

14 Management entities

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14.4.3.1 ONU management

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Attribute aOnulInfoPacketBuffer (0xD7/0x00-0A)

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This attribute represents information about the ONU packet buffer capabilities, including the number of upstream and downstream queues, the maximum number of upstream and downstream queues per L-ONU, the upstream and downstream queue increment, the total buffer size, as well as downstream and upstream buffer sizes. This attribute consists of the following sub-attributes: *sQueuesUs*, *sQueuesUsMax*, *sQueuesUsIncrement*, *sQueuesDs*, *sQueuesDsMax*, *sQueuesDsIncrement*, *sBufferSizeTotal*, *sBufferUsSize*, and *sBufferDsSize*.

Sub-attribute *aOnulInfoPacketBuffer.sQueuesUs*:

Syntax: Unsigned integer

Remote access: Read-Only

Description: This sub-attribute represents the total number of queues available to be assigned to L-ONU in the upstream direction.

Sub-attribute *aOnulInfoPacketBuffer.sQueuesUsMax*:

Syntax: Unsigned integer

Remote access: Read-Only
Description: This sub-attribute represents the maximum number of queues that can be assigned to a single L-ONU in the upstream direction.

Sub-attribute *aOnuInfoPacketBuffer.sQueuesUsIncrement*:

Syntax: Unsigned integer
Range: 0x00 to 0xFF
Remote access: Read-Only
Unit: 1 kB
Description: This sub-attribute represents the smallest increment of packet buffer memory in the upstream direction that can be allocated, expressed in units of 1 kB.

Sub-attribute *aOnuInfoPacketBuffer.sQueuesDs*:

Syntax: Unsigned integer
Remote access: Read-Only
Description: This sub-attribute represents the total number of queues available to be assigned to L-ONU in the downstream direction.

Sub-attribute *aOnuInfoPacketBuffer.sQueuesDsMax*:

Syntax: Unsigned integer
Remote access: Read-Only
Description: This sub-attribute represents the maximum number of queues that can be assigned to a single L-ONU in the downstream direction.

Sub-attribute *aOnuInfoPacketBuffer.sQueuesDsIncrement*:

Syntax: Unsigned integer
Range: 0x00 to 0xFF
Remote access: Read-Only
Unit: 1 kB
Description: This sub-attribute represents the smallest increment of packet buffer memory in the downstream direction that can be allocated, expressed in units of 1 kB.

Sub-attribute *aOnuInfoPacketBuffer.sBufferSizeTotal*:

Syntax: Unsigned integer
Range: 0x00-00-00-00 to 0xFF-FF-FF-FF
Remote access: Read-Only
Unit: 1 kB
Description: This sub-attribute represents the total packet buffer memory supported on the ONU, expressed in units of 1 kB.

Sub-attribute *aOnuInfoPacketBuffer.sBufferUsSize*:

Syntax: Unsigned integer
Range: 0x00-00-00-00 to 0xFF-FF-FF-FF
Remote access: Read-Only
Unit: 1 kB
Description: This sub-attribute represents the maximum amount of packet buffer memory that can be allocated to upstream queues, expressed in units of 1 kB.

Sub-attribute *aOnuInfoPacketBuffer.sBufferDsSize*:

Syntax: Unsigned integer
Range: 0x00-00-00-00 to 0xFF-FF-FF-FF
Remote access: Read-Only
Unit: 1 kB
Description: This sub-attribute represents the maximum amount of packet buffer memory that can be allocated to downstream queues, expressed in units of 1 kB.

The *aOnuInfoPacketBuffer* attribute is associated with the ONU object (see 14.4.1.1). The Variable Container TLV for the *aOnuInfoPacketBuffer* attribute shall be as specified in Table 14-189.

Table 14-189—ONU Packet Buffer TLV (0xD7/0x00-0A)

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x00-0A	Leaf identifier
1	Length	0x00-0x12	The size of TLV fields following the Length field
1	QueuesUs	Varies	Value of <i>sQueuesUs</i> sub-attribute
1	QueuesUsMax	Varies	Value of <i>sQueuesUsMax</i> sub-attribute
1	QueuesUsIncrement	Varies	Value of <i>sQueuesUsIncrement</i> sub-attribute
1	QueuesDs	Varies	Value of <i>sQueuesDs</i> sub-attribute
1	QueuesDsMax	Varies	Value of <i>sQueuesDsMax</i> sub-attribute
1	QueuesDsIncrement	Varies	Value of <i>sQueuesDsIncrement</i> sub-attribute
24	BufferSizeTotal	Varies	Value of <i>sBufferSizeTotal</i> sub-attribute
24	BufferUsSize	Varies	Value of <i>sBufferUsSize</i> sub-attribute
24	BufferDsSize	Varies	Value of <i>sBufferDsSize</i> sub-attribute

14.4.3.2 Bridging

- Attribute *aOnuDynMacTableSize* (0xD7/0x01-01)**
- Attribute *aOnuDynMacAgeLimit* (0xD7/0x01-02)**
- Attribute *aUniDynMacTable* (0xD7/0x01-03)**
- Attribute *aUniStatMacTable* (0xD7/0x01-04)**
- Attribute *aUniPortAutoNeg* (0xD7/0x01-05)**
- Attribute *aUniAdmissionControl* (0xD7/0x01-06)**
- Attribute *aUniMinLearnMacCount* (0xD7/0x01-07)**
- Attribute *aUniMaxLearnMacCount* (0xD7/0x01-08)**
- Attribute *aOnuMaxLearnMacCount* (0xD7/0x01-09)**
- Attribute *aUniLengthDiscard* (0xD7/0x01-0A)**
- Attribute *aUniFloodUnknown* (0xD7/0x01-0B)**
- Attribute *aUniLocalSwitching* (0xD7/0x01-0C)**
- Attribute ~~*aOnuLlidQueueConfig*~~ ~~*aOnuPortConfig*~~ (0xD7/0x01-~~0D14~~)**

This attribute represents

~~The number of L-ONUs (LLIDs) to be registered by the given ONU, and t~~

~~The number of UNI ports to be enabled in the given ONU, and~~

~~—The assignment of upstream queues to individual L-ONUs, and~~

~~—The assignment of downstream queues to individual UNI ports.~~

~~The upstream queues hold frames to be transmitted by the given L-ONU. The downstream queues hold frames to be transmitted by the given UNI ports. Queue sizes are specified in the order of queue priority, where the first queue associated with the given L-ONU or the UNI port has the highest priority.~~

This attribute consists of the following sub-attributes: *sLlidCount*, ~~*sLlidQueueCount[sLlidCount]*~~, ~~*sLlidQueueSize[sLlidCount][sLlidQueueCount]*~~, ~~*sUniCount*~~, ~~*sUniQueueCount[sUniCount]*~~, and ~~*sUniCountsUniQueueSize[sUniCount][sUniQueueCount]*~~.

Sub-attribute ~~*aOnuLlidQueueConfig.aOnuPortConfig.sLlidCount*~~:

Syntax: Unsigned integer
Range: 0x01 to 0xFF
Default value: 0x01
Remote access: Read/Write
Description: This sub-attribute represents the number of upstream L-ONUs (LLIDs) configured on the given ONU.

~~Sub-attribute *aOnuLlidQueueConfig.sLlidQueueCount[sLlidCount]*:~~

~~**Syntax:** Unsigned integer
Range: 0x01 to 0x08
Default value: 0x01
Remote access: Read/Write
Description: This sub-attribute represents the number of upstream queues associated with the given L-ONU designated by *sLlidCount*.
The ONU shall always return the value of 0x01 on read of this sub-attribute.
The ONU shall ignore any attempts to write a value other than 0x01 into this sub-attribute.~~

~~Sub-attribute *aOnuLlidQueueConfig.sLlidQueueSize[sLlidCount][sLlidQueueCount[sLlidCount]]*:~~

~~**Syntax:** Unsigned integer
Range: 0x00 to 0xFF
Default value: 0x01
Unit: 4 kB
Remote access: Read/Write
Description: This sub-attribute represents the size of the upstream queue associated with L-ONU designated by *sLlidCount*.~~

Sub-attribute ~~*aOnuLlidQueueConfig.aOnuPortConfig.sUniCount*~~:

Syntax: Unsigned integer
Range: 0x01 to 0xFF
Default value: 0x01
Remote access: Read/Write
Description: This sub-attribute represents the number of downstream UNI ports configured on ~~by~~ the given ONU.

~~Sub-attribute *aOnuLlidQueueConfig.sUniQueueCount[sUniCount]*:~~

~~**Syntax:** Unsigned integer
Range: 0x00 to 0x08
Default value: 0x08
Remote access: Read/Write
Description: This sub-attribute represents the number of downstream queues associated with the given UNI port designated by *sUniCount*.~~

~~Sub-attribute *aOnuLlidQueueConfig.sUniQueueSize[sUniCount][sUniQueueCount[sUniCount]]*:~~

~~Syntax: Unsigned integer~~
~~Range: 0x00 to 0xFF~~
~~Default value: 0x01~~
~~Unit: 4 kB~~
~~Remote access: Read/Write~~
~~Description: This sub-attribute represents the size of the downstream queue associated with the given UNI port designated by *sUniCount*.~~

The ~~*aOnuLlidQueueConfig*~~~~*aOnuPortConfig*~~ attribute is associated with the ONU object (see 14.4.1.1). The Variable Container TLV for the ~~*aOnuLlidQueueConfig*~~~~*aOnuPortConfig*~~ attribute shall be as specified in Table 14-214.

The ONU shall ignore the ~~*L-ONU and Queue Configuration*~~ TLV (0xD7/0x01-0D) requesting the deletion of, or changing the size of, any queues if there exist Classifier rules that use those queues. Before attempting to reconfigure the number or the sizes of any queues, the OLT shall delete all the Classifier rules associated with these queues.

The sum of queue sizes shall not exceed the size reported via the ~~*ONU Packet Buffer*~~ TLV (0xD7/0x00-0A).

Table 14-214—L-ONU and Queue Configuration TLV (0xD7/0x01-0D)

Size (octets)	Field (name)	Value	Notes
1	Branch	0xD7	Branch identifier
2	Leaf	0x01- 0D14	Leaf identifier
1	Length	Varies 0x02	The size of TLV fields following the Length field
1	LlidCount	Varies	Value of <i>sLlidCount</i> sub-attribute (N)
1	LlidQueueCount[0]	Varies	Value of <i>sLlidQueueCount[0]</i> sub-attribute
1	LlidQueueSize[0][0]	Varies	Value of <i>sLlidQueueSize[0][0]</i> sub-attribute
...
1	LlidQueueSize[0][LlidQueueCount[0] - 1]	Varies	Value of <i>sLlidQueueSize[0][sLlidQueueCount[0] - 1]</i> sub-attribute
...
1	LlidQueueCount[N-1]	Varies	Value of <i>sLlidQueueCount[N-1]</i> sub-attribute
1	LlidQueueSize[N-1][0]	Varies	Value of <i>sLlidQueueSize[N-1][0]</i> sub-attribute
...
1	LlidQueueSize[N-1][LlidQueueCount[N-1] - 1]	Varies	Value of <i>sLlidQueueSize[N-1][sLlidQueueCount[N-1] - 1]</i> sub-attribute
1	UniCount	Varies	Value of <i>sUniCount</i> sub-attribute (M)
1	UniQueueCount[0]	Varies	Value of <i>sUniQueueCount[0]</i> sub-attribute
1	UniQueueSize[0][0]	Varies	Value of <i>sUniQueueSize[0][0]</i> sub-attribute
...
1	UniQueueSize[0][UniQueueCount[0] - 1]	Varies	Value of <i>sUniQueueSize[0][sUniQueueCount[0] - 1]</i> sub-attribute
...
1	UniQueueCount[M-1]	Varies	Value of <i>sUniQueueCount[M-1]</i> sub-attribute
1	UniQueueSize[M-1][0]	Varies	Value of <i>sUniQueueSize[M-1][0]</i> sub-attribute
...
1	UniQueueSize[M-1][UniQueueCount[M-1] - 1]	Varies	Value of <i>sUniQueueSize[M-1][sUniQueueCount[M-1] - 1]</i> sub-attribute

Attribute *aQueueConfig* (0xD7/0x01-15)

~~14.4.3.2.14~~ This attribute represents the number of queues to be enabled for a given L-ONU (LLID) or UNI port. The upstream queues hold frames to be transmitted by the given L-ONU. The downstream queues hold frames to be transmitted by the given UNI ports. Queue sizes are specified in the order of queue priority, where the first queue associated with the given L-ONU or the UNI port has the highest priority. This attribute consists of the following sub-attributes: *sQueueCount* and *sQueueSize[sQueueCount]*.

Sub-attribute *aQueueConfig.sQueueCount*:

Syntax:	Unsigned integer
Range:	0x01 to 0x08
Default value:	0x01
Remote access:	Read/Write
Description:	This sub-attribute represents the number of queues associated with the given L-ONU or UNI port object. When the context object is LLID, this sub-attribute shall always return the value of 0x01 on read, and it shall ignore any attempts to write a value other than 0x01.

Sub-attribute *aQueueConfig.sQueueSize[sQueueCount]*:

Syntax:	Unsigned integer
Range:	0x00-00-00-00 to 0xFF-FF-FF-FF
Default value:	0x02
Unit:	1 kB
Remote access:	Read/Write
Description:	This sub-attribute represents the sizes of individual queues associated with the given L-ONU or UNI port object.

The *aQueueConfig* attribute is associated with the LLID or the UNI port (see 14.4.1.1). The Variable Container TLV for the *aQueueConfig* attribute shall be as specified in [Table 14-214](#).

The ONU shall ignore the *Queue Configuration* TLV (0xD7/0x01-15) requesting the deletion or changing the size of any queues if there exist Classifier rules that use those queues. Before attempting to reconfigure the number or the sizes of any queues, the OLT shall delete all the Classifier rules associated with these queues.

The sum of queue sizes shall not exceed the size reported via the *ONU Packet Buffer* TLV (0xD7/0x00-0A).

Table 14-214—Queue Configuration TLV (0xD7/0x01-15)

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>0x01-15</u>	<u>Leaf identifier</u>
<u>1</u>	<u>Length</u>	<u>1 + 4×N</u>	<u>The size of TLV fields following the Length field</u>
<u>1</u>	<u>QueueCount</u>	<u>Varies</u>	<u>Value of <i>sQueueCount</i> sub-attribute (N)</u>
<u>4</u>	<u>QueueSize[0]</u>	<u>Varies</u>	<u>Value of <i>sQueueSize[0]</i> sub-attribute (highest priority queue)</u>
<u>...</u>	<u>...</u>	<u>...</u>	<u>...</u>
<u>4</u>	<u>QueueSize[N-1]</u>	<u>Varies</u>	<u>Value of <i>sQueueSize[N-1]</i> sub-attribute (lowest priority queue)</u>