12. Bridge management

12.1 Management functions

12.1.1 Configuration management

Insert the following list item, re-lettered if necessary, to follow the existing list.

 j)   The ability to configure the functional elements of edge virtual bridging and to control their operation.

12.2 Managed objects

Insert the following list item, re-lettered if necessary, to follow the existing list.

 p)   The edge virtual bridging entities (12.24).

12.3 Data types

Insert the following list item, re-lettered if necessary, and NOTE, to follow the existing list.

 q)   Timer Exp, an Unsigned value from 0-31 representing a positive integer for the exponent of 2 which forms the multiplier of 10 microseconds, used for EVB protocol timeout parameters.

NOTE— For example, a value of 4 represents 2^4 X 10 microseconds, or 160 microseconds.

12.4 Bridge Management Entity

The Bridge Management Entity is described in 8.12. The objects that comprise this managed resource are:

 a)   The Bridge configuration (12.4.1);
 b)   The Port configuration for each Port (12.4.2).

12.4.1 Bridge Configuration

Insert the following subclause 12.4.1.5 after subclause 12.4.1.4.

Editor's Note: The following table is synchronized with the current IEEE SNMP Bridge Base MIB. This text could completely replace the old 12.4.1 except the MIB does not implement some of the features specified in 12.4.1 (such as Reset). We would need to discard the unsupported features of 12.4.1 to remove the old 12.4.1 description. What is proposed is to retain all the old 12.4.1 and simply extend the clause with updated management information for components.

12.4.1.5 Bridge component configuration

There is a single Bridge component table per Bridge system. Each entry in the component table represents a Bridge component of the system (Table 12-1). The entries hold the parameters for each component including the component type and capabilities.

The operations that can be implemented on component table entries are as follows:

 a)   Read component table entry;

b) Update component table entry.

Table 12-1—Component table entry managed object

Name	Data type	Operations supported[*]	References
compComponentId	ComponentID	R	12.3l)
compMACAddress	MAC Address	R	8.13.8, 13.24
compNumberPorts	unsigned (1-4095)	R	12.4.1.1.3 c)
compComponentType	ComponentType	R	12.3 m)
compDeviceCapabilities	unsigned (1..7)	R	12.10.1.1.3 b)
compTrafficClassesEnabled	Boolean	RW	-
compMmrpEnabledStatus	Boolean	RW	-

[*]R= Read-only access; RW = Read/Write access;

12.4.1.5.1 Component type enumeration

The compComponentType parameter can be assigned the following values:

    a) iComponent(1) - An I-component (5.7);
    b) bComponent(2) - A B-component (5.8);
    c) cVlanComponent(3) - A C-VLAN component (5.5);
    d) sVlanComponent(4) - An S-VLAN component (5.6);
    e) dBridgeComponent(5) - A VLAN unaware component (5.12);
    f) edgeRelay(6) - a EVB station edge relay (5.20.1).

12.4.1.5.2 Component device capabilities

The compDeviceCapabilities parameter can be assigned the following values:

    g) ExtendedFilteringServices(0);
    h) TrafficClasses(1);
    i) StaticEntryIndividualPort (2);
    j) IVLCapable (3);
    k) SVLCapable(4);
    l) HybridCapable(5);
    m) ConfigurablePvidTagging(6);
    n) LocalVlanCapable(7).

Change subclause 12.4.2 as shown:

Editor's Note: The following table is synchronized with the current IEEE SNMP Bridge Base MIB. This text completely replaces the old 12.4.2. The leading paragraphs from 12.4.2 have been retained for continuity with

the old 12.4.2. No new parameters have been added to the table beyond those already in the Bridge Base MIB, however the list of Port types is extended for supporting EVB systems.

12.4.2 Port configuration

The Port configuration object models the operations that modify, or inquire about, the configuration of the Ports of a Bridge. Unless the system explicitly supports dynamic ports thereThere are a fixed set of Bridge Ports per Bridge (one for each MAC interface), and each is identified by a permanently allocated Port Number.

The allocated Port Numbers are not required to be consecutive. Also, some Port Numbers can be dummy entries, with no actual LAN Port (for example, to allow for expansion of the Bridge by addition of further MAC interfaces in the future). Such dummy Ports can support the Port Configuration management operations and other Port-related management operations in a manner consistent with the Port being permanently disabled.

The information provided by the Port Configuration consists of summary data indicating its name and type. Specific counter information pertaining to the number of packets forwarded, filtered, and in error is maintained by the Forwarding Process resource. The management operations supported by the Bridge Protocol Entity allow for controlling the states of each Port.

A port table entry can be implemented by a Bridge for each Port of each component (Table 12-2). It comprises the parameters for each Port including the port type, capabilities, and statistics.

The management operations that can be implemented on the port Configuration are table are:

a) Read Port Read port table entry (12.4.2.1);
b) Set Port Name (12.4.2.2)Update port table entry (12.4.2.1).

Replace subclause 12.4.2.1 through 12.4.2.2.3 with the following subclause 12.4.2.1.

12.4.2.1 Port type capabilities and enumeration

The portTypeCapabilities array has a bit for each port type the Port can take, while the portType is an enumeration. The portTypeCapabilities can take any combination of port types while the portType can take exactly one of the following values:

a) ptVbp - C-VLAN Bridge Port (0);
b) ptPnp - Provider Network Port (PNP) (1);
c) ptCnp - Customer Network Port (CNP) (2);
d) ptCep - Customer Edge Port (CEP) (3);
e) ptCbp - Customer Backbone Port (CBP) (4);
f) ptVip - Virtual Instance Port (VIP) (5);
g) ptDbp - D-Bridge Port (6);
h) ptRcap - Remote Customer Access Port (RCAP) (7) - (12.13.4);
i) ptSbp - Station-facing Bridge Port (SBP) (8) - (6.6.5, 12.24.2);
j) ptUap - Uplink Access Port (UAP) (9) - (12.24.4);
k) ptUrp - Uplink Relay Port (URP) (10) - (6.6.5, 12.24.5).

12.5 MAC entities

The Management Operations and Facilities provided by the MAC Entities are those specified in the Layer Management standards of the individual MACs. A MAC Entity is associated with each Bridge Port.

Table 12-2—Port table entry

Name	Data type	Operations supported[*]	References
portComponentId	ComponentID	R	12.4.1.5
portPortNumber	Port Number	R	13.25
portMACAddress	MAC Address	R	12.4.1.1.3a
portDelayExceededDiscards	counter	R	-
portMtuExceededDiscards	counter	R	-
portCapabilities	unsigned	R	-
portTypeCapabilities	unsigned	R	-
portType	enumerated (ptVbp, ptPnp, ptCnp, ptCep, ptCbp, ptVip, ptDbp, ptRcap, ptSbp, ptUap, ptUrp)	R	-
portExternal	boolean	R	-
portAdminPointToPoint	unsigned	RW	6.6.3
portOperPointToPoint	boolean	R	6.6.3
portName	string (SIZE(0..32))	RW	-

[*]R= Read-only access; RW = Read/Write access;

Insert the following new subclause after the first paragraph of 12.5.

12.5.1 ISS Port Number table managed object (optional)

An instance of the ISS Port Number table can be implemented by a Bridge system to identify the ISS interfaces which can be assigned to Bridge Ports. The ISS table is required when the Bridge Port assigned to an ISS and the ISS itself are referenced using different Port Numbers. The ISS table is keyed on the ISS Port Number. Each ISS table entry identifies a mapping from the ISS Port Number to a Bridge Port's ComponentID and Port Number. An issToComponentID value of 0 indicates the ISS is not bound to a Bridge Port. The issToComponentID and issToPortNumber parameters are updated indirectly as a result of creating or updating other system specific Port objects.

The operation that can be implemented on an ISS Port Number table is:

a)   Read ISS Port Number table entry.

Table 12-3—ISS Port Number table entry

Name	Data type	Operations supported[*]	References
issPortNumber	Port Number	R	13.25
issMACAddress	MAC Address	R	8.13.2
issToComponentID	ComponentID, 0	R	12.4.2
issToPortNumber	Port Number, 0	R	12.4.2

[*]R= Read-only access; RW = Read/Write access

Insert the following new subclauses, tables, and figures, following all existing sub-clauses, tables, and figures, re-numbering as necessary:

12.24 Edge Virtual Bridging management

The conformance requirements for EVB Bridges and EVB stations are defined in subclauses 5.19 and 5.20 respectively. Each C-VLAN component, edge relay (5.20.1) and Port-mapping S-VLAN component can be managed using the managed objects of 12.4 through 12.12 along with the EVB managed objects specified in this subclause.

An EVB Bridge system (Figure 12-3) supports the EVB managed objects defined in subclauses 12.24.1 through 12.24.3 and 12.24.6. Optionally an EVB Bridge supports the managed objects for S-channels defined in subclause 12.24.4.

An EVB station system (Figure 12-4) supports the EVB managed objects defined in subclauses 12.24.1, 12.24.3, 12.24.5 and 12.24.6. Optionally an EVB station supports the managed objects for S-channels defined in subclause 12.24.4.

The EVB specific managed objects defined here:

a)   Provide managed objects for identifying and configuring an EVB system and it's system wide default parameters for LLDP, Edge Control Protocol (ECP), Virtual Station Interface Discovery and Configuration Protocol (VDP), and S-channel (12.24.1);

b)   Provide managed objects for configuring the EVB protocol on the Station-facing Bridge Ports of EVB Bridges (12.24.2);

c)   Provide a Virtual Station Interface (VSI) table which contains the current VSI and VDP state for each VSI which is active in the EVB system (12.24.3);

d)   Provide managed objects for configuring the Port-mapping S-VLAN components, the S-channels, and the EVB protocols associated with each S-channel (12.24.4).

e)   Provide managed objects for configuring the Uplink Relay Ports of the edge relays (12.24.5).

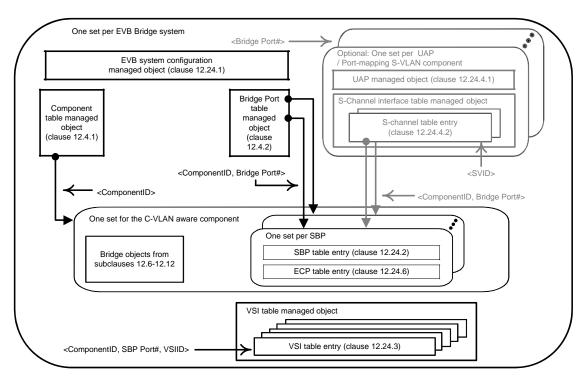f)   Provide managed objects for configuring ECP protocol instances (12.24.6).

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Figure 12-3—Relationships among EVB Bridge managed objects

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Note 1: ISS table managed object is required when URP Port# ~= ISS Port#
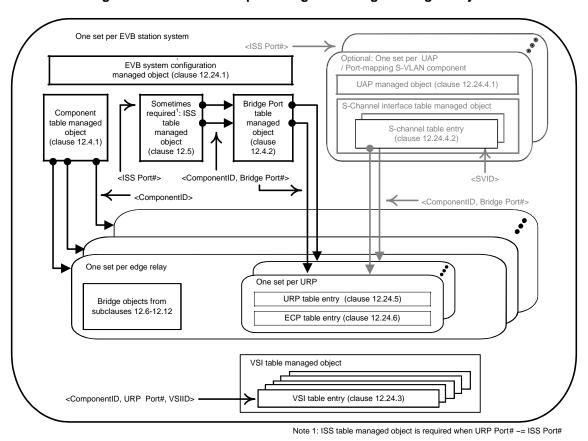
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Figure 12-4—Relationship among EVB station managed objects

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For each EVB system an EVB system configuration managed object exists containing the system wide defaults used to initialize the other EVB objects.

Every Port (40.1, 40.2, 40.3) of the EVB system is uniquely identified by a ComponentID (12.3) and Port Number (12.3) (which together identify a Port Index (12.3)). In EVB systems where the ISS and bound Bridge Port have different Port Numbers an ISS table (12.5.1) allows determining the associated Bridge Port's ComponentID and Port Number from the scalar ISS Port Number. An example where the ISS table would be needed is an EVB station where the station has multiple LANs each attaching to different edge relays and where the edge relays each use the same Port Number (however different ComponentIDs) to identify their Uplink Relay Ports (Figure 12-3). The ISS table is normally not necessary in an EVB Bridge since the single C-VLAN aware component provides a permanent Bridge Port Number for every ISS, allowing the ISS and the Bridge Port to use the same Port Number independent from the ComponentID.

The edge relays of an EVB station have two types of ports. Each edge relay ERP provides attachment to Virtual Station Interfaces used to access virtual end station. No special EVB objects are used to manage the ERPs. URPs can attach to a LAN which can be externally accessible or attach through in internal LAN to a CAP of an S-channel. URPs are managed using the URP table. Each URP table entry identifies a URP within the system and allows configuration and monitoring of LLDP and VDP for the URP (12.24.5). For each URP there is also a ECP table entry which allows configuration and monitoring of ECP (12.24.6).

The C-VLAN component of an EVB Bridge has two types of Ports. Each C-VLAN Bridge Port is externally accessible and does not provide any EVB capabilities. No special EVB objects are used to manage the C-VLAN Bridge Ports. Each SBP attaches to a LAN which can be externally accessible or attach though an internal LAN to a CAP of an S-channel. SBPs are managed using the SBP table. Each SBP table entry identifies a single SBP within the system and allows configuration and monitoring of LLDP and VDP for the SBP (12.24.2). For each SBP there is also a ECP table entry which allows configuration and monitoring of ECP (12.24.6).

Within each EVB station and EVB Bridge a table holding the VSIs allows monitoring of the active VSIs (12.24.3). VSI table entries are keyed on the VSI Identifier (VSIID) and the URP's or SBP's ComponentID and Port Number. During the movement of VSIs within the DCN it is possible to have a transient condition where the same VSIID exists at two locations. When these two instances are at the same URP or SBP they are indistinguishable, and therefore the table holds only the state for the most recent VSI command, however when the movement is between different URPs or SBPs the table will hold two copies of the same VSIID differentiated by the ComponentID and Port Number of the URPs or SBPs.

In EVB systems supporting S-channels the optional UAP table and S-channel interface table are used to configure and control the Port-mapping S-VLAN components and CDCP protocol (12.24.4).

Each ISS which is bound to an Uplink Access Port (UAP) automatically has a Port-mapping S-VLAN component with a default S-channel (using S-VID 1). Each S-channel is identified by the ISS Port Number of the UAP and the S-VID, for SBPs, or CSID, for URPs, identifying the S-channel. The default S-channel carries all the un-S-tagged traffic which traverses the Port-mapping S-VLAN component.

In an EVB Bridge system S-channels are automatically connected to SBPs when the S-Channel is created. If the S-channel is the default S-channel it is connected to the SBP with the same Port Number as the ISS bound to the UAP. If the S-channel is not the default S-channel a new SBP is allocated to the S-channel (which must have a Port Number different from any ISS Port Number where a UAP or C-VLAN Bridge Port could be bound) and connected to the CAP through an internal LAN (6.14). With CDCP enabled and operating in the 'B' role the S-channel interface table entries are automatically created (deleted) by CDCP to fill requests from the peer CDCP operating the 'S' role.

In an EVB station S-channels are connected to URPs by the operating system. The URP Port Numbers are not reserved, so the UAP's ISS Port Number may not be the same as the URP Port Number. The operating

system is not required to automatically attach each S-channel to a URP, however it can if it chooses. The URP Port Numbers have no restrictions beyond the normal requirement that every relay port be uniquely identified in the EVB system by a ComponentID and Port Number pair. With CDCP enabled and operating in the 'S' role CDCP uses the S-channel interface table to build requests for creating (deleting) S-channels from the peer CDCP operating in the 'B' role and enables these S-channels after the peer grants an S-VID for use by the S-channel.

Management of the UAP, Port-mapping S-VLAN component and CDCP is achieved through the UAP table (12.24.4.1). The management of CAPs and their LAN attachments is accomplished by the S-channel interface table entries (12.24.4.2). A UAP table entry along with the Port-mapping S-VLAN creation rules specified in subclause 12.24.4 are sufficient to manage the Port-mapping S-VLAN component. The Bridge managed objects in subclauses 12.4 through 12.12 can optionally be used, in addition to the objects of subclause 12.24.4, to manage the Port-mapping S-VLAN components.

The following managed objects, illustrated in Figure 12-3 and Figure 12-4, define the semantics of the management operations specific to EVB Bridges and stations:

a) The EVB system base managed object (12.24.1);
b) The SBP table entry managed object (12.24.2);
c) The VSI table entry managed object (12.24.3);
d) The MAC/VID pair table entry managed object (12.24.3);
e) The UAP table entry managed object (12.24.4);
f) The S-channels interface table entry managed object (12.24.4);
g) The URP table entry managed object (12.24.5);
h) The ECP table entry managed object (12.24.6).

12.24.1 EVB system base table

An instance of the EVB system base table can be implemented by an EVB Bridge or EVB station. It comprises the identifiers for an EVB system (40) and system wide default parameters used to support EVB services (D.2.13, 6.6.5), VSI discovery (42.2) and ECP (43.3).

The management operations that can be performed on an EVB system table entry are as follows:

a) Read EVB system table entry;
b) Update EVB system table entry.

12.24.1.1 System identifiers

The evbSysType identifies the system type. The enumeration types for evbSysType are:

a) sysB - EVB Bridge;
b) sysS - EVB station.

12.24.1.2 System defaults for EVB

The parameters evbSysEvbLldpTxEnable and evbSysEvbLldpManual are used to initialize the LLDP EVB TLV operation parameter for new SBPs and URPs. When evbSysLldpTxEnable is ON a new SBP or URP will transmit the EVB TLV in the LLDP nearest Customer database; when OFF a new SBP or URP will not transmit the EVB TLV in the LLDP database. When evbSysLldpManual is OFF the operating configuration will be determined by the comparison between the local and remote LLDP EVB TLVs (automatic). When evbSysLldpManual is ON the configuration will be determined by the setting of the local EVB TLV only (manual). If both evbSysLldpTxEnable is OFF and evbSysLldpManual is OFF, then the local side will configure itself based on comparison of the local EVB TLV and the remote EVB TLV.

Table 12-15—EVB system base table

Name	Data type	Operations supported[*]	Conformance[†]	References
evbSysType	enumeration {sysB, sysS}	R	BE	5.19, 5.20
evbSysNumExternalPorts	unsigned [1...4095]	R	BE	12.4.2, 12.5.1
evbSysEvbLldpTxEnable	Boolean	RW	BE	D.2.13
evbSysEvbLldpManual	Boolean	RW	BE	D.2.13
evbSysEvbLldpDfltMode	unsigned16	RW	BE	D.2.13
evbSysEvbLldpNumVsisSup	unsigned16	RW	BE	D.2.13
evbSysEvbLldpDfltNumVsisCfg	unsigned16	RW	BE	D.2.13
evbSysEvbAdminReflecti-veRelay	enumeration {rrAuto, rrForceTrue, rrForceFalse}	RW	B	6.6.5
evbSysEcpDfltAckTimerInit	timer exp	RW	BE	D.2.13, 43.3.7.1
evbSysEcpDfltMaxTries	unsigned16 [0...7]	RW	BE	D.2.13, 43.3.7.6
evbSysVdpDfltRsrcWaitDelay	timer exp	RW	BE	D.2.13, 41.2.5.8
evbSysVdpDfltReinitKeepAlive	timer exp	RW	BE	D.2.13, 41.2.5.7

[*]R= Read-only access; RW = Read/Write access;
[†]B = Required for an EVB Bridge system; E = Required for an EVB station system;

Table 12-16 shows how the system defaults are used to initialize the parameters in the SBP, URP, and ECP table entries.

The settings for evbSysEvbLldpDfltMode reflect the capabilities of the EVB station or Bridge listed in D.2.13 for the EVB capabilities field of the EVB TLV.

The evbSysLldpNumVsisSup is the total number of VSIs which this system can support and is used to fill out the EVB TLV field for the number of VSIs supported. The evbSysDfltNumVsisCfg is the max number of VSIs available for this particular SBP or URP.

Table 12-16—EVB system parameter defaults

System Parameter	Default Value	LLDP, SBP, URP, ECP entry parameter
evbSysEvbLldpTxEnable	EVB LLDP TLV is transmitted on nearest Customer Address when set	sbpLldpTxEnables, urpLldp-TxEnable
evbSysEvbLldpManual	URPs and SBPs use local configurations when set	sbpLldpManual, urpLldpManual
evbSysEvbLldpDfltMode	Enable STD, RTE, ECP, VDP[1]	LLDP EVB TLV MIB
evbSysEvbLldpNumVsisSup	System Dependent[2]	LLDP EVB TLV MIB
evbSysEvbLldpDfltNumVsisCfg	evbSysEvbLldpNumVsisSup	LLDP EVB TLV MIB
evbSysEvbAdminReflectiveRelay	rrAuto in EVB Bridge system rrForceFalse in EVB station system	sbpAdminReflectiveRelay
evbSysEcpDfltAckTimerInit	14, for 164 milliseconds	ecpAdminAckTimerInit
evbSysEcpDfltMaxTries	3	ecpAdminMaxTries
evbSysVdpDfltRsrcWaitDelay	20, for 10.5 seconds	sbpVdpAdminRsrcWaitDelay, urpVdpAdminRsrcWaitDelay
evbSysVdpDfltReinitKeepAlive	20, for 10.5 seconds	sbpVdpAdminReinitKeepAlive, urpVdpAdminReinitKeepAlive

Note 1 - The RTE, ECP and VDP parameters need to be enabled in a conforming system (5.19, 5.20). The STD, RR and GID parameters are variables who's setting is not required for system conformance.

Note 2 - In practice the number of VSIs supported may not actually be achieved. The number of VSIs supported may represent the total capacity of a system. Attached devices may only be able to use a fraction of the total VSIs since the VSIs may be divided between many attached devices.

12.24.2 SBP table entry

SBP table entries may be created explicitly or implicitly as a result of creating an entry in the S-channel interface table. When an SBP table entry is created the port type in the Port table entry (12-2) changes to type 'ptSBP'. When an SBP table entry is deleted the Port table entry returns to type C-VLAN Bridge Port.

Whenever a new SBP table entry is created a new entry is also created in the ECP table (12.24.6) keyed under the ComponentID and Port Number of the SBP. Whenever an SBP table entry is deleted the corresponding entry in the ECP table is deleted.

The management operations that can be performed on an SBP table entry are as follows:

a) Read SBP table entry;
b) Update SBP table entry;
c) Create SBP table entry;
d) Delete SBP table entry.

Table 12-17—SBP table entry

Name	Data type	Operations supported[*]	Conformance[†]	References
sbpComponentID	ComponentID	RW	B	12.4.1.5
sbpPortNumber	Port Number	RW	B	12.4.2
sbpLldpTxEnable	Boolean	RW	B	D.2.13
sbpLldpManual	Boolean	RW	B	-
sbpAdminReflectiveRelay	enumeration {rrAuto, rrForceTrue, rrForceFalse}	RW	B	6.6.5, D.2.13
sbpRemAdminReflecti-veRelay	Boolean	R	B	6.6.5, D.2.13
sbpOperReflectiveRelay	Boolean	R	B	6.6.5, D.2.13
sbpVdpOperRsrcWaitDelay	timer exp	RW	B	D.2.13, 41.2.5.8
sbpVdpOperReinitKeepAlive	timer exp	R	B	D.2.13, 41.2.5.7
sbpVdpOperToutKeepAlive	MRP Timeout	RW	B	D.2.13, 41.2.5.14

[*]R= Read-only access; RW = Read/Write access;
[†]B = Required for an EVB Bridge system;

12.24.3 VSI table entry

Each EVB system maintains a table of the active Virtual Station Interfaces. The structure of a VSI table entry is shown in Table 12-18. This read-only table provides the current operation parameters of each VSI along with the VDP state associated with the VSI. The table is keyed on the SBP's or URP's ComponentID and Port Number and on the VSIID. The operations which can be performed on the VSI table are:

    a)   Read entry for a ComponentID, Port Number and VSIID;
    b)   Read entries for a ComponentID and Port Number.

Table 12-18—VSI table entry

Name	Data type	Operations supported*	Conformance[†]	References
evbVsiComponentID	ComponentID	R	BE	12.4.1.5
evbVsiPortNumber	Port Number	R	BE	12.4.2
evbVsiID	string (SIZE(16))	R	BE	41.1.6
evbVsiTimeSinceCreate	time interval	R	BE	41
evbVsiVdpOperCmd	enumerated {vdpDeassoc, vdpPreassoc, vdpPreassocR, vdpAssoc}	R	BE	41.1.1
evbVsiOperRevert	Boolean	R	BE	41.1.2
evbVsiOperHard	Boolean	R	BE	41.1.2
evbVsiOperReason	unsigned (0..15)	R	BE	41.1.2
evbVsiMgrID	string (SIZE(1))	R	BE	41.1.3

Table 12-18—VSI table entry *(continued)*

Name	Data type	Operations supported[*]	Conformance[†]	References
evbVsiType	string (SIZE(3))	R	BE	41.1.4
evbVsiTypeVersion	string (SIZE(1))	R	BE	41.1.5
evbVsiMvFormat	string (SIZE(1))	R	BE	41.1.7
evbVsiNumMACs	unsigned	R	BE	41.1.8
evbVsiMachineState	unsigned	R	BE	41.2
evbVsiCmdsSucceeded	counter	R	BE	41.2
evbVsiCmdsFailed	counter	R	BE	41.2
evbVsiCmdsReverts	counter	R	BE	41.2

[*]R= Read-only access; RW = Read/Write access
[†]B = Required for an EVB Bridge system; E = Required for an EVB station system.

Each EVB Bridge or EVB station maintains a table of the VID/MACs on each Virtual Station Interfaces. This read-only table provides the current GroupID/VID/MAC assignments for each VSI. The operations which can be performed on the VSI table are:

c) Read entries for a ComponentID, Port Number and VSIID

d) Read entries for a ComponentID and Port Number

Table 12-19—VSI MAC/VLAN table entry

Name	Data type	Operations supported[*]	Conformance[†]	References
evbMvComponentID	ComponentID	R	BE	12.4.1.5
evbMvPortNumber	Port Number	R	BE	12.4.2
evbMvVsiID	string (SIZE(16))	R	BE	41.1.6
evbMvGroupID	unsigned	R	BE	41.1.8
evbMvVsiVID	unsigned (1..4094)	R	BE	41.1.8
evbMvVsiMAC	MAC Address	R	BE	41.1.8

[*]R= Read-only access; RW = Read/Write access
[†]B = Required for an EVB Bridge system; E = Required for an EVB station system;

12.24.4 S-channel configuration and management

The S-channel managed objects are not required unless the system implements S-channels.

Creating an UAP table entry causes a Port-mapping S-VLAN component (Std IEEE 802.1Qbc) to be instantiated and sets the portType parameter of the Port table entry (12.4.2) to type 'ptUap'. The Port-mapping S-VLAN component automatically includes a default S-channel with one CAP which can attach to an SBP or a URP through an internal LAN (6.14). Each UAP is identified by the ISS Port Number where the UAP is attached. The default S-channel and CAP shall be identified by the S-VID 1 and CSID 1.

12.24.4.1 UAP table entry

When a UAP table entry is created a Port-mapping S-VLAN component is instantiated and the following actions are taken automatically:

a) The UAP is configured to:
    1) Admit all frames (6.9);
    2) have a PVID parameter equal to the default S-channel S-VID (6.9);
    3) be included in the member set for the default S-channel S-VID (8.8.10);
    4) be a member of the untagged set for the default S-channel S-VID (8.8.2);
    5) be included in the member set for all S-VIDs of active S-channels.

b) An S-channel Interface table entry is created if one does not already exist for the default S-channel. This table provides the equivalent functionality of:
    1) creating a CAP for the default S-channel;
    2) configuring the CAP to accept only un-S-tagged frames (6.9);
    3) setting the member set for the default S-channel's S-VID to include the CAP;
    4) setting the CAP's PVID to the default S-channel's S-VID;
    5) adding the CAP to the default S-channel S-VID's untagged set;
    6) setting filters on the CAP for the Nearest Bridge and Nearest non-TPMR Bridge addresses;
    7) in the case of an EVB Bridge allocating (or creating) an SBP on the C-VLAN component attached to the CAP by an internal LAN.

c) The CDCP protocol is started on the UAP and configured with the parameters specified when the UAP was created.
    1) If the CDCP role is 'B' then CDCP will wait for new S-channel creation requests. As new request are found CDCP will create new S-channel interface table entries for each new S-channel and delete entries when S-channels are removed.
    2) If the CDCP role is 'S' then CDCP will use the S-channel interface table to create the list of wanted S-channels it is requesting from the 'B' side.

The management operations that can be performed on the UAP table entry managed object are as follows:

a) Read UAP table entry;
b) Update UAP table entry;
c) Create UAP table entry;
d) Delete UAP table entry.

Table 12-20—Uplink access port table entry

Name	Data type	Operations supported[*]	Conformance[†]	References
uapISSPortNumber	Port Number	RW	BE	12.4.2, 12.5.1
uapComponentID	ComponentID	R	be	12.4.1.5
uapPortNumber	Port Number	R	be	12.4.2
uapSchCdcpAdminEnable	Boolean	RW	BE	42.4.4
uapSchCdcpAdminRole	enumerated {cdcpB,cdcpS}	RW	BE	42.4.2
uapSchCdcpAdminChnCap	unsigned [1...276]	RW	BE	42.4.1
uapSchCdcpOperChnCap	unsigned [1...276]	R	BE	42.4.10
uapSchAdminCdcpSvidPoolLow	unsigned [0,2...4094]	RW	BE	42.4.9
uapSchAdminCdcpSvidPoolHigh	unsigned [0,2...4094]	RW	BE	42.4.9
uapSchOperState	enumerated {cdcpStop, cdcpRun}	R	BE	42.4.18
uapSchCdcpRemoteEnabled	Boolean	R	BE	42.4.17
uapSchCdcpRemoteRole	enumerated {cdcpB, cdcpS}	R	BE	42.4.15

[*]R= Read-only access; RW = Read/Write access
[†]B = Required for an EVB Bridge system; E = Required for an EVB station system; b = Optional for an EVB Bridge system; e = Optional for an EVB station system;

Table 12-21—Uplink Access Port table entry parameters

UAP Table Name	Default Values
uapSchCdcpAdminEnable	Enable CDCP TLV
uapSchCdcpAdminRole	schS if EVB station and schB if EVB Bridge
uapSchCdcpAdmin-ChnCap	1
uapSchAdminCdcpSvid-PoolLow	0
apSchAdminCdcpSvid-PoolHigh	0

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12.24.4.2 S-channel interface table entry

The S-channel interface table entry applies to each internal S-channel configured on an EVB Bridge or EVB station, as shown in Table 12-22. The management operations that can be performed on an S-channel interface table entry are as follows:

a)   Read S-channel interface table entry;
b)   Update S-channel interface table entry;
c)   Create S-channel interface table entry;
d)   Delete S-channel interface table entry.

Table 12-22—S-channel interface table entry

Name	Data type	Operations supported[*]	Conformance[†]	References
schUapISSPortNumber	Port Number	R	BE	12.4.2, 12.5.1
schScid	unsigned [1...4094]	R	bE	42.4.2
schSvid	unsigned [0...4094]	R	BE	42.4.12
schComponentID	ComponentID	R	be	42.1.2, 12.4.1.5
schCapPortNumber	Port Number	R	be	42.1.2, 12.4.2
schSbpOrUrpComponentID	ComponentID	RW	BE	12.4.1.5
schSbpOrUrpPortNumber	Port Number	RW	BE	12.4.2

[*]R= Read-only access; RW = Read/Write access
[†]B = Required for an EVB Bridge system; E = Required for an EVB station system;
b = Optional for an EVB Bridge system; e = Optional for an EVB station system

If the S-channel interface table is being used with a UAP operating in the cdcpS role, then the table is keyed on schUapISSPortNumber and schScid. If the S-channel interface table is being used with a UAP operating in the cdcpB role, then the table is keyed on the schUapISSPortNumber and schSvid.

The schComponentID and schCapPortNumber refer to the Port-mapping S-VLAN component and the Port which may also be identified by the schISSPortNumber and S-VID (or SCID).

The schSbpOrUrpComponentID and schSbpOrUrpPortNumber are the ComponentID and Port Number of the attached SBP or URP.

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12.24.5 Edge Relay management

Edge relays can be built dynamically or statically within EVB station. Each edge relay is assigned a ComponentID which is unique for the EVB station system. An edge relay always has a single URP which exists as long as the edge relay exists. The ERPs of an edge relay may be built either along with the edge relay or on demand. Each ERP has a entry in the EVB station system's Port table.

12.24.5.1 URP table entry

When a URP table entry is created a corresponding Component table entry is created for the edge relay along with a Port table entry for the URP. When a URP table entry is deleted the corresponding Component table entry is deleted along with the corresponding Port table entry.

When each URP table entry is created a corresponding entry is created in the ECP table (12.24.6) and keyed under the ComponentID and Port Number of the URP. Whenever a URP table entry is deleted the corresponding entry in the ECP table is deleted.

The management operations that can be performed on the URP table entry managed object are as follows:

a)   Read URP table entry;
b)   Update URP table entry;
c)   Create URP table entry;
d)   Delete URP table entry.

Table 12-23—URP table entry

Name	Data type	Operations supported*	Conformance†	References
urpComponentID	ComponentID	R	E	12.4.1.5
urpPortNumber	Port Number	R	E	12.4.2
urpBindToISSPortNumber	unsigned [0...4095]	RW	e	12.5.1
urpLldpTxEnable	Boolean	RW	E	D.2.13
urpLldpManual	Boolean	RW	E	-
urpAdminReflectiveRelay	Boolean	RW	E	6.6.5, D.2.13
urpRemOperReflectiveRelay	Boolean	R	E	6.6.5, D.2.13
urpVdpOperRsrcWaitDelay	timer exp	R	E	D.2.13, 41.2.5.8
urpVdpOperRespWaitDelay	MRP Timeout	RW	E	D.2.13, 41.2.5.10
urpVdpOperReinitKeepAlive	timer exp	RW	E	D.2.13, 41.2.5.7

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*R= Read-only access; RW = Read/Write access
†E = Required for an EVB station system; e = Optional for an EVB station system

12.24.6 ECP table entry

An ECP table entry is created or deleted implicitly whenever a new entry is created or deleted in the SBP or URP tables (12.24.2, 12.24.6). Entries created implicitly along with a SBP or URP table entry are keyed under the ComponentID and Port Number of the SBP or URP.

The management operations that can be performed on the URP table entry managed object are as follows:

    a)   Read URP table entry;
    b)   Update URP table entry.

Table 12-24—ECP table entry

Name	Data type	Operations supported*	Conformance†	References
ecpComponentID	ComponentID	R	BE	12.4.1.5
ecpPortNumber	Port Number	R	BE	12.4.2
ecpAdminAckTimerInit	timer exp	RW	BE	D.2.13, 43.3.7.1
ecpOperAckTimerInit	timer exp	R	BE	D.2.13, 43.3.7.1
ecpAdminMaxTries	unsigned [0...16]	RW	BE	D.2.13, 43.3.7.6
ecpOperMaxTries	unsigned [0...15]	R	BE	D.2.13, 43.3.7.6
ecpTxFrameCount	counter	R	BE	43
ecpTxRetryCount	counter	R	BE	43
ecpTxFailures	counter	R	BE	43
ecpRxFrameCount	counter	R	BE	43

*R= Read-only access; RW = Read/Write access
†B = Required for an EVB Bridge system; E = Required for an EVB station system;
  b=Optional for an EVB Bridge system; e = Optional for an EVB station system