

1 **14 Management entities**

2 **14.4 Management entities for DPoE eOAM profile**

3 **Branch 0xD7 “extended attributes”**

4 This subclause lists extended management attributes, which are not part of the definitions in
 5 IEEE Std 802.3, Clause 30. The extended attributes shown in Table 14-133 shall be supported.

6 The extended attributes can be part of *eOAM_Get_Request*, *eOAM_Get_Response*, *eOAM_Set_Request*,
 7 and *eOAM_Set_Response* eOAMPDUs.

8 **Table 14-1—Extended attributes defined in branch 0xD7**

Leaf	Attribute	Defined in
Object group: ONU management		
0x00-02	aOnuId	14.4.3.1.2
0x00-03	aOnuFwVersion	14.4.3.1.3
0x00-04	aOnuInfoChipset	14.4.3.1.4
0x00-05	aOnuInfoDateManufacture	14.4.3.1.5
0x00-06	aOnuInfoManufacturer	14.4.3.1.6
0x00-07	aOnuLlidCount	14.4.3.1.7
0x00-08	aOnuPonPortCount	14.4.3.1.8
0x00-09	aOnuUniPortCount	14.4.3.1.9
0x00-0A	aOnuInfoPacketBuffer	14.4.3.1.10
0x00-0B	aLlidReportThresholds	14.4.3.1.11
0x00-0C	aLlidForwardState	14.4.3.1.12
0x00-0D	aLlidOamFrameRate	14.4.3.1.13
0x00-0E	aOnuManOrgName	14.4.3.1.14
0x00-0F	aOnuCvcCvsValidity	14.4.3.1.15
0x00-10	aOnuUniPortType	14.4.3.1.16
0x00-11	aVendorName	14.4.3.1.17
0x00-12	aModelNumber	14.4.3.1.18
0x00-13	aHardwareVersion	14.4.3.1.19
0x00-14	aLineRateMode	14.4.3.1.20
0x01-0E	aOnuFwFileName	14.4.3.1.21
Object group: Bridging		
0x01-01	aOnuDynMacTableSize	14.4.3.2.1
0x01-02	aOnuDynMacAgeLimit	14.4.3.2.2
0x01-03	aUniDynMacTable	14.4.3.2.3
0x01-04	aUniStatMacTable	14.4.3.2.4
0x01-05	aUniPortAutoNeg	14.4.3.2.5
0x01-06	aUniAdmissionControl	14.4.3.2.6
0x01-07	aUniMinLearnMacCount	14.4.3.2.7
0x01-08	aUniMaxLearnMacCount	14.4.3.2.8
0x01-09	aOnuMaxLearnMacCount	14.4.3.2.9
0x01-0A	aUniLengthDiscard	14.4.3.2.10
0x01-0B	aUniFloodUnknown	14.4.3.2.11
0x01-0C	aUniLocalSwitching	14.4.3.2.12
0x01-0D	aOnuLlidQueueConfig	14.4.3.2.13
0x01-0F	aUniMacTableFull	14.4.3.2.14
0x01-10	aOnuMulticastLlid	14.4.3.2.15
0x01-11	aUniMacLearned	14.4.3.2.16
<u>0x01-12</u>	<u>aOnuMaxFrameSizeCapability</u>	RES

Leaf	Attribute	Defined in
0x01-13	aUniMaxFrameSizeLimit	<REF>
Object group: Statistics and counters		
0x02-01	aCountRxFramesGreen	14.4.3.3.1
0x02-02	aCountTxFramesGreen	14.4.3.3.2
0x02-03	aCountRxFrames2Short	14.4.3.3.3
0x02-04	aCountRxFrames64	14.4.3.3.4
0x02-05	aCountRxFrames65to127	14.4.3.3.5
0x02-06	aCountRxFrames128to255	14.4.3.3.6
0x02-07	aCountRxFrames256to511	14.4.3.3.7
0x02-08	aCountRxFrames512to1023	14.4.3.3.8
0x02-09	aCountRxFrames1024to1518	14.4.3.3.9
0x02-0A	aCountRxFrames1519	14.4.3.3.10
0x02-0B	aCountTxFrames64	14.4.3.3.11
0x02-0C	aCountTxFrames65to127	14.4.3.3.12
0x02-0D	aCountTxFrames128to255	14.4.3.3.13
0x02-0E	aCountTxFrames256to511	14.4.3.3.14
0x02-0F	aCountTxFrames512to1023	14.4.3.3.15
0x02-10	aCountTxFrames1024to1518	14.4.3.3.16
0x02-11	aCountTxFrames1519	14.4.3.3.17
0x02-12	aQueueDelayThr	14.4.3.3.18
0x02-13	aQueueDelayValue	14.4.3.3.19
0x02-14	aCountFramesDropped	14.4.3.3.20
0x02-15	aCountOctetsDropped	14.4.3.3.21
0x02-16	aCountOctetsDelayed	14.4.3.3.22
0x02-17	aCountUsOctetsUnused	14.4.3.3.23
0x02-1D	aPonOptMonitTemp	14.4.3.3.24
0x02-1E	aPonOptMonitVcc	14.4.3.3.25
0x02-1F	aPonOptMonitBias	14.4.3.3.26
0x02-20	aPonOptMonitTxPower	14.4.3.3.27
0x02-21	aPonOptMonitRxPower	14.4.3.3.28
0x02-22	aCounterRxFramesY	14.4.3.3.29
0x02-23	aCounterTxFramesY	14.4.3.3.30
0x02-24	aCounterTxOctetsG	14.4.3.3.31
0x02-25	aCounterRxOctetsY	14.4.3.3.32
0x02-26	aCounterRxOctetsG	14.4.3.3.33
0x02-27	aCounterTxOctetsY	14.4.3.3.34
0x02-28	aCounterTxFramesL2Unicast	14.4.3.3.35
0x02-29	aCounterTxFramesL2Multicast	14.4.3.3.36
0x02-2A	aCounterTxFramesL2Broadcast	14.4.3.3.37
0x02-2B	aCounterRxFramesL2Unicast	14.4.3.3.38
0x02-2C	aCounterRxFramesL2Multicast	14.4.3.3.39
0x02-2D	aCounterRxFramesL2Broadcast	14.4.3.3.40
0x02-2E	aOnuCounterNumber	14.4.3.3.41
0x02-2F	aCounterRxFramesL2CP	14.4.3.3.42
0x02-30	aCounterRxOctetsL2CP	14.4.3.3.43
0x02-31	aCounterTxFramesL2CP	14.4.3.3.44
0x02-32	aCounterTxOctetsL2CP	14.4.3.3.45
0x02-33	aCounterDiscardFramesL2CP	14.4.3.3.46
0x02-34	aCounterDiscardOctetsL2CP	14.4.3.3.47
0x02-35	aCounterL2TxErrors	14.4.3.3.48
0x02-36	aCounterL2RxErrors	14.4.3.3.49
0x02-37	aCountFramesOverLimitDroppedUni	<REF>

Leaf	Attribute	Defined in
0x02-38	aCountOctetsOverLimitDroppedUni	<REF>
Object group: Alarms		
0x03-01	aAlarmPortStatThr	14.4.3.4.1
0x03-02	aAlarmLlidStatThr	14.4.3.4.2
0x03-03	aAlarmStatusControl	14.4.3.4.3
Object group: Encryption		
0x04-01	aEncryptionKeyExpiration	14.4.3.5.1
0x04-02	aEncryptionMode	14.4.3.5.2
Object group: Frame processing		
0x05-01	aRuleSetConfig	14.4.3.6.1
0x05-02	aRuleCustomField	14.4.3.6.2
0x05-03	aRuleTpidCAIAlter	14.4.3.6.3
0x05-04	aRuleTpidSAIAlter	14.4.3.6.4
0x05-06	aRuleTpidIAIAlter	14.4.3.6.6
0x05-07	aRuleTpidBAIAlter	14.4.3.6.7
Object group: Service-level agreements		
0x06-01	aRateLimitBroadcast	14.4.3.7.1
0x06-04	aQueueCIR	14.4.3.7.2
0x06-05	aFecMode	14.4.3.7.3
0x06-06	aQueueEIR	14.4.3.7.4
0x06-07	aQueueColorMarking	14.4.3.7.5
0x06-08	aQueueRateLimiterCap	14.4.3.7.6
0x06-09	aCouplingFlag	14.4.3.7.7
Object group: Clock transport		
0x07-01	aClockTranspCapab	14.4.3.9.1
0x07-02	aClockTranspStatus	14.4.3.9.2
0x07-03	aClockTranspTransfer	14.4.3.9.3
0x07-04	aClockTranspPropagParam	14.4.3.9.4
0x07-05	aClockTranspRtt	14.4.3.9.5
0x08-00	Reserved, ignored on reception	
0x08-01	Reserved, ignored on reception	
0x08-02	Reserved, ignored on reception	
0x08-03	aDacStatus	14.4.3.10.4
Object group: UNI management		
0x08-20	aEeeStatus	14.4.3.11.1
0x08-21	aPoeStatus	14.4.3.11.2
0x08-22	aMediaType	14.4.3.11.3
Object group: Optical Line Protection		
0x09-00	aOnuProtectionCapability	14.4.3.10.1
0x09-01	aOnuConfigProtection	14.4.3.9.2
0x09-02	aOnuConfigPonActive	14.4.3.9.3
0x09-03	aONUConfigHoldoverPeriod	14.4.3.9.4
Object group: Power saving		
0xFF-FF	aOnuPwrSavingCap	14.4.3.8.1

1 All other Leaf values are reserved and ignored on reception.

1 **Attribute *aUniMacLearned* (0xD7/0x01-11)**

2 This attribute represents the UNI port on which the given MAC address was learned. This attribute consists
 3 of the following sub-attributes: *sMacAddress* and *sUniPort*.

4 Attribute *aUniMacLearned.sMacAddress*:

- 5 **Syntax:** MAC address
- 6 **Remote access:** Read/Write
- 7 **Description:** This sub-attribute indicates the MAC address queried by the OLT. The value of
 8 *sUniPort* sub-attribute is automatically updated upon writing a new value of
 9 *sMacAddress* sub-attribute.

10 Attribute *aUniMacLearned.sUniPort*:

- 11 **Syntax:** UNI port
- 12 **Remote access:** Read-Only
- 13 **Description:** This sub-attribute represents the instance of UNI port on which the MAC
 14 address value *sMacAddress* has been learned or configured via management.
 15 The following values are defined:
 16 0x00–0xFE: Instance of UNI port.
 17 0xFF: MAC address *sMacAddress* has not been learned on any
 18 UNI port.

19 The *aUniMacLearned* attribute is associated with the ONU object (see 14.4.1.1). The Variable Container
 20 TLV for the *aUniMacLearned* attribute shall be as specified in Table 14-171.

21 **Table 14-18—UNI MAC Learned TLV (0xD7/0x01-11)**

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x01-11	Leaf identifier
1	Length	Varies	The size of TLV fields following the Length field. This field takes the following values: In <i>GetRequest</i> eOAMPDU: 0x06 In <i>GetResponse</i> eOAMPDU: 0x07
6	MacAddress	Varies	Value of <i>sMacAddress</i> sub-attribute
1	UniPort	Varies	Value of <i>sUniPort</i> sub-attribute. This field is only present in <i>GetResponse</i> eOAMPDU.

22 **Attribute *aOnuMaxFrameSizeCapability* (0xD7/0x01-12)**

23 This attribute represents the maximum size of an Ethernet frame (see IEEE 802.3, 3.1.1) supported by the
 24 ONU.

25 Attribute *aOnuMaxFrameSizeCapability*:

- 26 **Syntax:** Unsigned integer
- 27 **Range:** 0x00-40 to 0xFF-FF
- 28 **Unit:** 1 octet
- 29 **Remote access:** Read-Only
- 30 **Description:** This attribute represents the maximum size of an Ethernet frame (see IEEE
 31 802.3, 3.1.1) supported by the ONU.

32 The *aOnuMaxFrameSizeCaapbility* attribute is associated with the ONU object (see 14.4.1.1). The
 33 Variable Container TLV for the *aOnuMaxFrameSizeCapability* attribute shall be as specified in Table
 34 14-181.

Table 14-19—ONU Maximum Frame Capability TLV (0xD7/0x01-12)

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x01-12	Leaf identifier
1	Length	0x02	The size of TLV fields following the Length field
2	OnuMaxFrameSizeCapability	Varies	Value of <i>aOnuMaxFrameSizeCapability</i> attribute

Attribute *aUniMaxFrameSizeLimit* (0xD7/0x01-13)

This attribute represents the current setting of the maximum size of an Ethernet frame (see IEEE 802.3, 3.1.1) supported by the UNI port in the ingress direction.

Attribute *aUniMaxFrameSizeLimit*:

Syntax: Unsigned integer

Range: 0x00-40 to 0xFF-FF

Unit: 1 octet

Remote access: Read/Write

Description: This attribute represents the current setting of the maximum size of an Ethernet frame (see IEEE 802.3, 3.1.1) configured for the UNI port in the ingress direction. Each Ethernet frame with the size exceeding the value of *aUniMaxFrameSizeLimit* attribute for the given UNI port increments the value of *aCountFramesOverLimitDroppedUni* and *aCountOctetsOverLimitDroppedUni* counters.

An attempt to write a value larger than the value of the *aOnuMaxFrameSizeCapability* (0xD7/0x01-12) attribute results in generation of a return code “Bad Parameters” (see Table 13-10) and the value of *aMaxFrameSizeLimit* attribute remaining unchanged.

The *aUniMaxFrameSizeLimit* attribute is associated with the UNI port object (see 14.4.1.1). The Variable Container TLV for the *aUniMaxFrameSizeLimit* attribute shall be as specified in Table 14-154.

Table 14-20—UNI Maximum Frame Length TLV (0xD7/0x01-13)

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x01-13	Leaf identifier
1	Length	0x02	The size of TLV fields following the Length field
2	UniMaxFrameSizeLimit	Varies	Value of <i>aUniMaxFrameSizeLimit</i> attribute

Statistics and counters

Attribute *aCountRxFramesGreen* (0xD7/0x02-01)

This attribute represents the current number of green frames received by the element identified by the *Object Context* TLV. If the color marking function is not in use, all the received frames are considered green.

Attribute *aCountRxFramesGreen*:

Syntax: Counter, Resettable, Wrap-around

Range: 0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF

1 **Syntax:** Counter, Resettable
 2 **Range:** 0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
 3 **Remote access:** Read/Write
 4 **Description:** This attribute indicates the current number of Layer 2 frames discarded due to
 5 FCS errors, length errors, etc., as observed by the given element (as indicated by
 6 the *Object Context* TLV).
 7 The ONU shall reset this counter to the value of 0x00 on write of any value to
 8 this attribute.

9 The *aCounterL2RxErrors* attribute is associated with the UNI Port or PON Port object (see 14.4.1.1). The
 10 Variable Container TLV for the *aCounterL2RxErrors* attribute shall be as specified in Table 14-220.

11 **Table 14-69—L2 Rx Errors TLV (0xD7/0x02-36)**

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x02-36	Leaf identifier
1	Length	0x01 to 0x08	The size of TLV fields following the Length field
1..8	aCounterL2RxErrors	Varies	Value of <i>aCounterL2RxErrors</i> attribute

12 **Attribute *aCountFramesOverLimitDroppedUni* (0xD7/0x02-37)**

13 This attribute represents the current number of frames dropped by the UNI port identified by the *Object*
 14 *Context* TLV due to the Ethernet frame size exceeding the value of *aUniMaxFrameSizeLimit* attribute
 15 associated with this UNI port.

16 Attribute *aCountFramesGiantsUni*:

17 **Syntax:** Counter, Resettable
 18 **Range:** 0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
 19 **Remote access:** Read/Write
 20 **Description:** This attribute indicates the current number of frames dropped by the UNI port
 21 identified by the *Object Context* TLV.
 22 The ONU shall reset this counter to the value of 0x00 on write of any value to
 23 this attribute.

24 The *aCountFramesOverLimitDroppedUni* attribute is associated with the UNI Port object (see 14.4.1.1).
 25 The Variable Container TLV for the *aCountFramesOverLimitDroppedUni* attribute shall be as specified in
 26 Table 14-191.

27 **Table 14-70—Count Frames Over Limit Dropped UNI TLV (0xD7/0x02-37)**

Size (octets)	Field (name)	Value	Notes
<u>1</u>	<u>Branch</u>	<u>0xD7</u>	<u>Branch identifier</u>
<u>2</u>	<u>Leaf</u>	<u>0x02-37</u>	<u>Leaf identifier</u>
<u>1</u>	<u>Length</u>	<u>0x01 to 0x08</u>	<u>The size of TLV fields following the Length field</u>
<u>1..8</u>	<u>CountFramesOverLimitDroppedUni</u>	<u>Varies</u>	<u>Value of <i>aCountFramesOverLimitDroppedUni</i> attribute</u>

Attribute *aCountOctetsOverLimitDroppedUni* (0xD7/0x02-38)

This attribute represents the current number of octets in frames dropped by the UNI port identified by the *Object Context* TLV due to the Ethernet frame size exceeding the value of *aUniMaxFrameSizeLimit* attribute associated with this UNI port.

Attribute *aCountFramesGiantsUni*:

- Syntax:** Counter, Resettable
- Range:** 0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
- Remote access:** Read/Write

Description: This attribute indicates the current number of octets frames dropped by the UNI port identified by the *Object Context* TLV. The ONU shall reset this counter to the value of 0x00 on write of any value to this attribute.

The *aCountOctetsOverLimitDroppedUni* attribute is associated with the UNI Port object (see 14.4.1.1). The Variable Container TLV for the *aCountOctetsOverLimitDroppedUni* attribute shall be as specified in [Table 14-71](#).

Table 14-71—Count Octets Over Limit Dropped UNI TLV (0xD7/0x02-38)

<u>Size (octets)</u>	<u>Field (name)</u>	<u>Value</u>	<u>Notes</u>
<u>1</u>	<u>Branch</u>	<u>0xD7</u>	<u>Branch identifier</u>
<u>2</u>	<u>Leaf</u>	<u>0x02-38</u>	<u>Leaf identifier</u>
<u>1</u>	<u>Length</u>	<u>0x01 to 0x08</u>	<u>The size of TLV fields following the Length field</u>
<u>1..8</u>	<u>CountOctetsOverLimitDroppedUni</u>	<u>Varies</u>	<u>Value of <i>aCountOctetsOverLimitDroppedUni</i> attribute</u>

Item	Description	Subclause	Value/Comment	Status	Support
AU-ME146	<i>ONU Protection Configuration TLV (0xD7/0x09-01)</i>	14.4.3.9.2	Meets the requirements of Table 14-260.	AU-LPTE0+ AU-LPTK0:M	[] Yes
AU-ME147	<i>PON Interface Administrative TLV (0xD7/0x09-02)</i>	14.4.3.9.3	Meets the requirements of Table 14-261.	AU-LPTE0:M	[] Yes
AU-ME148	<i>ONU Configuration Holdover Period TLV (0xD7/0x09-03)</i>	14.4.3.9.4	Meets the requirements of Table 14-262.	AU-LPTK0:M	[] Yes
AU-ME149	<i>ONU Multicast LLIDs TLV (0xD7/0x01-10)</i>	14.4.3.2.15	Meets the requirements of Table 14-170.	M	[] Yes
AU-ME150	<i>UNI MAC Learned TLV (0xD7/0x01-11)</i>	14.4.3.2.16	Meets the requirements of Table 14-171.	M	[] Yes
AU-ME151	<i>Config Multicast LLID TLV (0xD9/0x01-07)</i>	14.4.5.2.7	Meets the requirements of Table 14-280.	M	[] Yes
AU-ME152	ONU Maximum Frame Length Capability TLV (0xD7/0x01-12)	<REF>	Meets the requirements of <REF>	M	[] Yes
AU-ME153	UNI Maximum Frame Length TLV (0xD7/0x01-13)	<REF>	Meets the requirements of <REF>	M	[] Yes
AU-ME154	Count Frames Over Limit Dropped UNI TLV (0xD7/0x02-37)	<REF>	Meets the requirements of <REF>	M	[] Yes
AU-ME155	Count Octets Over Limit Dropped UNI TLV (0xD7/0x02-38)	<REF>	Meets the requirements of <REF>	M	[] Yes

4A.3 OLT-specific PICS

4A.3.1 Management entities

Item	Description	Subclause	Value/Comment	Status	Support
AT-ME0a	Implements management entities	Table 4-1	OLT implements management entities per 14.4.	M	[] Yes

Item	Description	Subclause	Value/Comment	Status	Support
AT-ME138	<i>Clock Transfer RTT TLV</i> (0xD7/0x07-05)	14.4.3.9.5	Meets the requirements of Table 14-267.	M	[] Yes
AT-ME143	<i>Programmable Counter N TLV</i> (0xD8/0x00-00 to 0xD8/0x7F-FF)	14.4.6.1	Meets the requirements of Table 14-292.	M	[] Yes
AT-ME144	<i>ONU Protection Capability TLV</i> (0xD7/0x09-00)	14.4.3.9.1	Meets the requirements of Table 14-259.	M	[] Yes
AT-ME145	<i>ONU Protection Configuration TLV</i> (0xD7/0x09-01)	14.4.3.9.2	Meets the requirements of Table 14-260.	AT-LPTE0+ AT-LPTK0:M	[] Yes
AT-ME146	<i>PON Interface Administrative TLV</i> (0xD7/0x09-02)	14.4.3.9.3	Meets the requirements of Table 14-261.	AT-LPTE0:M	[] Yes
AT-ME147	<i>ONU Configuration Holdover Period TLV</i> (0xD7/0x09-03)	14.4.3.9.4	Meets the requirements of Table 14-262.	AT-LPTK0:M	[] Yes
AT-ME148	<i>ONU Multicast LLIDs TLV</i> (0xD7/0x01-10)	14.4.3.2.15	Meets the requirements of Table 14-170.	M	[] Yes
AT-ME149	<i>UNI MAC Learned TLV</i> (0xD7/0x01-11)	14.4.3.2.16	Meets the requirements of Table 14-171.	M	[] Yes
AT-ME150	<i>Config Multicast LLID TLV</i> (0xD9/0x01-07)	14.4.5.2.7	Meets the requirements of Table 14-280.	M	[] Yes
AT-ME151	ONU Maximum Frame Length Capability TLV (0xD7/0x01-12)	<REF>	Meets the requirements of <REF>	<u>M</u>	[] Yes
AT-ME152	UNI Maximum Frame Length TLV (0xD7/0x01-13)	<REF>	Meets the requirements of <REF>	<u>M</u>	[] Yes
AT-ME153	Count Frames Over Limit Dropped UNI TLV (0xD7/0x02-37)	<REF>	Meets the requirements of <REF>	<u>M</u>	[] Yes
AT-ME154	Count Octets Over Limit Dropped UNI TLV (0xD7/0x02-38)	<REF>	Meets the requirements of <REF>	<u>M</u>	[] Yes