicates that MTR response contained
  Multicast receiver availability TLV"
REFERENCE       "TRILL-FM 9.4.3.6"
 ::= { trilloamMtrEntry 18 }

trilloamMepMtrReceiverCount OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
  "Indicates the number of Multicast receivers available on
  responding RBridge on the VLAN specified by the
  diagnostic VLAN."
REFERENCE       "TRILL-FM 9.4.3.6"
 ::= { trilloamMtrEntry 19 }

-- *****
-- TRILL OAM MEP Database Table
-- *****

trilloamMepDbTable OBJECT-TYPE
SYNTAX          SEQUENCE OF TrilloamMepDbEntry
MAX-ACCESS      not-accessible
STATUS          current

```

```

DESCRIPTION
    "This table is an extension of the dotlagCfmMepDbTable and rows
      are automatically added or deleted from this table based upon
      row creation and destruction of the dotlagCfmMepDbTable.
    "
REFERENCE
    "[TRILL-FM]"
    ::= { trillOamMep 5 }

trillOamMepDbEntry OBJECT-TYPE
    SYNTAX      TrillOamMepDbEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The conceptual row of trillOamMepDbTable."
    AUGMENTS {
        dotlagCfmMepDbEntry
    }
    ::= { trillOamMepDbTable 1 }

TrillOamMepDbEntry ::= SEQUENCE {
    trillOamMepDbFlowIndex      Unsigned32,
    trillOamMepDbFlowEntropy   OCTET STRING,
    trillOamMepDbFlowState     DotlagCfmRemoteMepState,
    trillOamMepDbFlowFailedOkTime  TimeStamp,
    trillOamMepDbRbridgeName   Unsigned32,
    trillOamMepDbLastGoodSeqNum Counter32
}

trillOamMepDbFlowIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..65535)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object identifies the Flow. If Flow Identifier TLV is received
          than index received can also be used.
    "
    REFERENCE  "TRILL-FM"
    ::= {trillOamMepDbEntry 1 }

trillOamMepDbFlowEntropy OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "128 byte Flow Entropy.
    "
    REFERENCE  "TRILL-FM section 3."

```

```

 ::= {trilloamMepDbEntry 2 }

trilloamMepDbFlowState OBJECT-TYPE
    SYNTAX      DotlagCfmRemoteMepState
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The operational state of the remote MEP (flow based)
         IFF State machines. State Machine is running now per
         flow."
    REFERENCE  "TRILL-FM"
    ::= {trilloamMepDbEntry 3 }

trilloamMepDbFlowFailedOkTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Time (sysUpTime) at which the Remote Mep Flow state
         machine last entered either the RMEP_FAILED or RMEP_OK
         state.
         "
    REFERENCE  "TRILL-FM"
    ::= {trilloamMepDbEntry 4 }

trilloamMepDbRbridgeName OBJECT-TYPE
    SYNTAX      Unsigned32(0..65471)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Remote MEP Rbridge Nickname"
    REFERENCE  "TRILL-FM RFC 6325 section 3"
    ::= {trilloamMepDbEntry 5 }

trilloamMepDbLastGoodSeqNum OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Last Sequence Number received."
    REFERENCE  "TRILL-FM 13.1"
    ::= {trilloamMepDbEntry 6}

-- *****
***
-- TRILL OAM MIB NOTIFICATIONS (TRAPS)
-- This notification is sent to management entity whenever a MEP loses/restor
es
-- contact with its peer Flow Meps
-- *****
***

```

```
trilloamFaultAlarm NOTIFICATION-TYPE
  OBJECTS          { trilloamMepDbFlowState }
  STATUS           current
  DESCRIPTION
    "A MEP Flow has a persistent defect condition.
    A notification (fault alarm) is sent to the management
    entity with the OID of the Flow that has detected the fault.
```

```
The management entity receiving the notification can identify
the system from the network source address of the
notification, and can identify the Flow reporting the defect
by the indices in the OID of the
trilloamMepFlowIndex, and trilloamFlowDefect
variable in the notification:
```

- dotlagCfmMdIndex - Also the index of the MEP's Maintenance Domain table entry (dotlagCfmMdTable).
- dotlagCfmMaIndex - Also an index (with the MD table index) of the MEP's Maintenance Association network table entry (dotlagCfmMaNetTable), and (with the MD table index and component ID) of the MEP's MA component table entry (dotlagCfmMaCompTable).
- dotlagCfmMepIdentifier - MEP Identifier and final index into the MEP table (dotlagCfmMepTable).
- trilloamMepFlowCfgIndex - Index identifies indicates the specific Flow for the MEP"

```
REFERENCE          "TRILL-FM"
 ::= { trilloamNotifications 1 }
```

```
-- *****
***
-- TRILL OAM MIB Module - Conformance Information
-- *****
***
```

```
trilloamMibCompliances OBJECT IDENTIFIER
 ::= { trilloamMibConformance 1 }
```

```
trilloamMibGroups OBJECT IDENTIFIER
 ::= { trilloamMibConformance 2 }
```

```
-- *****
-- TRILL OAM MIB Units of conformance
-- *****
```

```
trilloamMepMandatoryGroup OBJECT-GROUP
```

```

OBJECTS          {
    trillOamMepRName,
    trillOamMepNextPtmTid,
    trillOamMepNextMtmTid,
    trillOamMepPtrIn,
    trillOamMepPtrInOutOfOrder,
    trillOamMepPtrOut,
    trillOamMepMtrIn,
    trillOamMepMtrInOutOfOrder,
    trillOamMepMtrOut,
    trillOamMepTxLbmDestRName,
    trillOamMepTxLbmHC,
    trillOamMepTxLbmReplyModeOob,
    trillOamMepTransmitLbmReplyIp,
    trillOamMepTxLbmFlowEntropy,
    trillOamMepTxPtmDestRName,
    trillOamMepTxPtmHC,
    trillOamMepTxPtmReplyModeOob,
    trillOamMepTransmitPtmReplyIp,
    trillOamMepTxPtmFlowEntropy,
    trillOamMepTxPtmStatus,
    trillOamMepTxPtmResultOK,
    trillOamMepTxPtmMessages,
    trillOamMepTxPtmSeqNumber,
    trillOamMepTxMtmTree,
    trillOamMepTxMtmHC,
    trillOamMepTxMtmReplyModeOob,
    trillOamMepTransmitMtmReplyIp,
    trillOamMepTxMtmFlowEntropy,
    trillOamMepTxMtmStatus,
    trillOamMepTxMtmResultOK,
    trillOamMepTxMtmMessages,
    trillOamMepTxMtmSeqNumber,
    trillOamMepTxMtmScopeList
}
STATUS          current
DESCRIPTION
    "Mandatory objects for the TRILL OAM MEP group."
 ::= { trillOamMibGroups 1 }

trillOamMepFlowCfgTableGroup OBJECT-GROUP
OBJECTS          {
    trillOamMepFlowCfgFlowEntropy,
    trillOamMepFlowCfgDestRName,
    trillOamMepFlowCfgFlowHC,
    trillOamMepFlowCfgRowStatus
}
STATUS          current

```

DESCRIPTION

```
"Trill OAM MEP Flow Configuration objects group."  
 ::= { trillOamMibGroups 2 }
```

```
trillOamPtrTableGroup OBJECT-GROUP
```

```
OBJECTS {  
    trillOamMepPtrHC,  
    trillOamMepPtrFlag,  
    trillOamMepPtrErrorCode,  
    trillOamMepPtrTerminalMep,  
    trillOamMepPtrLastEgressId,  
    trillOamMepPtrIngress,  
    trillOamMepPtrIngressMac,  
    trillOamMepPtrIngressPortIdSubtype,  
    trillOamMepPtrIngressPortId,  
    trillOamMepPtrEgress,  
    trillOamMepPtrEgressMac,  
    trillOamMepPtrEgressPortIdSubtype,  
    trillOamMepPtrEgressPortId,  
    trillOamMepPtrChassisIdSubtype,  
    trillOamMepPtrChassisId,  
    trillOamMepPtrOrganizationSpecificTlv,  
    trillOamMepPtrNextHopNicknames  
}
```

```
STATUS current
```

DESCRIPTION

```
"Trill OAM MEP PTR objects group."  
 ::= { trillOamMibGroups 3 }
```

```
trillOamMtrTableGroup OBJECT-GROUP
```

```
OBJECTS {  
    trillOamMepMtrFlag,  
    trillOamMepMtrErrorCode,  
    trillOamMepMtrLastEgressId,  
    trillOamMepMtrIngress,  
    trillOamMepMtrIngressMac,  
    trillOamMepMtrIngressPortIdSubtype,  
    trillOamMepMtrIngressPortId,  
    trillOamMepMtrEgress,  
    trillOamMepMtrEgressMac,  
    trillOamMepMtrEgressPortIdSubtype,  
    trillOamMepMtrEgressPortId,  
    trillOamMepMtrChassisIdSubtype,  
    trillOamMepMtrChassisId,  
    trillOamMepMtrOrganizationSpecificTlv,  
    trillOamMepMtrNextHopNicknames,  
    trillOamMepMtrReceiverAvailability,  
    trillOamMepMtrReceiverCount  
}
```

```

    }
    STATUS          current
    DESCRIPTION
        "Trill OAM MEP MTR objects group."
    ::= { trillOamMibGroups 4 }

trillOamMepDbGroup OBJECT-GROUP
    OBJECTS {
        trillOamMepDbFlowIndex,
        trillOamMepDbFlowEntropy,
        trillOamMepDbFlowState,
        trillOamMepDbFlowFailedOkTime,
        trillOamMepDbRbridgeName,
        trillOamMepDbLastGoodSeqNum
    }

    STATUS          current
    DESCRIPTION
        "Trill OAM MEP DB objects group."
    ::= { trillOamMibGroups 5 }

trillOamNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS {
        trillOamFaultAlarm
    }
    STATUS current
    DESCRIPTION
        "Objects for Notification Group"
    ::= { trillOamMibGroups 6 }

-- *****
-- TRILL OAM MIB Module Compliance statements
-- *****

trillOamMibCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for the TRILL OAM MIB."
    MODULE          -- this module
    MANDATORY-GROUPS {
        trillOamMepMandatoryGroup,
        trillOamMepFlowCfgTableGroup,
        trillOamPtrTableGroup,
        trillOamMtrTableGroup,
        trillOamMepDbGroup,
        trillOamNotificationGroup
    }
    ::= { trillOamMibCompliances 1 }

```

```
-- Compliance requirement for read-only implementation.

trilloamMibReadOnlyCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION
    "Compliance requirement for implementation that only
    provide read-only support for TRILL-OAM-MIB.
    Such devices can be monitored but cannot be configured
    using this MIB module
    "
  MODULE -- this module
  MANDATORY-GROUPS {
    trilloamMepMandatoryGroup,
    trilloamMepFlowCfgTableGroup,
    trilloamPtrTableGroup,
    trilloamMtrTableGroup,
    trilloamMepDbGroup,
    trilloamNotificationGroup
  }
  -- trilloamMepTable

OBJECT trilloamMepTxLbmDestRName
MIN-ACCESS read-only
  DESCRIPTION
    "Write access is not required."

OBJECT trilloamMepTxLbmHC
MIN-ACCESS read-only
  DESCRIPTION
    "Write access is not required."

OBJECT trilloamMepTxLbmReplyModeOob
MIN-ACCESS read-only
  DESCRIPTION
    "Write access is not required."

OBJECT trilloamMepTransmitLbmReplyIp
MIN-ACCESS read-only
  DESCRIPTION
    "Write access is not required."

OBJECT trilloamMepTxLbmFlowEntropy
MIN-ACCESS read-only
  DESCRIPTION
    "Write access is not required."

OBJECT trilloamMepTxPtmDestRName
MIN-ACCESS read-only
```

DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmHC
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmReplyModeOob
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTransmitPtmReplyIp
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmFlowEntropy
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmResultOK
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmMessages
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxPtmSeqNumber
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmTree
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmHC
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmReplyModeOob
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTransmitMtmReplyIp
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmFlowEntropy
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmResultOK
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmMessages
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmSeqNumber
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT trillOamMepTxMtmScopeList
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

-- trillOamMepFlowCfgTable

```
OBJECT trillOamMepFlowCfgFlowEntropy
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT trillOamMepFlowCfgDestRName
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT trillOamMepFlowCfgFlowHC
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT trillOamMepFlowCfgRowStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."
```

```
::= { trillOamMibCompliances 2 }
```

END

8. Security Considerations

This MIB relates to a system that will provide network connectivity and packet forwarding services. As such, improper manipulation of the objects represented by this MIB may result in denial of service to a large number of end-users.

There are number of management objects defined in this MIB module with a MAX-ACCESS clause of 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 negative effect on sensitivity/vulnerability are described below.

Some of the readable objects in this MIB module (objects with a MAC-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to control GET and/or NOTIFY access to these objects and possibly to encrypt the values of these objects when sending them over the network via SNMP.

SNMP version prior to SNMPv3 did not include adequate security. Even

if the network itself is secure, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

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

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

9. IANA Considerations

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

| Descriptor | OBJECT IDENTIFIER | value |
|-------------|-------------------|-------|
| ----- | | |
| trillOamMIB | { mib-2 xxx } | |

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

10. References

10.1. Normative References

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

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

[RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD

58, RFC 2579, April 1999.

[RFC2580] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Conformance Statements for SMIV2", STD 58, RFC 2580, April 1999.

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

10.2. Informative References

[RFC6905] Senevirathne, T., Bond, D., Aldrin, S., Li, Y., and R. Watve, "Requirements for Operations, Administration, and Maintenance (OAM) in Transparent Interconnection of Lots of Links (TRILL)", RFC 6905, March 2013.

[TRILLOAMFM] Salam, S., et.al., "TRILL OAM Framework", draft-ietf-trill-oam-framework, Work in Progress, November, 2012.

[TRILL-FM] Senevirathne, T., et.al., "TRILL Fault Management", draft-tissa-trill-oam-fm, Work in Progress, February, 2013.

11. Acknowledgments

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