Technical Specification

MEF 40

UNI and EVC Definition of Managed Objects

April 2013
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1. Abstract

This document specifies the User Network Interface (UNI) and Ethernet Virtual Connection (EVC) Management Information Base (MIB) necessary to configure and monitor the Metro Ethernet Forum (MEF) UNI and EVC that satisfy the requirements and definitions found in MEF 4 [8], MEF 6.1 [9], MEF 6.1.1 [10], and MEF 10.2 [13], the management requirements found in MEF 15 [15], and the management objects as specified by MEF 7.2 [11] and ITU-T Q.840.1 [24].

2. Terminology and Acronyms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASN.1</td>
<td>Abstract Syntax Notation One</td>
<td>OSI 8824 [29]</td>
</tr>
<tr>
<td>API</td>
<td>Application Programming Interface</td>
<td></td>
</tr>
<tr>
<td>Bandwidth Profile</td>
<td>A characterization of Service Frame arrival times and lengths at a reference point and a specification of the disposition of each Service Frame based on its level of compliance with the Bandwidth Profile.</td>
<td>MEF 10.2 [13]</td>
</tr>
<tr>
<td>Bandwidth Profile Group</td>
<td>A collection of one or more bandwidth profiles associated with an interface or a service on an interface. Each bandwidth profile in the group is differentiated by a different Class of Service Identifier</td>
<td>This document</td>
</tr>
<tr>
<td>BSS</td>
<td>Business Support System</td>
<td></td>
</tr>
<tr>
<td>Class of Service Frame Set</td>
<td>A set of Service or ENNI Frames that have a commitment from the Operator or Service Provider subject to a particular set of performance objectives.</td>
<td>MEF 23.1 [17]</td>
</tr>
<tr>
<td>Class of Service Identifier</td>
<td>The mechanism and/or values of the parameters in the mechanism to be used to identify the CoS Name that applies to a frame at a given UNI.</td>
<td>MEF 23.1 [17]</td>
</tr>
<tr>
<td>Class of Service Name</td>
<td>A designation given to one or more sets of performance objectives and associated parameters by the Service Provider or Operator.</td>
<td>MEF 23.1 [17]</td>
</tr>
<tr>
<td>CEN</td>
<td>Carrier Ethernet Network</td>
<td>MEF 12.1.1 [14]</td>
</tr>
<tr>
<td>CoS</td>
<td>Class of Service</td>
<td>MEF 10.2 [13]</td>
</tr>
<tr>
<td>EMS</td>
<td>Element Management System</td>
<td>MEF 7.2 [9]</td>
</tr>
<tr>
<td>ENNI</td>
<td>External Network Network Interface</td>
<td>MEF 26.1 [18]</td>
</tr>
<tr>
<td>EVC</td>
<td>Ethernet Virtual Connection</td>
<td>MEF 10.2 [13]</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
<td></td>
</tr>
<tr>
<td>IETF</td>
<td>Internet Engineering Task Force</td>
<td></td>
</tr>
<tr>
<td>ITU-T</td>
<td>International Telecommunication Union - Telecommunication Standardization Bureau</td>
<td></td>
</tr>
<tr>
<td>L2CP</td>
<td>Layer 2 Control Protocol</td>
<td>MEF 6.1.1 [10]</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
<td>Source</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>L2CP Profile Group</td>
<td>A collection of one or more L2CP profiles associated with an interface or a service on an interface. Each L2CP profile in the group is differentiated by a different L2CP selection and processing type</td>
<td>This document</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
<td>MEF 4 [8]</td>
</tr>
<tr>
<td>MAC</td>
<td>Media Access Control</td>
<td>IEEE Std 802.3 [27]</td>
</tr>
<tr>
<td>MEF</td>
<td>Metro Ethernet Forum</td>
<td></td>
</tr>
<tr>
<td>MEN</td>
<td>Metro Ethernet Network</td>
<td>MEF 4 [8]</td>
</tr>
<tr>
<td>ME-NE</td>
<td>Metro Ethernet Network Element</td>
<td>MEF 15 [15]</td>
</tr>
<tr>
<td>MIB</td>
<td>Management Information Base</td>
<td>RFC 2578 [2]</td>
</tr>
<tr>
<td>NE</td>
<td>Network Element</td>
<td>MEF 4 [8]</td>
</tr>
<tr>
<td>NMS</td>
<td>Network Management System</td>
<td>MEF 7.2 [9]</td>
</tr>
<tr>
<td>OAM</td>
<td>Operations, Administration, and Maintenance</td>
<td>MEF 17 [16]</td>
</tr>
<tr>
<td>OSS</td>
<td>Operations Support System</td>
<td></td>
</tr>
<tr>
<td>OSS/J</td>
<td>OSS through Java Initiative. The OSS/J Initiative defines a set of APIs, with client access either by tightly or loosely coupled mechanisms, to foster an OSS component market.</td>
<td>[30]</td>
</tr>
<tr>
<td>OVC</td>
<td>Operator Virtual Connection</td>
<td>MEF 26.1 [18]</td>
</tr>
<tr>
<td>PDU</td>
<td>Protocol Data Unit</td>
<td>IEEE Std 802.1Q [25]</td>
</tr>
<tr>
<td>RFC</td>
<td>Request for Comment</td>
<td></td>
</tr>
<tr>
<td>Service Frame</td>
<td>An Ethernet frame transmitted across the UNI toward the Service Provider or an Ethernet frame transmitted across the UNI toward the Subscriber</td>
<td>MEF 10.2 [13]</td>
</tr>
<tr>
<td>SMI</td>
<td>Structure of Management Interface</td>
<td>RFC 1157</td>
</tr>
<tr>
<td>SNMP</td>
<td>Simple Network Management Protocol</td>
<td>RFC 1157</td>
</tr>
<tr>
<td>SNMP Agent</td>
<td>An SNMP entity containing one or more command responder and/or notification orignator applications (along with their associated SNMP engine). Typically implemented in an NE.</td>
<td>RFC 3411 [3]</td>
</tr>
<tr>
<td>SNMP Manager</td>
<td>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.</td>
<td>RFC 3411 [3]</td>
</tr>
<tr>
<td>SOAM</td>
<td>Service OAM</td>
<td>MEF 17 [16]</td>
</tr>
<tr>
<td>TC</td>
<td>Textual Conventions</td>
<td>RFC 4181 [6]</td>
</tr>
<tr>
<td>TLV</td>
<td>Type Length Value, a method of encoding Objects</td>
<td></td>
</tr>
<tr>
<td>UML</td>
<td>Unified Modeling Language</td>
<td>Object Management Group (OMG)</td>
</tr>
<tr>
<td>UNI</td>
<td>User Network Interface</td>
<td>MEF 10.2 [13]</td>
</tr>
<tr>
<td>VLAN</td>
<td>Virtual LAN</td>
<td>IEEE Std 802.1Q [25]</td>
</tr>
</tbody>
</table>

Table 1 – Terminology and Acronyms
3. Scope

The scope of this document is to provide the SNMP UNI-EVC MIB that supports the MEF UNI and EVC that have been defined in MEF 4 [8], MEF 6.1 [9], MEF 6.1.1 [10], and MEF 10.2 [13], the management requirements found in MEF 15 [15], and the managed objects found in MEF 7.2 [11] and ITU-T Q.840.1 [24].

This document includes the MIB necessary to support the MEF UNI and EVC functionality: the MEF-UNI-EVC-MIB that includes the MIB objects necessary to configure and monitor UNIs and EVCs.

The primary purpose of this document is to provide a mechanism to enhance interoperability between equipment/software vendors and between Service Providers and/or Operators. This document provides the Metro Ethernet Forum (MEF) UNI and EVC configuration and monitoring within the Carrier Ethernet Networks (CENs) via SNMP MIBs.

4. Compliance Levels

The requirements that apply to this document are specified in the following sections. Items that are REQUIRED (contain the words MUST or MUST NOT) will be labeled as [Rx]. Items that are RECOMMENDED (contain the words SHOULD or SHOULD NOT) will be labeled as [Dx]. Items that are OPTIONAL (contain the words MAY or OPTIONAL) will be labeled as [Ox].

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 [1]. All key words must be in upper case, bold text to distinguish them from other uses of the words. Any use of these key words (e.g., may and optional) without [Rx], [Dx] or [Ox] is not normative.

5. Introduction

5.1 The Basic Need

One of the aspects of defining Carrier Ethernet Networks (CENs) is the need to ensure the compatibility between equipment/software vendors and equipment operators in order to facilitate interoperability in local, metro, national, and international networks. One of the common ways to do this is through a common management interface using publically available or enterprise specific SNMP MIBs.

The value of standard MIBs lies in a combination of (a) allowing an Operator to manage multiple types of equipment with a common MIB, (b) allowing equipment vendors to build one MIB that will work with multiple Operators, and (c) to some extent the common MIB helps make the managed objects more uniform, which can in fact help networks interoperability.

A MIB is a collection of managed objects that can be used to provision an entity, query an entity for status information, or define notifications that are sent to a Network Management System (NMS) or an Element Management System (EMS). Collections of related objects are defined in MIB modules which are written using an adapted subset of OSI's Abstract Syntax One, or ASN.1 [29]. Standards for MIB modules are set by IETF and documented in various RFCs, primary of
which are RFC 2578 *Structure of Management Information Version 2 (SMIv2)* and RFC 4181 *Guidelines for Authors and Reviewers of MIB Documents*.

### 5.2 The General Structure

A generalized system model is shown by Figure 1 that illustrates the relationship between the OSS/BSS, NMS, EMS, and Network Elements (NEs). The primary focus of this specification defines the interaction between the EMS (SNMP Manager) and the NE (SNMP Agent) via SNMP using the MIB module defined in this specification. Object names in the figure are examples only.

![Generalized OSS/BSS-NMS-EMS-NE Model](Figure 1)

**Figure 1 – Generalized OSS/BSS-NMS-EMS-NE Model**

### 5.3 The Foundational Elements

MEF 4 [8] describes the generic architecture and framework of Metro Ethernet Networks (MEN) that includes the Ethernet Virtual Connection (EVC) and the UNI reference point.

MEF 6.1 [9] describes the Ethernet service definitions and parameters for the UNI reference point, including Point-to-Point, Multipoint-to-Multipoint, and Rooted-Multipoint Ethernet services, as well as the EVC.

MEF 7.2 [11] describes the overall Carrier Ethernet Management Information Model to identify and define the set of management information necessary to manage the Carrier Ethernet services as defined by the Metro Ethernet Forum. MEF 7.2 draws heavily upon the models defined in ITU-T Q.840.1 [24].

MEF 10.2 [13] and MEF 10.2.1 [12] describe the Ethernet Service Attributes at the UNI reference point.

MEF 15 [15] describes the network management requirements for Metro Ethernet Network Elements (ME-NEs) that support MEF UNI requirements to support Carrier Class Ethernet Services.

The relationship between the various documents and the UNI-EVC MIB presented in this specification is illustrated by Figure 2. The UML models found in MEF 7.2 and ITU-T G.8052, and the IEEE 802.3 [27], 802.1D [26], and 802.1Q [25] specifications, provide a baseline for the UNI-EVC MIB and the Ethernet interfaces.

![Figure 2 – Relationship between 802.1 MIBs, UML Models, and UNI-EVC MIB](image)

**5.4 Alignment with Other ITU-T MIBs and MEF Specifications**

The UNI-EVC MIB is based upon MEF 6.1, MEF 6.1.1, and MEF 10.2 Service Attributes. A number of common elements are found in the IF-MIB, RFC 2863 [3], the MAU-MIB, RFC 4836 [7], and the EtherLike-MIB, RFC3635 [5], which are necessary to support MEF compliant interfaces.

The correlation of MEF 6.1, MEF 6.1.1 and MEF 10.2 Service Attributes are listed in Table 2 - Table 6.
### Table 2 - UNI Service Attribute Alignment

<table>
<thead>
<tr>
<th>MEF-UNI-EVC-MIB Objects</th>
<th>MEF 6.1</th>
<th>MEF 10.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>mefServiceEvcPerUniCfgIdentifier</td>
<td>UNI EVC ID</td>
<td>UNI EVC ID</td>
</tr>
<tr>
<td>mefServiceEvcPerUniCfgCeVlanMap</td>
<td>CE-VLAN ID / EVC Map</td>
<td>CE-VLAN ID/EVC Map</td>
</tr>
<tr>
<td>mefServiceEvcPerUniCfgIngressBwpGrpIndex</td>
<td>Ingress Bandwidth Profile per EVC</td>
<td>Ingress Bandwidth Profile per EVC</td>
</tr>
<tr>
<td>plus mefServiceBwpCfgCosIndex</td>
<td>Ingress Bandwidth Profile per CoS Identifier</td>
<td>Ingress Bandwidth Profile per Class of Service Identifier</td>
</tr>
<tr>
<td>mefServiceEvcPerUniCfgEgressBwpGrpIndex</td>
<td>Egress Bandwidth Profile per EVC</td>
<td>Egress Bandwidth Profile per EVC</td>
</tr>
<tr>
<td>plus mefServiceBwpCfgCosIndex</td>
<td>Egress Bandwidth Profile per CoS Identifier</td>
<td>Egress Bandwidth Profile per Class of Service Identifier</td>
</tr>
</tbody>
</table>

### Table 3 - EVC per UNI Service Attribute Alignment

<table>
<thead>
<tr>
<th>MEF-UNI-EVC- MIB Objects</th>
<th>MEF 6.1</th>
<th>MEF 10.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>mefServiceEvcCfgServiceType</td>
<td>EVC Type</td>
<td>Ethernet Virtual Connection Type (EVC Type)</td>
</tr>
<tr>
<td>mefServiceEvcCfgIdentifier</td>
<td>EVC ID</td>
<td>EVC ID</td>
</tr>
<tr>
<td>mefServiceEvcUniCfgTable</td>
<td>UNI List</td>
<td>UNI List</td>
</tr>
<tr>
<td>mefServiceEvcStatusMaxNumUni</td>
<td>Maximum Number of UNIs</td>
<td>Maximum Number of UNIs</td>
</tr>
<tr>
<td>mefServiceEvcCfgMtuSize</td>
<td>EVC MTU size</td>
<td>EVC Maximum Transmission Unit Size</td>
</tr>
<tr>
<td>MEF-UNI-EVC-MIB Objects</td>
<td>MEF 6.1, MEF 6.1.1</td>
<td>MEF 10.2</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>mefServiceL2cpCfgType</td>
<td>Tunnel (Pass to EVC) / Discard / Peer</td>
<td>Discard, Peer, Pass to EVC, Peer and Pass to EVC</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress, mefServiceL2cpCfgProtocol</td>
<td>STP/RSTP/MSTP</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress</td>
<td>Pause</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress, mefServiceL2cpCfgProtocol, mefServiceL2cpCfgSubType</td>
<td>LACP/LAMP</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress, mefServiceL2cpCfgProtocol, mefServiceL2cpCfgSubType</td>
<td>Link OAM</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress</td>
<td>Port Authentication</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress</td>
<td>E-LMI</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress</td>
<td>LLDP</td>
<td>Bridge Block of protocols</td>
</tr>
<tr>
<td>mefServiceL2cpCfgMacAddress</td>
<td>GARP</td>
<td>GARP Block of Protocols</td>
</tr>
</tbody>
</table>

Table 4 - EVC Service Attribute Alignment

Table 5 - Layer 2 Control Protocols Service Attribute Alignment

Table 6 - Bandwidth Profile Service Attribute Alignment

[R1] The following objects found in the IF-MIB [3] SHALL be supported for MEF compliant Network Element UNI interfaces: ifIndex, ifDescr, ifType, ifMtu,
ifSpeed, ifPhysAddress, ifAdminStatus, ifOperStatus, ifLastChange, ifHighSpeed, ifAlias, and ifLinkUpDownTrapEnable.

[R2] The ifType value SHALL be ethernetCsmacd(6) for MEF compliant Network Element UNI interfaces.


[D1] All the non-deprecated objects found in the IF-MIB [3] SHOULD be supported for MEF compliant Network Elements.

[R4] The following objects found in the MAU-MIB [7] SHALL be supported for MEF compliant Network Element UNI interfaces: ifMauType, ifMauAutoNegAdminStatus.

[D2] All the non-deprecated objects found in the the MAU-MIB [7] SHOULD be supported for MEF compliant Network Elements.

[R5] The following objects found in the EtherLike-MIB [5] SHALL be supported for MEF compliant Network Element UNI interfaces: dot3StatsDuplexStatus, dot3PauseAdminMode.


5.5 Correlation between ITU-T Q.840.1 and MEF UNI-EVC MIB

One of the baseline documents is ITU-T Q.840.1 [24] which presents the requirements and analysis for NMS-EMS management interface of Ethernet for MENs. Table 7 presents a correlation between the MEF UNI-EVC MIB objects and ITU-T Q.840.1 Class Names and Attributes. Those items listed as "n/a" have no correlation with ITU-T Q.840.1.

<table>
<thead>
<tr>
<th>UNI-EVC-MIB Object</th>
<th>ITU-T Q.840.1 Class Name</th>
<th>ITU-T Q.840.1 Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>MefServiceInterfaceCfgTable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceCfgType</td>
<td>ETH_FPP</td>
<td>fPPType, fPPSubType</td>
</tr>
<tr>
<td>mefServiceInterfaceCfgIdentifier</td>
<td>ETH_FPP</td>
<td>userLabel</td>
</tr>
<tr>
<td>mefServiceInterfaceCfgFrameFormat</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>mefServiceInterfaceCfgIngressBwpGrpIndex</td>
<td>ETH_FPP</td>
<td>ingressBandwidthPtr</td>
</tr>
<tr>
<td>mefServiceInterfaceCfgEgressBwpGrpIndex</td>
<td>ETH_FPP</td>
<td>egressBandwidthPtr</td>
</tr>
<tr>
<td>mefServiceInterfaceCfgL2cpGrpIndex</td>
<td>ETH_FPP_UNI</td>
<td>layer2Control ProtocolProcessing List</td>
</tr>
<tr>
<td>MefServiceInterfaceStatusTable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatusType</td>
<td>ETH_FPP</td>
<td>fPPType, fPPSubType</td>
</tr>
<tr>
<td>mefServiceInterfaceStatusMaxV</td>
<td>ETH_FPP</td>
<td>maxNumVirtual Connections</td>
</tr>
<tr>
<td>mefServiceInterfaceStatusMaxEndPointPerVc</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>MefServiceInterfaceStatisticsTable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatisticsIngressUndersized</td>
<td>ETH UNI Anomalies Performance Data Set</td>
<td>Undersized Frames</td>
</tr>
<tr>
<td>Managed Object</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatisticsIngressOversized</td>
<td>ETH UNI Anomalies Performance Data Set Oversized Frames</td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatisticsIngressFragments</td>
<td>ETH UNI Anomalies Performance Data Set Fragments</td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatisticsIngressCrcAlignment</td>
<td>ETH UNI Anomalies Performance Data Set FCS and Alignment Errors</td>
<td></td>
</tr>
<tr>
<td>mefServiceInterfaceStatisticsIngressInvalidVid</td>
<td>ETH UNI Anomalies Performance Data Set Invalid CE-VLAN ID</td>
<td></td>
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<tr>
<td>mefServiceInterfaceStatisticsIngressOctets</td>
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<td>mefServiceInterfaceStatisticsIngressMulticast</td>
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<td>mefServiceInterfaceStatisticsEgressBroadcast</td>
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**MefServiceUniCfgTable**

<table>
<thead>
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<tr>
<td>mefServiceUniCfgBundlingMultiplex</td>
<td>ETH_FPP_UNI serviceMuxing Indicator, bundling</td>
</tr>
<tr>
<td>mefServiceUniCfgCeVidUntagged</td>
<td>ETH_FPP_UNI ingressVLAN AssignmentUntagged</td>
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**MefServiceEvcCfgTable**

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</tr>
<tr>
<td>mefServiceEvcCfgIdentifier</td>
<td>ETH_FDFr_EVC fDFrEvcID, userLabel</td>
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<td>mefServiceEvcCfgServiceType</td>
<td>ETH_FDFr_EVC fDFrEvcType</td>
</tr>
<tr>
<td>mefServiceEvcCfgMtuSize</td>
<td>ETH_FDFr_EVC mtuSize</td>
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<td>mefServiceEvcCfgCeVlanIdPreservation</td>
<td>ETH_FDFr_EVC uniCeVlanIdPreservation</td>
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<td>mefServiceEvcCfgCeVlanCosPreservation</td>
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<td>mefServiceEvcCfgBroadcastDelivery</td>
<td>ETH_Flow_Point broadcastServiceFrameDelivery</td>
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**MefServiceEvcUniCfgTable**

<table>
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**MefServiceEvcStatusTable**

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<td>Managed Object</td>
<td>Description</td>
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<td>-------------</td>
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**MefServicePerformanceTable**

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<tr>
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<tbody>
<tr>
<td>mefServicePerformanceIngressYellowFrameCount</td>
<td>ETH Ingress Traffic Management Performance Data Set</td>
<td>ingressYellowFrameCount</td>
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<td>mefServicePerformanceIngressRedFrameCount</td>
<td>ETH Ingress Traffic Management Performance Data Set</td>
<td>ingressRedFrameCount</td>
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<td>mefServicePerformanceIngressGreenOctets</td>
<td>ETH Ingress Traffic Management Performance Data Set</td>
<td>ingressGreenOctetCount</td>
</tr>
<tr>
<td>mefServicePerformanceIngressYellowOctets</td>
<td>ETH Ingress Traffic Management Performance Data Set</td>
<td>ingressYellowOctetCount</td>
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<tr>
<td>mefServicePerformanceIngressRedOctets</td>
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<td>ingressRedOctetCount</td>
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<tr>
<td>mefServicePerformanceIngressGreenFrameDiscards</td>
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<td>greenFrameDiscards</td>
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<tr>
<td>mefServicePerformanceIngressYellowFrameDiscards</td>
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<td>yellowFrameDiscards</td>
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<td>greenOctetDiscards</td>
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<td>yellowOctetDiscards</td>
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<td>egressGreenFrameCount</td>
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<tr>
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<td>egressYellowFrameCount</td>
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<tr>
<td>mefServicePerformanceEgressGreenOctets</td>
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<td>egressGreenOctetCount</td>
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<td>mefServicePerformanceEgressYellowOctets</td>
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**MefServiceConfigurationAlarm**

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**From IF-MIB**

<table>
<thead>
<tr>
<th>ifIndex</th>
<th>ETH_FPP</th>
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### Table 7 - Correlation between MEF-UNI-EVC-MIB and ITU-T Q.840.1 Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
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<tr>
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<tr>
<td>ifType</td>
<td>MAUTransportPort</td>
</tr>
<tr>
<td>ifMtu</td>
<td>ETH_FPP</td>
</tr>
<tr>
<td>ifSpeed</td>
<td>ETH_FPP</td>
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<tr>
<td>ifPhysAddress</td>
<td>ETH_FPP</td>
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<td>ifAdminStatus</td>
<td>ETH_FPP</td>
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<tr>
<td>ifOperStatus</td>
<td>ETH_FPP</td>
</tr>
<tr>
<td>ifLastChange</td>
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</tr>
<tr>
<td>ifHighSpeed</td>
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<tr>
<td>ifAlias</td>
<td>n/a</td>
</tr>
<tr>
<td>ifLinkUpDownTrapEnable</td>
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</table>

From MAU-MIB

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ifMauType</td>
<td>MAUTransportPort</td>
</tr>
<tr>
<td>ifMauAutoNegAdminStatus</td>
<td>MAUTransportPort</td>
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From EtherLike-MIB

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
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<tbody>
<tr>
<td>dot3StatsDuplexStatus</td>
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<tr>
<td>dot3PauseAdminMode</td>
<td>M.3100:physicalPort</td>
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</table>

#### 5.6 Overview of the UNI & EVC Configuration and Monitoring

The basis of Carrier Ethernet Networks (CENs) is the designation of a reference point in the network known as a UNI which provides a demarcation between the CEN and a Subscriber. The association of UNI reference points for the purpose of delivering an Ethernet flow between subscriber sites across the CEN is accomplished by the Ethernet Virtual Connection (EVC).

With this in mind the basis for configuration of a CEN is the association of a physical interface that serves as the UNI reference point and the association of UNI reference points via the concept of an EVC. This document specifies a UNI-EVC MIB that provides configuration, status, and statistics. This is visually seen in Figure 3, where light colored boxes are object groups and dark colored boxes are object tables.
The configuration of an interface using the UNI-EVC MIB is accomplished by configuring objects in the `mefServiceInterfaceCfgTable` and configuring an interface via the `mefServiceInterfaceCfgType` as a type "uni". Other interface options such as interface identifier, and frame format can be configured. Once an interface is fully configured the `ifAdminStatus` can be configured as "up".

Once the interface type and attributes are selected, the specific UNI attributes can be selected by writing objects in the `mefServiceUniCfgTable`. UNI attributes such as UNI identification, bundling and multiplexing options, and assignment of untagged traffic to a CE-VLAN can be configured.

After the interfaces in a network are designated as "uni", the EVC association can be configured. This is accomplished by adding an EVC to the `mefServiceEvcCfgTable` and assigning UNI interfaces to this EVC via the `mefServiceEvcUniCfgTable`. EVC service attributes such as EVC identification, type, MTU size, CE-VLAN and CE-CoS preservation can be selected.

The specific EVC attributes associated with a UNI can be configured via the `mefServiceEvcPerUniCfgTable`.

A bandwidth profile group is a collection of one or more bandwidth profiles associated with an interface or a service on an interface. When there is more than one bandwidth profile in the group, each is differentiated from other bandwidth profiles in the group by a different Class of Service Identifier as indicated by the `mefServiceBwpCfgCosIndex` object. Bandwidth profile groups are defined via the `mefServiceBwpGrpCfgTable` and the individual bandwidth profiles within that group by an entry in the `mefServiceBwpCfgTable`. A bandwidth profile group can be assigned to an interface (UNI), via the `mefServiceInterfaceCfgIngressBwpGrpIndex` and `mefServiceInterfaceCfgEgressBwpGrpIndex` objects, or to the UNIs in an EVC, via the `mefServiceEvcPerUniCfgIngressBwpGrpIndex` and `mefServiceEvcPerUniCfgEgressBwpGrpIndex` objects.
Class of Service Identifiers are configured via the `mefServiceCosCfgTable` and then can be associated with a UNI on an EVC, via the `mefServiceBwpCfgCosIndex` of the `mefServiceBwpCfgTable`.

A Layer 2 Control Protocol (L2CP) profile group is a collection of one or more L2CP profiles associated with an interface or a service on an interface. Each L2CP profile in the group is differentiated by a different L2CP selection and processing type. A L2CP profile group is defined via the `mefServiceInterfaceL2cpGrpCfgTable` and the specific L2CP profile via the `mefServiceInterfaceL2cpCfgTable`. A L2CP profile is assigned to an interface (UNI) via the `mefServiceInterfaceCfgL2cpGrpIndex` object. A L2CP profile is assigned to an EVC via the `mefServiceEvcCfgL2cpGrpIndex` object.

Monitoring of interface status is accomplished by reading objects in the `mefServiceInterfaceStatusTable` and EVC status by reading objects in the `mefServiceEvcStatusTable`.

Performance statistics for an interface are available via `mefServiceInterfaceStatisticsTable`. Traffic Performance statistics are assigned to a bandwidth profile via the enabling of the `mefServiceBwpCfgPerformanceEnable` and results are read via the `mefServicePerformanceTable`.

6. UNI-EVC MIB Overview

The UNI-EVC MIB is divided into a number of different object groupings: the Interface Attributes, the UNI Attributes, the EVC Attributes, the Bandwidth Profile Attributes, the Class of Service Identifier Attributes, the L2CP Attributes, and the Notification Objects (as indicated by the light colored boxes of Figure 3). Included is a section that indicates MIB compliance.

6.1 Service Interface Attributes

The Service Interface Attributes are defined in the `mefServiceInterfaceCfgTable`, the `mefServiceInterfaceStatusTable`, and the `mefServiceInterfaceStatisticTable`. The objects include configuration, status, and statistic objects common for all MEF Ethernet Interfaces.

6.1.1 Interface Configuration Table

The `mefServiceInterfaceCfgTable` is indexed by the standard interface number `ifIndex` from the IF-MIB. Rows in this table are automatically created by the NE based upon the interfaces that are available on the NE. These interfaces can be configured as an MEF standard interface via this table.

Configuration service attribute options are organized into the following groups:

- Interface Type and Identification:
  - `mefServiceInterfaceCfgType`
  - `mefServiceInterfaceCfgIdentifier`

- Interface Physical Characteristics:
  - `mefServiceInterfaceCfgFrameFormat`
6.1.2 Interface Status Table

The `mefServiceInterfaceStatusTable` is created automatically by the NE based upon the interfaces that are available on the NE.

Status service attribute options are organized into the following group:

- Interface characteristics:
  - `mefServiceInterfaceStatusType`
  - `mefServiceInterfaceStatusMaxVc`
  - `mefServiceInterfaceStatusMaxEndPointPerVc`

6.1.3 Interface Statistics Table

The `mefServiceInterfaceStatisticsTable` is created automatically by the NE based upon the interfaces that are available on the NE as defined by [15] and [24].

Statistic service attribute options are organized into the following groups:

- Ingress Statistics Counters:
  - `mefServiceInterfaceStatisticsIngressUndersized`
  - `mefServiceInterfaceStatisticsIngressOversized`
  - `mefServiceInterfaceStatisticsIngressFragments`
  - `mefServiceInterfaceStatisticsIngressCrcAlignment`
  - `mefServiceInterfaceStatisticsIngressInvalidVid`
  - `mefServiceInterfaceStatisticsIngressOctets`
  - `mefServiceInterfaceStatisticsIngressUnicast`
  - `mefServiceInterfaceStatisticsIngressMulticast`
  - `mefServiceInterfaceStatisticsIngressBroadcast`

- Egress Statistics Counters
  - `mefServiceInterfaceStatisticsEgressOctets`
  - `mefServiceInterfaceStatisticsEgressUnicast`
  - `mefServiceInterfaceStatisticsEgressMulticast`
  - `mefServiceInterfaceStatisticsEgressBroadcast`
6.2 Service UNI Attributes

UNI attributes are divided into UNI Service Attributes and EVC per UNI Attributes.

6.2.1 UNI Service Attributes Configuration Table

The Service UNI Attributes are defined in the `mefServiceUniCfgTable` and are indexed by `IfIndex`. The necessary status objects for the UNI are found in the `mefServiceInterfaceStatusTable`.

Rows in this table are automatically created by the NE with default values based upon an interface being selected as a type UNI via the `mefServiceInterfaceCfgType` object and are automatically deleted when an interface that is defined as a UNI is changed to not be a UNI.

The following attributes are settable for a UNI:

- `mefServiceUniCfgIdentifier`
- `mefServiceUniCfgBundlingMultiplex`
- `mefServiceUniCfgCeVidUntagged`
- `mefServiceUniCfgCePriorityUntagged`

6.2.2 Service EVC per UNI Attributes Configuration Table

EVC per UNI attributes are configured via the `mefServiceEvcPerUniCfgTable`. Rows in the table are automatically created with default values when an UNI is added to an EVC via the `mefServiceEvcUniCfgType` object and are deleted when an EVC is deleted or the UNI associated with the EVC is deleted.

Configuration service attribute options are organized into the following groups:

- EVC service type and identifier:
  - `mefServiceEvcPerUniCfgServiceType`
  - `mefServiceEvcPerUniCfgIdentifier`

- EVC CE-VLAN map:
  - `mefServiceEvcPerUniCfgCeVlanMap`

- EVC frame delivery:
  - `mefServiceEvcPerUniCfgIngressBwpGrpIndex`
  - `mefServiceEvcPerUniCfgEgressBwpGrpIndex`

6.3 Service EVC Attributes

EVC attributes are divided into EVC configuration attributes, EVC UNI configuration, and EVC status.
6.3.1 Service EVC Attributes Configuration Table

EVC attributes are configured via the `mefServiceEvcCfgTable`. The next available EVC index is found by reading the `mefServiceEvcNextIndex` object.

An EVC is written by creating a row based on the value of `mefServiceEvcNextIndex`. An EVC is deleted when a row in the `mefServiceEvcCfgTable` is deleted using the `mefServiceEvcCfgRowStatus` object.

Configuration service attribute options are organized into the following groups:

- EVC Identification, Type, and MTU Size:
  - `mefServiceEvcCfgIdentifier`
  - `mefServiceEvcCfgServiceType`
  - `mefServiceEvcCfgMtuSize`

- EVC CE VLAN ID and CoS Preservation:
  - `mefServiceEvcCfgCevlanIdPreservation`
  - `mefServiceEvcCfgCevlanCosPreservation`

- EVC Service Frame Delivery:
  - `mefServiceEvcCfgUnicastDelivery`
  - `mefServiceEvcCfgMulticastDelivery`
  - `mefServiceEvcCfgBroadcastDelivery`

- EVC Administration State and Profile Association:
  - `mefServiceEvcCfgAdminState`
  - `mefServiceEvcCfgL2cpGrpIndex`

6.3.2 EVC UNI Configuration

The UNIs associated with an EVC are configured by writing the `mefServiceEvcUniCfgTable` using the `mefServiceEvcCfgIndex` and the `interfaceIndex`, if `Index`, with the `mefServiceEvcUniCfgType` object, which indicates the UNI is a type of 'root' or 'leaf', and `mefServiceEvcUniCfgRowStatus`.

6.3.3 EVC Status Table

The `mefServiceEvcStatusTable` is created automatically by the NE based when the associated EVC is created and is deleted when the associated EVC is deleted.

The following status service attributes are available on the EVC:

- `mefServiceEvcStatusMaxMtuSize`
- `mefServiceEvcStatusMaxNumUni`
- `mefServiceEvcStatusOperationalState`
6.4 Service Bandwidth Profile Attributes

6.4.1 Bandwidth Profile Group Configuration Table

A Bandwidth Profile is a characterization of the Service Frame arrival times and lengths at a reference point and a specification of the disposition of each Service Frame. A group of bandwidth profiles associated with a service interface, or with an EVC on a UNI, is provided by the `mefServiceBwpGrpCfgTable`. The next available bandwidth profile group is found by reading `mefServiceBwpGrpNextIndex` object.

A bandwidth profile group is written by creating a row based on the value of `mefServiceBwpGrpNextIndex`. A bandwidth profile group can be assigned to an ingress or egress interface (UNI, ENNI) or service (EVC, OVC) by configuring the appropriate table bandwidth profile index (`mefServiceInterfaceCfgIngressBwpGrpIndex`, `mefServiceInterfaceCfgEgressBwpGrpIndex`, `mefServiceEvcPerUniCfgIngressBwpGrpIndex`, `mefServiceEvcPerUniCfgEgressBwpGrpIndex`) with the bandwidth profile group index value created in this specific table.

A bandwidth profile group is deleted when a row in the `mefServiceBwpGrpCfgTable` is deleted using the `mefServiceBwpGrpCfgRowStatus` object. Deleting a row in the `mefServiceBwpGrpCfgTable` also deletes the associated rows in the `mefServiceBwpCfgTable`.

6.4.2 Bandwidth Profile Configuration Table

The `mefServiceBwpCfgTable` indicates the specific bandwidth profiles that are associated with the bandwidth profile group, but associated via different Class of Service Identifiers. The next available bandwidth profile in a bandwidth profile group is found by reading the `mefServiceBwpCfgNextIndex` object. A bandwidth profile is written by creating a row based on the value of `mefServiceBwpCfgNextIndex`.

A bandwidth profile is deleted when a row in the `mefServiceBwpCfgTable` is deleted using the `mefServiceBwpCfgRowStatus` object.

Enabling the `mefServiceBwpCfgPerformanceEnable` object allows a Traffic Performance Data Set to be associated with a Bandwidth Profile. Disabling the object indicates that the counters are not enabled.

A bandwidth profile can be associated with a CoS Identifier through the use of the `mefServiceBwpCfgCosIndex` object. The CoS Identifier profile is first configured via the `mefServiceCosCfgTable` at the `mefServiceCosCfgIndex`. Once the CoS Identifier profile is created then the `mefServiceBwpCfgCosIndex` is set with the value of the `mefServiceCosCfgIndex`. If the bandwidth profile is not to be associated with a CoS Identifier (that is, it applies to all CoS Identifiers), then the `mefServiceBwpCfgCosIndex` is set to 0. In this case the Bandwidth Profile Group contains only a single Bandwidth Profile.

The following service attributes are settable for a specific bandwidth profile:

- `mefServiceBwpCfgIdentifier`
- `mefServiceBwpCfgCir`
- `mefServiceBwpCfgCbs`
6.4.3 Traffic Performance Data Set

The `mefServicePerformanceTable` defines a particular Traffic Performance Data Set as defined by [15] and [24]. The Traffic Performance Data Set is associated with a Bandwidth Profile and inherits the indices of a Bandwidth Profile. This table is automatically created when a Bandwidth Profile is created, but the counters are only incremented when the associated `mefServiceBwpCfgPerformanceEnable` is enabled.

A Traffic Performance Data Set Profile consists of the following:

- **Ingress Counters:**
  - `mefServicePerformanceIngressGreenFrameCount`
  - `mefServicePerformanceIngressGreenOctets`
  - `mefServicePerformanceIngressYellowFrameCount`
  - `mefServicePerformanceIngressRedFrameCount`
  - `mefServicePerformanceIngressYellowOctets`
  - `mefServicePerformanceIngressRedOctets`
  - `mefServicePerformanceIngressGreenFrameDiscards`
  - `mefServicePerformanceIngressYellowFrameDiscards`
  - `mefServicePerformanceIngressGreenOctetsDiscards`
  - `mefServicePerformanceIngressYellowOctetsDiscards`

- **Egress Counters:**
  - `mefServicePerformanceEgressGreenFrameCount`
  - `mefServicePerformanceEgressGreenOctets`
  - `mefServicePerformanceEgressYellowFrameCount`
  - `mefServicePerformanceEgressYellowOctets`

6.5 Class of Service Identifier Attributes

A Class of Service Identifier (CoS ID) Frame Set is a set of Service or ENNI Frames that have a commitment from the Operator or Service Provider subject to a particular set of performance objective. This CoS ID profile characterization selection is provided by the `mefServiceCosCfgTable`. The next available CoS ID profile is found by reading the `mefServiceCosNextIndex` object.
A CoS ID profile is written by creating a row based on the value of `mefServiceCosNextIndex`. A CoS ID profile can be assigned to an ingress or egress interface, per EVC or OVC, or per bandwidth profile via the `mefServiceBwpCfgCosIndex`.

The following service attributes are settable for a CoS ID profile:

- `mefServiceCosCfgIdentifier`
- `mefServiceCosCfgType`
- `mefServiceCosCfgIdentifierList`
- `mefServiceCosCfgMacAddress`
- `mefServiceCosCfgProtocol`
- `mefServiceCosCfgSubType`

### 6.6 L2CP Attributes

The `mefServiceL2cpGrpCfgTable` defines a particular L2CP (Layer 2 Control Protocol) profile group. A L2CP profile group consists of one or more L2CP protocol profiles that are defined in the `mefServiceL2cpCfgTable`. Individual L2CP profile settings are created by adding a new row in the `mefServiceL2cpCfgTable` that is associated with a particular grouping of data and operation on that data set for the specific interface or EVC. Individual L2CP attributes are written to unique columns in the table.

A L2CP profile group once created can be assigned to an interface via the `mefServiceInterfaceCfgL2cpGrpIndex` object. A L2CP profile group can be assigned to an EVC via the `mefServiceEvcCfgL2cpGrpIndex` object. The value set to the `mefServiceInterfaceCfgL2cpGrpIndex` or `mefServiceEvcCfgL2cpGrpIndex` objects is the same as the `mefServiceL2cpGrpCfgIndex` for the associated L2CP profile group.

A L2CP profile group consists of the following:

- `mefServiceL2cpGrpNextIndex` - indicates the next available L2CP profile group index
- `mefServiceL2cpGrpCfgIndex` - the L2CP profile group index
- `mefServiceL2cpCfgNextIndex` - indicates the next available specific L2CP index within a profile group for a L2CP protocol
- `mefServiceL2cpGrpCfgRowStatus` - the status of the row and L2CP profile group

L2CP specific service attribute options are organized into the following groups:

- L2CP type and scope:
  - `mefServiceL2cpCfgType`
  - `mefServiceL2cpCfgMatchScope`
- L2CP matching criteria:
  - `mefServiceL2cpCfgMacAddress`
  - `mefServiceL2cpCfgProtocol`
6.7 Service Notification and Configuration Objects

The following objects are specific to notifications and are included in the list of objects for the specific Service notifications:

- **mefServiceNotificationObjDateAndTime** - contains the time and date at the time that the notification event is detected
- **mefServiceNotificationConfigurationChangeType** - contains the type of event that caused the notification: entry added, entry deleted, or entry modified

The following Service notification can be generated:

- **mefServiceConfigurationAlarm** - is sent when the settings of the configurable item is changed

6.8 UNI-EVC MIB Conformance and Compliance

There are two conformance items: the **mefServiceUniMibCompliances** section and the **mefServiceUniMibGroups** conformance group.

The units of conformance are organized into the following mandatory groups:

- **mefServiceInterfaceMandatoryGroup**
- **mefServiceUniMandatoryGroup**
- **mefServiceEvcMandatoryGroup**
- **mefServiceBwpMandatoryGroup**
- **mefServiceCosMandatoryGroup**
- **mefServiceL2cpMandatoryGroup**
- **mefServicePerformanceMandatoryGroup**

The units of conformance are organized into the following optional groups:

- **mefServiceEvcOptionalGroup**
- **mefServicePerformanceOptionalGroup**
- **mefServiceNotificationsOptionalGroup**
- **mefServiceNotificationObjOptionalGroup**

7. UNI-EVC MIB Requirements

The UNI-EVC MIB defines the managed objects necessary to support MEF UNI and EVC functionality.

The UNI-EVC MIB is divided into the following groups:

- **mefServiceInterfaceAttributes** - defines the Interface objects necessary to support the general interface configuration and status of MEF compliant Network Elements. This group includes the **mefServiceInterfaceCfgTable**, **mefServiceInterfaceStatusTable** and the **mefServiceInterfaceStatisticsTable**.
• **mefServiceUniAttributes** - defines the UNI Service Attribute objects necessary to support UNI configuration and status of MEF compliant Network Elements. This group includes the `mefServiceUnicfgTable` and the `mefServiceEvcPerUnicfgTable`.

• **mefServiceEvcAttributes** - defines the EVC Service Attribute objects necessary to support EVC configuration and status of MEF compliant Network Elements. This group includes the `mefServiceEvcNextIndex` object, the `mefServiceEvcCfgTable`, `mefServiceEvcUnicfgTable`, and the `mefServiceEvcStatusTable`.

• **mefServiceBwpAttributes** - defines the Bandwidth Profile Service Attribute objects necessary to support Bandwidth Profile configuration of MEF compliant Network Elements. This group includes the `mefServiceBwpGrpNextIndex` object and the `mefServiceBwpGrpCfgTable`, the `mefServiceBwpCfgTable`, and the `mefServicePerformanceTable`.

• **mefServiceCosAttributes** - defines the "Class of Service Identifier" Service Attribute objects necessary to support Class of Service Identifier configuration of MEF compliant Network Elements. This group includes the `mefServiceCosNextIndex` object and the `mefServiceCosCfgTable`.

• **mefServiceL2cpAttributes** - defines the Layer 2 Control Protocols Service Attribute objects necessary to support Layer 2 Control Protocol configuration of MEF compliant Network Elements. This group includes the `mefServiceL2cpGrpNextIndex` object, the `mefServiceL2cpGrpCfgTable`, and the `mefServiceL2cpCfgTable`.

• **mefServiceNotification** - defines the Notification Service Attribute objects necessary to support notifications for MEF compliant Network Elements. This group includes all the objects from `mefServiceNotifications`, `mefServiceNotificationCfg`, and `mefServiceNotificationObj` groups.

[R6] The following objects from the `mefServiceInterfaceCfgTable` SHALL be supported for MEF compliant Network Elements: `mefServiceInterfaceCfgType`, `mefServiceInterfaceCfgIdentifier`, `mefServiceInterfaceCfgFrameFormat`, `mefServiceInterfaceCfgIngressBwpGrpIndex`, `mefServiceInterfaceCfgEgressBwpGrpIndex`, `mefServiceInterfaceCfgL2cpGrpIndex`.

[R7] The following objects from the `mefServiceInterfaceStatusTable` SHALL be supported for MEF compliant Network Elements: `mefServiceInterfaceStatusType`, `mefServiceInterfaceStatusMaxVc`, and `mefServiceInterfaceStatusMaxEndPointPerVc`.

[R8] All objects from the `mefServiceInterfaceStatisticsTable` SHALL be supported for MEF compliant Network Elements.

[R9] All objects from the `mefServiceUnicfgTable` and the `mefServiceEvcPerUnicfgTable` SHALL be supported for MEF compliant Network Elements.

[R10] The `mefServiceEvcNextIndex` object and the objects from the `mefServiceEvcCfgTable` SHALL be supported for MEF compliant Network Elements: `mefServiceEvcCfgIdentifier`, `mefServiceEvcCfgServiceType`, `mefServiceEvcCfgMtuSize`, `mefServiceEvcCfgCevlanIdPreservation`, `mefServiceEvcCfgServiceInstanceId`, and the `mefServiceEvcCfgEvcStatusTable`.
mefServiceEvcCfgCevlanCosPreservation, mefServiceEvcCfgL2cpGrpIndex, mefServiceEvcCfgAdminState, and mefServiceEvcCfgRowStatus.

[D4] The following objects from the **mefServiceEvcCfgTable** SHOULD be supported for MEF compliant Network Elements: mefServiceEvcCfgUnicastDelivery, mefServiceEvcCfgMulticastDelivery, and mefServiceEvcCfgBroadcastDelivery.

The mefServiceEvcCfgUnicastDelivery, mefServiceEvcCfgMulticastDelivery, and mefServiceEvcCfgBroadcastDelivery objects are listed as a desired requirement since there is not a criteria defined within the body of MEF 10.2 or 6.1 on how the conditional delivery scope is defined.

[R11] All objects from the mefServiceEvcUniCfgTable and the mefServiceEvcNextIndex object SHALL be supported for MEF compliant Network Elements.

[R12] All objects from the mefServiceEvcStatusTable SHALL be supported for MEF compliant Network Elements.

[R13] All objects from the mefServiceBwpGrpCfgTable, the mefServiceBwpCfgTable, and the mefServiceBwpGrpNextIndex object SHALL be supported for MEF compliant Network Elements.

[R14] All objects from the mefServiceCosCfgTable and the mefServiceCosNextIndex object SHALL be supported for MEF compliant Network Elements.

[R15] All objects from the mefServiceL2cpGrpCfgTable, mefServiceL2cpCfgTable, and the mefServiceL2cpGrpNextIndex object SHALL be supported for MEF compliant Network Elements.

[R16] The following objects from the mefServicePerformanceTable SHALL be supported for MEF compliant Network Elements: mefServicePerformanceIngressGreenFrameCount, mefServicePerformanceIngressGreenOctets, mefServicePerformanceEgressGreenFrameCount, mefServicePerformanceEgressGreenOctets.

[R17] The following objects from the mefServicePerformanceTable SHOULD be supported for MEF compliant Network Elements: mefServicePerformanceIngressYellowFrameCount, mefServicePerformanceIngressYellowFrameCount, mefServicePerformanceIngressRedFrameCount, mefServicePerformanceIngressYellowOctets, mefServicePerformanceIngressRedOctets, mefServicePerformanceEgressRedFrameCount, mefServicePerformanceEgressYellowOctets, mefServicePerformanceIngressGreenFrameDiscards, mefServicePerformanceIngressGreenOctetsDiscards, and mefServicePerformanceIngressYellowOctetsDiscards.
[R18] All objects from mefServiceNotifications, mefServiceNotificationCfg, and mefServiceNotificationObj groups SHOULD be supported for MEF compliant Network Elements.
8. UNI-EVC MIB Definitions

MEF-UNI-EVC-MIB DEFINITIONS ::= BEGIN
IMPORTS
   NOTIFICATION-TYPE, MODULE-IDENTITY, OBJECT-TYPE, Unsigned32, enterprises,
   Counter32, Counter64
   FROM SNMPv2-SMI -- RFC 2578
   RowStatus, MacAddress, DateAndTime, TEXTUAL-CONVENTION, DisplayString
   FROM SNMPv2-TC -- RFC 2579
   OBJECT-GROUP, NOTIFICATION-GROUP, MODULE-COMPLIANCE
   FROM SNMPv2-CONF -- RFC 2580
   ifIndex
   FROM IF-MIB -- [RFC2863]
   EntityAdminState, EntityOperState
   FROM ENTITY-STATE-TC-MIB -- RFC 4268
   VlanId
   FROM Q-BRIDGE-MIB -- [RFC4363]
   IEEE8021PriorityValue
   FROM IEEE8021-TC-MIB;
   -- IEEE 802.1ap

mefUniEvcMib MODULE-IDENTITY
   LAST-UPDATED "201301251200Z" -- January 25, 2013
   ORGANIZATION "Metro Ethernet Forum"
   CONTACT-INFO
      "Web URL: http://metroethernetforum.org/
      E-mail: mibs@metroethernetforum.org
      Postal: Metro Ethernet Forum
              6033 W. Century Boulevard, Suite 1107
              Los Angeles, CA 90045
              U.S.A.
      Phone: +1 310-642-2800
      Fax: +1 310-642-2808"
   DESCRIPTION
      "This MIB module contains the management objects for the
       management of User Network Interfaces (UNIs) and Ethernet
       Virtual Connections (EVCs)

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       All rights reserved."

********************************************************************
Reference Overview
A number of base documents have been used to create this MIB. The following
are the abbreviations for the baseline documents:

[MEF6.1] refers to MEF 6.1 'Ethernet Services Definitions - Phase 2',
       April 2008
[MEF 6.1.1] refers to MEF 6.1.1 'Layer 2 Control Protocol Handling Amendment
to MEF 6.1', January 2012
[MEF 7.2] refers to MEF 7.2 'Carrier Ethernet Management Information Model',
       January 2013
[MEF 10.2] refers to MEF 10.2 'Ethernet Services Attributes Phase 2',
       October 2009
[MEF 26.1] refers to MEF 26.1 'External Network Network Interface (ENNI) -
       Phase 2', January 2012
[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

********************************************************************
DESCRIPTION
"Initial Version."
::= { enterprises mef(15007) mefService(2) 2 }

-- ***************************************************************************
-- Groups in the Service MIB Module
-- ***************************************************************************
mefServiceNotifications OBJECT IDENTIFIER ::= { mefUniEvcMib 0 }
mefServiceObjects OBJECT IDENTIFIER ::= { mefUniEvcMib 1 }
mefServiceMibConformance OBJECT IDENTIFIER ::= { mefUniEvcMib 2 }

-- ***************************************************************************
-- Ethernet Service Textual Conventions
-- ***************************************************************************
MefServicePreservationType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"Configures the EVC preservation attributes.

preserve(1) The type of service is preserved, either
    CE-VLAN ID or CE-VLAN CoS as indicated by
    the specific object.

noPreserve(2) The type of service is not preserved
    CE-VLAN ID or CE-VLAN CoS as indicated by
    the specific object.
"
REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
SYNTAX INTEGER {
    preserve (1),
    noPreserve (2)
}

MefServiceDeliveryType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"A MEF service can have one of three different delivery types:

discard(1) Service Frames are discarded

unconditional(2) Service Frames are unconditionally
    delivered no matter the content of the
    Service Frame. An example of this is
    a Point-to-Point EVC

conditional(3) Service Frame are conditionally
    delivered to the destination UNI. The
    condition is specified, for example via a
bandwidth profile or unicast MAC address learning.

REFERENCE
"[MEF 6.1] 6.0"
SYNTAX INTEGER {
  discard               (1),
  unconditional         (2),
  conditional           (3)
}

MefServiceInterfaceType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"A MEF Interface can be one of several types:
  bUni1d1(0)    UNI Type 1.1
  bUni1d2(1)    UNI Type 1.2
  bUni2d1(2)    UNI Type 2.1
  bUni2d2(3)    UNI Type 2.2
  bEnni(4)      ENNI
  bEnniVuni(5)  VUNI on an ENNI"

REFERENCE
"[MEF 6.1] 6.0"
SYNTAX BITS {
  bUni1d1(0),
  bUni1d2(1),
  bUni2d1(2),
  bUni2d2(3),
  bEnni(4),
  bEnniVuni(5)
}

MefServiceListType ::= TEXTUAL-CONVENTION
DISPLAY-HINT "255t"
STATUS current
DESCRIPTION
"An octet string containing a list of item values.
An item value is an arbitrary string of octets from ASCII character 0x21 - 0x7E, but may not contain a delimiter character. Delimiter characters are defined to be one of the following:
  - An ASCII comma character (0x2C)
  - An ASCII colon character (0x3A)

Delimiter characters are used to separate item values in a item list. Only a single delimiter character may occur between two item values. A item value may not have a zero length. These constraints imply certain restrictions on the contents of this object:
  - There cannot be a leading or trailing delimiter character.
  - There cannot be multiple adjacent delimiter characters.

The 'comma' delimiter separates individual items or a sequence of items. The 'colon' delimiter indicates a range of items from the first item before the colon through the last item after the colon. Individual ranges in the same
item list need to be separated by a 'comma'.

Some examples of valid item lists are:

- '' -- an empty list
- '1234' -- list of one item
- '10,11,12' -- list of several items
- '10:20' -- a list containing all the valid values from 10 through 20

Note that although an item value may not have a length of zero, an empty string is still valid. This indicates an empty list (i.e. there are no tag values in the list).

The use of the item list is to select one or more items at one time with a single object instead of having separate row entries in a table for each individual item.

"SYNTAX OCTET STRING (SIZE (0..255))"

-- **************************************************
-- Ethernet Service Interface Configuration
-- **************************************************

mefServiceInterfaceCfgTable OBJECT-TYPE
SYNTAX Sequence OF MefServiceInterfaceCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table represents the local interface configuration table for an MEF Ethernet compliant Network Element (NE). The primary purpose of this table is to provide configuration of the interface for a Metro Ethernet NE (ME-NE). Rows are automatically created by the SNMP Agent in the table based upon the MEF compliant interfaces that a ME-NE contains based upon the listed defaults. A SNMP Manager can modify values of each of the objects in the row.

This table may be sparsely populated based upon the number of ME-NE interfaces that the device supports.

Rows in this table are accessed by the IF-MIB interface object ifIndex.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot."

REFERENCE "[MEF 6.1], [MEF 7.2], [MEF 10.2], [Q.840.1]"
 ::= { mefServiceInterfaceAttributes 1 }

mefServiceInterfaceCfgEntry OBJECT-TYPE
SYNTAX MefServiceInterfaceCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The conceptual row of mefServiceInterfaceCfgTable."
INDEX { ifIndex }
 ::= { mefServiceInterfaceCfgTable 1 }

MefServiceInterfaceCfgEntry ::= Sequence {
  mefServiceInterfaceCfgType MefServiceInterfaceType,
  mefServiceInterfaceCfgIdentifier DisplayString,
  mefServiceInterfaceCfgFrameFormat INTEGER,
  mefServiceInterfaceCfgIngressBwpGrpIndex Unsigned32,
mefServiceInterfaceCfgEgressBwpGrpIndex  Unsigned32,
mefServiceInterfaceCfgL2cpGrpIndex  Unsigned32

mefServiceInterfaceCfgType OBJECT-TYPE
SYNTAX  MefServiceInterfaceType
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION  "This object indicates the configured interface type. One
bit in the vector can be set at one time based upon the
possible values indicated by mefServiceInterfaceStatusType."
REFERENCE  
"[MEF 6.1] 6.0; [MEF 7.2] 6.2.1.1, 6.2.1.2, 6.2.1.3"
DEFVAL  { {bUni1d1} }
 ::= { mefServiceInterfaceCfgEntry 1 }

mefServiceInterfaceCfgIdentifier OBJECT-TYPE
SYNTAX  DisplayString
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION  "This object indicates the interface identifier and is an arbitrary
text string that is used to identify an interface. Unique string
values are chosen to uniquely identify an interface.

This object is used to add an identifier to a physical port. The
mefServiceUniCfgIdentifier can be used to add a separate identifier
that is associated with the service interface name.

Octet values of 0x00 through 0x1f are illegal.

MEF 26.1 restricts the maximum size identifiers to 45 octets."
REFERENCE  
"[MEF 7.2] 6.2.1.4"
DEFVAL  { "" }
 ::= { mefServiceInterfaceCfgEntry 2 }

mefServiceInterfaceCfgFrameFormat OBJECT-TYPE
SYNTAX  INTEGER {
  noTag       (1),
  ctag        (2),
  stag        (3),
  stagCtag    (4)
}
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION  "This object indicates the interface frame format type that the
interface can recognize.

noTag(1)        indicates that all data on the interface is
as untagged data
ctag(2)         indicates that tagged data is associated with
CE-VLAN ID or a C-TAG
stag(3)         indicates that tagged data is associated with
a provider tag or S-TAG
stagCtag(4)     indicates that service traffic identified with
both an S-TAG (outer tag) and a C-TAG (inner tag)"
REFERENCE  
"[MEF 6.1] 6.0"
DEFVAL { noTag }
:= { mefServiceInterfaceCfgEntry 3 }

mefServiceInterfaceCfgIngressBwpGrpIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object is the index number of the ingress bandwidth profile group
associated with the current interface. A value of 0 indicates that no
interface ingress bandwidth profile group is associated with the
interface.

This index indicates the specific bandwidth profile group previously
configured via mefServiceBwpGrpCfgTable and mefServiceBwpCfgTable
using this value for mefServiceBwpGrpCfgIndex. There may be multiple
entries in mefServiceBwpCfgTable using this index, each containing
bandwidth parameters for a different Class of Service Identifier.
"
REFERENCE "[MEF 6.1] 6.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
:= { mefServiceInterfaceCfgEntry 4 }

mefServiceInterfaceCfgEgressBwpGrpIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object is the index number of the egress bandwidth profile group
associated with the current interface. A value of 0 indicates that no
interface egress bandwidth profile group is associated with the
interface.

This index indicates the specific bandwidth profile group previously
configured via mefServiceBwpGrpCfgTable and mefServiceBwpCfgTable
using this value for mefServiceBwpGrpCfgIndex. There may be multiple
entries in mefServiceBwpCfgTable using this index, each containing
bandwidth parameters for a different Class of Service Identifier.
"
REFERENCE "[MEF 6.1] 6.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
:= { mefServiceInterfaceCfgEntry 5 }

mefServiceInterfaceCfgL2cpGrpIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object is the index of the L2CP profile group
(mefServiceL2cpGrpCfgIndex) associated with the current interface. A
value of 0 indicates that no interface L2CP profile group is associated
with the interface.

This index indicates the L2CP profile group previously configured via
mefServiceL2cpGrpCfgTable and mefServiceL2cpCfgTable using the value
of the mefServiceL2cpGrpCfgIndex. There may be multiple entries in
mefServiceL2cpCfgTable using this index, each containing
parameters for a different L2CP protocol.
"
REFERENCE "[MEF 6.1] 6.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceInterfaceCfgEntry 9 }

-- ---------------------------------------------------------------------
-- Ethernet Service Interface Status
-- ---------------------------------------------------------------------

mefServiceInterfaceStatusTable OBJECT-TYPE
SYNTAX      SEQUENCE OF MefServiceInterfaceStatusEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION  "This table represents the local interface status table for an
MEF Ethernet compliant NE. The primary purpose of this table is to
provide status information of the interface for a ME-NE. Rows are
automatically created in the table based upon the interfaces that a MEF
NE contains. This tables contains the same rows as the
mefServiceInterfaceCfgTable. A SNMP Manager can access objects in each
of the rows in the table.

Rows in this table are accessed by the IF-MIB interface object ifIndex.
Rows in this table are persistent (non-volatile) upon reboot, but the
values of the objects in a row are not persistent."
REFERENCE  
"[MEF 6.1], [MEF 7.2], [MEF 10.2], [Q.840.1]"
::= { mefServiceInterfaceAttributes 2 }

mefServiceInterfaceStatusEntry OBJECT-TYPE
SYNTAX      MefServiceInterfaceStatusEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION  "The conceptual row of mefServiceInterfaceStatusTable."
INDEX { ifIndex }
::= { mefServiceInterfaceStatusTable 1 }

MefServiceInterfaceStatusEntry ::= SEQUENCE {
    mefServiceInterfaceStatusType               MefServiceInterfaceType,
    mefServiceInterfaceStatusMaxVc              Unsigned32,
    mefServiceInterfaceStatusMaxEndPointPerVc   Unsigned32
}

mefServiceInterfaceStatusType OBJECT-TYPE
SYNTAX      MefServiceInterfaceType
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "This object is a vector of bits that indicates the possible
interface types that an interface can be configured to. An interface,
for instance, can be configured to be a UNI type 1 or 2, or an ENNI.

All the possible capabilities of an interface are indicated, one bit
per possible type. At least one bit must be set for MEF compliant NEs."
REFERENCE  
"[MEF 6.1] 6.0"
::= { mefServiceInterfaceStatusEntry 1 }

mefServiceInterfaceStatusMaxVc OBJECT-TYPE
SYNTAX      Signed32 (1..4095)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This object indicates the maximum number of virtual channels that the interface can support. A virtual connection can be an Ethernet Virtual Connection (EVC) or an Operator Virtual Connection (OVC) depending upon the type of interface that is selected."

REFERENCE
"[MEF 6.1] 6.0; [MEF 7.2] 6.2.1.2"

mefServiceInterfaceStatusMaxEndPointPerVc OBJECT-TYPE
SYNTAX Unsigned32 (1..10)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the interface maximum number of end points per virtual channel. It can be used to indicate the maximum number of OVC end points per OVC. It has no current applicability for EVCs."

REFERENCE
"[MEF 26.1]"

--Ethernet Service Interface Statistics
--********************************************************************

mefServiceInterfaceStatisticsTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceInterfaceStatisticsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table represents the local interface statistics table for an MEF Ethernet compliant NE. The primary purpose of this table is to provide statistics information of the interface for a ME-NE. Rows are automatically created in the table based upon the interfaces that a MEF NE contains. This table contains the same rows as the mefServiceInterfaceCfgTable. A SNMP Manager can access objects in each of the rows in the table.

Rows in this table are accessed by the IF-MIB interface object ifIndex.

Rows in this table are persistent (non-volatile) upon reboot, but the values of the objects in a row are not persistent."

REFERENCE
"[MEF 15], [Q.840.1]"

mefServiceInterfaceStatisticsEntry OBJECT-TYPE
SYNTAX MefServiceInterfaceStatisticsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The conceptual row of mefServiceInterfaceStatisticsTable."
INDEX { ifIndex }

MefServiceInterfaceStatisticsEntry ::= SEQUENCE {
mefServiceInterfaceStatisticsIngressUndersized Counter32, mefServiceInterfaceStatisticsIngressOversized Counter32, mefServiceInterfaceStatisticsIngressFragments Counter32, mefServiceInterfaceStatisticsIngressCrcAlignment Counter32, }
mefServiceInterfaceStatisticsIngressInvalidVid  Counter32,
mefServiceInterfaceStatisticsIngressOctets  Counter64,
mefServiceInterfaceStatisticsIngressUnicast  Counter64,
mefServiceInterfaceStatisticsIngressMulticast  Counter64,
mefServiceInterfaceStatisticsIngressBroadcast  Counter64,
mefServiceInterfaceStatisticsEgressOctets  Counter64,
mefServiceInterfaceStatisticsEgressUnicast  Counter64,
mefServiceInterfaceStatisticsEgressMulticast  Counter64,
mefServiceInterfaceStatisticsEgressBroadcast  Counter64
}

mefServiceInterfaceStatisticsIngressUndersized  OBJECT-TYPE
SYNTAX  Counter32
UNITS   "Ethernet frames"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
"This object is incremented for each frame received on a NE interface that was smaller than 64 octets.
This object defaults to '0'."
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 1 }

mefServiceInterfaceStatisticsIngressOversized  OBJECT-TYPE
SYNTAX  Counter32
UNITS   "Ethernet frames"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
"This object is incremented for each frame received on a NE interface that was larger than the maximum MTU size.
This object defaults to '0'."
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 2 }

mefServiceInterfaceStatisticsIngressFragments  OBJECT-TYPE
SYNTAX  Counter32
UNITS   "Ethernet frames"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
"This object is incremented for each frame received on a NE interface that was less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Note that it is entirely normal for this counter to increment. This is because it counts both runts (which are normal occurrences due to collisions) and noise hits.
This object defaults to '0'."
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 3 }
mefServiceInterfaceStatisticsIngressCrcAlignment OBJECT-TYPE
SYNTAX Counter32
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object is incremented for each frame received on a NE interface that was from 64 octets to the maximum MTU size in length, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error). This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 4 }

mefServiceInterfaceStatisticsIngressInvalidVid OBJECT-TYPE
SYNTAX Counter32
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object is incremented for each frame received on a NE interface with an invalid VLAN ID. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 5 }

mefServiceInterfaceStatisticsIngressOctets OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object is incremented by the number of octets in a valid frame received on a NE interface. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServiceInterfaceStatisticsEntry 6 }

mefServiceInterfaceStatisticsIngressUnicast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object is incremented for each valid unicast frame received on a NE interface. NEs that do not support 64 bit counters can return the upper half of the counter as all zeros. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 7 }

mefServiceInterfaceStatisticsIngressMulticast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented for each valid multicast frame received
on a NE interface.

ME-NEs that do not support 64 bit counters can return the
upper half of the counter as all zeros.

This object defaults to '0'.
"
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 8 }

mefServiceInterfaceStatisticsIngressBroadcast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented for each valid broadcast frame received
on a NE interface.

ME-NEs that do not support 64 bit counters can return the
upper half of the counter as all zeros.

This object defaults to '0'.
"
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 9 }

mefServiceInterfaceStatisticsEgressOctets OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented by the number of octets in a frame
transmitted on a NE interface.

This object defaults to '0'.
"
REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 10 }

mefServiceInterfaceStatisticsEgressUnicast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented for each unicast frame transmitted on a
NE interface.

ME-NEs that do not support 64 bit counters can return the
upper half of the counter as all zeros.
This object defaults to '0'.

REFERENCE

"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 11 }

mefServiceInterfaceStatisticsEgressMulticast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented for each multicast frame transmitted on a
NE interface.
ME-NEs that do not support 64 bit counters can return the
upper half of the counter as all zeros.

This object defaults to '0'."

REFERENCE

"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 12 }

mefServiceInterfaceStatisticsEgressBroadcast OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object is incremented for each broadcast frame transmitted on a
NE interface.
ME-NEs that do not support 64 bit counters can return the
upper half of the counter as all zeros.

This object defaults to '0'."

REFERENCE

"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServiceInterfaceStatisticsEntry 13 }

-- ****************************************************************************
-- Ethernet UNI Interface Configuration
-- ****************************************************************************

mefServiceUniCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceUniCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table represents the specific UNI attributes configuration table
for an MEF Ethernet compliant NE. The primary purpose of this table
is to provide configuration of the UNI for a ME-NE. Rows are
automatically created in the table when an interface is configured as
type UNI via the mefServiceInterfaceCfgType object based upon the
listed defaults by the SNMP Agent. Rows are deleted if the interface
is configured to a non-UNI by the SNMP Agent. A SNMP Manager can modify
values of each of the objects in the row.

This table may be sparsely populated based upon the number of ME-NE
interfaces that are configured as type UNI."
Rows in this table are accessed by the IF-MIB interface object ifIndex.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.

REFERENCE
"[MEF 6.1], [MEF 7.2], [MEF 10.2], [Q.840.1]"
::= { mefServiceUniAttributes 1 }

mefServiceUniCfgEntry OBJECT-TYPE
SYNTAX MefServiceUniCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The conceptual row of mefServiceUniCfgTable."
INDEX { ifIndex }
::= { mefServiceUniCfgTable 1 }

MefServiceUniCfgEntry ::= SEQUENCE {
mefServiceUniCfgIdentifier DisplayString,
mefServiceUniCfgBundlingMultiplex INTEGER,
mefServiceUniCfgCeVidUntagged VlanId,
mefServiceUniCfgCePriorityUntagged IEEE8021PriorityValue
}

mefServiceUniCfgIdentifier OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object indicates the UNI identifier. This is distinct from
the mefServiceInterfaceCfgIdentifier and allows the naming of the
UNI separately from the Interface name. The identifier is
an arbitrary text string that is used to identify an interface.
Unique string values are chosen to uniquely identify the UNI.

This object is used to add an identifier to a service interface. The
mefServiceInterfaceCfgIdentifier can be used to add a separate
identifier that is associated with the physical interface name.

Octet values of 0x00 through 0x1f are illegal.

MEF 26.1 restricts the maximum size identifiers to 45 octets.
"

REFERENCE
"[MEF 6.1] 6.0, [MEF 7.2] 6.2.1.2"
DEFVAL { "" }
::= { mefServiceUniCfgEntry 1 }

mefServiceUniCfgBundlingMultiplex OBJECT-TYPE
SYNTAX INTEGER {
  allToOne            (1),
  bundling            (2),
  multiplex           (3),
  bundlingMultiplex   (4)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Configures bundling and multiplexing options for the UNI. This object
is an enumerated list of possible multiplexing and bundling options
on a UNI that is unambiguous and provides only the legal possibilities."
allToOne(1)  All to One Bundling, used for Private services: EPL, EP-LAN, and EP-Tree

bundling(2)  Bundling, indicates one or more CE-VLANS per service, used for virtual private CE-VLAN preservation services: EVPL, EVP-LAN, EVP-Tree

multiplex(3)  Service Multiplexing, indicates one or more EVCs per UNI, used for virtual private CE-VLAN preservation or non-preservation services: EVPL, EVP-LAN, EVP-Tree

bundlingMultiplex(4)  Service Multiplexing plus Bundling, indicates one or more EVCs per UNI that are composed of one or more CE-VLANS, used for virtual CE-VLAN preservation services: EVPL, EVP-LAN, EVP-Tree

""
REFERENCE
"[MEF 6.1] 6.0, [MEF 7.2] 6.2.1.2"
DEFVAL { allToOne }
::= { mefServiceUniCfgEntry 2 }

mefServiceUniCfgCeVidUntagged OBJECT-TYPE
SYNTAX  VlanId
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Configures the CE VLAN ID associated with untagged and priority Service Frames. It allows the identification of untagged and priority tagged traffic with a specific CE-VLAN ID. This object is ignored for all to one bundling at the UNI."

""
REFERENCE
"[MEF 6.1] 6.0, [MEF 7.2] 6.2.1.2"
DEFVAL { 1 }
::= { mefServiceUniCfgEntry 3 }

mefServiceUniCfgCePriorityUntagged OBJECT-TYPE
SYNTAX  IEEE8021PriorityValue
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Configures the CE VLAN Priority associated with untagged Service Frames. It allows the assignment of a specific VLAN priority to untagged traffic. This object is ignored for all to one bundling at the UNI."

""
REFERENCE
"[MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceUniCfgEntry 4 }

-- ******************************************************************************
-- Ethernet EVC Configuration
-- ******************************************************************************

mefServiceEvcNextIndex OBJECT-TYPE
SYNTAX  Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object contains an unused value for an EVC on a MEF compliant NE, or a zero to indicate that none exist. This value..."
needs to be read by the SNMP Manager in order to find an available
index for row-creation of an EVC and then used when a row is created.
This value is automatically updated by the SNMP Agent after the row
is created.

Referential integrity is necessary, i.e., the index needs to be
persistent upon a reboot or restart of a NE. The index
is never to be reused for a new EVC on the same MEF compliant
NE until it wraps to zero. The index value keeps
increasing up to that time. This is to facilitate access control based
on a fixed index for an EMS, since the index is not reused.
"

DEFVAL { 1 }
::= { mefServiceEvcAttributes 1 }

mefServiceEvcCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceEvcCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table represents the specific EVC attributes configuration table
for an MEF Ethernet compliant NE. The primary purpose of this table
is to provide configuration of the EVC for a MEF-NE.

Rows in this table are accessed by the SNMP Manager via the EVC
number object mefServiceEvcCfgIndex. A new row is created in the
table by the SNMP Manager by first reading the mefServiceEvcNextIndex
to find an available EVC number and using this value when the row
is created. If an object in the row is not defined during row
creation time the object is set to the default value by the
SNMP Agent. Rows are deleted by the SNMP Manager via the
mefServiceEvcCfgRowStatus object.

Rows in this table and the values of the objects in the row are
persistent (non-volatile) upon reboot."

REFERENCE "[MEF 6.1], [MEF 7.2], [MEF 10.2], [Q.840.1]"
::= { mefServiceEvcAttributes 2 }

mefServiceEvcCfgEntry OBJECT-TYPE
SYNTAX MefServiceEvcCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The conceptual row of mefServiceEvcCfgTable."
INDEX { mefServiceEvcCfgIndex }
::= { mefServiceEvcCfgTable 1 }

MefServiceEvcCfgEntry ::= SEQUENCE {
    mefServiceEvcCfgIndex                 Unsigned32,
    mefServiceEvcCfgIdentifier           DisplayString,
    mefServiceEvcCfgServiceType          INTEGER,
    mefServiceEvcCfgMtuSize               Unsigned32,
    mefServiceEvcCfgCevlanIdPreservation MefServicePreservationType,
    mefServiceEvcCfgCevlanCosPreservation MefServicePreservationType,
    mefServiceEvcCfgUnicastDelivery      MefServiceDeliveryType,
    mefServiceEvcCfgMulticastDelivery    MefServiceDeliveryType,
    mefServiceEvcCfgBroadcastDelivery    MefServiceDeliveryType,
    mefServiceEvcCfgL2cpGrpIndex         Unsigned32,
    mefServiceEvcCfgAdminState           EntityAdminState,
    mefServiceEvcCfgRowStatus            RowStatus }
meServiceEvcCfgIndex OBJECT-TYPE
SYNTAX    Unsigned32
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
   "The specific instance of an EVC number."
::= { meServiceEvcCfgEntry 1 }

meServiceEvcCfgIdentifier OBJECT-TYPE
SYNTAX    DisplayString
MAX-ACCESS read-create
STATUS    current
DESCRIPTION
   "This object indicates the EVC identifier. The identifier is an arbitrary text string that is used to identify an EVC. Unique string values are chosen to uniquely identify the EVC.

   Octet values of 0x00 through 0xff are illegal.

   MEF 26.1 restricts the maximum size identifiers to 45 octets.
   "
REFERENCE
   "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { "" }
::= { meServiceEvcCfgEntry 2 }

meServiceEvcCfgServiceType OBJECT-TYPE
SYNTAX    INTEGER {
   pointToPoint            (1),
   multipointToMultipoint  (2),
   rootedMultipoint        (3)
}
MAX-ACCESS read-create
STATUS    current
DESCRIPTION
   "This object configures the EVC service type for the ME-NE.

   pointToPoint(1) EVC Point-to-Point service, used for EPL and EVPL services

   multipointToMultipoint(2) EVC Multipoint-to-Multipoint Service, used for EP-LAN and EVP-LAN services

   rootedMultipoint(3) EVC Rooted-Multipoint Service, used for EP-Tree and EVP-Tree services
   "
REFERENCE
   "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { pointToPoint }
::= { meServiceEvcCfgEntry 3 }

meServiceEvcCfgMtuSize OBJECT-TYPE
SYNTAX    Unsigned32 (1522..16384)
UNITS    "octets"
MAX-ACCESS read-write
STATUS    current
DESCRIPTION
   "This object indicates the configured EVC maximum service frame format size. It must be less than or equal to the meServiceEvcStatusMaxMtuSize.
   "
REFERENCE
   "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { 1522 }
UNI and EVC Definition of Managed Objects

::= { mefServiceEvcCfgEntry 4 }

mefServiceEvcCfgCevlanIdPreservation OBJECT-TYPE
SYNTAX  MefServicePreservationType
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"This object configures the EVC CE-VLAN ID preservation.

preserve(1)   The CE-VLAN ID is preserved. The ingress CE-VLAN
    is the CE-VLAN ID at the egress UNI
noPreserve(2) The CE-VLAN ID is not preserved. The ingress
    CE-VLAN ID may not be the CE-VLAN ID at the egress
    UNI"

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { preserve }
::= { mefServiceEvcCfgEntry 5 }

mefServiceEvcCfgCevlanCosPreservation OBJECT-TYPE
SYNTAX  MefServicePreservationType
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"This object configures EVC CE-VLAN CoS preservation.

preserve(1)   The CE-VLAN CoS is preserved. The ingress CE-VLAN
    CoS is the CE-VLAN CoS at the egress UNI
noPreserve(2) The CE-VLAN CoS is not preserved. The ingress
    CE-VLAN CoS may not be the CE-VLAN CoS at the
    egress UNI"

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { preserve }
::= { mefServiceEvcCfgEntry 6 }

mefServiceEvcCfgUnicastDelivery OBJECT-TYPE
SYNTAX  MefServiceDeliveryType
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"This object configures EVC Unicast delivery condition.

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { unconditional }
::= { mefServiceEvcCfgEntry 7 }

mefServiceEvcCfgMulticastDelivery OBJECT-TYPE
SYNTAX  MefServiceDeliveryType
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"This object configures EVC Multicast delivery condition.

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { unconditional }
::= { mefServiceEvcCfgEntry 8 }

mefServiceEvcCfgBroadcastDelivery OBJECT-TYPE
SYNTAX MefServiceDeliveryType
MAX-ACCESS read-create
STATUS current
DESCRIPTION
  "This object configures EVC Broadcast delivery condition."

REFERENCE
  "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { unconditional }
::= { mefServiceEvcCfgEntry 9 }

mefServiceEvcCfgL2cpGrpIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
  "This object is the index of the L2CP profile group (mefServiceL2cpGrpCfgIndex) associated with the current EVC on an interface. A value of 0 indicates that no EVC L2CP profile group is associated with the EVC.

  This index indicates the L2CP profile group previously configured via the mefServiceL2cpGrpCfgTable and mefServiceL2cpCfgTable using the value of the mefServiceL2cpGrpCfgIndex. There may be multiple entries in mefServiceL2cpCfgTable using this index, each containing parameters for a different L2CP protocol."

REFERENCE
  "[MEF 6.1] 6.1; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.3"
DEFVAL { 0 }
::= { mefServiceEvcCfgEntry 10 }

mefServiceEvcCfgAdminState OBJECT-TYPE
SYNTAX EntityAdminState
MAX-ACCESS read-create
STATUS current
DESCRIPTION
  "This object specifies the administrative state of the EVC.

  If mefServiceEvcCfgAdminState is set to 'locked', the EVC will be administratively locked.

  If mefServiceEvcCfgAdminState is set to 'unlocked', the EVC will be administratively unlocked if previously locked.

  Other values of mefServiceEvcCfgAdminState are undefined."

REFERENCE
  "[MEF 7.2] 6.2.1.3"
DEFVAL { unlocked }
::= { mefServiceEvcCfgEntry 11 }

mefServiceEvcCfgRowStatus 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."

::= { mefServiceEvcCfgEntry 12 }
mefServiceEvcUniCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceEvcUniCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table represents the specific EVC attributes configuration table for an MEF Ethernet compliant NE. The primary purpose of this table is to provide configuration of the EVC for a ME-NE at each MEF compliant interface.

Rows in the table can only be created after the EVC is created. Interfaces are added to the EVC and are selected as either a type 'root' or 'leaf' by the creation of the row by the SNMP Manager as addressed by mefServiceEvcCfgIndex and ifIndex. Rows are deleted by the SNMP Manager via the mefServiceEvcUniCfgRowStatus object.

Rows in this table are accessed by the EVC number object mefServiceEvcCfgIndex and the IF-MIB interface object ifIndex by the SNMP Manager.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.
"
REFERENCE
"[MEF 6.1], [MEF 7.2], [MEF 10.2], [Q.840.1]"
::= { mefServiceEvcAttributes 3 }

mefServiceEvcUniCfgEntry OBJECT-TYPE
SYNTAX MefServiceEvcUniCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The conceptual row of mefServiceEvcUniCfgTable."
INDEX { mefServiceEvcCfgIndex, ifIndex }
::= { mefServiceEvcUniCfgTable 1 }

MefServiceEvcUniCfgEntry ::= SEQUENCE {
  mefServiceEvcUniCfgType               INTEGER,  
  mefServiceEvcUniCfgRowStatus         RowStatus
}

mefServiceEvcUniCfgType OBJECT-TYPE
SYNTAX INTEGER {
  root                  (1),  
  leaf                  (2),  
  unknown               (3)  
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object configures UNI type on an EVC.

root(1) Valid setting for all service types. A UNI set to this value may send frames to UNIs configured as 'root' or 'leaf'
leaf(2) Valid setting for Root-Multipoint EVCs only. A UNI set to this value may send frames to UNIs 'root'
unknown(3)  UNI port is not configured or illegally configured. This value cannot be written, but is only returned when the type is unknown.

REFERENCE
"[MEF 10.2]"
DEFVAL { root }
::= { mefServiceEvcUniCfgEntry 1 }

mefServiceEvcUniCfgRowStatus 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."
::= { mefServiceEvcUniCfgEntry 2 }

-- ****************************
-- Ethernet Service EVC Status
-- ****************************
mefServiceEvcStatusTable OBJECT-TYPE
SYNTAX    SEQUENCE OF MefServiceEvcStatusEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION
"This table represents the EVC status table for an MEF Ethernet compliant NE. The primary purpose of this table is to provide status information of the EVC for a ME-NE. Rows are automatically created in the table by the SNMP Agent when a row is created in the mefServiceEvcCfgTable. This table contains the same rows as the mefServiceEvcCfgTable. Rows are automatically deleted in this table by the SNMP Agent when the corresponding row is deleted in the mefServiceEvcCfgTable.

Rows in this table are accessed via the EVC number object mefServiceEvcCfgIndex by the SNMP Manager.

Rows in this table are persistent (non-volatile) upon reboot, but the values of the objects in a row are not persistent."
REFERENCE
"[MEF 10.2]"
::= { mefServiceEvcAttributes 4 }

mefServiceEvcStatusEntry OBJECT-TYPE
SYNTAX    MefServiceEvcStatusEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION
"The conceptual row of mefServiceEvcStatusTable."
INDEX { mefServiceEvcCfgIndex }
::= { mefServiceEvcStatusTable 1 }

MefServiceEvcStatusEntry ::= SEQUENCE {
mefServiceEvcStatusMaxMtuSize         Unsigned32,
mefServiceEvcStatusMaxNumUni          Unsigned32,
mefServiceEvcStatusOperationalState   INTEGER}
mefServiceEvcStatusMaxMtuSize OBJECT-TYPE
SYNTAX       Unsigned32 (1522..16384)
UNITS        "octets"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "This object indicates the EVC maximum configurable service
frame format size. The actual configured size is set via the
mefServiceEvcCfgMtuSize object."
REFERENCE     "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
::= { mefServiceEvcStatusEntry 1 }

mefServiceEvcStatusMaxNumUni OBJECT-TYPE
SYNTAX       Unsigned32 (2..16384)
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "This object indicates the maximum number of UNIs in an EVC. For
a Point-to-Point EVC this value is '2'. For a Multipoint EVC the
value can be '2' or greater."
REFERENCE     "[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
::= { mefServiceEvcStatusEntry 2 }

mefServiceEvcStatusOperationalState OBJECT-TYPE
SYNTAX       EntityOperState
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "This object indicates the operational state (current
capability) of the EVC.

If the value is 'enabled', the EVC is able to ingress and
egress service frames and has been set to active.

If the value is 'disabled' the EVC is not able to ingress and
egress service frames, has detected an operational failure
condition, or has failed an internal test.

If the value is 'testing' the EVC has been placed into a test mode,
either a troubleshooting mode or a test mode.

If the value is 'unknown' the EVC is unable to report the operational
state."
REFERENCE     "[MEF 7.2] 6.2.1.3"
::= { mefServiceEvcStatusEntry 3 }

-- ************************************************************************
-- Ethernet EVC per UNI Attributes Configuration
-- ************************************************************************
mefServiceEvcPerUniCfgTable OBJECT-TYPE
SYNTAX       SEQUENCE OF MefServiceEvcPerUniCfgEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   ""
"This table represents the specific EVC per UNI attributes configuration table for an MEF Ethernet compliant NE. The primary purpose of this table is to provide configuration of the EVC per UNI attributes for a MEF NE. Rows are automatically created in the table by the SNMP Agent with the indicated default values when an interface is added to the EVC via the mefServiceEvcUniCfgType object and are deleted when the corresponding row is deleted in the mefServiceEvcCfgTable or an interface is removed from the EVC.

Rows are accessed via the IF-MIB interface object ifIndex and the EVC number object mefServiceEvcCfgIndex by the SNMP Manager.

Rows in this table and the value of the objects in the row are persistent (non-volatile) upon reboot.

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
::= { mefServiceUniAttributes 2 }

mefServiceEvcPerUniCfgEntry OBJECT-TYPE
SYNTAX    MefServiceEvcPerUniCfgEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION
"The conceptual row of mefServiceEvcPerUniCfgTable."

INDEX { ifIndex, mefServiceEvcCfgIndex }
::= { mefServiceEvcPerUniCfgTable 1 }

MefServiceEvcPerUniCfgEntry ::= SEQUENCE {
  mefServiceEvcPerUniCfgServiceType          INTEGER,
  mefServiceEvcPerUniCfgIdentifier
    DisplayString,
  mefServiceEvcPerUniCfgCeVlanMap
    MefServiceListType,
  mefServiceEvcPerUniCfgIngressBwpGrpIndex
    Unsigned32,
  mefServiceEvcPerUniCfgEgressBwpGrpIndex
    Unsigned32
}

mefServiceEvcPerUniCfgServiceType OBJECT-TYPE
SYNTAX    INTEGER {
  epl             (1),
  evpl            (2),
  eplan           (3),
  evplan          (4),
  eptree          (5),
  evptree         (6)
}
MAX-ACCESS read-only
STATUS      current
DESCRIPTION
"This object indicates the specific Ethernet service type. The value is derived from the EVC object 'mefServiceEvcType' and the UNI object 'mefServiceUniCfgBundlingMultiplex'."

epl(1) Ethernet Private Line Service (EPL)
Point-to-Point EVC, all to one bundling

evpl(2) Ethernet Virtual Private Line (EVPL)
Point-to-Point EVC, bundling and/or multiplexing

eplan(3) Ethernet Private LAN Service (EP-LAN)
Multipoint-to-Multipoint EVC, all to one bundling

evplan(4) Ethernet Virtual Private LAN Service (EVP-LAN)
Multipoint-to-Multipoint EVC, bundling and/or multiplexing
eptree(5)  Ethernet Private Tree Service (EP-Tree)
        Rooted-Multipoint EVC, all to one bundling

evptree(6)  Ethernet Virtual Private Tree Service (EVP-Tree)
        Rooted-Multipoint EVC, bundling and/or multiplexing

""
REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { epl }
::= { mefServiceEvcPerUniCfgEntry 1 }

mefServiceEvcPerUniCfgIdentifier OBJECT-TYPE
SYNTAX  DisplayString (SIZE(0..90))
MAX-ACCESS read-only
STATUS      current
DESCRIPTION "This object indicates the concatenated EVC-UNI identifier. It is
the concatenation of the mefServiceUniCfgIdentifier and the
mefServiceEvcCfgIdentifier."
REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
::= { mefServiceEvcPerUniCfgEntry 2 }

mefServiceEvcPerUniCfgCeVlanMap OBJECT-TYPE
SYNTAX  MefServiceListType
MAX-ACCESS read-write
STATUS      current
DESCRIPTION "This object indicates
the CE-VLANs associated with the specific
EVC on a UNI. CE-VLAN IDs have value of 0 to 4095. The CE-VLAN ID
list can be a single value or multiple values separated by a delimiter.

Some valid values are: '100', '1:10', '10,20,30', '1:4095'. In the
first example only CE-VLAN ID 100 is associated with the VLAN map.
In the second example the CE-VLAN map includes CE-VLAN IDs 1 through
10 (range of values). The third example indicates three separate values
that make up the CE-VLAN map. The last example indicates all CE-VLAN IDs
are included in the map (range of values)."
REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { "1:4095" }
::= { mefServiceEvcPerUniCfgEntry 3 }

mefServiceEvcPerUniCfgIngressBwpGrpIndex OBJECT-TYPE
SYNTAX  Unsigned32
MAX-ACCESS read-write
STATUS      current
DESCRIPTION "This object is the index number of the ingress bandwidth profile group
associated with the current EVC on a UNI. A value of 0 indicates that
no ingress bandwidth profile group is associated with the EVC on a UNI.

This index indicates the specific bandwidth profile group previously
configured via mefServiceBwpGrpCfgTable and mefServiceBwpCfgTable
using this value for mefServiceBwpGrpCfgIndex. There may be multiple
entries in mefServiceBwpGrpCfgTable using this index, each containing
bandwidth parameters for a different Class of Service Identifier."
REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { 0 }
::= { mefServiceEvcPerUniCfgEntry 4 }

mefServiceEvcPerUniCfgEgressBwpGrpIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object is the index number of the egress bandwidth profile group associated with the current EVC on a UNI. A value of 0 indicates that no egress bandwidth profile group is associated with the EVC on a UNI.

This index indicates the specific bandwidth profile group previously configured via mefServiceBwpGrpCfgTable and mefServiceBwpCfgTable using this value for mefServiceBwpGrpCfgIndex. There may be multiple entries in mefServiceBwpCfgTable using this index, each containing bandwidth parameters for a different Class of Service Identifier."

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { 0 }
::= { mefServiceEvcPerUniCfgEntry 5 }

-- *****************************************************************************--
-- Ethernet Service Bandwidth Profile Group Table
-- *****************************************************************************--

mefServiceBwpGrpNextIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object contains an unused value for a bandwidth profile group on a MEF compliant NE, or a zero to indicate that none exist. This value needs to be read by the SNMP Manager in order to find an available index for row creation of a bandwidth profile group and then used when a row is created. This value is automatically updated by the SNMP Agent after the row is created.

Referential integrity is necessary, i.e., the index needs to be persistent upon a reboot or restart of a NE. The index is never to be reused for a new bandwidth profile group on the same MEF compliant NE until it wraps to zero. The index value keeps increasing up to that time. This is to facilitate access control based on a fixed index for an EMS, since the index is not reused."

REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { 1 }
::= { mefServiceBwpAttributes 1 }

mefServiceBwpGrpCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceBwpGrpCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table supports bandwidth profile group settings. Rows in this table are created by the SNMP Manager by first reading the mefServiceBwpGrpNextIndex object to find an available bandwidth profile group number and using this value when the row is created. If an object in the row is not defined during row creation time the object is set to the default value by the SNMP Agent. Rows are deleted by the SNMP Manager via the mefServiceBwpGrpCfgRowStatus object and the corresponding rows in the mefServiceBwpCfgTable and
mefServicePerformanceTable are deleted by the SNMP Agent.

Once a row in this table is created, an entry can be created in the mefServiceBwpCfgTable using the index from this table and the value of mefServiceBwpCfgNextIndex object.

A row in the mefServiceBwpCfgTable indicates how a specific bandwidth profile will be handled.

Rows in this table are accessed via the bandwidth profile group object mefServiceBvcCfgIndex by the SNMP Manager.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.

REFERENCE
"[MEF 6.1], [MEF 6.1.1] 8.0, [MEF 7.2], [MEF 10.2]"
::= { mefServiceBwpAttributes 2 }

mefServiceBwpGrpCfgEntry OBJECT-TYPE
SYNTAX MefServiceBwpGrpCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Bandwidth profile group settings table entry."
INDEX { mefServiceBwpGrpCfgIndex }
::= { mefServiceBwpGrpCfgTable 1 }

MefServiceBwpGrpCfgEntry ::= SEQUENCE {
  mefServiceBwpGrpCfgIndex Unsigned32,
  mefServiceBwpCfgNextIndex Unsigned32,
  mefServiceBwpGrpCfgRowStatus RowStatus
}

mefServiceBwpGrpCfgIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Bandwidth profile group index number"
::= { mefServiceBwpGrpCfgEntry 1 }

mefServiceBwpCfgNextIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the value to be used as the index of the bandwidth profile table entries. This value is automatically incremented when a row is created in the bandwidth profile table by the SNMP Agent. When the SNMP Manager wants to create a new row in the bandwidth profile table the value of this object is used to create the specific row."

DEFVAL { 1 }
::= { mefServiceBwpGrpCfgEntry 2 }

mefServiceBwpGrpCfgRowStatus 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.

```
::= { mefServiceBwpGrpCfgEntry 3 }
```

--Ethernet Service Bandwidth Profile Table
--********************************************************************************

mefServiceBwpCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceBwpCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table supports bandwidth profile settings and allows multiple bandwidth profiles to configured on an interface or a Virtual Service, based upon different Class of Service Identifiers.

Rows in this table are created by the SNMP Manager by first reading the mefServiceBwpCfgNextIndex object to find an available bandwidth profile number and using this value when the row is created. If an object in the row is not defined during row creation time the object is set to the default value by the SNMP Agent.

Rows are deleted by the SNMP Manager via the mefServiceBwpCfgRowStatus object or by the SNMP Agent when the corresponding row in the mefServiceBwpGrpCfgTable is deleted. Corresponding rows in the mefServicePerformanceTable are deleted by the SNMP Agent.

If resources in the ME-NE are not available to create a new bandwidth profile or to enable a Performance Data Set an error is returned when the row is created.

A bandwidth profile can be associated to a CoS Identifier via the mefServiceBwpCfgCosIndex. The value set to the mefServiceBwpCfgCosIndex object is the value of the associated CoS Identifier indicated by the mefServiceCosCfgIndex object.

Rows in this table are accessed by the SNMP Manager via the bandwidth profile group object mefServiceBwpGrpCfgIndex and the individual bandwidth profile in the group by the mefServiceBwpCfgIndex.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.

```
::= { mefServiceBwpAttributes 3 }
```

mefServiceBwpCfgEntry OBJECT-TYPE
SYNTAX MefServiceBwpCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Bandwidth profile settings table entry."
INDEX { mefServiceBwpGrpCfgIndex, mefServiceBwpCfgIndex }
::= { mefServiceBwpCfgEntry 1 }

MefServiceBwpCfgEntry ::= SEQUENCE {
  mefServiceBwpCfgIndex             Unsigned32,
  mefServiceBwpCfgIdentifier        DisplayString,
  mefServiceBwpCfgCir               Unsigned32,
  mefServiceBwpCfgCbs               Unsigned32,
  mefServiceBwpCfgEir               Unsigned32,
  mefServiceBwpCfgEbs               Unsigned32,
}
mefServiceBwpCfgIndex OBJECT-TYPE
SYNTAX     Unsigned32
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION
 "This object indicates the bandwidth profile index number. Multiple
 bandwidth profiles can be set for the same bandwidth profile group,
 allowing for unique bandwidth profiles for each CoS Identifier.
"
 ::= { mefServiceBwpCfgEntry 1 }

mefServiceBwpCfgIdentifier OBJECT-TYPE
SYNTAX     DisplayString
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
 "This object indicates the bandwidth profile identifier for the
 associated bandwidth profile index and is an arbitrary
 text string that is used to identify a bandwidth profile. Unique
 string values are chosen to uniquely identify the bandwidth
 profile.

Octet values of 0x00 through 0x1f are illegal.

 MEF 26.1 restricts the maximum size identifiers to 45 octets.
"
REFERENCE
 "[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { "" }
 ::= { mefServiceBwpCfgEntry 2 }

mefServiceBwpCfgCir OBJECT-TYPE
SYNTAX     Unsigned32 (0..1000000)
UNITS       "kbits/s"
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
 "This object indicates the Committed Information Rate (CIR) in kbits/s
 and defines the average rate in kbits/sec up to which
 the network delivers Service Frames. Service Frames that meet
 the CIR are said to be in profile or in conformance to performance
 objectives. These frames are generally identified as 'Green'
 Service Frames.
"
REFERENCE
 "[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { 1000000 }
 ::= { mefServiceBwpCfgEntry 3 }

mefServiceBwpCfgCbs OBJECT-TYPE
SYNTAX     Unsigned32 (0..10000000)
UNITS       "bytes"
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
 "This object indicates the Committed Burst Size (CBS) in bytes. It limits
 the maximum number of bytes available for a burst of Service Frames sent
at interface speed to remain CIR-conformant.

"REFERENCE
"[MEF 10.2]"

DEFVAL { 12 }
::= { mefServiceBwpCfgEntry 4 }

mefServiceBwpCfgEir OBJECT-TYPE
SYNTAX      Unsigned32 (0..10000000)
UNITS       "kbits/s"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object indicates the Excess Information Rate (EIR) in kbits/s and defines the average rate in kbits/sec of Service Frames up to which the network may deliver Service Frames but without performance objectives. Service Frames that meet the EIR as set to be in out-of-profile or not in conformance to performance objectives. These frames are not guaranteed to be delivered and are generally identified as 'Yellow' service frames.

"REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"

DEFVAL { 0 }
::= { mefServiceBwpCfgEntry 5 }

mefServiceBwpCfgEbs OBJECT-TYPE
SYNTAX      Unsigned32 (0..10000000)
UNITS       "bytes"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object indicates the Excess Burst Size (EBS) in bytes. It limits the maximum number of bytes available for a burst of Service Frames sent at the interface speed to remain EIR-conformant.

"REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"

DEFVAL { 0 }
::= { mefServiceBwpCfgEntry 6 }

mefServiceBwpCfgCm OBJECT-TYPE
SYNTAX      INTEGER {
    colorBlind      (1),
    colorAware      (2)
}
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object configures the bandwidth profile color mode.

colorBlind(1) A bandwidth profile property where ingress Service Frames are not pre-colored for either green or yellow, and if present, is ignored when determining the level of compliance for each Service Frame.

colorAware(2) A bandwidth profile property where a pre-determined level of Bandwidth Profile compliance for each Service Frame is taken into account when determining the level of compliance for each Service Frame. Each service frame can be colored red (discarded), yellow (conditional delivery), or green (unconditional delivery.

"
mefServiceBwpCfgCf OBJECT-TYPE
SYNTAX INTEGER {
  couplingYellowEirOnly (0),
  couplingYellowEirPlusCir (1)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object configures the bandwidth profile coupling flag and has the effect of controlling the volume of the Service Frames that are declared Yellow.

couplingYellowEirOnly(0) The long term average bit rate of Service Frames that are declared Yellow is bounded by EIR.
couplingYellowEirPlusCir(1) The long term average bit rate of Service Frames that are declared Yellow is bounded by CIR + EIR depending on the volume of the offered Service Frames that are declared Green."

REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { couplingYellowEirOnly }
 ::= { mefServiceBwpCfgEntry 7 }

mefServiceBwpCfgCosIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object is the index number of the CoS ID profile associated with the current bandwidth profile. A value of 0 indicates that no CoS ID profile is associated with the bandwidth profile and the bandwidth profile applies to all CoS IDs.

This index indicates a specific CoS ID profile previously configured via mefServiceCosCfgTable as indicated by the mefServiceCosCfgIndex object."

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { 0 }
 ::= { mefServiceBwpCfgEntry 8 }

mefServiceBwpCfgPerformanceEnable OBJECT-TYPE
SYNTAX INTEGER {
  disablePerformanceDataSet (1),
  enablePerformanceDataSet (2)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object indicates whether a performance data set is configured for a specific bandwidth profile. This allows for only specific bandwidth profiles to be monitored if there are limitations in the ME-NE being accessed.

disablePerformanceDataSet(1) A performance data set is enabled for this bandwidth profile"
enablePerformanceDataSet(2)  A performance data set is not enabled for this bandwidth profile.

```
```

REFERENCE
"[MEF 6.1] 6.1; [MEF 7.2] 6.2.1.3"
DEFVAL { disablePerformanceDataSet }
::= { mefServiceBwpCfgEntry 10 }

mefServiceBwpCfgRowStatus 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."
::= { mefServiceBwpCfgEntry 11 }

-- ****************************************************************************
-- Ethernet Service Class of Service Identifier Profile Table
-- ****************************************************************************

mefServiceCosNextIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object contains an unused value for a Class of Service Identifier (CoS ID) profile on a MEF compliant NE, or a zero to indicate that none exist. This value needs to be read by the SNMP Manager in order to find an available index for row-creation of a CoS ID profile and then used when a row is created. This value is automatically updated by the SNMP Agent after the row is created.

Referential integrity is necessary, i.e., the index needs to be persistent upon a reboot or restart of a NE. The index is never to be reused for a new CoS ID profile on the same MEF compliant NE until it wraps to zero. The index value keeps increasing up to that time. This is to facilitate access control based on a fixed index for an EMS, since the index is not reused."
REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { 1 }
::= { mefServiceCosAttributes 1 }

mefServiceCosCfgTable OBJECT-TYPE
SYNTAX SEQUENCE OF MefServiceCosCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table supports Class of Service Identifier profile settings.

Rows in this table are created by the SNMP Manager by first reading the mefServiceCosNextIndex object to find an available Cos profile number and using this value when the row is created. If an object in the row is not defined during row creation time the object is set to the default value by the SNMP Agent.

Rows are deleted by the SNMP Manager via the mefServiceCosCfgRowStatus
object.

If resources in the ME-NE are not available to create a new CoS profile an error is returned when the row is created.

Rows in this table are accessed by the SNMP Manager via the CoS profile object mefServiceCosCfgIndex.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.

::= { mefServiceCosAttributes 2 }

mefServiceCosCfgEntry OBJECT-TYPE
SYNTAX MefServiceCosCfgEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Class of Service Identifier settings table entry."
INDEX { mefServiceCosCfgIndex }
::= { mefServiceCosCfgTable 1 }

MefServiceCosCfgEntry ::= SEQUENCE {
mefServiceCosCfgIndex             Unsigned32,
mefServiceCosCfgIdentifier        DisplayString,
mefServiceCosCfgType              INTEGER,
mefServiceCosCfgIdentifierList    MefServiceListType,
mefServiceCosCfgMacAddress        MacAddress,
mefServiceCosCfgProtocol          Unsigned32,
mefServiceCosCfgSubType           Unsigned32,
mefServiceCosCfgRowStatus         RowStatus
}

mefServiceCosCfgIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Class of Service Identifier profile index number."
::= { mefServiceCosCfgEntry 1 }

mefServiceCosCfgIdentifier OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-create
STATUS current
DESCRIPTION "This object indicates the Class of Service Name for the associated CoS profile index and is an arbitrary text string that is used to identify a CoS ID profile. Unique string values are chosen to uniquely identify the profile.

Octet values of 0x00 through 0x1f are illegal.

MEF 26.1 restricts the maximum size identifiers to 45 octets."

REFERENCE "[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"
DEFVAL { "" }
::= { mefServiceCosCfgEntry 2 }

mefServiceCosCfgType OBJECT-TYPE
SYNTAX INTEGER {
  interface   (1),
evc          (2),
...}
pcp (3),
dscp (4),
l2cp (5)

MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object configures the CoS ID type and indicates the interpretation of the mefServiceCosIdentifierList object.

interface (1) This value indicates that the CoS ID profile is associated with the interface, i.e. UNI or ENNI
vc (2) This value indicates that the CoS ID profile is associated with the virtual channel, i.e. EVC or OVC
pcp (3) This value indicates that the CoS ID profile is associated with the outer tag's Priority Code Point (priority bits)
dscp (4) This value indicates that the CoS ID profile is associated with the IP's frames DSCP (priority) setting
l2cp (5) This value indicates that the CoS ID profile is associated with a Layer 2 Control Protocol"

REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"

DEFVAL { pcp }
::= { mefServiceCosCfgEntry 3 }

mefServiceCosCfgIdentifierList OBJECT-TYPE
SYNTAX  MefServiceListType
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object indicates the list of CoS identifiers associated with the specific CoS ID profile. Interpretation of the values in the list are based upon the mefServiceCosCfgType object.

For each of the mefServiceCosCfgType types valid range is:

interface - the value of this object is ignored for the 'interface' type
vc - the value of this object is ignored for the 'vc' type
pcp - the value of this object has a range of '0:7'
dscp - the value of this object has a range of '0:63' for IPv4 and '0:16384' for IPv6
l2cp - the value of this object indicates the matching criteria:
  '1' - destination MAC address only
  '2' - destination MAC address plus Ethernet protocol
  '3' - destination MAC address plus Ethernet protocol plus subtype

CoS identifier list can be a single value or multiple values separated by a delimiter.

Some valid values are: '1', '1:3', '1,3,5', '0:7'. In the first example only one item, '1', is included in the CoS ID list. In the second example values 1, 2, and 3 are included in the CoS ID list (range of values). In the third example three individual values are included. In the fourth example eight values are included: 0 through 7 (range of values)."

REFERENCE
"[MEF 6.1] 6.0, 6.1, 6.2, 6.3; [MEF 7.2] 6.2.1.2, 6.2.1.3"

DEFVAL { "0:7" }
::= { mefServiceCosCfgEntry 4 }

mefServiceCosCfgMacAddress OBJECT-TYPE
SYNTAX      MacAddress
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object configures the L2CP Destination MAC address for CoS Identifier type of 'l2cp' and is ignored for other types.

Valid values are 01-80-C2-00-00-00 through 01-80-C2-00-00-0F and 01-80-C2-00-00-20 through 01-80-C2-00-00-2F
"
DEFVAL { '000000000000'H }
::= { mefServiceCosCfgEntry 5 }

mefServiceCosCfgProtocol OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object configures the L2CP Ethernet protocol for CoS Identifier type of 'l2cp' and is ignored for other types. It is also ignored if mefServiceCosCfgIdentifierList has a value of '1'.

The protocol is defined in the Ethertype field of the Ethertype frame. For instance the Ethertype for Link OAM is 0x8809, for E-LMI it is 0x88EE, for LLDP it is 0x88CC.

Valid protocol values are defined by MEF 6.1 and MEF 6.1.1.
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceCosCfgEntry 6 }

mefServiceCosCfgSubType OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object configures the L2CP subtype protocol for CoS Identifier type of 'l2cp' and is ignored for other types. It is also ignored if mefServiceCosCfgIdentifierList has a value of '1' or '2'.

For instance, the subtype for LACP is '2' and Link OAM is '3'.

Valid subtype values are defined by MEF 6.1 and MEF 6.1.1.
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceCosCfgEntry 7 }

mefServiceCosCfgRowStatus 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.
"
::= { mefServiceCosCfgEntry 8 }
mefServiceL2cpGrpNextIndex OBJECT-TYPE
SYNTAX    Unsigned32
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "This object contains an unused value for a L2CP profile group on a
    MEF compliant NE, or a zero to indicate that none exist. This value
    needs to be read by the SNMP Manager in order to find an available
    index for row-creation of a L2CP profile group and then used when
    a row is created. This value is automatically updated by the SNMP Agent
    after the row is created.
    
    Referential integrity is necessary, i.e., the index needs to be
    persistent upon a reboot or restart of a NE. The index
    is never to be reused for a new L2CP profile group on the same MEF
    compliant NE until it wraps to zero. The index value keeps
    increasing up to that time. This is to facilitate access control based
    on a fixed index for an EMS, since the index is not reused."

REFERENCE
    "[MEF 6.1], [MEF 6.1.1] 8.0, [MEF 7.2], [MEF 10.2]"
DEFVAL { 1 }
 ::= { mefServiceL2cpAttributes 1 }

mefServiceL2cpGrpCfgTable OBJECT-TYPE
SYNTAX    SEQUENCE OF MefServiceL2cpGrpCfgEntry
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
    "This table supports a group of L2CP settings for an interface via the
    mefServiceInterfaceCfgL2cpGrpIndex object or for a service via the
    mefServiceEvcCfgL2cpGrpIndex object.

    Rows in this table are created by the SNMP Manager by first reading
    the mefServiceL2cpGrpNextIndex object to find an available L2CP
    profile group number and using this value when the row is created.
    If an object in the row is not defined during row creation time the
    object is set to the default value by the SNMP Agent.

    Rows are deleted by the SNMP Manager via the
    mefServiceL2cpGrpCfgRowStatus object and corresponding rows in the
    mefServiceL2cpCfgTable are deleted by the SNMP Agent.

    Once a row in this table is created, an entry can be created in the
    mefServiceL2cpCfgTable using the index from this table and the
    value of mefServiceL2cpCfgNextIndex object. A row in the
    mefServiceL2cpCfgTable indicates how a specific L2CP will be
    handled.

    Rows in this table are accessed by the L2CP group number object
    mefServiceL2cpGrpCfgIndex.

    Rows in this table and the values of the objects in the row are
    persistent (non-volatile) upon reboot."

REFERENCE
    "[MEF 6.1], [MEF 6.1.1] 8.0, [MEF 7.2], [MEF 10.2]"
 ::= { mefServiceL2cpAttributes 2 }
mefServiceL2cpGrpCfgEntry OBJECT-TYPE
SYNTAX      MefServiceL2cpGrpCfgEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION "L2CP profile group settings table entry on an interface."
INDEX { mefServiceL2cpGrpCfgIndex }
 ::= { mefServiceL2cpGrpCfgTable 1 }

MefServiceL2cpGrpCfgEntry ::= SEQUENCE {
    mefServiceL2cpGrpCfgIndex  Unsigned32,
    mefServiceL2cpCfgNextIndex  Unsigned32,
    mefServiceL2cpGrpCfgRowStatus  RowStatus
}

mefServiceL2cpGrpCfgIndex OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION "L2CP profile group index number, indicating the specific L2CP profile group"
 ::= { mefServiceL2cpGrpCfgEntry 1 }

mefServiceL2cpCfgNextIndex OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION "This object indicates the value to be used as the index of the L2CP table entries. This value is automatically incremented when a row is created in the L2CP table by the SNMP Agent. When the SNMP Manager wants to create a new row in the L2CP table the value of this object is used to create the specific item row.

A group of L2CP protocols is indicated by the use of the mefServiceL2cpCfgTable, which allows more than one Layer 2 Protocol to be associated within a L2CP profile group.
"
DEFVAL { 1 }
 ::= { mefServiceL2cpGrpCfgEntry 2 }

mefServiceL2cpGrpCfgRowStatus 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."
 ::= { mefServiceL2cpGrpCfgEntry 3 }

-- ******************************************************************************
-- Ethernet Service L2CP Profile Table
-- ******************************************************************************

mefServiceL2cpCfgTable OBJECT-TYPE
SYNTAX      SEQUENCE OF MefServiceL2cpCfgEntry
MAX-ACCESS  not-accessible
This table supports L2CP profile settings. Each row in the table indicates a specific L2CP and its processing type. Once a row is created in the mefServiceL2cpGrpCfgTable one or more rows can be created in the mefServiceL2cpCfgTable to indicate a group of Layer 2 Control Protocols that are handled as one L2CP profile group.

Rows in this table are created by the SNMP Manager by first reading the mefServiceL2cpCfgNextIndex object to find an available L2CP profile number and using this value when the row is created. If an object in the row is not defined during row creation time the object is set to the default value by the SNMP Agent.

Rows are deleted by the SNMP Manager via the mefServiceL2cpGrpCfgRowStatus object or by the SNMP Agent when the corresponding row is deleted in the mefServiceL2cpGrpCfgTable.

Rows in this table are accessed by the L2CP group number object mefServiceL2cpGrpCfgIndex and the individual L2CP profile in the group via the mefServiceL2cpCfgIndex object.

Rows in this table and the values of the objects in the row are persistent (non-volatile) upon reboot.

REFERENCE

"[MEF 6.1], [MEF 7.2], [MEF 10.2]"

::= { mefServiceL2cpAttributes 3 }
peer (3),
passToEvc (4)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object configures the L2CP processing type setting.

discard(1) the indicated L2CP is discarded
tunnel(2) the indicated L2CP is tunneled (passed)
peer(3) the indicated L2CP is peered with the NE
passToEvc(4) the indicated L2CP is passed to the EVC for EVC processing of the L2CP. Final L2CP disposition is based the L2CP profile for the EVC to be tunneled, discarded, or peered. This value is not valid for EVC based L2CP.
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { tunnel }
::= { mefServiceL2cpCfgEntry 2 }

mefServiceL2cpCfgMatchScope OBJECT-TYPE
SYNTAX INTEGER {
destinationAddressOnly (1),
daPlusProtocol (2),
daPlusProtocolPlusSubtype (3)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object configures the L2CP selection matching scope.

destinationAddressOnly(1) L2CP selection is determined by MAC Destination Address only
daPlusProtocol(2) L2CP selection is determined by MAC Destination Address plus Ethernet protocol
daPlusProtocolPlusSubtype(3) L2CP selection is determined by MAC Destination Address plus Ethernet protocol plus subtype
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { destinationAddressOnly } 
::= { mefServiceL2cpCfgEntry 3 }

mefServiceL2cpCfgMacAddress OBJECT-TYPE
SYNTAX MacAddress
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object configures the L2CP Destination MAC address.

Valid values are 01-80-C2-00-00-00 through 01-80-C2-00-00-0F and 01-80-C2-00-00-20 through 01-80-C2-00-00-2F
"
DEFVAL { '0180C2000000'H }
::= { mefServiceL2cpCfgEntry 4 }

mefServiceL2cpCfgProtocol OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
"This object configures the L2CP Ethernet protocol. The protocol is defined in the Ethertype field of the Ethertype frame. For instance the Ethertype for Link OAM is 0x8809, for E-LMI it is 0x88EE, for LLDP it is 0x88CC.

Valid protocol values are defined by MEF 6.1 and MEF 6.1.1.
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceL2cpCfgEntry 5 }

mefServiceL2cpCfgSubType OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"This object configures L2CP subtype for the protocol selected. For instance, the subtype for LACP is '2' and Link OAM is '3'.

Valid subtype values are defined by MEF 6.1 and MEF 6.1.1.
"
REFERENCE
"[MEF 6.1] 6.0, 8.0; [MEF 6.1.1] 8.0; [MEF 7.2] 6.2.1.2"
DEFVAL { 0 }
::= { mefServiceL2cpCfgEntry 6 }

mefServiceL2cpCfgRowStatus 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.
"
::= { mefServiceL2cpCfgEntry 7 }

-- ****************************************************************************
-- Ethernet Service Traffic Performance Data Set Table
-- ****************************************************************************
mefServicePerformanceTable OBJECT-TYPE
SYNTAX      SEQUENCE OF MefServicePerformanceEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"This table supports Traffic Performance Data Set profile settings on a Bandwidth Profile.

A row in this table is automatically created when a row in the mefServiceBwpCfgTable is created. This table contains the same rows as the mefServiceBwpCfgTable.

A row in this table is deleted when a row in the mefServiceBwpCfgTable is deleted. Counters in the table are only enabled when the associated object, mefServiceBwpCfgPerformanceEnable, is enabled.

Rows in this table are accessed via the bandwidth profile group
object mefServiceBwpGrpCfgIndex and the individual bandwidth profile in the group by the mefServiceBwpCfgIndex object. A SNMP Manager can access objects in each of the rows in the table.

Rows in this table are persistent (non-volatile) upon reboot, but the values of the objects in a row are not persistent.

::= { mefServiceBwpAttributes 4 }

mefServicePerformanceEntry OBJECT-TYPE
SYNTAX    MefService::PerformanceEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"Traffic Performance Data Set profile settings table entry."
INDEX { mefServiceBwpGrpCfgIndex, mefServiceBwpCfgIndex }
 ::= { mefServicePerformanceTable 1 }

MefServicePerformanceEntry ::= SEQUENCE {
  mefServicePerformanceIngressGreenFrameCount         Counter64,
  mefServicePerformanceIngressYellowFrameCount        Counter64,
  mefServicePerformanceIngressRedFrameCount           Counter64,
  mefServicePerformanceIngressGreenOctets             Counter64,
  mefServicePerformanceIngressYellowOctets            Counter64,
  mefServicePerformanceIngressGreenFrameDiscards      Counter64,
  mefServicePerformanceIngressYellowFrameDiscards     Counter64,
  mefServicePerformanceIngressGreenOctetsDiscards     Counter64,
  mefServicePerformanceIngressYellowOctetsDiscards    Counter64,
  mefServicePerformanceEgressGreenFrameCount          Counter64,
  mefServicePerformanceEgressYellowFrameCount         Counter64,
  mefServicePerformanceEgressGreenOctets              Counter64,
  mefServicePerformanceEgressYellowOctets             Counter64
  }

mefServicePerformanceIngressGreenFrameCount OBJECT-TYPE
SYNTAX       Counter64
UNITS        "Ethernet frames"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of green frames that were received on a ME-NE for the associated bandwidth profile. ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros.

This object defaults to '0'."

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
 ::= { mefServicePerformanceEntry 1 }

mefServicePerformanceIngressYellowFrameCount OBJECT-TYPE
SYNTAX       Counter64
UNITS        "Ethernet frames"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of yellow frames that were received on the ME-NE for the associated bandwidth profile."
ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros.

This object defaults to '0'.

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= {mefServicePerformanceEntry 2 }

mefServicePerformanceIngressRedFrameCount  OBJECT-TYPE
SYNTAX       Counter64
UNITS         "Ethernet frames"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of red frames that were received on the ME-NE for the associated bandwidth profile.

ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros.

This object defaults to '0'.

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= {mefServicePerformanceEntry 3 }

mefServicePerformanceIngressGreenOctets  OBJECT-TYPE
SYNTAX       Counter64
UNITS         "octets"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of valid green octets that were received on the ME-NE for the associated bandwidth profile.

This object defaults to '0'.

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= {mefServicePerformanceEntry 4 }

mefServicePerformanceIngressYellowOctets  OBJECT-TYPE
SYNTAX       Counter64
UNITS         "octets"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of valid yellow octets that were received on the ME-NE for the associated bandwidth profile.

This object defaults to '0'.

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= {mefServicePerformanceEntry 5 }

mefServicePerformanceIngressRedOctets  OBJECT-TYPE
SYNTAX       Counter64
UNITS         "octets"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"This object indicates the number of valid red octets that were received on the ME-NE for the associated bandwidth profile.

This object defaults to '0'."

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 6 }

mefServicePerformanceIngressGreenFrameDiscards OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the number of green frames that were discarded due to congestion within the ME-NE for the associated bandwidth profile.

ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros.

This object defaults to '0'."

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 7 }

mefServicePerformanceIngressYellowFrameDiscards OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the number of yellow frames that were discarded due to congestion within the ME-NE for the associated bandwidth profile.

ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros.

This object defaults to '0'."

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 8 }

mefServicePerformanceIngressGreenOctetsDiscards OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the number of valid green octets that were discarded due to congestion within the ME-NE for the associated bandwidth profile.

This object defaults to '0'."

REFERENCE
"[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 9 }
mefServicePerformanceIngressYellowOctetsDiscards OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the number of valid yellow octets that were discarded due to congestion within the ME-NE for the associated bandwidth profile. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 10 }

mefServicePerformanceEgressGreenFrameCount OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the number of green frames that were transmitted on the ME-NE for the associated bandwidth profile. ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 11 }

mefServicePerformanceEgressYellowFrameCount OBJECT-TYPE
SYNTAX Counter64
UNITS "Ethernet frames"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the number of yellow frames that were transmitted on the ME-NE for the associated bandwidth profile. ME-NEs that do not support 64 bit counters can return the upper half of the counter as all zeros. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 12 }

mefServicePerformanceEgressGreenOctets OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the number of valid green octets that were transmitted on the ME-NE for the associated bandwidth profile. This object defaults to '0'."
mefServicePerformanceEgressYellowOctets OBJECT-TYPE
SYNTAX Counter64
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object indicates the number of valid yellow octets that were transmitted on the ME-NE for the associated bandwidth profile. This object defaults to '0'."
REFERENCE "[MEF 15] 8.2; [Q.840.1] 6.2.4"
::= { mefServicePerformanceEntry 13 }

mefServiceNotificationCfgAlarmEnable OBJECT-TYPE
SYNTAX BITS {
  bServiceConfigurationAlarm(0)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION "This object is a vector of bits that indicates whether a specific notification is enabled. A bit set to '1' enables the specific notification generation. A bit set to '0' disables the specific notification. If a particular alarm is not supported the BIT value of the enable/disable is set to '0'. The value of this object is persistent (non-volatile) upon reboot."
DEFVAL { { } }
::= { mefServiceNotificationCfg 1 }

mefServiceNotificationObjDateAndTime OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS accessible-for-notify
STATUS current
DESCRIPTION "This object contains the date and time at the time that the notification event is detected, not the time of the notification generation."
This object is used only for notifications. The mechanism to set and keep current the date and time is not specified.

```
 ::= { mefServiceNotificationObj 1 }
```

```
mefServiceNotificationConfigurationChangeType OBJECT-TYPE
SYNTAX INTEGER {
    entryAdded (1),
    entryDeleted (2),
    entryModified (3)
}
MAX-ACCESS accessible-for-notify
STATUS current
DESCRIPTION
"The Notification Configuration Change Type of the object that caused the generation.

entryAdded(1) indicates that the specific object/service was added
entryDelete(2) indicates that the specific object/service was deleted
entryModified(3) indicates that the specific object/service was modified

This object is only used for the notification.
"
```

REFERENCE
"[MEF 7.2] 6.2.1.1, 6.2.1.2, 6.2.1.3"
 ::= { mefServiceNotificationObj 2 }

-- NOTIFICATIONS (TRAPS)
--******************************************************************

```
mefServiceConfigurationAlarm NOTIFICATION-TYPE
OBJECTS {
    mefServiceNotificationObjDateAndTime,
    mefServiceNotificationConfigurationChangeType
}
STATUS current
DESCRIPTION
"An mefServiceConfigurationAlarm notification is sent when the configuration of an object or service is added, deleted, or modified.

The ME-NE that receives the notification can identify the system from the network source address of the notification, and can identify the configuration change by the indices in the standard snmpTrapOID object.
"
```

REFERENCE
"[MEF 7.2] 6.2.1.1, 6.2.1.2, 6.2.1.3"
 ::= { mefServiceNotifications 1 }

-- SERVICE-UNI MIB Module - Conformance Information
--******************************************************************

```
mefServiceUniEvcMibCompliances OBJECT IDENTIFIER ::= { mefServiceMibConformance 1 }
mefServiceUniEvcMibGroups      OBJECT IDENTIFIER ::= { mefServiceMibConformance 2 }
```

-- SERVICE-UNI MIB Units of conformance
--******************************************************************
mefServiceInterfaceMandatoryGroup OBJECT-GROUP

OBJECTS {
  mefServiceInterfaceCfgType,
  mefServiceInterfaceCfgIdentifier,
  mefServiceInterfaceCfgFrameFormat,
  mefServiceInterfaceCfgIngressBwpGrpIndex,
  mefServiceInterfaceCfgEgressBwpGrpIndex,
  mefServiceInterfaceCfgL2cpGrpIndex,
  mefServiceInterfaceStatusType,
  mefServiceInterfaceStatusMaxVc,
  mefServiceInterfaceStatusMaxEndPointPerVc,
  mefServiceInterfaceStatisticsIngressUndersized,
  mefServiceInterfaceStatisticsIngressOversized,
  mefServiceInterfaceStatisticsIngressFrames,
  mefServiceInterfaceStatisticsIngressCrcAlignment,
  mefServiceInterfaceStatisticsIngressInvalidVid,
  mefServiceInterfaceStatisticsIngressOctets,
  mefServiceInterfaceStatisticsIngressUnicast,
  mefServiceInterfaceStatisticsIngressMulticast,
  mefServiceInterfaceStatisticsEgressOctets,
  mefServiceInterfaceStatisticsEgressUnicast,
  mefServiceInterfaceStatisticsEgressMulticast,
  mefServiceInterfaceStatisticsEgressBroadcast
}
STATUS current
DESCRIPTION "Mandatory objects for the Interface group."
::= { mefServiceUniEvcMibGroups 1 }

mefServiceUniMandatoryGroup OBJECT-GROUP

OBJECTS {
  mefServiceUniCfgIdentifier,
  mefServiceUniCfgBundlingMultiplex,
  mefServiceUniCfgCeVidUntagged,
  mefServiceUniCfgCePriorityUntagged,
  mefServiceEvcPerUniCfgServiceType,
  mefServiceEvcPerUniCfgIdentifier,
  mefServiceEvcPerUniCfgCeVlanMap,
  mefServiceEvcPerUniCfgIngressBwpGrpIndex,
  mefServiceEvcPerUniCfgEgressBwpGrpIndex
}
STATUS current
DESCRIPTION "Mandatory objects for the UNI Attributes group."
::= { mefServiceUniEvcMibGroups 2 }

mefServiceEvcMandatoryGroup OBJECT-GROUP

OBJECTS {
  mefServiceEvcNextIndex,
  mefServiceEvcCfgIdentifier,
  mefServiceEvcCfgServiceType,
  mefServiceEvcCfgMtuSize,
  mefServiceEvcCfgCevlanIdPreservation,
  mefServiceEvcCfgCevlanCosPreservation,
  mefServiceEvcCfgL2cpGrpIndex,
  mefServiceEvcCfgAdminState,
  mefServiceEvcCfgRowStatus,
  mefServiceEvcRowStatusType,
  mefServiceEvcStatusMaxMtuSize,
  mefServiceEvcStatusMaxNumUni,
mefServiceEvcStatusOperationalState
}
STATUS current
DESCRIPTION
"Mandatory objects for the EVC Attributes group."
 ::= { mefServiceUniEvcMibGroups 3 }

mefServiceEvcOptionalGroup OBJECT-GROUP
OBJECTS {
  mefServiceEvcCfgUnicastDelivery,
  mefServiceEvcCfgMulticastDelivery,
  mefServiceEvcCfgBroadcastDelivery
}
STATUS current
DESCRIPTION
"Optional objects for the EVC Attributes group."
 ::= { mefServiceUniEvcMibGroups 4 }

mefServiceBwpMandatoryGroup OBJECT-GROUP
OBJECTS {
  mefServiceBwpGrpNextIndex,
  mefServiceBwpCfgNextIndex,
  mefServiceBwpGrpCfgRowStatus,
  mefServiceBwpCfgIdentifier,
  mefServiceBwpCfgCir,
  mefServiceBwpCfgCbs,
  mefServiceBwpCfgEir,
  mefServiceBwpCfgEbs,
  mefServiceBwpCfgCm,
  mefServiceBwpCfgCf,
  mefServiceBwpCfgCosIndex,
  mefServiceBwpCfgPerformanceEnable,
  mefServiceBwpCfgRowStatus
}
STATUS current
DESCRIPTION
"Mandatory objects for the Bandwidth Profile Attributes group."
 ::= { mefServiceUniEvcMibGroups 5 }

mefServiceCosMandatoryGroup OBJECT-GROUP
OBJECTS {
  mefServiceCosNextIndex,
  mefServiceCosCfgIdentifier,
  mefServiceCosCfgType,
  mefServiceCosCfgIdentifierList,
  mefServiceCosCfgMacAddress,
  mefServiceCosCfgProtocol,
  mefServiceCosCfgSubType,
  mefServiceCosCfgRowStatus
}
STATUS current
DESCRIPTION
"Mandatory objects for the Class of Service Attributes group."
 ::= { mefServiceUniEvcMibGroups 6 }

mefServiceL2cpMandatoryGroup OBJECT-GROUP
OBJECTS {
  mefServiceL2cpGrpNextIndex,
  mefServiceL2cpCfgNextIndex,
  mefServiceL2cpGrpCfgRowStatus,
mefServiceL2cpCfgType,  
mefServiceL2cpCfgMatchScope,  
mefServiceL2cpCfgMacAddress,  
mefServiceL2cpCfgProtocol,  
mefServiceL2cpCfgSubType,  
mefServiceL2cpCfgRowStatus  
}  
STATUS current  
DESCRIPTION  
"Mandatory objects for the L2CP Attributes group."  
::= { mefServiceUniEvcMibGroups 7 }

mefServicePerformanceMandatoryGroup OBJECT-GROUP  
OBJECTS {  
mefServicePerformanceIngressGreenFrameCount,  
mefServicePerformanceIngressGreenOctets,  
mefServicePerformanceEgressGreenFrameCount,  
mefServicePerformanceEgressGreenOctets  
}  
STATUS current  
DESCRIPTION  
"Mandatory objects for the Bandwidth Profile Performance group."  
::= { mefServiceUniEvcMibGroups 8 }

mefServicePerformanceOptionalGroup OBJECT-GROUP  
OBJECTS {  
mefServicePerformanceIngressYellowFrameCount,  
mefServicePerformanceIngressRedFrameCount,  
mefServicePerformanceIngressYellowOctets,  
mefServicePerformanceIngressRedOctets,  
mefServicePerformanceEgressYellowFrameCount,  
mefServicePerformanceEgressYellowOctets,  
mefServicePerformanceEgressRedFrameCount,  
mefServicePerformanceEgressRedOctets,  
mefServicePerformanceEgressYellowFrameDiscards,  
mefServicePerformanceEgressYellowOctetsDiscards,  
mefServicePerformanceEgressRedFrameDiscards,  
mefServicePerformanceEgressRedOctetsDiscards  
}  
STATUS current  
DESCRIPTION  
"Optional objects for the Bandwidth Profile Performance group."  
::= { mefServiceUniEvcMibGroups 9 }

mefServiceNotificationObjOptionalGroup OBJECT-GROUP  
OBJECTS {  
mefServiceNotificationCfgAlarmEnable,  
mefServiceNotificationObjDateAndTime,  
mefServiceNotificationConfigurationChangeType  
}  
STATUS current  
DESCRIPTION  
"Optional objects for the Notification Object group."  
::= { mefServiceUniEvcMibGroups 10 }

mefServiceNotificationsOptionalGroup NOTIFICATION-GROUP  
NOTIFICATIONS {  
mefServiceConfigurationAlarm  
}  
STATUS current  
DESCRIPTION  
"Optional notifications for the Notifications group."
::= { mefServiceUniEvcMibGroups 11 }

-- ///////////////////////////////////////////////////////////////////////
-- UNI-EVC MIB Module Compliance statements
-- ///////////////////////////////////////////////////////////////////////

mefServiceUniMibCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION "The compliance statement for the Ethernet Service
UNI-EVC MIB."
  MODULE
    MANDATORY-GROUPS {
      mefServiceInterfaceMandatoryGroup,
      mefServiceUniMandatoryGroup,
      mefServiceEvcMandatoryGroup,
      mefServiceBwpMandatoryGroup,
      mefServiceCosMandatoryGroup,
      mefServiceL2cpMandatoryGroup,
      mefServicePerformanceMandatoryGroup
    }
    GROUP mefServiceEvcOptionalGroup
    DESCRIPTION "The mefServiceEvcOptionalGroup is an optional
requirement."
  
GROUP mefServicePerformanceOptionalGroup
DESCRIPTION "The mefServicePerformanceOptionalGroup is an optional
requirement."

GROUP mefServiceNotificationObjOptionalGroup
DESCRIPTION "The mefServiceNotificationObjOptionalGroup is an optional
requirement."

GROUP mefServiceNotificationsOptionalGroup
DESCRIPTION "The mefServiceNotificationsOptionalGroup is an optional
requirement."

::= { mefServiceUniEvcMibCompliances 1 }

END
9. References


