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1 **8   VLC Management**

2 **8.1   VLC Configuration**

3 **8.2   Management Attributes**

4 **8.2.1   Introduction**

5 This sub-clause defines a set of extended management attributes for querying statistics in the VLC sublayer.
6 In general, attributes are defined to be independent of any particular management application or management
7 protocol. Such definitions of attributes and actions are focused on the associated device characteristics and
8 behaviors. Within the constraints imposed by the described characteristics and behaviors, the internal
9 representations of the attributes remain implementation dependent and outside the scope of this standard.

10 NOTE — where no default value is specified for an attribute, the attribute is assumed to initialize to a vendor-
11 specific value.

12 To address the interoperability between multiple VLC clients, precise definitions of the TLV structures and
13 encodings of individual attributes into TLV structure are also provided.

14 The protocol used to set and query these management attributes is outside the scope of this standard, although
15 the OAM protocol defined in IEEE Std 802.3 and extended in IEEE Std 1904.1 is generally assumed.

16 **8.2.2   Branch 0xA8 VLC Counters**

17 This sub-clause lists extended management attributes, which are not part of the definitions in IEEE Std
18 802.3, Clause 30. The extended attributes shown in Table 8-5 shall be supported.

19 **Table 8-5—VLC Counter attributes defined in branch 0xA8**

Leaf	Attribute	Defined in
0x00-00	*aVlcFramesUnmatched*	8.2.2.1
0x00-01	*aVlcFramesMatchedByRule1*	
…	...	8.2.2.2
0x7F-FF	*aVlcFramesMatchedByRule32767*	
0x10-00	*aVlcOctetsUnmatched*	8.2.2.3
0x10-01	*aVlcOctetsMatchedByRule1*	
…	...	8.2.2.4
0xFF-FF	*aVlcOctetsMatchedByRule32767*	

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21 **8.2.2.1   Attribute *aVlcFramesUnmatched* (0xA8/0x00-00)**

22 This attribute represents the current number of frames that are not matched by any rules in a port identified
23 by the Object Context TLV.

24 Attribute *aVlcFramesUnmatched*:

1   **Syntax:**   Counter, Resettable, Wrap-around
2   **Range:**   0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
3   **Default value:** 0x00
4   **Remote access:** Read/Write
5   **Description:**   This attribute indicates current number of frames not matched by any of the
6   rules provisioned at the port identified by the Object Context TLV. On write of
7   any value to this attribute, the counter shall reset to the value of 0x00.

8   The *aVlcFramesUnmatched* attribute is associated with a port. In an EPON ONU or OLT, this can be a
9   UNI/NNI port, or an LLID.

10   The variable container TLV for the *aVlcFramesUnmatched* attribute shall be as specified in Table 8-6.

11   **Table 8-6—VLC counter of frames unmatched by any rule (0xA8/0x00-00)**

Size (octets)	Field name	Value	Description
1	*Branch*	0xA8	VLC attribute branch identified
2	*Leaf*	0x00-00	Leaf identifier
1	*Length*	8	The size of TLV fields following the *Length* field
8	*VlcFramesUnmatched*	varies	Value of *aVlcFramesUnmatched* attribute

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8.2.2.2 Attribute *aVlcFramesMatchedByRuleN* (0xA8/0x00-01 to 0xA8/0x7F-FF)

14   This attribute represents the current number of frames matched by a rule with *RuleID* equal to *N*, in a port
15   identified by the Object Context TLV.

16   Attribute *aVlcFramesMatchedByRuleN*:
17   **Syntax:**   Counter, Resettable, Wrap-around
18   **Range:**   0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
19   **Default value:** 0x00
20   **Remote access:** Read/Write
21   **Description:**   This attribute indicates current number of frames matched by the rule with the
22   *RuleID = N* at the port identified by the Object Context TLV. On write of any
23   value to this attribute, the counter shall reset to the value of 0x00.

24   The *aVlcFramesMatchedByRuleN* attribute is associated with a port. In an EPON ONU or OLT, this can be
25   a UNI/NNI port, or an LLID.

26   The variable container TLV for the *aVlcFramesMatchedByRuleN* attribute shall be as specified in Table 8-
27   7.

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Table 8-7—VLC counter of frames matched by rule *N* TLV
(0xA8/0x00-01 to 0xA8/0x7F-FF)

Size (octets)	Field name	Value	Description
1	*Branch*	0xA8	VLC attribute branch identified
2	*Leaf*	*N*	Leaf identifier. *aVlcFramesMatchedByRule1* through *aVlcFramesMatchedByRule32767* are represented by *Leaf* values ranging from 0x00-01 through 0x7F-FF.
1	*Length*	8	The size of TLV fields following the *Length* field
8	*VlcFramesMatchedByRuleN*	varies	Value of *aVlcFramesMatchedByRuleN* attribute

3

4 **8.2.2.3 Attribute *aVlcOctetsUnmatched* (0xA8/0x10-00)**

5 This attribute represents the total number of octets in the current number of frames that are not matched by
6 any rules in a port identified by the Object Context TLV.

7 Attribute *aVlcOctetsUnmatched*:
8   **Syntax:**   Counter, Resettable, Wrap-around
9   **Range:**   0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
10   **Default value:** 0x00
11   **Remote access:** Read/Write
12   **Description:**   This attribute indicates the total number of octets in the current number of
13   frames not matched by any of the rules provisioned at the port identified by the
14   Object Context TLV. On write of any value to this attribute, the counter shall
15   reset to the value of 0x00.

16 The *aVlcOctetsUnmatched* attribute is associated with a port. In an EPON ONU or OLT, this can be a
17 UNI/NNI port, or an LLID.

18 The variable container TLV for the *aVlcOctetsUnmatched* attribute shall be as specified in Table 8-8.

19 **Table 8-8—VLC counter of octets unmatched by any rule (0xA8/0x10-00)**

Size (octets)	Field name	Value	Description
1	*Branch*	0xA8	VLC attribute branch identified
2	*Leaf*	0x10-00	Leaf identifier
1	*Length*	8	The size of TLV fields following the *Length* field
8	*VlcOctetsUnmatched*	varies	Value of *aVlcOctetsUnmatched* attribute

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1 **8.2.2.4** Attribute *aVlcOctetsMatchedByRuleN* **(0xA8/0x10-01 to 0xA8/0xFF-FF)**

2 This attribute represents the total number of octets in the current number of frames matched by a rule with
3 *RuleID* equal to *N*, in a port identified by the Object Context TLV.

4 Attribute *aVlcOctetsMatchedByRuleN*:

5	**Syntax:**	Counter, Resettable, Wrap-around
6	**Range:**	0x00 to 0xFF-FF-FF-FF-FF-FF-FF-FF
7	**Default value:**	0x00
8	**Remote access:**	Read/Write
9	**Description:**	This attribute indicates current number of octets in frames matched by the rule
10		with the *RuleID = N* at the port identified by the Object Context TLV. On write
11		of any value to this attribute, the counter shall reset to the value of 0x00.

12 The *aVlcOctetsMatchedByRuleN* attribute is associated with a port. In an EPON ONU or OLT, this can be a
13 UNI/NNI port, or an LLID.

14 The variable container TLV for the *aVlcOctetsMatchedByRuleN* attribute shall be as specified in Table 8-9.

15 **Table 8-9—VLC counter of octets matched by rule *N* TLV**
16 **(0xA8/0x10-01 to 0xA8/0xFF-FF)**

Size (octets)	Field name	Value	Description
1	*Branch*	0xA8	VLC attribute branch identified
2	*Leaf*	*N*	Leaf identifier. *aVlcOctetsMatchedByRule0* through *aVlcOctetsMatchedByRule32767* are represented by *Leaf* values ranging from 0x10-01 through 0xFF-FF.
1	*Length*	8	The size of TLV fields following the *Length* field
8	*VlcOctetsMatchedByRuleN*	varies	Value of *aVlcOctetsMatchedByRuleN* attribute

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