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14.4 Management entities for DPoE eOAM profile

14.4.1 Branch 0xD6 “identification”

14.4.1.1 Object Context TLV

The eOAM defined for this profile can manage objects other than the immediate EPON MAC instance. This attribute is used by the OLT and ONU to identify the context for other specific attributes, indicating, e.g., the UNI ports to which the given attribute refers. The OLT is not required to know or use the MAC addresses of UNIs to manage them via eOAM.

The *Object Context* TLV carried in an eOAMPDU sets the object to which all subsequent TLVs apply. Once set, this context remains unchanged until the next *Object Context* TLV is found and processed or until the eOAMPDU terminates. If no *Object Context* TLV is supplied, the default object context is the LLID on which the eOAMPDU was received.

The source OAM Client shall set the proper context, as specified for each attribute and action in 14.4.2 through 14.4.6 using the *Object Context* TLV. The source OAM Client should not insert the *Object Context* TLV in front of Variable Container TLVs or Variable Descriptor TLVs if the proper context is already set, either explicitly via an earlier *Object Context* TLV or implicitly as a default object context.

Until the first *Object Context* TLV is encountered in the received eOAMPDU, the destination OAM Client shall use the LLID on which the eOAMPDU was received as the object context. The destination OAM Client shall apply the current object context to all subsequent Variable Container TLVs and Variable Descriptor TLVs until another *Object Context* TLV is encountered.

This TLV is of a Variable Container type. The format of this TLV shall be as specified in Table 14-124.

Table 14-124—Object Context TLV (0xD6/Varies)

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD6	Branch identifier.
2	ObjectType	Varies	Indicates the type of the target object, as defined in 14.4.1.1.1.
1	Length	Varies	Represents the size of the Value field: 0x01 for ObjectType values 0x00-00 to 0x00-03 0x04 for ObjectType value of 0x00-04 Other values are reserved and ignored on reception.
Varies	ObjectInstance	Varies	Indicates the instance of the target object, as defined in 14.4.1.1.2.

14.4.1.1.1 ObjectType field

The *ObjectType* value in the *Object Context* TLV identifies the type of the target object. The ONU and the OLT shall support the values for the *ObjectType* field as shown in Table 14-125.

Table 14-125—Code point allocation for the ObjectType field

ObjectType	Code	Notes
ONU	0x00-00	Identifies the ONU as a whole

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ObjectType	Code	Notes
PON Port	0x00-01	Identifies a PON interface
LLID	0x00-02	Identifies an a unicast LLID
UNI Port	0x00-03	Identifies Ethernet UNI port
Queue	0x00-04	Identifies the specific queue on the ONU
MEP	0x00-05	Identifies a Maintenance End Point (MEP) for Service OAM
mLLID	0x00-06	Identified a multicast LLID

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Other values are reserved and ignored on reception. When the destination OAM Client encounters an *Object Context* TLV carrying one of the reserved `ObjectType` values, the destination OAM Client shall discard this *Object Context* TLV and all the subsequent TLVs present in the same eOAMPDU until it encounters another *Object Context* TLV with one of the supported values.

14.4.1.1.2 ObjectInstance field

The `ObjectInstance` field in the *Object_ID* TLV identifies the specific instance of the object identified by the `ObjectType` field and has the form of a 1-octet-wide or 4-octet-wide value. The internal structure of the value carried in the `ObjectInstance` field depends on the value of the `ObjectType` field carried in this *Object Context* TLV and is specified in the following subclauses.

14.4.1.1.2.1 ObjectInstance field for ONU (0xD6/0x00-00)

When the `ObjectType` field is equal to 0x00-00 (ONU), the *Object Context* TLV identifies the ONU as a whole. In most cases, the context is obvious, and the addition of the *Object Context* TLV with the `ObjectInstance` field equal to 0x00-00 (ONU) is not needed. In some cases, especially when carrying alarm indication, the addition of the *Object Context* TLV with the `ObjectInstance` field equal to 0x00-00 (ONU) is necessary.

The value carried in the `ObjectInstance` field when the `ObjectType` field is equal to 0x00-00 (ONU) shall be as specified in Table 14-126.

Table 14-126—Structure of the ObjectInstance field for ONU (0xD6/0x00-00)

Size (octets)	Field (name)	Value	Notes
1	ONU	0x00	Represents the ONU instance

14.4.1.1.2.2 ObjectInstance field for PON Port (0xD6/0x00-01)

When the `ObjectType` field is equal to 0x00-01 (PON Port), the *Object Context* TLV identifies one of PON ports available on the ONU. The value carried in the `ObjectInstance` field when the `ObjectType` field is equal to 0x00-01 (PON Port) shall be as specified in Table 14-127.

Individual PON port instances are numbered sequentially and start from 0x00, with the maximum value equal to $N-1$, where N is the total number of PON ports present on the given ONU.

Table 14-127—Structure of the ObjectInstance field for PON Port (0xD6/0x00-01)

Size (octets)	Field (name)	Value	Notes
1	PON Port	0x00 to $N-1$	Represents the PON port instance

14.4.1.1.2.3 ObjectInstance field for LLID (0xD6/0x00-02)

When the Object Type field is equal to 0x00-02 (LLID), the *Object Context* TLV identifies one of the unicast LLIDs available on the ONU. The value carried in the Object Instance field when the Object Type field is equal to 0x00-02 (LLID) shall be as specified in Table 14-128.

Individual unicast LLID instances are numbered sequentially and start from 0x00, with the maximum value equal to $N-1$, where N is the total number of unicast LLIDs present on the given ONU.

Table 14-128—Structure of the ObjectInstance field for LLID (0xD6/0x00-02)

Size (octets)	Field (name)	Value	Notes
1	LLID	0x00 to $N-1$	Represents the <u>unicast</u> LLID instance

14.4.1.1.2.4 ObjectInstance field for UNI Port (0xD6/0x00-03)

When the Object Type field is equal to 0x00-03 (UNI Port), the *Object Context* TLV identifies one of the UNI ports available on the ONU. The value carried in the Object Instance field when the Object Type field is equal to 0x00-03 (UNI Port) shall be as specified in Table 14-129.

Individual UNI Port instances are numbered sequentially and start from 0x00, with the maximum value equal to $N-1$, where N is the total number of UNI ports present on the given C-ONU.

Table 14-129—Structure of the ObjectInstance field for UNI Port (0xD6/0x00-03)

Size (octets)	Field (name)	Value	Notes
1	UNI Port	0x00 to $N-1$	Represents the UNI Port instance

14.4.1.1.2.5 ObjectInstance field for Queue (0xD6/0x00-04)

When the Object Type field is equal to 0x00-04 (Queue), the *Object Context* TLV identifies one of the queues available on the ONU. The value carried in the Object Instance field when the Object Type field is equal to 0x00-04 (Queue) shall be as specified in Table 14-130.

Queues are numbered relative to their egress port. Individual queue instances are numbered sequentially and start from 0x00, with the maximum value equal to $N-1$, where N is the total number of queues terminating on the given port.

Table 14-130—Structure of the ObjectInstance field for Queue (0xD6/0x00-04)

Size (octets)	Field (name)	Value	Notes
2	PortType	0x00-02 or 0x00-03	Represents the port type with which the given queue is associated
1	PortInstance	0x00 to $N-1$	Represents the port instance with which the given queue is associated (see Table 14-125 for definition)
1	QueueInstance	0x00 to $Q-1$	Represents the queue instance number associated with the given object

14.4.1.1.2.6 ObjectInstance field for MEP (0xD6/0x00-05)

Reserved for future standardization.

14.4.1.1.2.7 ObjectInstance field for mLLID (0xD6/0x00-06)

When the Object Type field is equal to 0x00-06 (mLLID), the Object Context TLV identifies one of the multicast LLIDs registered on the ONU. The value carried in the ObjectInstance field when the Object Type field is equal to 0x00-06 (mLLID) shall be as specified in Table 14-128.

Individual mLLID instances are numbered according to the mLLID index number allocated by the OLT when the given mLLID is registered on the ONU.

Table 14-128—Structure of the ObjectInstance field for LLID (0xD6/0x00-02)

<u>Size (octets)</u>	<u>Field (name)</u>	<u>Value</u>	<u>Notes</u>
<u>2</u>	<u>LLID</u>	<u>0x00-00</u> <u>↕</u> <u>0xFF-FF</u>	<u>Represents the mLLID instance</u>

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