

14 Management entities

14.1 Introduction

14.2 Branch 0xDA “identification”

14.3 Branch 0x07 “basic attributes”

14.4 Branch 0xDB “extended attributes”

Table 14-55—Extended attributes defined in branch 0xDB

Leaf	Attribute	Defined in
Object group: ONU management		
0x00-02	aOnuId	14.4.1.2
0x00-03	aOnuFwVersion	14.4.1.3
0x00-04	aOnuInfoChipset	14.4.1.4
0x00-05	aOnuInfoDateManufacture	14.4.1.5
0x00-06	aOnuInfoManufacturer	14.4.1.6
0x00-07	aOnuLidCapability	14.4.1.7
0x00-08	aOnuPonPortCapability	14.4.1.8
0x00-0A	aOnuInfoPacketBuffer	14.4.1.9
0x00-0C	aLlidForwardState	14.4.1.10
0x00-0D	aLlidOamFrameRate	14.4.1.11
0x00-0E	aOnuManOrgName	14.4.1.12
0x00-0F	aOnuCvcCvsValidity	14.4.1.13
0x00-10	aOnuServicePortCapability	14.4.1.14
0x00-11	aVendorName	14.4.1.15
0x00-12	aModelNumber	14.4.1.16
0x00-13	aHardwareVersion	14.4.1.17
0x00-14	aDataRateMode	14.4.1.18
0x00-16	aMediaTypeCapability	14.4.1.19
0x00-17	aMediaType	14.4.1.20
0x00-18	aOnuServicePortDescription	14.4.1.21
0x00-19	aLlidFragThreshold	14.4.1.22
0x01-0E	aOnuFwFileName	14.4.1.23
Object group: Bridging		
0x01-01	aOnuDynMacTableSize	14.4.2.1
0x01-02	aOnuDynMacAgeLimit	14.4.2.2
0x01-03	aUniDynMacTable	14.4.2.3
0x01-04	aUniStatMacTable	14.4.2.4
0x01-05	aUniPortAutoNeg	14.4.2.5
0x01-06	aUniAdmissionControl	14.4.2.6
0x01-07	aUniMinLearnMacCount	14.4.2.7
0x01-08	aUniMaxLearnMacCount	14.4.2.8
0x01-09	aOnuMaxLearnMacCount	14.4.2.9
0x01-0A	aUniLengthDiscard	14.4.2.10
0x01-0B	aUniFloodUnknown	14.4.2.11
0x01-0C	aUniLocalSwitching	14.4.2.12
0x01-0F	aUniMacTableFull	14.4.2.13
0x01-12	aOnuMaxFrameSizeCapability	14.4.2.14
0x01-13	aUniMaxFrameSizeLimit	14.4.2.15
0x01-20	aLlidType	14.4.2.16

Leaf	Attribute	Defined in
0x01-21	aServicePortType	14.4.2.17
0x01-22	aQueueInfo	14.4.2.18
0x01-23	aGlidType	14.4.2.19
0x01-24	aGlidMembership	14.4.2.20
Object group: Statistics and counters		
0x02-01	aCountRxFramesGreen	14.4.3.1
0x02-02	aCountTxFramesGreen	14.4.3.2
0x02-03	aCountRxFrames2Short	14.4.3.3
0x02-04	aCountRxFrames64	14.4.3.4
0x02-05	aCountRxFrames65to127	14.4.3.5
0x02-06	aCountRxFrames128to255	14.4.3.6
0x02-07	aCountRxFrames256to511	14.4.3.7
0x02-08	aCountRxFrames512to1023	14.4.3.8
0x02-09	aCountRxFrames1024to1518	14.4.3.9
0x02-0A	aCountRxFrames1519to2000	14.4.3.10
0x02-0B	aCountTxFrames64	14.4.3.11
0x02-0C	aCountTxFrames65to127	14.4.3.12
0x02-0D	aCountTxFrames128to255	14.4.3.13
0x02-0E	aCountTxFrames256to511	14.4.3.14
0x02-0F	aCountTxFrames512to1023	14.4.3.15
0x02-10	aCountTxFrames1024to1518	14.4.3.16
0x02-11	aCountTxFrames1519to2000	14.4.3.17
0x02-12	aQueueDelayThr	14.4.3.18
0x02-13	aQueueDelayValue	14.4.3.19
0x02-14	aCountFramesDropped	14.4.3.20
0x02-15	aCountOctetsDropped	14.4.3.21
0x02-16	aCountOctetsDelayed	14.4.3.22
0x02-17	aCountUsOctetsUnused	14.4.3.23
0x02-1D	aPonOptMonitTemp	14.4.3.24
0x02-1E	aPonOptMonitVcc	14.4.3.25
0x02-1F	aPonOptMonitBias	14.4.3.26
0x02-20	aPonOptMonitTxPower	14.4.3.27
0x02-21	aPonOptMonitRxPower	14.4.3.28
0x02-22	aCounterRxFramesY	14.4.3.29
0x02-23	aCounterTxFramesY	14.4.3.30
0x02-24	aCounterTxOctetsG	14.4.3.31
0x02-25	aCounterRxOctetsY	14.4.3.32
0x02-26	aCounterRxOctetsG	14.4.3.33
0x02-27	aCounterTxOctetsY	14.4.3.34
0x02-28	aCounterTxFramesL2Unicast	14.4.3.35
0x02-29	aCounterTxFramesL2Multicast	14.4.3.36
0x02-2A	aCounterTxFramesL2Broadcast	14.4.3.37
0x02-2B	aCounterRxFramesL2Unicast	14.4.3.38
0x02-2C	aCounterRxFramesL2Multicast	14.4.3.39
0x02-2D	aCounterRxFramesL2Broadcast	14.4.3.40
0x02-2E	aOnuCounterNumber	14.4.3.41
0x02-2F	aCounterRxFramesL2CP	14.4.3.42
0x02-30	aCounterRxOctetsL2CP	14.4.3.43
0x02-31	aCounterTxFramesL2CP	14.4.3.44
0x02-32	aCounterTxOctetsL2CP	14.4.3.45
0x02-33	aCounterDiscardFramesL2CP	14.4.3.46
0x02-34	aCounterDiscardOctetsL2CP	14.4.3.47

Leaf	Attribute	Defined in
0x02-35	aCounterL2TxErrors	14.4.3.48
0x02-36	aCounterL2RxErrors	14.4.3.49
0x02-37	aCountFramesOverLimitDroppedUni	14.4.3.50
0x02-38	aCountOctetsOverLimitDroppedUni	14.4.3.51
0x02-39	aCountTxJumboFrames	14.4.3.52
0x02-40	aCountRxJumboFrames	14.4.3.53
Object group: Alarms		
0x03-01	aAlarmPortStatThr	14.4.4.1
0x03-02	aAlarmLlidStatThr	14.4.4.2
0x03-03	aAlarmStatusControl	14.4.4.3
Object group: Encryption		
0x04-01	aEncryptionKeyExpiration	14.4.5.1
0x04-02	aEncryptionMode	14.4.5.2
Object group: Frame processing		
0x05-01	aRuleSetConfig	14.4.6.1
0x05-02	aRuleCustomField	14.4.6.2
0x05-03	aRuleTpidCAAlter	14.4.6.3
0x05-04	aRuleTpidSAlter	14.4.6.4
0x05-06	aRuleTpidIAAlter	14.4.6.6
0x05-07	aRuleTpidBAlter	14.4.6.7
Object group: Service-level agreements		
0x06-01	aRateLimitBroadcast	14.4.7.1
0x06-04	aQueueCIR	14.4.7.2
0x06-06	aQueueEIR	14.4.7.3
0x06-07	aQueueColorMarking	14.4.7.4
0x06-08	aQueueRateLimiterCap	14.4.7.5
0x06-09	aCouplingFlag	14.4.7.6
Object group: Clock transport		
0x07-01	aClockTranspCapab	14.4.10.1
0x07-02	aClockTranspStatus	14.4.10.2
0x07-03	aClockTranspTransfer	14.4.10.3
0x07-04	aClockTranspPropagParam	14.4.10.4
0x07-05	aClockTranspRtt	14.4.10.5
0x08-00	Reserved, ignored on reception	
0x08-01	Reserved, ignored on reception	
0x08-02	Reserved, ignored on reception	
0x08-03	Reserved, ignored on reception	
Object group: UNI management		
0x08-20	aEeeStatus	14.4.11.1
0x08-21	aPoeStatus	14.4.11.2
Object group: Optical Line Protection		
0x09-00	aOnuProtectionCapability	14.4.9.1
0x09-01	aOnuConfigProtection	14.4.9.2
0x09-02	aOnuConfigPonActive	14.4.9.3
0x09-03	aONUConfigHoldoverPeriod	14.4.9.4
Object group: Power saving		
0x0A-00	aOnuPowerSavingConfig	14.4.8.1

14.5 Branch 0x09 “basic actions”

14.6 Branch 0xDD “extended actions”

This subclause specifies a set of extended management actions used by the OLT to enforce a specific behavior in the ONU. The extended management actions shown in Table 14-206 shall be supported.

Table 14-206—Extended actions defined in branch 0xDD

Leaf	Attribute	Defined in
Object group: ONU management		
0x00-01	acOnuReboot	14.6.1.1
Object group: Bridging		
0x01-01	acMacClearDynamicTable	14.6.2.1
0x01-02	acMacAddDynamicAddress	14.6.2.2
0x01-03	acMacDeleteDynamicAddress	14.6.2.3
0x01-04	acMacClearStaticTable	14.6.2.4
0x01-05	acMacAddStaticAddress	14.6.2.5
0x01-06	acMacDeleteStaticAddress	14.6.2.6
0x01-08	acGetUniMacLearned	14.6.2.7
0x01-20	acConfigLlid	14.6.2.8
0x01-21	acConfigServicePort	14.6.2.9
0x01-23	acConfigGlid	14.6.2.10
0x01-24	acConfigGlidMember	14.6.2.11
Object group: Statistics and counters		
0x02-01	acCountersClear	14.6.3.1
Object group: Alarms		
0x03-01	acAlarmGetCurrentSummary	14.6.4.1
<u>Object group: Encryption</u>		
<u>0x04-01</u>	<u>acConfigEncrKey</u>	<u>14.6.5.1</u>
Object group: Frame processing		
0x05-01	acRulesClearAll	14.6.5.1
0x05-02	acRulesAddOne	14.6.5.2
0x05-03	acRulesDeleteOne	14.6.5.3
Object group: Transmission control		
0x06-01	acEnableUserTraffic	14.6.6.1
0x06-02	acDisableUserTraffic	14.6.6.2
0x06-03	acLoopbackEnable	14.6.6.3
0x06-04	acLoopbackDisable	14.6.6.4
0x06-05	acLaserTxPowerOff	14.6.6.5
Object group: Power management		
0x07-01	acEeeChangeState	14.6.7.1
0x07-02	acPoeChangeState	14.6.7.2

14.6.1 ONU management

14.6.2 Bridging

14.6.3 Statistics and counters

14.6.4 Alarms

14.6.5 Encryption

14.6.5.1 Action *acConfigEncrKey* (0xDD/0x04-01)

This action is used by the NMS to convey a new encryption key to an ONU. This action consists of the following sub-attributes: *sKeyIndex* and *sKeyValue*.

Sub-attribute *acConfigEncrKey.sKeyIndex*:

Syntax:	Unsigned integer
Range:	0 to 1
Remote access:	Write-Only
Description:	This sub-attribute represents the index of the key being provisioned to the ONU.

Sub-attribute *acConfigEncrKey.sKeyValue*:

Syntax:	128-bit or 256-bit key (bit sequence)
Remote access:	Write-Only
Description:	This sub-attribute specifies the value of the next key, i.e., the key that will become active on the next key switch event (see TBD).

The index of the key being provisioned is the opposite of the index of the currently active key. The ONU shall respond with the “Bad Parameters” code 0x86 (see 13.4.7) to a request to provision a key with the index equal to the index of the currently-active key, as indicated by the *Encryption key index* field (K-bit) in the received envelope header (see IEEE Std.802.3, 143.3.2).

The *acConfigEncrKey* action is associated with the ONU object or the LLID object that represents a unidirectional LLID (see 14.2.1.1).

If the action is associated with the ONU object, the given key is used for all the bidirectional LLIDs already provisioned at the ONU or the ones to be provisioned in the future. The same key values is used for encryption and decryption (see TBD).

If the *acConfigEncrKey* action is associated with the unidirectional LLID object, the encryption key is being provisioned for this specific LLID, which may be used as a multicast LLID (see 4.5.4). This key is used for decryption only.

If the supplied context object represents a bidirectional LLID, the ONU shall respond with the “Invalid Context Object” code 0xA5 (see 13.4.7) and discard the supplied key value.

The Variable Container TLV for the *acConfigEncrKey* action shall be as specified in Table 14-xxx.

Table 14-xxx—Config Encryption Key TLV (0xDD/0x04-01)

Size (octets)	Field name	Value	Notes
<u>1</u>	<u>Branch</u>	<u>0xDD</u>	<u>Branch identifier</u>
<u>2</u>	<u>Leaf</u>	<u>0x04-01</u>	<u>Leaf identifier</u>
<u>1</u>	<u>Length</u>	<u>Varies</u>	<u>The size of TLV fields following the Length field. This field takes the following values:</u> <u>17, if KeyValue field contains a 128-bit key;</u> <u>33, if KeyValue field contains a 256-bit key.</u>
<u>1</u>	<u>KeyIndex</u>	<u>Varies</u>	<u>bit 0: value of sKeyIndex sub-attribute;</u> <u>bits 1 to 7: reserved and ignored on reception</u>
<u>16 or 32</u>	<u>KeyValue</u>	<u>Varies</u>	<u>Value of sKeyValue sub-attribute.</u>