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IEEE Standard for

Local and metropolitan area networks—

Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—

Amendment 16: Provider Bridging—Remote Customer Service Interfaces

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

IEEE
3 Park Avenue
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USA

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IEEE-SA Standards Board

Abstract: This amendment to IEEE Std 802.1Q-2011 specifies the use of service virtual local area networks (S-VLANs) to provide customer service interfaces in one Provider Bridged Network for customer interface local area networks (LANs) attached to another Provider Bridged Network.
Keywords: Bridged Local Area Networks, LANs, local area networks, MAC Bridges, MANs, metropolitan area networks, Provider Bridge, Provider Bridged Local Area Networks, Provider Edge Bridge, RCSI, Remote Customer Service Interface, Virtual Bridged Local Area Networks

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Introduction

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This amendment to IEEE Std 802.1Q-2011 specifies the use of service virtual local area networks (S-VLANs) to provide customer service interfaces in one Provider Bridged Network for customer interface local area networks (LANs) attached to another Provider Bridged Network.

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Local and metropolitan area networks—

Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—

Amendment 16: Provider Bridging—Remote Customer Service Interfaces

This amendment to IEEE Std 802.1Q™-2011 supports the use of service virtual local area networks (S-VLANs) to attach remote customer service interfaces to a Provider Bridged Network. Changes are applied to the base text of IEEE Std 802.1Q-2011 as amended by IEEE Std 802.1Qbe™-2011.

NOTE—The editing instructions contained in this amendment define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard. Text shown in ***bold italics*** in this amendment defines the editing instructions for changes to this base text. Three editing instructions are used: ***change, delete,*** and ***insert***. ***Change*** is used to make a change to existing material. The editing instruction specifies the location of the change and describes what is being changed. Changes to existing text may be clarified using ~~strikeout~~ markings to indicate removal of old material and underscore markings to indicate addition of new material. ***Delete*** removes existing material. ***Insert*** adds new material without changing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. Editorial notes will not be carried over into future editions of IEEE Std.802.1Q.[1]

[1]Notes in text, tables, and figures are given for information only and do not contain requirements needed to implement the standard.

1. Overview

1.3 Introduction

Insert the following text at the end of 1.3:

This standard allows an S-tagged service interface connecting two independently administered PBNs to be used to handle traffic (identified by a single S-VID) for a given customer attached to one PBN as if the customer were directly attached to the other PBN using a Port-based or C-tagged service interface. To this end it

bf) Specifies the use of a Port-mapping S-VLAN component to associate selected S-VIDs registered on an external port with distinct internal ports each of which supports a separate service interface.

3. Definitions

Change the definition of Provider Edge Bridge as follows:

3.140 Provider Edge Bridge: A system comprising ~~a single~~ one or more S-VLAN component<u>s</u> and one or more C-VLAN components implemented in accordance with Clause 5 of IEEE Std 802.1Q.

Insert the following definitions into Clause 3 in alphabetical order, number them appropriately, and renumber the remaining definitions in Clause 3 accordingly:

3.x Port-mapping S-VLAN component: An S-VLAN component with one externally accessible port and one or more additional ports, each connected to another bridge component via an internal LAN (6.14), and for which each registered S-VID's member set includes the externally accessible port and exactly one other port.

3.x Provider Access Port: A Port-mapping S-VLAN component port within a Provider Edge Bridge that receives and transmits frames for a single customer (single S-VID).

3.x Remote Customer Access Port: A Port-mapping S-VLAN component port on a Provider Edge Bridge that is intended to be directly connected to another PBN under a different administration, and receives and transmits frames for one or more customers.

4. Abbreviations

Insert the following abbreviations into Clause 4 in alphabetical order:

RCAP	Remote Customer Access Port
RCSI	Remote Customer Service Interface

5. Conformance

Change 5.10, 5.10.1, and 5.10.2 as shown:

5.10 Provider Bridge conformance

A Provider Bridge shall comprise ~~a single~~ one ~~conformant~~ S-VLAN (5.6) component~~, and~~ zero or more C-VLAN components (5.5), and zero or more Port-mapping S-VLAN components (5.6).

NOTE—The one mandatory S-VLAN component in a Provider Bridge is generally referred to simply as the S-VLAN component; however, when this component needs to be distinguished from other components in a Provider Bridge (particularly Port-mapping S-VLAN components) it is sometimes referred to as the "primary S-VLAN component."

Each Port shall be capable of being configured as one of, and may be capable of being configured as any of

a) A Provider Network Port;
b) A Customer Network Port;
c) A Customer Edge Port;
d) A Remote Customer Access Port;

as specified in Clause 15. Each Port configured as a Provider Network Port or Customer Network Port shall be capable of attaching the S-VLAN component of the Provider Bridge directly to an IEEE 802 LAN. Each Port configured as a Customer Edge Port shall be capable of attaching a C-VLAN component within the Provider Bridge directly to an IEEE 802 LAN. Each Port configured as a Remote Customer Access Port shall be capable of attaching a Port-mapping S-VLAN component (15.6) within the Provider Bridge directly to an IEEE 802 LAN.

5.10.1 S-VLAN Bridge conformance

An S-VLAN Bridge shall comprise a single conformant S-VLAN component (5.6). An S-VLAN Bridge does not have any physical interfaces configured as a Customer Edge Port or Remote Customer Access Port, nor does it include any C-VLAN components.

5.10.2 Provider Edge Bridge conformance

A Provider Edge Bridge is a conformant Provider Bridge with a primary S-VLAN component, the capability to include one or more C-VLAN components as specified in 15.4 and the capability to include zero or more Port-mapping S-VLAN components as specified in 15.6.

Each C-VLAN component shall comprise a single Customer Edge Port and a single distinct Provider Edge Port for each service instance that can be provided through that Customer Edge Port. Each Provider Edge Port shall be connected within the Provider Edge Bridge, as specified in 6.14, to a distinct Customer Network Port on the S-VLAN component. Each C-VLAN component shall implement RSTP, with the enhancements to support Customer Edge Ports, as specified in 13.39.

Each Port-mapping S-VLAN component shall comprise a single Remote Customer Access Port and one or more Provider Access Ports each associated with one Remote Customer Service Interface (RCSI) provided through that Remote Customer Access Port. Each Provider Access Port shall be connected within the Provider Edge Bridge, as specified in 6.14, to a distinct Customer Network Port on the primary S-VLAN component or Customer Edge Port on a C-VLAN component. A Provider Network Port shall also be provided, connected internally to a Provider Network Port on the primary S-VLAN component as specified in 15.6.

NOTE—The single Customer Edge Port supported by a C-VLAN component and the single Remote Customer Access Port supported by a Port-mapping S-VLAN component can be supported by two or more independent instances of a MAC, aggregated as specified by Link Aggregation (IEEE Std 802.1AX™).

5.11 Backbone Edge Bridge conformance

Insert the following list item at the end of 5.11:

f) A Remote Customer Access Port

12. Bridge management

12.13 Provider Bridge management

Change 12.13 as shown:

The conformance requirements of Provider Bridges are specified in 5.10. The S-VLAN component and the externally accessible ports of all Provider Bridges, including Provider Edge Bridges, are managed using the managed objects defined in 12.4 through 12.12. This subclause defines additional managed objects specific to the operation of Provider Bridges.

The internal ports, LANs, ~~and~~ C-VLAN components, and Port-mapping S-VLAN components of a Provider Edge Bridge are not managed directly using the managed objects defined in 12.4 through 12.12. Their operation is controlled and monitored through managed objects defined in this subclause.

Each externally accessible Bridge Port on a Provider Bridge is designated as a Provider Network Port, Customer Network Port, ~~or~~ Customer Edge Port, or Remote Customer Access Port. Designating a port as a Customer Edge Port implies Provider Edge Bridge functionality and, specifically, the existence of a C-VLAN component associated with that port. This C-VLAN component is uniquely identified within the Bridge by the port number of the associated Customer Edge Port. The management of the forwarding process, filtering data base, and C-VLANs of the C-VLAN component and the internal connections are achieved through the Customer Edge Port Configuration managed object defined here (12.13.3).

Designating a port as a Remote Customer Access Port implies the existence of a Port-mapping S-VLAN component associated with that port. The Port-mapping S-VLAN component is uniquely identified within the Bridge by the port number of the associated Remote Customer Access Port. Designating an internal port on the Port-mapping S-VLAN component as a C-Tagged RCSI implies a C-VLAN component with a Customer Edge Port connected via an internal LAN to that internal port (Provider Access Port). This C-VLAN component and internal connection are uniquely identified by the port number of the Remote Customer Access Port and the S-VID associated with the Provider Access Port or by the port number of the internal Customer Edge Port. Designating an internal port on the Port-mapping S-VLAN component as a Port-based RCSI or a Provider Network Port implies an internal LAN connecting this port with a Customer Network Port or Provider Network Port respectively. These ports and internal connections are uniquely identified by the port number of the Remote Customer Access Port and the S-VID associated with the Provider Access Port or by the port number of the Customer Network Port or Provider Network Port. The management of the forwarding process, filtering data base, and S-VLANs of Port-mapping S-VLAN components and their internal connections are achieved through the Remote Customer Access Port Configuration managed object defined here (12.13.4).

An internal connection between a CNP on the S-VLAN component and a PEP on the C-VLAN component is instantiated for each service instance. The CNP is identified by the CEP identifier and the S-VID value used for the PVID of the CNP. The PEP is identified by the CEP identifier and the C-VID value used for the PVID of the PEP. These PVID values and the connection between the CNP and PEP are established by reciprocal entries in the C-VID Registration Table (12.13.3.2) and the Provider Edge Port Configuration Table (12.13.3.4) as follows:

a) An entry in the C-VID Registration Table is created for each C-VLAN supported in the C-VLAN component associated with a CEP. The CEP identifier and C-VID combination identify a PEP. The entry contains (among other parameters) an S-VID value corresponding to the PVID of the CNP, which associates the PEP with a specific CNP. Note that the CEP/C-VID combination identifies a single PEP, however multiple CEP/C-VID combinations can identify the same PEP if the entries for those CEP/C-VID combinations contain the same S-VID value. This many-to-one mapping of CEP/C-VID to PEP permits "bundling", i.e. mapping multiple C-VLANs to the same service instance.

b) An entry in the Provider Edge Port Configuration Table is created for each S-VID corresponding to a service instance accessed by the C-VLAN component. The CEP identifier and S-VID combination identify a CNP. The entry contains (among other parameters) a C-VID value corresponding to the PVID of the PEP, which associates the CNP with a specific PEP. Note that the CEP/S-VID combination identifies a single CNP, however multiple CEP/S-VID combinations can identify the same CNP if the entries for those CEP/S-VID combinations contain the same C-VID value. This many-to-one mapping of CEP/S-VID to CNP permits configuration of asymmetric VLANs and can be used to establish rooted-multipoint connectivity (F.1.3.2).

Management control of the member sets and untagged sets for C-VIDs in the C-VLAN component is provided in C-VID Registration Table entries rather than through Static VLAN Registration Entries (thus eliminating the need for Filtering Database managed objects for the C-VLAN component). Management control of the member sets and untagged sets for S-VIDs in the S-VLAN component is provided through Static VLAN Registration Entries in the Filtering Database. Creating an entry for an S-VID in the Provider Edge Port Configuration table does not automatically modify the Static VLAN Registration Entries for the corresponding S-VLAN. A CNP is added to the member set and untagged set of an S-VLAN by including the CEP identifier (since the CEP identifier and S-VID combination identifies the CNP) in the Port Map of a Static VLAN Registration Entry for that S-VLAN (12.7.7.1, 8.8.2).

A C-VLAN component with more than one PEP (i.e., supporting more than one service instance) participates in the customer network Spanning Tree Protocol by running an instance of RSTP with the enhancements specified in 13.39. This protocol instance is managed using the managed objects defined in 12.8 and 12.12. All BPDUs generated by this protocol instance use the MAC address of the CEP as a source address and as the bridge address portion of Bridge Identifier. For each PEP, the protocol uses the S-VID value that is the PVID of the associated CNP as the port number. For the CEP, the protocol uses the value 0xFFF as the port number.

The following managed objects define the semantics of the management operations specific to Provider Bridges:

c) The Provider Bridge Port Type managed object (12.13.1);
d) The Network Port Configuration managed object (12.13.2);
e) The Customer Edge Port Configuration managed object (12.13.3);
f) The Remote Customer Access Port Configuration managed object (12.13.4).

12.13.1 Provider Bridge Port Type managed object

12.13.1.1 Read Provider Bridge Port Type

12.13.1.1.3 Outputs

Change 12.13.1.1.3 as shown:

a) Port Type: this takes one of the following values:
   1) Provider Network Port;
   2) Customer Network Port;
   3) Customer Edge Port;
   4) Remote Customer Access Port.

12.13.1.2 Configure Provider Bridge Port Type

12.13.1.2.2 Inputs

Change 12.13.1.2.2 as shown:

a) Port Number: the number of the Bridge Port.
b) Port Type: this takes one of the following values:
   1) Provider Network Port;
   2) Customer Network Port;
   3) Customer Edge Port;
   4) Remote Customer Access Port.

12.13.3 Customer Edge Port Configuration managed object

Insert the following subclauses, 12.13.4 through 12.13.4.2.3, after 12.13.3.6.3:

12.13.4 Remote Customer Access Port Configuration managed object

Designating an external port as a Remote Customer Access Port automatically creates a Port-mapping S-VLAN component associated with that port. This Port-mapping S-VLAN component includes one internal Provider Network Port.

The Remote Customer Access Port Configuration managed object applies to each externally accessible Remote Customer Access Port on a Provider Edge Bridge. It includes

a) The Internal Interface Table, which configures the internal interfaces between the Port-mapping S-VLAN component and the S-VLAN or C-VLAN components. This table provides the equivalent functionality of:
   1) for an RCSI supporting a Port-based service interface:
      i) creating an internal Provider Access Port connected to a Customer Network Port on the S-VLAN component;
      ii) configuring both the Provider Access Port and Customer Network Port to accept only untagged frames;
      iii) setting the member set for the external S-VID to include the Provider Access Port and Remote Customer Access Port;
      iv) setting the Provider Access Port's PVID to the external S-VID and adding that port to that S-VID's untagged set;
      v) setting the Customer Network Port's PVID to the internal S-VID for the Port-based service instance and adding the port to that S-VID's untagged set;
   2) for an RCSI supporting a C-tagged service interface:
      i) creating a Provider Access Port connected to a Customer Edge Port on a C-VLAN component;
      ii) setting the member set for the external S-VID to include the Provider Access Port and Remote Customer Access Port;
      iii) configuring the Provider Access Port's PVID to the external S-VID and adding the port to that S-VID's untagged set;
   3) for a Provider Network Port:
      i) setting the member set for the external S-VID to include the Provider Network Port and Remote Customer Access Port;
      ii) adding the associated primary S-VLAN component Provider Network Port to the member set of the internal S-VLAN;

iii) configuring the associated primary S-VLAN component Provider Network Port's VID translation table to translate between the external S-VID and the internal S-VID for the selected service instance.

Note that in the case of an RCSI supporting a C-tagged service interface the C-VLAN component can be further configured using the Customer Edge Port Configuration managed object. This configuration includes:

— The parameters to set the C-VID Registration Table entries (12.13.3.2);
— The Provider Edge Port configuration parameters (12.13.3.4); and
— The Service Priority Regeneration Table entries (12.13.3.6);

all associated with the configuration of the internal Customer Edge Port which is directly connected to the internal Provider Access Port identified by the external S-VID and the Remote Customer Access Port.

The management operations that can be performed on the Remote Customer Access Port Configuration managed object are as follows:

b) Read Internal Interface Table Entry (12.13.4.1);
c) Configure Internal Interface Table Entry (12.13.4.2).

Further configuration related to a C-VLAN component associated with an RCSI supporting a C-tagged service interface is accomplished using the Customer Edge Port Configuration managed object (12.13.3).

12.13.4.1 Read Internal Interface Table Entry

12.13.4.1.1 Purpose

To read the Internal Interface Table entry associated with a specific external S-VID in a Port-mapping S-VLAN component of a Remote Customer Access Port.

12.13.4.1.2 Inputs

a) External Port Number: the number of the Remote Customer Access Port;
b) External S-VLAN Identifier: a 12-bit S-VID.

12.13.4.1.3 Outputs

a) Internal Port Number: the port number used to reference the internal interface;
b) A value indicating the type of internal interface associated with the external S-VID, one of
    1) Port-based RCSI
    2) C-tagged RCSI
    3) PNP
    4) Discard (external S-VID is not associated with an internal port);
c) Internal S-VLAN Identifier: a 12-bit S-VID (not applicable for a C-tagged RCSI).

12.13.4.2 Configure Internal Interface Table Entry

12.13.4.2.1 Purpose

To add or delete an entry in the Internal Interface Table.

12.13.4.2.2 Inputs

a) External Port Number: the number of the Remote Customer Access Port;
b) External S-VLAN Identifier: a 12-bit S-VID;
c) Internal Port Number (optional): the port number used to reference the internal interface;
d) A value indicating the type of internal interface associated with the external S-VID, one of
    1) Port-based RCSI
    2) C-tagged RCSI
    3) PNP
    4) Discard (delete entry for the external S-VID);
e) Internal S-VLAN Identifier: a 12-bit S-VID (not applicable for a C-tagged RCSI).

12.13.4.2.3 Outputs

None.

15. Support of the MAC Service by Provider Bridged Networks

15.5 S-tagged service interface

Insert the following subclause, 15.6, after 15.5, and renumber the subsequent subclauses in Clause 15 accordingly:

15.6 Remote customer service interfaces

A remote customer service interface (RCSI) provides a C-tagged or Port-based service interface to a customer attached via an access PBN as depicted in Figure 16-2 (16.2). Multiple RCSIs can be provided over a LAN interconnecting two Provider Bridged Networks through the use of a Port-mapping S-VLAN component as shown in Figure 15-9. The Port-mapping S-VLAN component has one external port (Remote Customer Access Port) and one or more internal Ports (Provider Access Ports) that each support one RCSI. The Port-mapping S-VLAN component also can have an internal Provider Network Port for service instances that do not require an RCSI.

The Port-mapping S-VLAN component is configured to associate a unique S-VID with each Provider Access Port. Furthermore, each S-VID configured in the Port-mapping S-VLAN component has the Remote Customer Access Port and exactly one other Port in its member set. This ensures that each external service instance is mapped to only one internal port.

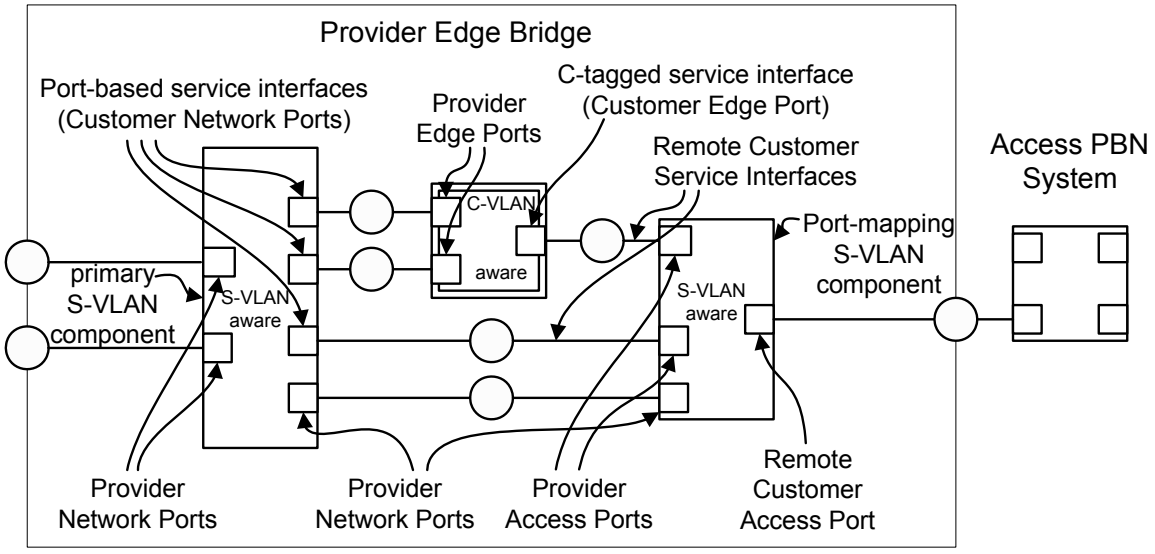

Figure 15-9—RCSIs to a Provider Bridged Network

Each RCSI supported by a Remote Customer Access Port is associated with a Provider Access Port connected via an internal LAN to either a Customer Network Port, providing a Port-based service interface (15.3), or a Customer Edge Port, providing a C-tagged service interface (15.4). The external S-VID mapped to an RCSI identifies a service instance originating at a remote customer interface LAN attached to an access PBN (16.2). To provide separation between the external S-VID space used by the access PBN and the internal S-VID space for this PBN, frames on an RCSI do not carry an S-VLAN tag. When frames transit an RCSI the internal S-VID is set by the PVID of the Customer Network Port and the external S-VID by the PVID of the Provider Access Port.

NOTE—If two Customer Network Ports associated with different RCSIs on the same Remote Customer Access Port belong to the same internal S-VLAN, frames received on the Remote Customer Access Port with one S-VID can be transmitted on that same external port with a different S-VID. This is sometimes referred to as "Hairpin Switching" and is described in 16.2.

In addition to the RCSIs, a Provider Network Port on the Port-mapping S-VLAN component is connected via an internal LAN to a Provider Network Port on the primary S-VLAN component. External service instances that are not associated with an RCSI can be mapped to this Port. This allows multiple service instances to be passed between the PBNs without requiring a separate Port for each service instance. On this interface service frames carry S-VLAN tags and the VID translation table of the Provider Network Port on the S-VLAN component is used to provide independence between internal and external S-VID spaces.

A Provider Edge Bridge can support multiple Remote Customer Access Ports connected to other PBNs. Each Remote Customer Access Port can support multiple RCSIs for one or more customers. Each Remote Customer Access Port is supported by a Port-mapping S-VLAN component as illustrated in Figure 15-10. As shown in the figure, each Port-mapping S-VLAN component with a Remote Customer Access Port can have one Provider Network Port and multiple Provider Access Ports providing either Port-based or C-tagged RCSIs.

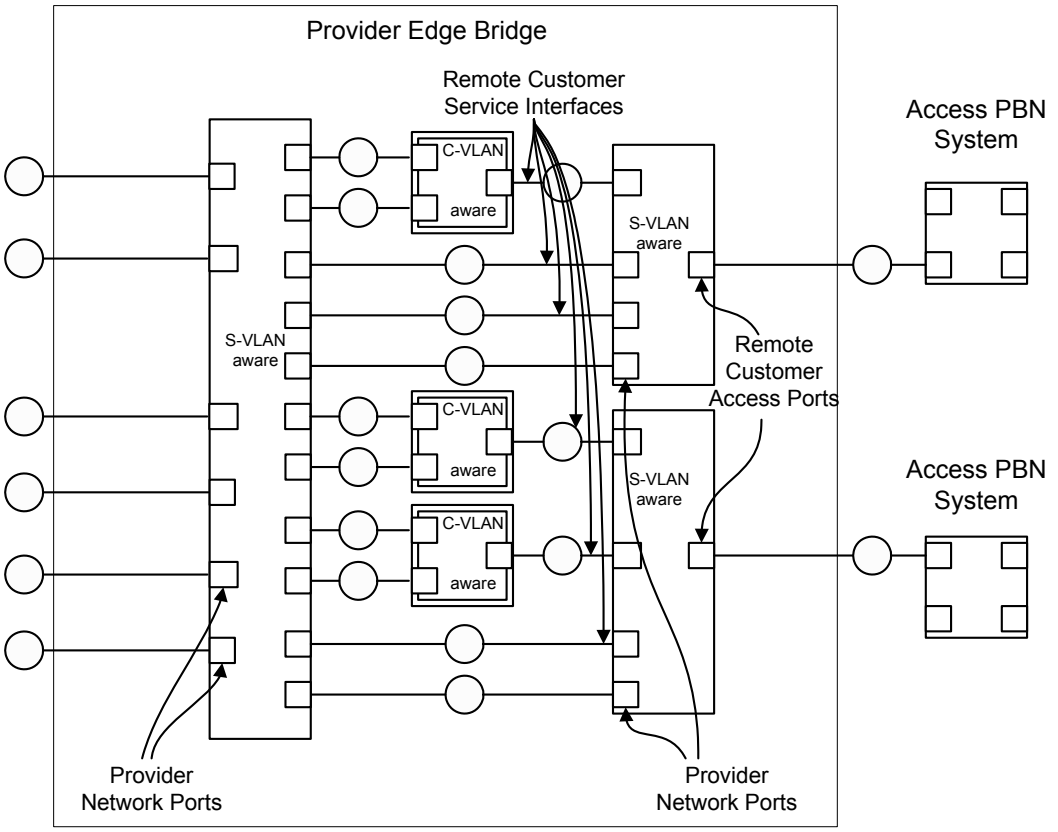

Figure 15-10—Remote Customer Access Ports

Figure 15-11 shows a C-tagged RCSI. Since S-VLAN components are transparent to C-VLAN control PDUs, i.e., PDUs using addresses in Table 8.1 but not in Table 8.2, these control PDUs exchanged via the Customer Edge Port reach the next (e.g., customer controlled) C-VLAN component across the access PBN. S-VLAN control PDUs, using addresses in Table 8.2, exchanged on the Remote Customer Access Port will normally reach the neighboring Provider Bridge in the adjacent PBN.

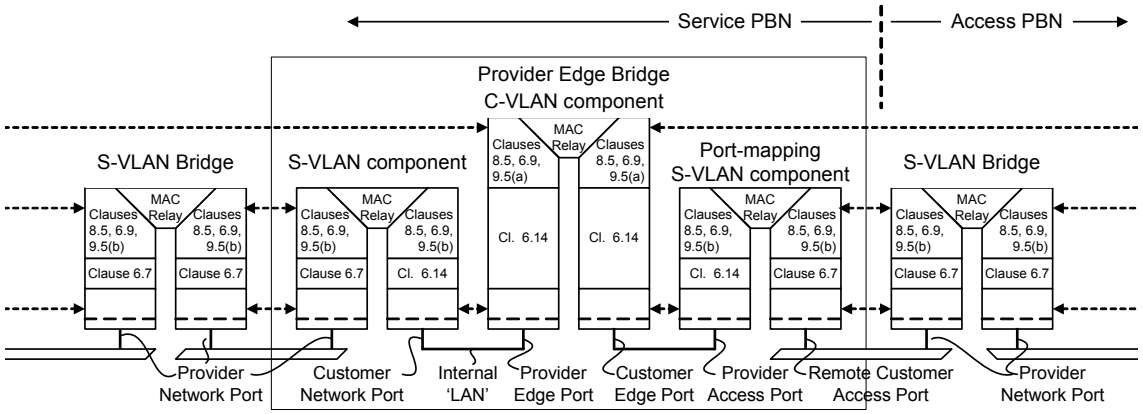

Figure 15-11—C-tagged RCSI to a Provider Bridged Network

Frames traversing the internal LAN between the Port-mapping S-VLAN component and the C-VLAN component do not contain an S-VLAN tag. The S-VID for frames received on this interface by the Port-mapping S-VLAN component is provided by the Provider Access Port's PVID.

Figure 15-12 shows a Port-based RCSI. In this case the Provider Access Port is connected to a Customer Network Port on the S-VLAN component. Frames carried over the internal LAN between the Provider Access Port and Customer Network Port do not contain an S-VLAN tag. An S-VID is provided at each Port by the respective Port's PVID. These S-VIDs are not required to have the same value.

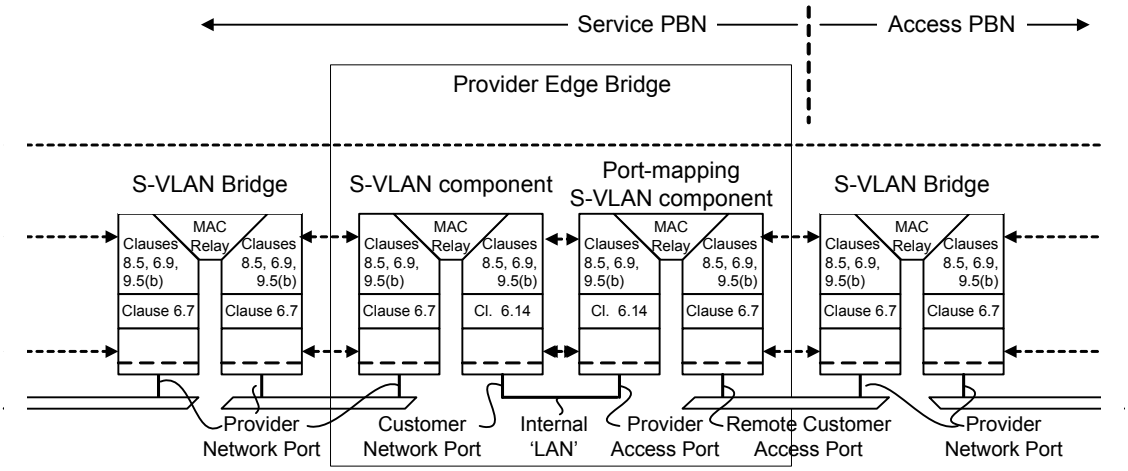

Figure 15-12—Port-based RCSI to a Provider Bridged Network

Figure 15-13 shows the Provider Network Port on the Port-mapping S-VLAN component connected to a Provider Network Port on the S-VLAN component. Service frames carried over this interface have S-VLAN tags and S-VID translation can be performed.

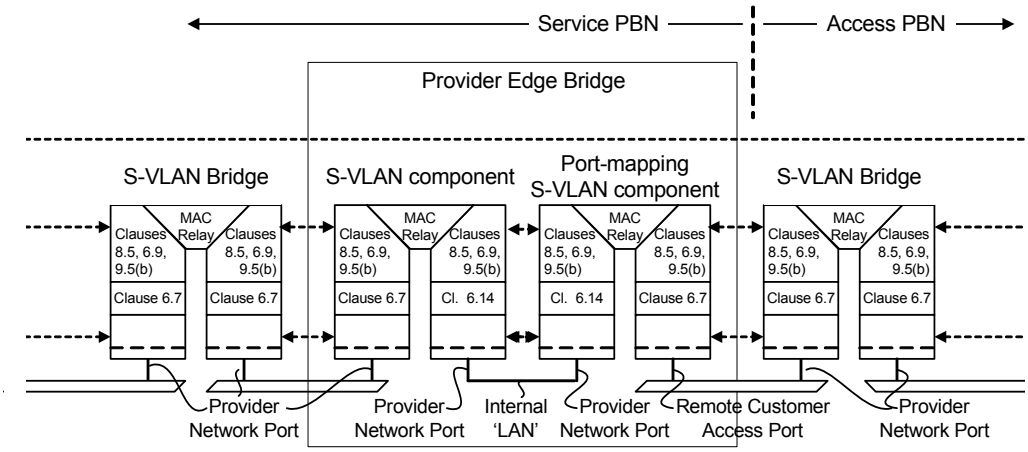

Figure 15-13—Provider Network Port interface

16. Principles of Provider Bridged Network operation

16.2 Provider Bridged Network

Insert the following text, including Figure 16-2 and Figure 16-3, at the end of 16.2:

In some cases a service provider needs to reach a customer interface LAN that is not directly attached to the service provider's network but is attached instead to another PBN. Figure 16-2 shows some examples in which a customer interface LAN is connected to an access PBN that is not the PBN providing service to the customer.

NOTE—The PBN providing access to the customer interface LANs in these examples can provide other services to its own customers as well.

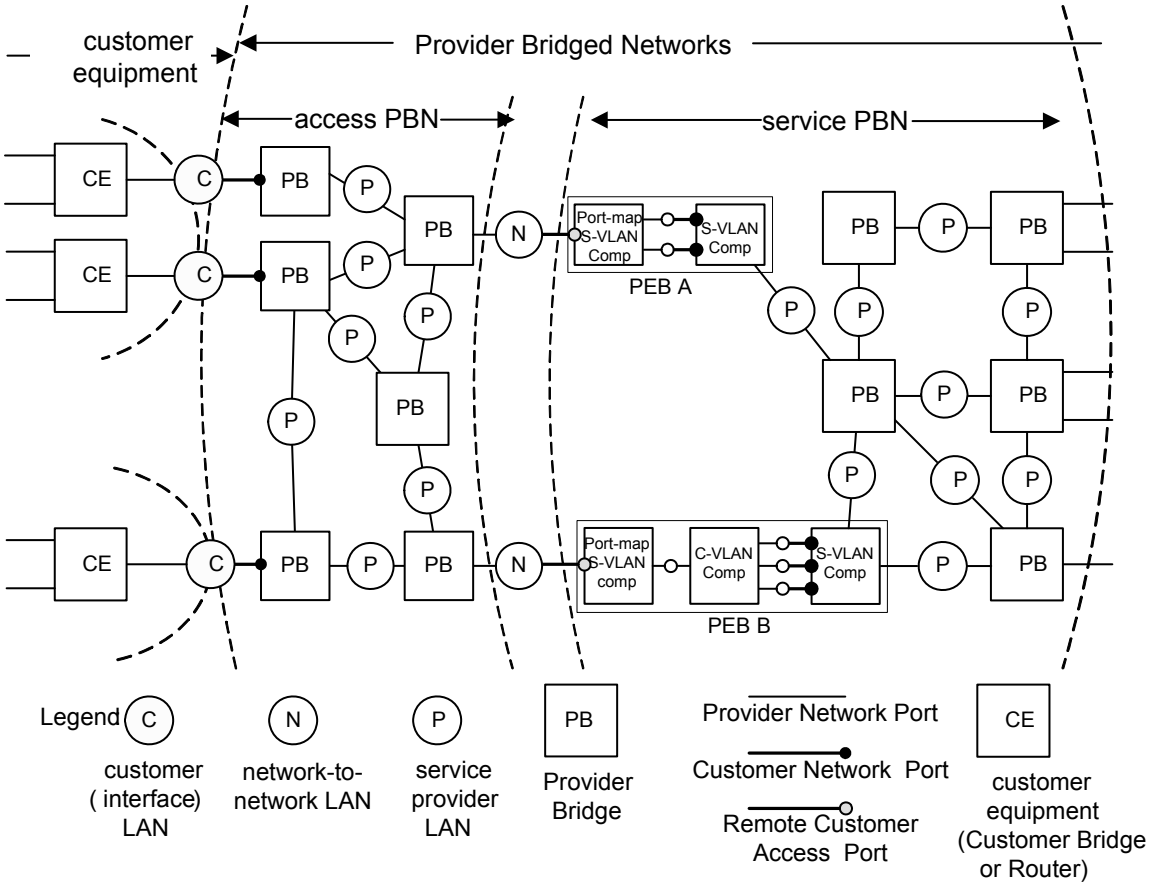

Figure 16-2—Examples of remote customer service access via a second PBN

In these examples the service provider uses a Port-based service provided by the access PBN to reach the customer interface LANs. Each such access service is identified by a distinct S-VID at the network-to-network interface LAN. The service PBN uses this S-VID to select an RCSI that provides either a Port-based or C-Tagged service interface as specified in Clause 15. An RCSI provides service instance selection and identification (15.7) and service management for each customer interface LAN. Each RCSI carries frames to/from a single customer interface LAN.

PEB A in Figure 16-2 receives traffic from two customer interface LANs attached to the access PBN. The traffic from each customer interface LAN is carried over a separate RCSI. In the example shown each RCSI is connected to a Port-based service interface (Customer Network Port). If the two customer interface LANs participate in the same service instance (i.e., their RCSI CNPs belong to the same S-VLAN) a frame received from one RCSI CNP can be transmitted on the other RCSI CNP. Thus a frame received on the network-to-network LAN with one S-VID can be subsequently transmitted on that same external LAN with a different S-VID. This behavior is sometimes called "Hairpin Switching".[2]

The structure allowing a frame to be received and subsequently transmitted on the same external interface while avoiding loops and misdelivery of multicast frames is illustrated in Figure 16-3. Frames from/to CE_1 have S-VID A and frames from/to CE_2 have S-VID B. Thus the two customer interface LANs cannot exchange traffic within the access PBN. In PEB A external S-VIDs A and B select or identify different RCSI Provider Access Ports.

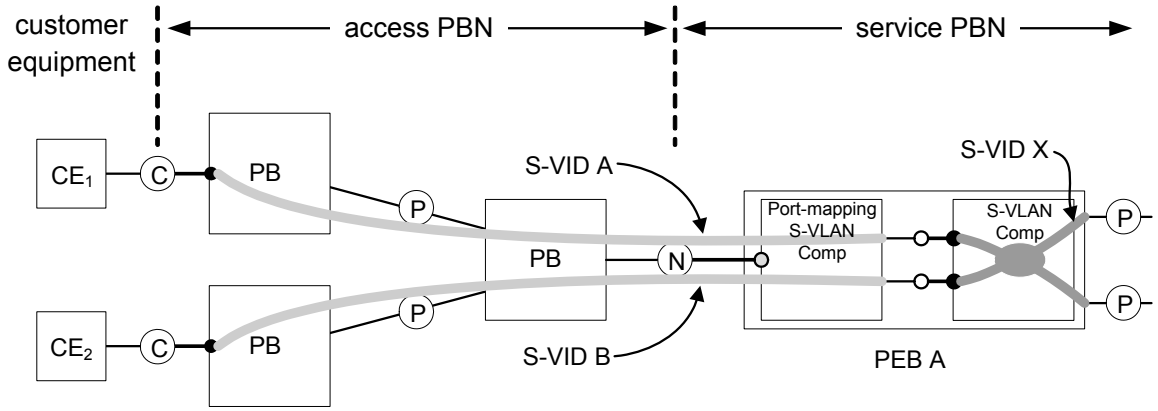

Figure 16-3—Access service separation and "Hairpin Switching"

In this example, both RCSI Customer Network Ports belong to the same internal S-VLAN in the service provider's network identified by S-VID X. Frames can be relayed between all Ports belonging to S-VID X, including between the two RCSIs. When a frame is received on one RCSI and subsequently transmitted on the other RCSI the frame is received and transmitted on the same external Remote Customer Access Port. However, in this case the external S-VIDs in the received and transmitted frames are different. If the sets of endpoints in the access PBN associated with each external S-VID are disjoint there is no possibility of looping or misdelivery of multicast frames.

PEB B in Figure 16-2 receives traffic from a customer interface LAN and provides a C-tagged RCSI (Customer Edge Port). The capabilities of a C-Tagged RCSI are the same as those provided by an external Customer Edge Port as described above.

[2]For example, this behavior is called "Hairpin Switching" in MEF 26 [B6].

17. Management Information Base (MIB)

17.2 Structure of the MIB

17.2.5 Structure of the IEEE8021-PB MIB

Insert the following rows at the end of Table 17-9:

Table 17-9—IEEE8021-PB MIB structure and relationship to this standard

IEEE MIB table	IEEE MIB object	Reference
ieee8021PbRcapTable		12.13.4
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbRcapSComponentId	—
	ieee8021PbRcapRcapPortNumber	—
	ieee8021PbRcapRowStatus	—
ieee8021PbInternalInterfaceTable		12.13.4
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbIiExternalSVid*	—
	ieee8021PbIiInternalPortNumber	—
	ieee8021PbIiInternalPortType	—
	ieee8021PbIiInternalSVid	—
	ieee8021PbIiRowStatus	—

17.4 Security considerations

17.4.5 Security considerations of the IEEE8021-PB MIB

Change 17.4.5 as shown:

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write and/or read-create. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations. These tables and objects and their sensitivity/vulnerability are described below.

The following tables and objects in the PB-MIB could be manipulated to interfere with the operation of virtual LANs. This could, for example, be used to force a reinitialization of state machines to cause network instability, or to change the forwarding and filtering policies.

ieee8021PbProviderBridgePortTable
ieee8021PbVidTranslationTable
ieee8021PbCVidRegistrationTable
ieee8021PbEdgePortTable
ieee8021PbInternalInterfaceTable

17.5 Dynamic component and Port creation

17.5.2 Component creation

17.5.2.3 S-VLAN component creation

Change 17.5.2.3 as shown:

~~The S-VLAN component has no specific component creation rules.~~S-VLAN components are used in two different ways in Bridges. The first is as the S-VLAN component of an S-VLAN Bridge or Provider Edge Bridge or the foundation for an I-component or B-component. The second is as a Port-mapping S-VLAN component in a Provider Edge Bridge.

Provider Edge Bridge Port-mapping S-VLAN components are created implicitly by the creation of a Remote Customer Access Port on the primary S-VLAN component of the Provider Edge Bridge.

17.5.3 Port creation

17.5.3.3 Port creation on S-VLAN components

17.5.3.3.2 Creating CNPs

Change 17.5.3.3.2 as shown:

There are two variants on the creation of CNPs. CNPs are either internal or external. Internal CNPs~~Ports~~ are directly connected to either a PEP on a~~the~~ C-VLAN~~Vlan~~ component or a Provider Access Port on a Port-mapping S-VLAN component of a PEB and provide a C-tagged or Port-based service interface, respectively. External CNPs~~Ports~~ are connected to an external customer system and provide either a Port-based or S-tagged service interface.

a) Creating ~~the CNP external variant~~an external CNP

The external ~~variant of a~~ CNP is used to provide a Port-based or S-tagged service interface to customer of the Provider Bridged Network.

Creating an external CNP ~~of the external variant~~ requires specifying the ~~B-~~component ID and Bridge Port Number of the Port to be created. This is done by creating an entry in the ieee8021PbCnpTable.

This creates a new entry in the ieee8021QBridgePortVlanTable for the provider Bridge's S-VLAN component.

This operation also created a new entry in the ieee8021BridgeBasePortTable.

The implicitly constructed ieee8021BridgeBasePortTable entry will have the following fields filled in:

ieee8021BridgeBasePortComponentId	- As per PbCnpTable
ieee8021BridgeBasePort	- As per PbCnpTable
ieee8021BridgeBasePortIfIndex	- Implementation Specific Action
ieee8021BridgeBasePortDelayExceededDiscards	- Statistic, reset to 0 by creation
ieee8021BridgeBasePortMtuExceededDiscards	- Statistic, reset to 0 by creation
ieee8021BridgeBasePortCapabilties	- Implementation Specific
ieee8021BridgeBasePortTypeCapabilities	- Implementation Specific bit customerNetworkPort(2) must be set
ieee8021BridgeBasePortType	- customerNetworkPort(4)
ieee8021BridgeBasePortExternal	- Implementation Specific

b) Creating ~~the CNP internal variant~~an internal CNP

The internal ~~variant of a~~ CNP is used to provide a C-tagged service interface or a port-based RCSI to the customer of a Provider Bridged Network.

~~The~~An internal CNP, ~~internal variant,~~ together with the associated PEP and the internal connection between them, ~~are~~is created by performing row-create operations for an S-VID in the ieee8021PbEdgePortTable and the corresponding C-VID in the ieee8021PbCvidRegistrationTable. See the discussion on provisioning a C-tagged service interface in 17.6.1.2. An internal CNP together with the associated PAP and the internal connection between them are created by configuring a port-based RCSI, that is, performing a row-create operation on the ieee8021PbInternalInterfaceTable with an ieee8021PbIiInternalPortType of customerNetworkPort.

Internal CNPs are not directly manageable.

17.5.3.3.3 Creating a CEP

Change the first sentence of the first paragraph of 17.5.3.3.3 as shown:

CEPs are created either by doing a row-create operation on the Provider Edge Bridge's CEP table or as a side effect of mapping an external S-VID on a Remote Customer Access Port to a C-tagged RCSI.

Insert the following subclause, 17.5.3.3.4, after 17.5.3.3.3:

17.5.3.3.4 Creating an RCAP

RCAPs are created by doing a row-create operation on the Provider Edge Bridge's RCAP table. The ieee8021PbRcapTable contains the following columns:

ieee8021BridgeBasePortComponentId	- primary S-VLAN component ID that "owns" the RCAP
ieee8021BridgeBasePort	- The Port Number of the RCAP on the primary S-VLAN component.
ieee8021PbRcapSComponentId	- Port-mapping S-VLAN component read only index cross-ref for entity MIB
ieee8021PbRcapRcapPortNumber	- Port-mapping S-VLAN component Port read-only index cross-ref for entity MIB
ieee8021PbRcapRowStatus	- Controls the creation and deletion of the Port

Note that the Port-mapping S-VLAN component containing the newly created RCAP does not appear in the IEEE 802.1 Bridge MIB's list of components. So ieee8021PbRcapSComponentId and the ieee8021PbRcapRcapPortNumber, are index values that are not further interpreted by any IEEE 802.1 MIB.

These index values, if present, can be used in an implementation-dependent manner to allow management stations to cross reference entries in other MIBs, such as the IETF's entity MIB, back to the information managed by the IEEE MIBs.

The newly created Port will be added to the Port list of the primary S-VLAN component of the Provider Edge Bridge.

The implicitly constructed ieee8021BridgeBasePortTable entry will have the following fields filled in:

ieee8021BridgeBasePortComponentId	- As per RcapTable
ieee8021BridgeBasePort	- As per RcapTable
ieee8021BridgeBasePortIfIndex	- Implementation Specific Action
ieee8021BridgeBasePortDelayExceededDiscards	- Statistic, reset to 0 by creation
ieee8021BridgeBasePortMtuExceededDiscards	- Statistic, reset to 0 by creation
ieee8021BridgeBasePortCapabilties	- Implementation Specific
ieee8021BridgeBasePortTypeCapabilities	- Implementation Specific bit remoteCustomerAccessPort(7) must be set
ieee8021BridgeBasePortType	- remoteCustomerAccessPort(9)
ieee8021BridgeBasePortExternal	- Implementation Specific

17.5.3.6 Required post creation operations

Insert the following paragraph after the fourth paragraph ("The association between Provider Edge Ports....") in 17.5.3.6:

The association between Provider Access Ports and Customer Network Ports for PEBs is managed implicitly by the creation of a PAP/CNP pair by mapping an external S-VID on a RCAP to a Port-based RCSI. The association between Provider Access Ports and Customer Edge Ports for PEBs is managed implicitly by the creation of a PAP/CEP pair by mapping an external S-VID on a RCAP to a C-tagged RCSI.

17.7 MIB modules

17.7.1 Definitions for the IEEE8021-TC MIB module

Delete the entire text of 17.7.1, and insert the following text:

```
IEEE8021-TC-MIB DEFINITIONS ::= BEGIN

-- ============================================================
-- TEXTUAL-CONVENTIONs MIB for IEEE 802.1
-- ============================================================

IMPORTS
    MODULE-IDENTITY, Unsigned32, org
        FROM SNMPv2-SMI -- RFC 2578
    TEXTUAL-CONVENTION
        FROM SNMPv2-TC; -- RFC 2579

ieee8021TcMib MODULE-IDENTITY
    LAST-UPDATED "201104060000Z" -- April 6, 2011
    ORGANIZATION "IEEE 802.1 Working Group"
    CONTACT-INFO
        "  WG-URL: http://grouper.ieee.org/groups/802/1/index.html
         WG-EMail: stds-802-1@ieee.org

          Contact: David Levi
           Postal: C/O IEEE 802.1 Working Group
                   IEEE Standards Association
                   445 Hoes Lane
                   P.O. Box 1331
                   Piscataway
                   NJ 08855-1331
                   USA
           E-mail: STDS-802-1-L@LISTSERV.IEEE.ORG

          Contact: Kevin Nolish
           Postal: C/O IEEE 802.1 Working Group
                   IEEE Standards Association
                   445 Hoes Lane
                   P.O. Box 1331
                   Piscataway
                   NJ 08855-1331
                   USA
           E-mail: STDS-802-1-L@LISTSERV.IEEE.ORG"
    DESCRIPTION
        "Textual conventions used throughout the various IEEE 802.1 MIB
         modules.

         Unless otherwise indicated, the references in this MIB
         module are to IEEE 802.1Q-2011.

         Copyright (C) IEEE.
         This version of this MIB module is part of IEEE802.1Q;
         see the draft itself for full legal notices."
    REVISION     "201104060000Z" -- April 6, 2011
    DESCRIPTION
         "Modified textual conventions  to support Remote Customer
          Service Interfaces."
```



```
    REVISION     "201102270000Z" -- February 27, 2011
    DESCRIPTION
         "Minor edits to contact information etc. as part of
          2011 revision of IEEE Std 802.1Q."

    REVISION     "200811180000Z" -- November 18, 2008
    DESCRIPTION
         "Added textual conventions needed to support the IEEE 802.1
          MIBs for PBB-TE.  Additionally, some textual conventions were
          modified for the same reason."

    REVISION     "200810150000Z" -- October 15, 2008
    DESCRIPTION
         "Initial version."
    ::= { org ieee(111) standards-association-numbers-series-standards(2)
          lan-man-stds(802) ieee802dot1(1) 1 1 }

ieee802dot1mibs OBJECT IDENTIFIER
    ::= { org ieee(111) standards-association-numbers-series-standards(2)
          lan-man-stds(802) ieee802dot1(1) 1 }

-- ================================================================
-- Textual Conventions
-- ================================================================

IEEE8021PbbComponentIdentifier ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PB or PBB.  Each
        virtual bridge instance is called a component.  In simple
        situations where there is only a single component the default
        value is 1.  The component is identified by a component
        identifier unique within the BEB and by a MAC address unique
        within the PBBN.  Each component is associated with a Backbone
        Edge Bridge (BEB) Configuration managed object."
    REFERENCE "12.3 l)"
    SYNTAX       Unsigned32 (1..4294967295)

IEEE8021PbbComponentIdentifierOrZero ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PB or PBB.  In simple
        situations where there is only a single component the default
        value is 1.  The component is identified by a component
        identifier unique within the BEB and by a MAC address unique
        within the PBBN.  Each component is associated with a Backbone
        Edge Bridge (BEB) Configuration managed object.

        The special value '0' means 'no component identifier'.  When
        this TC is used as the SYNTAX of an object, that object must
        specify the exact meaning for this value."
    REFERENCE "12.3 l)"
    SYNTAX       Unsigned32 (0 | 1..4294967295)

IEEE8021PbbServiceIdentifier ::= TEXTUAL-CONVENTION
```

```
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "The service instance identifier is used at the Customer
        Backbone Port of a PBB to distinguish a service instance
        (Local-SID). If the Local-SID field is supported, it is
        used to perform a bidirectional 1:1 mapping between the
        Backbone I-SID and the Local-SID. If the Local-SID field
        is not supported, the Local-SID value is the same as the
        Backbone I-SID value."
    REFERENCE "12.16.3, 12.16.5"
    SYNTAX       Unsigned32 (256..16777214)

IEEE8021PbbServiceIdentifierOrUnassigned ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "The service instance identifier is used at the Customer
        Backbone Port of a PBB to distinguish a service instance
        (Local-SID). If the Local-SID field is supported, it is
        used to perform a bidirectional 1:1 mapping between the
        Backbone I-SID and the Local-SID. If the Local-SID field
        is not supported, the Local-SID value is the same as the
        Backbone I-SID value.

        The special value of 1 indicates an unassigned I-SID."
    REFERENCE "12.16.3, 12.16.5"
    SYNTAX       Unsigned32 (1|256..16777214)

IEEE8021PbbIngressEgress ::= TEXTUAL-CONVENTION
    STATUS       current
    DESCRIPTION
        "A 2 bit selector which determines if frames on this VIP may
        ingress to the PBBN but not egress the PBBN, egress to the
        PBBN but not ingress the PBBN, or both ingress and egress
        the PBBN."
    REFERENCE "12.16.3, 12.16.5, 12.16.6"
    SYNTAX       BITS {
                     ingress(0),
                     egress(1)
                 }

IEEE8021PriorityCodePoint ::= TEXTUAL-CONVENTION
    STATUS       current
    DESCRIPTION
        "Bridge ports may encode or decode the PCP value of the
        frames that traverse the port. This textual convention
        names the possible encoding and decoding schemes that
        the port may use.  The priority and drop_eligible
        parameters are encoded in the Priority Code Point (PCP)
        field of the VLAN tag using the Priority Code Point
        Encoding Table for the Port, and they are decoded from
        the PCP using the Priority Code Point Decoding Table."
    REFERENCE "12.6.2.6"
    SYNTAX       INTEGER {
                     codePoint8p0d(1),
                     codePoint7p1d(2),
                     codePoint6p2d(3),
                     codePoint5p3d(4)
```



```
                }

IEEE8021BridgePortNumber ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "An integer that uniquely identifies a bridge port, as
        specified in 17.3.2.2 of IEEE 802.1ap.
        This value is used within the spanning tree
        protocol to identify this port to neighbor bridges."
    REFERENCE "17.3.2.2"
    SYNTAX       Unsigned32 (1..65535)

IEEE8021BridgePortNumberOrZero ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "An integer that uniquely identifies a bridge port, as
        specified in 17.3.2.2 of IEEE 802.1ap.  The value 0
        means no port number, and this must be clarified in the
        DESCRIPTION clause of any object defined using this
        TEXTUAL-CONVENTION."
    REFERENCE "17.3.2.2"
    SYNTAX       Unsigned32 (0..65535)

IEEE8021BridgePortType ::= TEXTUAL-CONVENTION
    STATUS       current
    DESCRIPTION
        "A port type.  The possible port types are:

             customerVlanPort(2) - Indicates a port is a C-tag
                 aware port of an enterprise VLAN aware bridge.

             providerNetworkPort(3) - Indicates a port is an S-tag
                 aware port of a Provider Bridge or Backbone Edge
                 Bridge used for connections within a PBN or PBBN.

             customerNetworkPort(4) - Indicates a port is an S-tag
                 aware port of a Provider Bridge or Backbone Edge
                 Bridge used for connections to the exterior of a
                 PBN or PBBN.

             customerEdgePort(5) - Indicates a port is a C-tag
                 aware port of a Provider Bridge used for connections
                 to the exterior of a PBN or PBBN.

             customerBackbonePort(6) - Indicates a port is a I-tag
                 aware port of a Backbone Edge Bridge's B-component.

             virtualInstancePort(7) - Indicates a port is a virtual
                 S-tag aware port within a Backbone Edge Bridge's
                 I-component which is responsible for handling
                 S-tagged traffic for a specific backbone service
                 instance.

             dBridgePort(8) - Indicates a port is a VLAN-unaware
                 member of an 802.1D bridge.

             remoteCustomerAccessPort (9) - Indicates a port is an
```

```
                S-tag aware port of a Provider Bridge used for
                connections to remote customer interface LANs
                through another PBN."
    REFERENCE   "12.16.1.1.3 h4), 12.16.2.1/2,
                12.13.1.1, 12.13.1.2, 12.15.2.1, 12.15.2.2"
    SYNTAX      INTEGER {
                    none(1),
                    customerVlanPort(2),
                    providerNetworkPort(3),
                    customerNetworkPort(4),
                    customerEdgePort(5),
                    customerBackbonePort(6),
                    virtualInstancePort(7),
                    dBridgePort(8),
                    remoteCustomerAccessPort(9)
                }

IEEE8021VlanIndex ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "A value used to index per-VLAN tables: values of 0 and
        4095 are not permitted.  If the value is between 1 and
        4094 inclusive, it represents an IEEE 802.1Q VLAN-ID with
        global scope within a given bridged domain (see VlanId
        textual convention).  If the value is greater than 4095,
        then it represents a VLAN with scope local to the
        particular agent, i.e., one without a global VLAN-ID
        assigned to it.  Such VLANs are outside the scope of
        IEEE 802.1Q, but it is convenient to be able to manage them
        in the same way using this MIB."
    REFERENCE   "9.6"
    SYNTAX      Unsigned32 (1..4094|4096..4294967295)

IEEE8021VlanIndexOrWildcard ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "A value used to index per-VLAN tables.  The value 0 is not
        permitted, while the value 4095 represents a 'wildcard'
        value.  An object whose SYNTAX is IEEE8021VlanIndexOrWildcard
        must specify in its DESCRIPTION the specific meaning of the
        wildcard value.  If the value is between 1 and
        4094 inclusive, it represents an IEEE 802.1Q VLAN-ID with
        global scope within a given bridged domain (see VlanId
        textual convention).  If the value is greater than 4095,
        then it represents a VLAN with scope local to the
        particular agent, i.e., one without a global VLAN-ID
        assigned to it.  Such VLANs are outside the scope of
        IEEE 802.1Q, but it is convenient to be able to manage them
        in the same way using this MIB."
    REFERENCE   "9.6"
    SYNTAX      Unsigned32 (1..4294967295)

IEEE8021MstIdentifier ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "In an MSTP Bridge, an MSTID, i.e., a value used to identify
```



```
        a spanning tree (or MST) instance.  In the PBB-TE environment
        the value 4094 is used to identify VIDs managed by the PBB-TE
        procedures."
    SYNTAX      Unsigned32 (1..4094)

IEEE8021ServiceSelectorType ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
       "A value that represents a type (and thereby the format)
        of a IEEE8021ServiceSelectorValue.  The value can be one of
        the following:

        ieeeReserved(0)   Reserved for definition by IEEE 802.1
                          recommend to not use zero unless
                          absolutely needed.
        vlanId(1)         12-Bit identifier as described in IEEE802.1Q.
        isid(2)           24-Bit identifier as described in IEEE802.1ah.
        tesid(3)          32 Bit identifier as described below
        ieeeReserved(xx)  Reserved for definition by IEEE 802.1
                          xx values can be [4..7].

        To support future extensions, the IEEE8021ServiceSelectorType
        textual convention SHOULD NOT be sub-typed in object type
        definitions.  It MAY be sub-typed in compliance statements in
        order to require only a subset of these address types for a
        compliant implementation.

        The tesid is used as a service selector for MAs that are present
        in bridges that implement PBB-TE functionality.  A selector of
        this type is interpreted as a 32 bit unsigned value of type
        IEEE8021PbbTeTSidId.  This type is used to index the
        Ieee8021PbbTeTeSidTable to find the ESPs which comprise the TE
        Service Instance named by this TE-SID value.

        Implementations MUST ensure that IEEE8021ServiceSelectorType
        objects and any dependent objects (e.g.,
        IEEE8021ServiceSelectorValue objects) are consistent.  An
        inconsistentValue error MUST be generated if an attempt to
        change an IEEE8021ServiceSelectorType object would, for
        example, lead to an undefined IEEE8021ServiceSelectorValue value."
    SYNTAX      INTEGER {
                    vlanId(1),
                    isid(2),
                    tesid(3)
                }

IEEE8021ServiceSelectorValueOrNone ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "An integer that uniquely identifies a generic MAC service,
         or none.  Examples of service selectors are a VLAN-ID
         (IEEE 802.1Q) and an I-SID (IEEE 802.1ah).

         An IEEE8021ServiceSelectorValueOrNone value is always
         interpreted within the context of an
         IEEE8021ServiceSelectorType value.  Every usage of the
         IEEE8021ServiceSelectorValueOrNone textual convention is
         required to specify the IEEE8021ServiceSelectorType object
```

```
            that provides the context.  It is suggested that the
            IEEE8021ServiceSelectorType object be logically registered
            before the object(s) that use the
            IEEE8021ServiceSelectorValueOrNone textual convention, if
            they appear in the same logical row.

            The value of an IEEE8021ServiceSelectorValueOrNone object
            must always be consistent with the value of the associated
            IEEE8021ServiceSelectorType object.  Attempts to set an
            IEEE8021ServiceSelectorValueOrNone object to a value
            inconsistent with the associated
            IEEE8021ServiceSelectorType must fail with an
            inconsistentValue error.

            The special value of zero is used to indicate that no
            service selector is present or used.  This can be used in
            any situation where an object or a table entry MUST either
            refer to a specific service, or not make a selection.

            Note that a MIB object that is defined using this
            TEXTUAL-CONVENTION SHOULD clarify the meaning of
            'no service' (i.e., the special value 0), as well as the
            maximum value (i.e., 4094, for a VLAN ID)."
        SYNTAX       Unsigned32 (0 | 1..4294967295)

IEEE8021ServiceSelectorValue ::= TEXTUAL-CONVENTION
        DISPLAY-HINT "d"
        STATUS       current
        DESCRIPTION
            "An integer that uniquely identifies a generic MAC service.
             Examples of service selectors are a VLAN-ID (IEEE 802.1Q)
             and an I-SID (IEEE 802.1ah).

             An IEEE8021ServiceSelectorValue value is always interpreted
             within the context of an IEEE8021ServiceSelectorType value.
             Every usage of the IEEE8021ServiceSelectorValue textual
             convention is required to specify the
             IEEE8021ServiceSelectorType object that provides the context.
             It is suggested that the IEEE8021ServiceSelectorType object
             be logically registered before the object(s) that use the
             IEEE8021ServiceSelectorValue textual convention, if they
             appear in the same logical row.

             The value of an IEEE8021ServiceSelectorValue object must
             always be consistent with the value of the associated
             IEEE8021ServiceSelectorType object.  Attempts to set an
             IEEE8021ServiceSelectorValue object to a value inconsistent
             with the associated IEEE8021ServiceSelectorType must fail
             with an inconsistentValue error.

             Note that a MIB object that is defined using this
             TEXTUAL-CONVENTION SHOULD clarify the
             maximum value (i.e., 4094, for a VLAN ID)."
        SYNTAX       Unsigned32 (1..4294967295)

IEEE8021PortAcceptableFrameTypes ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "Acceptable frame types on a port."
```

```
    REFERENCE   "12.10.1.3, 12.13.3.3, 12.13.3.4"
    SYNTAX      INTEGER {
                    admitAll(1),
                    admitUntaggedAndPriority(2),
                    admitTagged(3)
                }

IEEE8021PriorityValue ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "An 802.1Q user priority value."
   REFERENCE   "12.13.3.3"
    SYNTAX      Unsigned32 (0..7)

IEEE8021PbbTeProtectionGroupId ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS       current
    DESCRIPTION
        "The PbbTeProtectionGroupId identifier is used to distinguish
         protection group instances present in the B Component of
         an IB-BEB."
    REFERENCE "12.19.2"
    SYNTAX       Unsigned32 (1..429467295)

IEEE8021PbbTeEsp ::= TEXTUAL-CONVENTION
    STATUS current
    DESCRIPTION
       "This textual convention is used to represent the logical
        components that comprise the 3-tuple that identifies an
        Ethernet Switched Path.  The 3-tuple consists of a
        destination MAC address, a source MAC address and a VID.
        Bytes (1..6) of this textual convention contain the
        ESP-MAC-DA, bytes (7..12) contain the ESP-MAC-SA, and bytes
        (13..14) contain the ESP-VID."
    REFERENCE "802.1Qay 3.2"
    SYNTAX OCTET STRING ( SIZE(14))

IEEE8021PbbTeTSidId ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS current
    DESCRIPTION
       "This textual convention is used to represent an identifier
        that refers to a TE Service Instance.  Note that, internally
        a TE-SID is implementation dependent.  This textual convention
        defines the external representation of TE-SID values."
    REFERENCE
        "802.1Qay 3.11"
    SYNTAX  Unsigned32 (1..42947295)

IEEE8021PbbTeProtectionGroupConfigAdmin ::= TEXTUAL-CONVENTION
    STATUS current
    DESCRIPTION
        "This textual convention is used to represent administrative
        commands that can be issued to a protection group.  The value
        noAdmin(1) is used to indicate that no administrative action
        is to be performed."
    REFERENCE "26.10.3.3.5
               26.10.3.3.6
```

```
               26.10.3.3.7
               12.19.2.3.2"
    SYNTAX    INTEGER {
                 clear(1),
                 lockOutProtection(2),
                 forceSwitch(3),
                 manualSwitchToProtection(4),
                 manualSwitchToWorking(5)
              }

IEEE8021PbbTeProtectionGroupActiveRequests ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION
       "This textual convention is used to represent the status of
        active requests within a protection group."
    REFERENCE
       "12.19.2.1.3 d)"
   SYNTAX   INTEGER {
               noRequest(1),
               loP(2),
               fs(3),
               pSFH(4),
               wSFH(5),
               manualSwitchToProtection(6),
               manualSwitchToWorking(7)
            }

END
```


17.7.2 Definitions for the IEEE8021-BRIDGE MIB module

Delete the entire text of 17.7.2, and insert the following text:

```
IEEE8021-BRIDGE-MIB DEFINITIONS ::= BEGIN

-- ============================================================
-- MIB for IEEE 802.1D devices
-- ============================================================
IMPORTS
    MODULE-IDENTITY, OBJECT-TYPE,
    Integer32, Counter64
        FROM SNMPv2-SMI
    RowStatus, MacAddress, TruthValue, TimeInterval
        FROM SNMPv2-TC
    MODULE-COMPLIANCE, OBJECT-GROUP
        FROM SNMPv2-CONF
    ifIndex, InterfaceIndexOrZero, ifGeneralInformationGroup
        FROM IF-MIB
    ieee802dot1mibs, IEEE8021PbbComponentIdentifier,
    IEEE8021BridgePortNumber, IEEE8021PriorityCodePoint,
    IEEE8021BridgePortType, IEEE8021PriorityValue
        FROM IEEE8021-TC-MIB
    SnmpAdminString
        FROM SNMP-FRAMEWORK-MIB
    systemGroup
        FROM SNMPv2-MIB
    ;

ieee8021BridgeMib MODULE-IDENTITY
    LAST-UPDATED "201104060000Z" -- April 6, 2011
    ORGANIZATION "IEEE 802.1 Working Group"
    CONTACT-INFO
        "  WG-URL: http://grouper.ieee.org/groups/802/1/index.html
         WG-EMail: stds-802-1@ieee.org

           Contact: David Levi
            Postal: C/O IEEE 802.1 Working Group
                    IEEE Standards Association
                    445 Hoes Lane
                    P.O. Box 1331
                    Piscataway
                    NJ 08855-1331
                    USA
            E-mail: STDS-802-1-L@LISTSERV.IEEE.ORG"
    DESCRIPTION
        "The Bridge MIB module for managing devices that support
        IEEE 802.1D.  This MIB module is derived from the IETF
        BRIDGE-MIB, RFC 4188.

        Unless otherwise indicated, the references in this MIB
        module are to IEEE Std 802.1Q-2011.

        Copyright (C) IEEE.
        This version of this MIB module is part of IEEE802.1Q;
        see the draft itself for full legal notices."
    REVISION     "201104060000Z" -- April 6, 2011
    DESCRIPTION
```

```
          "Modifications to support Remote Customer Service
           Interfaces."
    REVISION     "201102270000Z" -- February 27, 2011
    DESCRIPTION
          "Minor edits to contact information etc. as part of
           2011 revision of IEEE Std 802.1Q."

    REVISION     "200810150000Z" -- October 15, 2008
    DESCRIPTION
          "Initial revision, derived from RFC 4188."
    ::= { ieee802dot1mibs 2 }

-- ============================================================
-- subtrees in the Bridge MIB
-- ============================================================

ieee8021BridgeNotifications
    OBJECT IDENTIFIER ::= { ieee8021BridgeMib 0 }

ieee8021BridgeObjects
    OBJECT IDENTIFIER ::= { ieee8021BridgeMib 1 }

ieee8021BridgeConformance
    OBJECT IDENTIFIER ::= { ieee8021BridgeMib 2 }

ieee8021BridgeBase
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 1 }
ieee8021BridgeTp
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 2 }
ieee8021BridgePriority
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 3 }
ieee8021BridgeMrp
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 4 }
ieee8021BridgeMmrp
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 5 }
ieee8021BridgeInternalLan
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 6 }
ieee8021BridgeDot1d
    OBJECT IDENTIFIER ::= { ieee8021BridgeObjects 7 }

-- ============================================================
-- the ieee8021BridgeBase subtree
-- ============================================================
-- Implementation of the ieee8021BridgeBase subtree is mandatory
-- for all bridges.
-- ============================================================

-- ============================================================
-- the ieee8021BridgeBaseTable
-- ============================================================
ieee8021BridgeBaseTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgeBaseEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains generic information about every
        bridge component.  All writable objects in this table
        must be persistent over power up restart/reboot."
    REFERENCE   "12.4.1"
```



```
    ::= { ieee8021BridgeBase 1 }

ieee8021BridgeBaseEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeBaseEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of objects containing information for each bridge
        component."
    INDEX  { ieee8021BridgeBaseComponentId }
    ::= { ieee8021BridgeBaseTable 1 }

Ieee8021BridgeBaseEntry ::=
    SEQUENCE {
        ieee8021BridgeBaseComponentId
            IEEE8021PbbComponentIdentifier,
        ieee8021BridgeBaseBridgeAddress
            MacAddress,
        ieee8021BridgeBaseNumPorts
            Integer32,
        ieee8021BridgeBaseComponentType
            INTEGER,
        ieee8021BridgeBaseDeviceCapabilities
            BITS,
        ieee8021BridgeBaseTrafficClassesEnabled
            TruthValue,
        ieee8021BridgeBaseMmrpEnabledStatus
            TruthValue,
        ieee8021BridgeBaseRowStatus
            RowStatus
    }

ieee8021BridgeBaseComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
        value is 1."
    ::= { ieee8021BridgeBaseEntry 1 }

ieee8021BridgeBaseBridgeAddress OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The MAC address used by this bridge when it must be
        referred to in a unique fashion.  It is recommended
        that this be the numerically smallest MAC address of
        all ports that belong to this bridge.  However, it is
        only required to be unique.  When concatenated with
        ieee8021SpanningTreePriority, a unique BridgeIdentifier
        is formed, which is used in the Spanning Tree Protocol.

        This object may not be modified while the corresponding
        instance of ieee8021BridgeBaseRowStatus is active(1).
```

```
        The value of this object MUST be retained across
        reinitializations of the management system."
    REFERENCE   "12.4.1.1.3 a)"
    ::= { ieee8021BridgeBaseEntry 2 }

ieee8021BridgeBaseNumPorts OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "ports"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of ports controlled by this bridging
        entity."
    REFERENCE   "12.4.1.1.3 c)"
    ::= { ieee8021BridgeBaseEntry 3 }

ieee8021BridgeBaseComponentType OBJECT-TYPE
    SYNTAX      INTEGER {
                    iComponent(1),
                    bComponent(2),
                    cVlanComponent(3),
                    sVlanComponent(4),
                    dBridgeComponent(5)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the component type(s) of this bridge.  The
        following component types are possible:

            iComponent(1) - An S-VLAN component of a Backbone
                Edge Bridge which performs encapsulation of customer
                frames.

            bComponent(2) - An S-VLAN component of a Backbone
                Edge Bridge which bundles backbone service instances
                into B-VLANs.

            cVlanComponent(3) - A C-VLAN component of an
                enterprise VLAN bridge or of a Provider Bridge used
                to process C-tagged frames.

            sVlanComponent(4) - An S-VLAN component of a
                Provider Bridge.

            dBridgeComponent(5) - A VLAN unaware component of an
                802.1D bridge.

        This object may not be modified while the corresponding
        instance of ieee8021BridgeBaseRowStatus is active(1).

        The value of this object MUST be retained across
        reinitializations of the management system."
    REFERENCE   "12.3 m)"
    ::= { ieee8021BridgeBaseEntry 4 }

ieee8021BridgeBaseDeviceCapabilities OBJECT-TYPE
    SYNTAX      BITS {
        dot1dExtendedFilteringServices(0),
```



```
        dot1dTrafficClasses(1),
        dot1qStaticEntryIndividualPort(2),
        dot1qIVLCapable(3),
        dot1qSVLCapable(4),
        dot1qHybridCapable(5),
        dot1qConfigurablePvidTagging(6),
        dot1dLocalVlanCapable(7)
    }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the optional parts of IEEE 802.1D and 802.1Q
        that are implemented by this device and are manageable
        through this MIB.  Capabilities that are allowed on a
        per-port basis are indicated in
        ieee8021BridgeBasePortCapabilities.

        dot1dExtendedFilteringServices(0),
                            -- can perform filtering of
                            -- individual multicast addresses
                            -- controlled by MMRP.
        dot1dTrafficClasses(1),
                            -- can map user priority to
                            -- multiple traffic classes.
        dot1qStaticEntryIndividualPort(2),
                            -- dot1qStaticUnicastReceivePort &
                            -- dot1qStaticMulticastReceivePort
                            -- can represent non-zero entries.
        dot1qIVLCapable(3),   -- Independent VLAN Learning (IVL).
        dot1qSVLCapable(4),   -- Shared VLAN Learning (SVL).
        dot1qHybridCapable(5),
                            -- both IVL & SVL simultaneously.
        dot1qConfigurablePvidTagging(6),
                            -- whether the implementation
                            -- supports the ability to
                            -- override the default PVID
                            -- setting and its egress status
                            -- (VLAN-Tagged or Untagged) on
                            -- each port.
        dot1dLocalVlanCapable(7)
                            -- can support multiple local
                            -- bridges, outside of the scope
                            -- of 802.1Q defined VLANs.

        This object may not be modified while the corresponding
        instance of ieee8021BridgeBaseRowStatus is active(1).

        The value of this object MUST be retained across
        reinitializations of the management system."
    REFERENCE   "12.10.1.1.3 b)"
    ::= { ieee8021BridgeBaseEntry 5 }

ieee8021BridgeBaseTrafficClassesEnabled OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value true(1) indicates that Traffic Classes are
        enabled on this bridge.  When false(2), the bridge
```

```
        operates with a single priority level for all traffic.

        This object may be modified while the corresponding
        instance of ieee8021BridgeBaseRowStatus is active(1).

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { true }
    ::= { ieee8021BridgeBaseEntry 6 }

ieee8021BridgeBaseMmrpEnabledStatus OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The administrative status requested by management for
        MMRP.  The value true(1) indicates that MMRP should
        be enabled on this device, in all VLANs, on all ports
        for which it has not been specifically disabled.  When
        false(2), MMRP is disabled, in all VLANs and on all
        ports, and all MMRP packets will be forwarded
        transparently.  This object affects both Applicant and
        Registrar state machines.  A transition from false(2)
        to true(1) will cause a reset of all MMRP state
        machines on all ports.

        This object may be modified while the corresponding
        instance of ieee8021BridgeBaseRowStatus is active(1).

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { true }
    ::= { ieee8021BridgeBaseEntry 7 }

ieee8021BridgeBaseRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The object indicates the status of an entry, and is used
        to create/delete entries.

        The following objects must be set prior to making a new
        entry active:
            ieee8021BridgeBaseBridgeAddress
            ieee8021BridgeBaseComponentType
            ieee8021BridgeBaseDeviceCapabilities
        It is recommended that these three objects not be allowed
        to be modified while the corresponding instance of
        ieee8021BridgeBaseRowStatus object is active(1).

        The following objects are not required to be set before
        making a new entry active (they will take their defaults),
        and they also may be modified while the corresponding
        instance of this object is active(1):
            ieee8021BridgeBaseTrafficClassesEnabled
            ieee8021BridgeBaseMmrpEnabledStatus

        The value of this object and all corresponding instances
```



```
        of other objects in this table MUST be retained across
        reinitializations of the management system."
    ::= { ieee8021BridgeBaseEntry 8 }

-- ============================================================
-- The Generic Bridge Port Table
-- ============================================================
ieee8021BridgeBasePortTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgeBasePortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains generic information about every
        port that is associated with this bridge.  Transparent,
        and source-route ports are included."
    REFERENCE   "12.4.2"
    ::= { ieee8021BridgeBase 4 }

ieee8021BridgeBasePortEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeBasePortEntry
    MAX-ACCESS  not-accessible
    STATUS      current

    DESCRIPTION
        "A list of objects containing information for each port
         of the bridge."
    INDEX  { ieee8021BridgeBasePortComponentId,
             ieee8021BridgeBasePort }
    ::= { ieee8021BridgeBasePortTable 1 }

Ieee8021BridgeBasePortEntry ::=
    SEQUENCE {
        ieee8021BridgeBasePortComponentId
            IEEE8021PbbComponentIdentifier,
        ieee8021BridgeBasePort
            IEEE8021BridgePortNumber,
        ieee8021BridgeBasePortIfIndex
            InterfaceIndexOrZero,
        ieee8021BridgeBasePortDelayExceededDiscards
            Counter64,
        ieee8021BridgeBasePortMtuExceededDiscards
            Counter64,
        ieee8021BridgeBasePortCapabilities
            BITS,
        ieee8021BridgeBasePortTypeCapabilities
            BITS,
        ieee8021BridgeBasePortType
            IEEE8021BridgePortType,
        ieee8021BridgeBasePortExternal
            TruthValue,
        ieee8021BridgeBasePortAdminPointToPoint
            INTEGER,
        ieee8021BridgeBasePortOperPointToPoint
            TruthValue,
        ieee8021BridgeBasePortName
            SnmpAdminString
    }

ieee8021BridgeBasePortComponentId OBJECT-TYPE
```

```
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
        value is 1."
    ::= { ieee8021BridgeBasePortEntry 1 }

ieee8021BridgeBasePort OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The port number of the port for which this entry
        contains bridge management information."
    REFERENCE   "12.4.2.1.2 a)"
    ::= { ieee8021BridgeBasePortEntry 2 }

ieee8021BridgeBasePortIfIndex OBJECT-TYPE
    SYNTAX      InterfaceIndexOrZero
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
       "The value of the instance of the IfIndex object,
         defined in the IF-MIB, for the interface corresponding
         to this port, or the value 0 if the port has not been
         bound to an underlying frame source and sink.

         It is an implementation specific decision as to whether this object
         may be modified if it has been created or if 0 is a legal value.

         The underlying IfEntry indexed by this column must be persistent
         across reinitializations of the management system."
    ::= { ieee8021BridgeBasePortEntry 3 }

ieee8021BridgeBasePortDelayExceededDiscards OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "frames"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of frames discarded by this port due
        to excessive transit delay through the bridge.  It
        is incremented by both transparent and source
        route bridges.

        Discontinuities in the value of the counter can occur
        at re-initialization of the management system, and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime object of the associated
        interface (if any)."
    REFERENCE   "12.6.1.1.3 f)"
    ::= { ieee8021BridgeBasePortEntry 4 }

ieee8021BridgeBasePortMtuExceededDiscards OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "frames"
```



```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of frames discarded by this port due
        to an excessive size.  It is incremented by both
        transparent and source route bridges.

        Discontinuities in the value of the counter can occur
        at re-initialization of the management system, and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime object of the associated
        interface (if any)."
    REFERENCE   "12.6.1.1.3 g)"
    ::= { ieee8021BridgeBasePortEntry 5 }

ieee8021BridgeBasePortCapabilities OBJECT-TYPE
    SYNTAX      BITS {
        dot1qDot1qTagging(0),
        dot1qConfigurableAcceptableFrameTypes(1),
        dot1qIngressFiltering(2)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Indicates the parts of IEEE 802.1D and 802.1Q that are
        optional on a per-port basis, that are implemented by
        this device, and that are manageable through this MIB.

        dot1qDot1qTagging(0), -- supports 802.1Q VLAN tagging of
                              -- frames and MVRP.
        dot1qConfigurableAcceptableFrameTypes(1),
                              -- allows modified values of
                              -- dot1qPortAcceptableFrameTypes.
        dot1qIngressFiltering(2)
                              -- supports the discarding of any
                              -- frame received on a Port whose
                              -- VLAN classification does not
                              -- include that Port in its Member
                              -- set."
    REFERENCE   "12.10.1.1.3 c)"
    ::= { ieee8021BridgeBasePortEntry 6 }

ieee8021BridgeBasePortTypeCapabilities OBJECT-TYPE
    SYNTAX      BITS {
                    customerVlanPort(0),
                    providerNetworkPort(1),
                    customerNetworkPort(2),
                    customerEdgePort(3),
                    customerBackbonePort(4),
                    virtualInstancePort(5),
                    dBridgePort(6),
                    remoteCustomerAccessPort(7)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Indicates the capabilities of this port.  The corresponding
         instance of ieee8021BridgeBasePortType can potentially take
         any of the values for which the corresponding bit in this
```

```
          object is 1.  The possible port types are as follows:

              customerVlanPort(0) - Indicates the port can be a C-tag
                  aware port of an enterprise VLAN aware bridge.

              providerNetworkPort(1) - Indicates the port can be an
                  S-tag aware port of a Provider Bridge or Backbone
                  Edge Bridge used for connections within a PBN or
                  PBBN.

              customerNetworkPort(2) - Indicates the port can be an
                  S-tag aware port of a Provider Bridge or Backbone
                  Edge Bridge used for connections to the exterior of
                  a PBN or PBBN.

              customerEdgePort(3) - Indicates the port can be a C-tag
                  aware port of a Provider Bridge used for connections
                  to the exterior of a PBN or PBBN.

              customerBackbonePort(4) - Indicates the port can be a
                  I-tag aware port of a Backbone Edge Bridge's
                  B-component.

              virtualInstancePort(5) - Indicates the port can be a
                  virtual S-tag aware port within a Backbone Edge
                  Bridge's I-component which is responsible for
                  handling S-tagged traffic for a specific backbone
                  service instance.

              dBridgePort(6) - Indicates the port can be a VLAN-unaware
                  member of an 802.1D bridge.

              remoteCustomerAccessPort(7) - Indicates the port can be an
                  S-tag aware port of a Provider Bridge capable of providing
                  Remote Customer Service Interfaces."
      REFERENCE   "12.16.1.1.3 h4), 12.16.2.1/2,
                   12.13.1.1, 12.13.1.2, 12.15.2.1, 12.15.2.2"
      ::= { ieee8021BridgeBasePortEntry 7 }

ieee8021BridgeBasePortType OBJECT-TYPE
      SYNTAX      IEEE8021BridgePortType
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "The port type.  This value must be persistent over power up
           restart/reboot."
      REFERENCE   "12.16.1.1.3 h4), 12.16.2.1/2,
                   12.13.1.1, 12.13.1.2, 12.15.2.1, 12.15.2.2"
      ::= { ieee8021BridgeBasePortEntry 8 }

ieee8021BridgeBasePortExternal OBJECT-TYPE
      SYNTAX      TruthValue
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "A boolean indicating whether the port is external.  A value of
          true(1) means the port is external.  A value of false(2) means
          the port is internal."
      REFERENCE   "12.16.1.1.3 h4)"
```



```
    ::= { ieee8021BridgeBasePortEntry 9 }

ieee8021BridgeBasePortAdminPointToPoint OBJECT-TYPE
    SYNTAX      INTEGER {
                    forceTrue(1),
                    forceFalse(2),
                    auto(3)
                }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
         "For a port running spanning tree, this object represents the
         administrative point-to-point status of the LAN segment
         attached to this port, using the enumeration values of
         6.4.3.  A value of forceTrue(1) indicates
         that this port should always be treated as if it is
         connected to a point-to-point link.  A value of
         forceFalse(2) indicates that this port should be treated as
         having a shared media connection.  A value of auto(3)
         indicates that this port is considered to have a
         point-to-point link if it is an Aggregator and all of its
         members are aggregatable, or if the MAC entity
         is configured for full duplex operation, either through
         auto-negotiation or by management means.  Manipulating this
         object changes the underlying adminPointToPointMAC.

         For a VIP, the adminPointToPointMAC parameter controls
         the mechanism by which the Default Backbone Destination
         parameter for the VIP is determined.  For a backbone
         service instance that includes only 2 VIPs, the value
         may be set to forceTrue(1) which permits dynamic learning
         of the Default Backbone Destination parameter.  For a
         backbone service instance that includes more than 2 VIPs,
         the value must be set to ForceFalse(2) or auto(3).

         When this object is set to forceTrue(1) for a VIP, the
         Default Backbone Destination parameter is modified by
         the subsequent M_UNITDATA.indications as specified in
         6.10.1 (and described in 26.4.1).  Whenever the parameter
         is set to ForceFalse(2) or auto(3), the value for the
         Default Backbone Destination parameter is set to the
         Backbone Service Instance Group Address for the VIP-ISID.

         The value of this object MUST be retained across
         reinitializations of the management system."
    REFERENCE   "6.6.3, 6.10, 12.8.2.1.3 o), 12.8.2.3.2 f), 26.4.1"
    DEFVAL { forceFalse }
    ::= { ieee8021BridgeBasePortEntry 10 }

ieee8021BridgeBasePortOperPointToPoint OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For a port running spanning tree, this object represents
         the operational point-to-point status of the LAN segment
         attached to this port.  It indicates whether a port is
         considered to have a point-to-point connection.
         If adminPointToPointMAC is set to auto(2), then the value
```

```
            of operPointToPointMAC is determined in accordance with the
            specific procedures defined for the MAC entity concerned,
            as defined in 6.5 of IEEE 802.1w.  The value is
            determined dynamically; that is, it is re-evaluated whenever
            the value of adminPointToPointMAC changes, and whenever
            the specific procedures defined for the MAC entity evaluate
            a change in its point-to-point status.

            For a VIP, this object simply reflects the value of the
            corresponding instance of ieee8021BridgeBasePortAdminPointToPoint.
            The value will be true(1) if that object is forceTrue(1), and
            the value will be false(2) if the value of that object is either
            forceFalse(2) or auto(3)."
        REFERENCE   "6.6.3, 6.10, 12.8.2.1.3 p), 12.8.2.3.2 f), 26.4.1"
        ::= { ieee8021BridgeBasePortEntry 11 }

ieee8021BridgeBasePortName OBJECT-TYPE
        SYNTAX      SnmpAdminString
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
                  "A  text  string  of  up  to  32  characters,  of  locally  determined
significance."
        REFERENCE   "12.4.2.1.3 a)"
        ::= { ieee8021BridgeBasePortEntry 12 }

-- ============================================================
-- the ieee8021BridgeTp subtree
-- ============================================================
-- This is implemented by those bridges that support the
-- transparent bridging mode.  A transparent bridge will
-- implement this subtree.
-- ============================================================

-- ============================================================
--  Port Table for Transparent Bridges
-- ============================================================

ieee8021BridgeTpPortTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF Ieee8021BridgeTpPortEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "A table that contains information about every port that
            is associated with this transparent bridge."
        REFERENCE   "12.4.2, C.4"
        ::= { ieee8021BridgeTp 1 }

ieee8021BridgeTpPortEntry OBJECT-TYPE
        SYNTAX      Ieee8021BridgeTpPortEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "A list of objects containing information for each port of
             a transparent bridge."
        INDEX   { ieee8021BridgeTpPortComponentId,
                  ieee8021BridgeTpPort }
        ::= { ieee8021BridgeTpPortTable 1 }
```

```
Ieee8021BridgeTpPortEntry ::=
    SEQUENCE {
        ieee8021BridgeTpPortComponentId
            IEEE8021PbbComponentIdentifier,
        ieee8021BridgeTpPort
            IEEE8021BridgePortNumber,
        ieee8021BridgeTpPortMaxInfo
            Integer32,
        ieee8021BridgeTpPortInFrames
            Counter64,
        ieee8021BridgeTpPortOutFrames
            Counter64,
        ieee8021BridgeTpPortInDiscards
            Counter64
    }

ieee8021BridgeTpPortComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
        value is 1."
    ::= { ieee8021BridgeTpPortEntry 1 }

ieee8021BridgeTpPort OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The port number of the port for which this entry
        contains Transparent bridging management information."
    ::= { ieee8021BridgeTpPortEntry 2 }

ieee8021BridgeTpPortMaxInfo OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bytes"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The maximum size of the INFO (non-MAC) field that
        this port will receive or transmit."
    ::= { ieee8021BridgeTpPortEntry 3 }

ieee8021BridgeTpPortInFrames OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "frames"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of frames that have been received by this
        port from its segment.  Note that a frame received on the
        interface corresponding to this port is only counted by
        this object if and only if it is for a protocol being
        processed by the local bridging function, including
        bridge management frames.
```

```
        Discontinuities in the value of the counter can occur
        at re-initialization of the management system, and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime object of the associated
        interface (if any)."
    REFERENCE   "12.6.1.1.3 a)"
    ::= { ieee8021BridgeTpPortEntry 4 }

ieee8021BridgeTpPortOutFrames OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "frames"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of frames that have been transmitted by this
        port to its segment.  Note that a frame transmitted on
        the interface corresponding to this port is only counted
        by this object if and only if it is for a protocol being
        processed by the local bridging function, including
        bridge management frames.

        Discontinuities in the value of the counter can occur
        at re-initialization of the management system, and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime object of the associated
        interface (if any)."
    REFERENCE   "12.6.1.1.3 d)"
    ::= { ieee8021BridgeTpPortEntry 5 }

ieee8021BridgeTpPortInDiscards OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "frames"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of received valid frames that were discarded
        (i.e., filtered) by the Forwarding Process.

        Discontinuities in the value of the counter can occur
        at re-initialization of the management system, and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime object of the associated
        interface (if any)."
    REFERENCE   "12.6.1.1.3 c)"
    ::= { ieee8021BridgeTpPortEntry 6 }

-- ============================================================
-- the ieee8021BridgePriority subtree
-- ============================================================

-- ============================================================
-- Port Priority Table
-- ============================================================

ieee8021BridgePortPriorityTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

```
        "A table that contains information about every port that
        is associated with this transparent bridge."
    ::= { ieee8021BridgePriority 1 }

ieee8021BridgePortPriorityEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of Default User Priorities for each port of a
        transparent bridge.  This is indexed by
        ieee8021BridgeBasePortComponentId and
        ieee8021BridgeBasePort."
    AUGMENTS { ieee8021BridgeBasePortEntry }
    ::= { ieee8021BridgePortPriorityTable 1 }

Ieee8021BridgePortPriorityEntry ::=
    SEQUENCE {
        ieee8021BridgePortDefaultUserPriority
            IEEE8021PriorityValue,
        ieee8021BridgePortNumTrafficClasses
            Integer32,
        ieee8021BridgePortPriorityCodePointSelection
            IEEE8021PriorityCodePoint,
        ieee8021BridgePortUseDEI
            TruthValue,
        ieee8021BridgePortRequireDropEncoding
            TruthValue,
        ieee8021BridgePortServiceAccessPrioritySelection
            TruthValue
    }

ieee8021BridgePortDefaultUserPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The default ingress User Priority for this port.  This
        only has effect on media, such as Ethernet, that do not
        support native User Priority.

        The value of this object MUST be retained across
        reinitializations of the management system."
    ::= { ieee8021BridgePortPriorityEntry 1 }

ieee8021BridgePortNumTrafficClasses OBJECT-TYPE
    SYNTAX      Integer32 (1..8)
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The number of egress traffic classes supported on this
        port.  This object may optionally be read-only.

        The value of this object MUST be retained across
        reinitializations of the management system."
    ::= { ieee8021BridgePortPriorityEntry 2 }

ieee8021BridgePortPriorityCodePointSelection OBJECT-TYPE
    SYNTAX      IEEE8021PriorityCodePoint
```

```
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        " This object identifies the rows in the PCP encoding and
          decoding tables that are used to remark frames on this
          port if this remarking is enabled."
    REFERENCE   "12.6.2.6, 12.6.2.7"
    ::= { ieee8021BridgePortPriorityEntry 3 }

ieee8021BridgePortUseDEI OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "If the Use_DEI is set to true(1) for the Port then the
        drop_eligible parameter is encoded in the DEI of transmitted
        frames, and the drop_eligible parameter shall be true(1) for a
        received frame if the DEI is set in the VLAN tag or the Priority
        Code Point Decoding Table indicates drop_eligible True for
        the received PCP value. If the Use_DEI parameter is false(2),
        the DEI shall be transmitted as zero and ignored on receipt.
        The default value of the Use_DEI parameter is false(2)."
    REFERENCE   "12.6.2.12, 12.6.2.13"
    ::= { ieee8021BridgePortPriorityEntry 4 }

ieee8021BridgePortRequireDropEncoding OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "If a Bridge supports encoding or decoding of drop_eligible
        from the PCP field of a VLAN tag (6.7.3) on any of its Ports,
        then it shall implement a Boolean parameter Require Drop
        Encoding on each of its Ports with default value false(2). If
        Require Drop Encoding is True and the Bridge Port cannot
        encode particular priorities with drop_eligible, then frames
        queued with those priorities and drop_eligible true(1) shall
        be discarded and not transmitted."
    REFERENCE   "12.6.2.14, 12.6.2.15"
    DEFVAL { false }
    ::= { ieee8021BridgePortPriorityEntry 5 }

ieee8021BridgePortServiceAccessPrioritySelection OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "Indication of if the Service Access Priority Selection
        function is supported on the Customer Bridge Port to request
        priority handling of the frame from a Port-based service
        interface."
    REFERENCE   "12.6.2.16, 12.6.2.17"
    ::= { ieee8021BridgePortPriorityEntry 6 }

-- ============================================================
-- User Priority Regeneration Table
-- ============================================================

ieee8021BridgeUserPriorityRegenTable OBJECT-TYPE
```



```
    SYNTAX      SEQUENCE OF Ieee8021BridgeUserPriorityRegenEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of Regenerated User Priorities for each received
        User Priority on each port of a bridge.  The Regenerated
        User Priority value may be used to index the Traffic
        Class Table for each input port.  This only has effect
        on media that support native User Priority.  The default
        values for Regenerated User Priorities are the same as
        the User Priorities."
    REFERENCE   "6.5"
    ::= { ieee8021BridgePriority 2 }

ieee8021BridgeUserPriorityRegenEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeUserPriorityRegenEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A mapping of incoming User Priority to a Regenerated
        User Priority."
    INDEX   { ieee8021BridgeBasePortComponentId,
              ieee8021BridgeBasePort,
              ieee8021BridgeUserPriority }
    ::= { ieee8021BridgeUserPriorityRegenTable 1 }

Ieee8021BridgeUserPriorityRegenEntry ::=
    SEQUENCE {
        ieee8021BridgeUserPriority
            IEEE8021PriorityValue,
        ieee8021BridgeRegenUserPriority
            IEEE8021PriorityValue
    }

ieee8021BridgeUserPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The User Priority for a frame received on this port."
    ::= { ieee8021BridgeUserPriorityRegenEntry 1 }

ieee8021BridgeRegenUserPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The Regenerated User Priority that the incoming User
        Priority is mapped to for this port.

        The value of this object MUST be retained across
        reinitializations of the management system."
    ::= { ieee8021BridgeUserPriorityRegenEntry 2 }

-- ============================================================
-- Traffic Class Table
-- ============================================================

ieee8021BridgeTrafficClassTable OBJECT-TYPE
```

```
    SYNTAX      SEQUENCE OF Ieee8021BridgeTrafficClassEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table mapping evaluated User Priority to Traffic
        Class, for forwarding by the bridge.  Traffic class is a
        number in the range (0..(ieee8021BridgePortNumTrafficClasses-1))."
    REFERENCE   "Table 8-3"
    ::= { ieee8021BridgePriority 3 }

ieee8021BridgeTrafficClassEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeTrafficClassEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "User Priority to Traffic Class mapping."
    INDEX   { ieee8021BridgeBasePortComponentId,
              ieee8021BridgeBasePort,
              ieee8021BridgeTrafficClassPriority }
    ::= { ieee8021BridgeTrafficClassTable 1 }

Ieee8021BridgeTrafficClassEntry ::=
    SEQUENCE {
        ieee8021BridgeTrafficClassPriority
            IEEE8021PriorityValue,
        ieee8021BridgeTrafficClass
            Integer32
    }

ieee8021BridgeTrafficClassPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Priority value determined for the received frame.
        This value is equivalent to the priority indicated in
        the tagged frame received, or one of the evaluated
        priorities, determined according to the media-type.
        For untagged frames received from Ethernet media, this
        value is equal to the ieee8021BridgePortDefaultUserPriority value
        for the ingress port.

        For untagged frames received from non-Ethernet media,
        this value is equal to the ieee8021BridgeRegenUserPriority value
        for the ingress port and media-specific user priority."
    ::= { ieee8021BridgeTrafficClassEntry 1 }

ieee8021BridgeTrafficClass OBJECT-TYPE
    SYNTAX      Integer32 (0..7)
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The Traffic Class the received frame is mapped to.

        The value of this object MUST be retained across
        reinitializations of the management system."
    ::= { ieee8021BridgeTrafficClassEntry 2 }

-- ============================================================
```



```
-- Outbound Access Priority Table
-- ===============================================================

ieee8021BridgePortOutboundAccessPriorityTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortOutboundAccessPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table mapping Regenerated User Priority to Outbound
        Access Priority.  This is a fixed mapping for all port
        types, with two options for 802.5 Token Ring, and three
        options for 802.17 RPR."
    REFERENCE   "Table 8-3"
    ::= { ieee8021BridgePriority 4 }

ieee8021BridgePortOutboundAccessPriorityEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortOutboundAccessPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Regenerated User Priority to Outbound Access Priority
        mapping."
    INDEX   { ieee8021BridgeBasePortComponentId,
              ieee8021BridgeBasePort,
              ieee8021BridgeRegenUserPriority }
    ::= { ieee8021BridgePortOutboundAccessPriorityTable 1 }

Ieee8021BridgePortOutboundAccessPriorityEntry ::=
    SEQUENCE {
        ieee8021BridgePortOutboundAccessPriority
            IEEE8021PriorityValue
    }

ieee8021BridgePortOutboundAccessPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Outbound Access Priority the received frame is
        mapped to."
    ::= { ieee8021BridgePortOutboundAccessPriorityEntry 1 }

-- ===============================================================
-- ieee8021BridgePortDecodingTable:
-- ===============================================================

ieee8021BridgePortDecodingTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortDecodingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains information about Priority Code
        Point Decoding Table for a Port of a provider bridge.
        Alternative values for each table are specified as rows
        in Table 6-4 (6.7.3), with each alternative labeled by
        the number of distinct priorities that can be communicated,
        and the number of these for which drop precedence can
        be communicated.  All writable objects in this table must
        be persistent over power up restart/reboot."
```

```
    ::= { ieee8021BridgePriority 5 }

ieee8021BridgePortDecodingEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortDecodingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of objects containing Priority Code Point Decoding
        information for a port of a provider bridge."
    INDEX { ieee8021BridgePortDecodingComponentId,
            ieee8021BridgePortDecodingPortNum,
            ieee8021BridgePortDecodingPriorityCodePointRow,
            ieee8021BridgePortDecodingPriorityCodePoint }
    ::= { ieee8021BridgePortDecodingTable 1 }

Ieee8021BridgePortDecodingEntry ::= SEQUENCE {
      ieee8021BridgePortDecodingComponentId
          IEEE8021PbbComponentIdentifier,
      ieee8021BridgePortDecodingPortNum
          IEEE8021BridgePortNumber,
      ieee8021BridgePortDecodingPriorityCodePointRow
          IEEE8021PriorityCodePoint,
      ieee8021BridgePortDecodingPriorityCodePoint
          Integer32,
      ieee8021BridgePortDecodingPriority
          IEEE8021PriorityValue,
      ieee8021BridgePortDecodingDropEligible
          TruthValue
}

ieee8021BridgePortDecodingComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
        value is 1."
    ::= { ieee8021BridgePortDecodingEntry 1 }

ieee8021BridgePortDecodingPortNum OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A unique identifier of a port controlled by this VLAN
        bridging entity."
    ::= { ieee8021BridgePortDecodingEntry 2 }

ieee8021BridgePortDecodingPriorityCodePointRow OBJECT-TYPE
    SYNTAX      IEEE8021PriorityCodePoint
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The specific row in Table 6-3 (6.7.3) indicating the PCP."
    ::= { ieee8021BridgePortDecodingEntry 3 }

ieee8021BridgePortDecodingPriorityCodePoint OBJECT-TYPE
```



```
    SYNTAX      Integer32 (0..7)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The specific PCP value in Table 6-3 (6.7.3)."
    ::= { ieee8021BridgePortDecodingEntry 4 }

ieee8021BridgePortDecodingPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The specific priority value in Table 6-3 (6.7.3)."
    REFERENCE   "12.6.2.8, 12.6.2.9"
    ::= { ieee8021BridgePortDecodingEntry 5 }

ieee8021BridgePortDecodingDropEligible OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The drop eligibility value in Table 6-3 (6.7.3)."
    REFERENCE   "12.6.2.8, 12.6.2.9"
    ::= { ieee8021BridgePortDecodingEntry 6 }

-- ============================================================
-- ieee8021BridgePortEncodingTable:
-- ============================================================

ieee8021BridgePortEncodingTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortEncodingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains information about Priority Code
        Point Decoding Table for a Port of a provider bridge.
        Alternative values for each table are specified as rows
        in Table 6-3 (6.7.3), with each alternative labeled by
        the number of distinct priorities that can be communicated,
        and the number of these for which drop precedence can be
        communicated.  All writable objects in this table must be
        persistent over power up restart/reboot."
    ::= { ieee8021BridgePriority 6 }

ieee8021BridgePortEncodingEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortEncodingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of objects containing Priority Code Point Encoding
        information for a port of a provider bridge."
    INDEX { ieee8021BridgePortEncodingComponentId,
            ieee8021BridgePortEncodingPortNum,
            ieee8021BridgePortEncodingPriorityCodePointRow,
            ieee8021BridgePortEncodingPriorityCodePoint,
            ieee8021BridgePortEncodingDropEligible }
    ::= { ieee8021BridgePortEncodingTable 1 }

Ieee8021BridgePortEncodingEntry ::= SEQUENCE {
```

```
      ieee8021BridgePortEncodingComponentId
          IEEE8021PbbComponentIdentifier,
      ieee8021BridgePortEncodingPortNum
          IEEE8021BridgePortNumber,
      ieee8021BridgePortEncodingPriorityCodePointRow
          IEEE8021PriorityCodePoint,
      ieee8021BridgePortEncodingPriorityCodePoint
          Integer32,
      ieee8021BridgePortEncodingDropEligible
          TruthValue,
      ieee8021BridgePortEncodingPriority
          IEEE8021PriorityValue
}

ieee8021BridgePortEncodingComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
        value is 1."
    ::= { ieee8021BridgePortEncodingEntry 1 }

ieee8021BridgePortEncodingPortNum OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A unique identifier of a port controlled by this VLAN bridging
        entity."
    ::= { ieee8021BridgePortEncodingEntry 2 }

ieee8021BridgePortEncodingPriorityCodePointRow OBJECT-TYPE
    SYNTAX      IEEE8021PriorityCodePoint
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The specific row in Table 6-3 (6.7.3)indicating the PCP row.
         (i.e. 8P0D, 7P1D, 6P2D, 5P3D)"
    ::= { ieee8021BridgePortEncodingEntry 3 }

ieee8021BridgePortEncodingPriorityCodePoint OBJECT-TYPE
    SYNTAX      Integer32 (0..7)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The specific row in Table 6-3 (6.7.3) indicating the PCP.
         (i.e., 0,1,2,3,4,5,6,7)."
    ::= { ieee8021BridgePortEncodingEntry 4 }

ieee8021BridgePortEncodingDropEligible OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The specific row in Table 6-3 (6.7.3) indicating the drop
         eligibility.  A value of true(1) means eligible for drop."
```



```
    ::= { ieee8021BridgePortEncodingEntry 5 }

ieee8021BridgePortEncodingPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The encoding priority in Table 6-3 (6.7.3)."
    REFERENCE   "12.6.2.10, 12.6.2.11"
    ::= { ieee8021BridgePortEncodingEntry 6 }

-- ============================================================
-- ieee8021BridgeServiceAccessPriorityTable:
-- ============================================================

ieee8021BridgeServiceAccessPriorityTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgeServiceAccessPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains information about the  Service Access
        Priority Selection function for a provider bridge.  The use
        of this table enables a mechanism for a Customer Bridge
        attached to a Provider Bridged Network to request priority
        handling of frames.  All writable objects in this table must
        be persistent over power up restart/reboot."
    ::= { ieee8021BridgePriority 7 }

ieee8021BridgeServiceAccessPriorityEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeServiceAccessPriorityEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of objects containing information about the Service
         Access Priority Selection function for a provider bridge."
    INDEX { ieee8021BridgeServiceAccessPriorityComponentId,
            ieee8021BridgeServiceAccessPriorityPortNum,
            ieee8021BridgeServiceAccessPriorityReceived }
    ::= { ieee8021BridgeServiceAccessPriorityTable 1 }

Ieee8021BridgeServiceAccessPriorityEntry ::= SEQUENCE {
      ieee8021BridgeServiceAccessPriorityComponentId
          IEEE8021PbbComponentIdentifier,
      ieee8021BridgeServiceAccessPriorityPortNum
          IEEE8021BridgePortNumber,
      ieee8021BridgeServiceAccessPriorityReceived
          IEEE8021PriorityValue,
      ieee8021BridgeServiceAccessPriorityValue
          IEEE8021PriorityValue
}

ieee8021BridgeServiceAccessPriorityComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifier
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The component identifier is used to distinguish between the
        multiple virtual bridge instances within a PBB.  In simple
        situations where there is only a single component the default
```

```
        value is 1."
    ::= { ieee8021BridgeServiceAccessPriorityEntry 1 }

ieee8021BridgeServiceAccessPriorityPortNum OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A unique identifier of a port controlled by this VLAN bridging
        entity."
    ::= { ieee8021BridgeServiceAccessPriorityEntry 2 }

ieee8021BridgeServiceAccessPriorityReceived OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The default received priority value in Table 6-3 (6.7.3).
         (i.e., 0,1,2,3,4,5,6,7)"
    ::= { ieee8021BridgeServiceAccessPriorityEntry 3 }

ieee8021BridgeServiceAccessPriorityValue OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The regenerated priority value in Table 6-3 (6.7.3).
         (i.e., 0,1,2,3,4,5,6,7)"
    REFERENCE   "12.6.2.18, 12.6.2.19"
    ::= { ieee8021BridgeServiceAccessPriorityEntry 4 }

-- ================================================================
-- the ieee8021BridgeMrp subtree
-- ================================================================

-- ================================================================
-- The MRP Port Table
-- ================================================================

ieee8021BridgePortMrpTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortMrpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of MRP control information about every bridge
        port.  This is indexed by ieee8021BridgeBasePortComponentId
        and ieee8021BridgeBasePort."
    ::= { ieee8021BridgeMrp 1 }

ieee8021BridgePortMrpEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortMrpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "MRP control information for a bridge port."
    AUGMENTS { ieee8021BridgeBasePortEntry }
    ::= { ieee8021BridgePortMrpTable 1 }

Ieee8021BridgePortMrpEntry ::=
```



```
    SEQUENCE {
        ieee8021BridgePortMrpJoinTime
            TimeInterval,
        ieee8021BridgePortMrpLeaveTime
            TimeInterval,
        ieee8021BridgePortMrpLeaveAllTime
            TimeInterval
    }

ieee8021BridgePortMrpJoinTime OBJECT-TYPE
    SYNTAX      TimeInterval
    UNITS       "centi-seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The MRP Join time, in centiseconds.

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { 20 }
    ::= { ieee8021BridgePortMrpEntry 1 }

ieee8021BridgePortMrpLeaveTime OBJECT-TYPE
    SYNTAX      TimeInterval
    UNITS       "centi-seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The MRP Leave time, in centiseconds.

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { 60 }
    ::= { ieee8021BridgePortMrpEntry 2 }

ieee8021BridgePortMrpLeaveAllTime OBJECT-TYPE
    SYNTAX      TimeInterval
    UNITS       "centi-seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The MRP LeaveAll time, in centiseconds.

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { 1000 }
    ::= { ieee8021BridgePortMrpEntry 3 }

-- ============================================================
-- The MMRP Port Configuration and Status Table
-- ============================================================

ieee8021BridgePortMmrpTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgePortMmrpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of MMRP control and status information about
        every bridge port.  Augments the ieee8021BridgeBasePortTable."
```

```
    ::= { ieee8021BridgeMmrp 1 }

ieee8021BridgePortMmrpEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgePortMmrpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "MMRP control and status information for a bridge port."
    AUGMENTS { ieee8021BridgeBasePortEntry }
    ::= { ieee8021BridgePortMmrpTable 1 }

Ieee8021BridgePortMmrpEntry ::=
    SEQUENCE {
        ieee8021BridgePortMmrpEnabledStatus
            TruthValue,
        ieee8021BridgePortMmrpFailedRegistrations
            Counter64,
        ieee8021BridgePortMmrpLastPduOrigin
            MacAddress,
        ieee8021BridgePortRestrictedGroupRegistration
            TruthValue
    }

ieee8021BridgePortMmrpEnabledStatus OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The administrative state of MMRP operation on this port.  The
        value true(1) indicates that MMRP is enabled on this port
        in all VLANs as long as ieee8021BridgeMmrpEnabledStatus is
        also true(1).  A value of false(2) indicates that MMRP is
        disabled on this port in all VLANs: any MMRP packets received
        will be silently discarded, and no MMRP registrations will be
        propagated from other ports.  Setting this to a value of
        true(1) will be stored by the agent but will only take
        effect on the MMRP protocol operation if
        ieee8021BridgeMmrpEnabledStatus
        also indicates the value true(1).  This object affects
        all MMRP Applicant and Registrar state machines on this
        port.  A transition from false(2) to true(1) will
        cause a reset of all MMRP state machines on this port.

        The value of this object MUST be retained across
        reinitializations of the management system."
    DEFVAL      { true }
    ::= { ieee8021BridgePortMmrpEntry 1 }

ieee8021BridgePortMmrpFailedRegistrations OBJECT-TYPE
    SYNTAX      Counter64
    UNITS       "failed MMRP registrations"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of failed MMRP registrations, for any
        reason, in all VLANs, on this port."
    ::= { ieee8021BridgePortMmrpEntry 2 }

ieee8021BridgePortMmrpLastPduOrigin OBJECT-TYPE
```



```
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Source MAC Address of the last MMRP message
        received on this port."
    ::= { ieee8021BridgePortMmrpEntry 3 }

ieee8021BridgePortRestrictedGroupRegistration OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The state of Restricted Group Registration on this port.
         If the value of this control is true(1), then creation
         of a new dynamic entry is permitted only if there is a
         Static Filtering Entry for the VLAN concerned, in which
         the Registrar Administrative Control value is Normal
         Registration.

        The value of this object MUST be retained across
        reinitializations of the management system."
    REFERENCE   "11.2.3.2.3, 12.11.1.3"
    DEFVAL      { false }
    ::= { ieee8021BridgePortMmrpEntry 4 }

-- ============================================================
-- I-LAN Interface configuration table
-- ============================================================

ieee8021BridgeILanIfTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgeILanIfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
         "This table is a sparse augmentation of ifTable and controls
          the creation of the I-LAN Interface.  An I-LAN Interface is
          used to create internal connections between bridge ports in a
          802.1 device.  An I-LAN Interfaces can be directly associated
          with a set of bridge ports.  An I-LAN Interfaces can also be
          used as a stacking interface to relate other interfaces before
          association to bridge ports.

          For example, an I-LAN interface can be created to link traffic
          between a PIP and a CBP.  In this case a CBP is created on the
          B-Component and the CBP's related IfEntry is stacked upon the
          IfEntry of the I-LAN.  The PIP is stacked upon the I-LAN using
          the IfStackTable.  Finally, a VIP is created on the I-Component
          and is associated with the PIP, thus completing the path from
          the I-Component's MAC relay to the CBP on the B-Component.

          Entries in this table must be persistent over power up
          restart/reboot."
    REFERENCE   "17.3.2.2"
    ::= { ieee8021BridgeInternalLan 1 }

ieee8021BridgeILanIfEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeILanIfEntry
    MAX-ACCESS  not-accessible
```

```
    STATUS      current
    DESCRIPTION
        "Each entry consists of a Row Status to control creation."
    INDEX       { ifIndex }
    ::= { ieee8021BridgeILanIfTable 1 }

Ieee8021BridgeILanIfEntry ::=
    SEQUENCE {
        ieee8021BridgeILanIfRowStatus
            RowStatus
    }

ieee8021BridgeILanIfRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is used to create and delete entries in this
         table and the Interface table."
    ::= { ieee8021BridgeILanIfEntry 1 }

-- ============================================================
-- 802.1D Dynamic Port Creation table
-- ============================================================

ieee8021BridgeDot1dPortTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021BridgeDot1dPortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
         "This table provides the capability to dynamically create and
          delete 802.1D bridge ports.  Each entry in this table must
          have a corresponding entry in the ieee8021BridgeBasePortTable.

          Entries in this table must be persistent over power up
          restart/reboot."
    REFERENCE   "17.5.3"
    ::= { ieee8021BridgeDot1d 1 }

ieee8021BridgeDot1dPortEntry OBJECT-TYPE
    SYNTAX      Ieee8021BridgeDot1dPortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each entry consists of a Row Status to control creation."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort }
    ::= { ieee8021BridgeDot1dPortTable 1 }

Ieee8021BridgeDot1dPortEntry ::=
    SEQUENCE {
        ieee8021BridgeDot1dPortRowStatus
            RowStatus
    }

ieee8021BridgeDot1dPortRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
```



```
    DESCRIPTION
        "This object is used to create and delete entries in this
         table and the ieee8021BridgeBasePortTable."
    ::= { ieee8021BridgeDot1dPortEntry 1 }


-- ============================================================
-- IEEE 802.1D MIB - Conformance Information
-- ============================================================

ieee8021BridgeCompliances
    OBJECT IDENTIFIER ::= { ieee8021BridgeConformance 1 }
ieee8021BridgeGroups
    OBJECT IDENTIFIER ::= { ieee8021BridgeConformance 2 }

-- ============================================================
-- units of conformance
-- ============================================================

-- ============================================================
-- the ieee8021BridgeBase group
-- ============================================================

ieee8021BridgeBaseBridgeGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBaseBridgeAddress,
        ieee8021BridgeBaseNumPorts,
        ieee8021BridgeBaseComponentType
    }
    STATUS      current
    DESCRIPTION
        "Bridge level information for this device."
    ::= { ieee8021BridgeGroups 1 }

ieee8021BridgeBasePortGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBasePortIfIndex,
        ieee8021BridgeBasePortDelayExceededDiscards,
        ieee8021BridgeBasePortMtuExceededDiscards,
        ieee8021BridgeBasePortType,
        ieee8021BridgeBasePortExternal,
        ieee8021BridgeBasePortAdminPointToPoint,
        ieee8021BridgeBasePortOperPointToPoint,
        ieee8021BridgeBasePortName
    }
    STATUS      current
    DESCRIPTION
        "Information for each port on this device."
    ::= { ieee8021BridgeGroups 2 }

ieee8021BridgeCapGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBaseDeviceCapabilities,
        ieee8021BridgeBasePortCapabilities,
        ieee8021BridgeBasePortTypeCapabilities
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects indicating the optional
```

```
        capabilities of the device."
    ::= { ieee8021BridgeGroups 3 }

ieee8021BridgeDeviceMmrpGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBaseMmrpEnabledStatus
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing device-level control
        for the Multicast Filtering extended bridge services."
    ::= { ieee8021BridgeGroups 4 }

-- ============================================================
-- the ieee8021BridgeTp group
-- ============================================================

ieee8021BridgeTpPortGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeTpPortMaxInfo,
        ieee8021BridgeTpPortInFrames,
        ieee8021BridgeTpPortOutFrames,
        ieee8021BridgeTpPortInDiscards
    }
    STATUS      current
    DESCRIPTION
        "Dynamic Filtering Database information for each port of
        the Bridge."
    ::= { ieee8021BridgeGroups 6 }

-- ============================================================
-- Bridge Priority groups
-- ============================================================

ieee8021BridgeDevicePriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBaseTrafficClassesEnabled
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing device-level control
        for the Priority services."
    ::= { ieee8021BridgeGroups 7 }

ieee8021BridgeDefaultPriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortDefaultUserPriority,
        ieee8021BridgePortPriorityCodePointSelection,
        ieee8021BridgePortUseDEI,
        ieee8021BridgePortRequireDropEncoding,
        ieee8021BridgePortServiceAccessPrioritySelection
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects defining the User Priority
        applicable to each port for media that do not support
        native User Priority."
    ::= { ieee8021BridgeGroups 8 }
```



```
ieee8021BridgeRegenPriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeRegenUserPriority
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects defining the User Priorities
        applicable to each port for media that support native
        User Priority."
    ::= { ieee8021BridgeGroups 9 }

ieee8021BridgePriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortNumTrafficClasses,
        ieee8021BridgeTrafficClass
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects defining the traffic classes
        within a bridge for each evaluated User Priority."
    ::= { ieee8021BridgeGroups 10 }

ieee8021BridgeAccessPriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortOutboundAccessPriority
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects defining the media-dependent
        outbound access level for each priority."
    ::= { ieee8021BridgeGroups 11 }

ieee8021BridgePortMrpGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortMrpJoinTime,
        ieee8021BridgePortMrpLeaveTime,
        ieee8021BridgePortMrpLeaveAllTime
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing port level control
        and status information for MRP operation."
    ::= { ieee8021BridgeGroups 12 }

ieee8021BridgePortMmrpGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortMmrpEnabledStatus,
        ieee8021BridgePortMmrpFailedRegistrations,
        ieee8021BridgePortMmrpLastPduOrigin,
        ieee8021BridgePortRestrictedGroupRegistration
    }
    STATUS      deprecated
    DESCRIPTION
        "A collection of objects providing port level control
        and status information for MMRP operation."
    ::= { ieee8021BridgeGroups 13 }

ieee8021BridgePortDecodingGroup OBJECT-GROUP
    OBJECTS {
```

```
        ieee8021BridgePortDecodingPriority,
        ieee8021BridgePortDecodingDropEligible
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing statistics counters for
        decoding priority and drop eligibility for bridge ports."
    ::= { ieee8021BridgeGroups 14 }

ieee8021BridgePortEncodingGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgePortEncodingPriority
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing statistics counters for
        encoding priority and drop eligibility for bridge ports."
    ::= { ieee8021BridgeGroups 15 }

ieee8021BridgeServiceAccessPriorityGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeServiceAccessPriorityValue
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing statistics
        counters for service access priority."
    ::= { ieee8021BridgeGroups 16 }

-- ============================================================
-- Internal LAN group
-- ============================================================

ieee8021BridgeInternalLANGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeILanIfRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing control of internal
        LAN configuration."
    ::= { ieee8021BridgeGroups 17 }

-- ============================================================
-- Bridge Creation Group
-- ============================================================

ieee8021BridgeCreatableBaseBridgeGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeBaseRowStatus
    }
    STATUS      current
    DESCRIPTION
        "Controls the managment system directed creation of
         Bridge Components."
    ::= { ieee8021BridgeGroups 18 }

-- ============================================================
-- Dot1d Dynamic Port Creation group
```



```
-- ================================================================

ieee8021BridgeDot1dDynamicPortCreationGroup OBJECT-GROUP
    OBJECTS {
        ieee8021BridgeDot1dPortRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing dynamic creation and
        deletion of 802.1D bridge ports."
    ::= { ieee8021BridgeGroups 19 }

-- ================================================================
-- compliance statements
-- ================================================================

ieee8021BridgeCompliance MODULE-COMPLIANCE
    STATUS      current
    DESCRIPTION
        "The compliance statement for devices supporting bridging
        services as defined in 802.1D-2004.  Such devices support
        path cost values of 32-bits, and bridge and port priority
        values are more restricted than in 802.1D-1995.

        Full support for the 802.1D management objects requires
        implementation of the objects listed in the systemGroup
        from the SNMPv2-MIB [RFC3418], as well as the objects
        listed in the ifGeneralInformationGroup from the
        IF-MIB [RFC2863]."

    MODULE SNMPv2-MIB -- The SNMPv2-MIB, RFC 3418
        MANDATORY-GROUPS {
            systemGroup
        }

    MODULE IF-MIB -- The interfaces MIB, RFC 2863
        MANDATORY-GROUPS {
            ifGeneralInformationGroup
        }

    MODULE
        MANDATORY-GROUPS {
            ieee8021BridgeBaseBridgeGroup,
            ieee8021BridgeBasePortGroup
        }

    GROUP ieee8021BridgeCreatableBaseBridgeGroup
    DESCRIPTION
        "Implementation of this group is mandatory for
         bridges that allow management systems to add and delete
         bridge components.  Provider Backbone Edge Bridges would
         typically fall in this category."

    GROUP   ieee8021BridgeTpPortGroup
    DESCRIPTION
        "Implementation of this group is mandatory for
        bridges that support the transparent bridging
        mode.  A transparent bridge will implement
        this group."
```

```
    GROUP   ieee8021BridgeInternalLANGroup
    DESCRIPTION
        "Implementation of this group is optional.  It can be supported
        to provide control over the relationship between interfaces and
        bridge ports where such relationships are more complex than a
        simple 1-to-1 mapping."

    GROUP   ieee8021BridgeDot1dDynamicPortCreationGroup
    DESCRIPTION
        "Implementation of this group is optional.  It can be supported
        to provide the ability to dynamically create and deleted 802.1D
        bridge ports."

    ::= { ieee8021BridgeCompliances 1 }

ieee8021BridgePriorityAndMulticastFilteringCompliance MODULE-COMPLIANCE
    STATUS  deprecated
    DESCRIPTION
        "The compliance statement for device support of Priority
        and Multicast Filtering extended bridging services."

    MODULE
        MANDATORY-GROUPS { ieee8021BridgeCapGroup }

        GROUP       ieee8021BridgeDeviceMmrpGroup
        DESCRIPTION
            "This group is mandatory for devices supporting the MMRP
            application, defined by IEEE 802.1D Extended Filtering
            Services."

        GROUP       ieee8021BridgeDevicePriorityGroup
        DESCRIPTION
            "This group is mandatory only for devices supporting
            the priority forwarding operations defined by IEEE
            802.1D."

        GROUP       ieee8021BridgeDefaultPriorityGroup
        DESCRIPTION
            "This group is mandatory only for devices supporting
            the priority forwarding operations defined by the
            extended bridge services with media types, such as
            Ethernet, that do not support native User Priority."

        GROUP       ieee8021BridgeRegenPriorityGroup
        DESCRIPTION
            "This group is mandatory only for devices supporting
            the priority forwarding operations defined by IEEE 802.1D
            and that have interface media types that support
            native User Priority, e.g., IEEE 802.5."

        GROUP       ieee8021BridgePriorityGroup
        DESCRIPTION
            "This group is mandatory only for devices supporting
            the priority forwarding operations defined by IEEE 802.1D."

        GROUP       ieee8021BridgeAccessPriorityGroup
        DESCRIPTION
            "This group is optional and is relevant only for devices
```



```
            supporting the priority forwarding operations defined by
            IEEE 802.1D and that have interface media types that
            support native Access Priority, e.g., IEEE 802.5."

        GROUP       ieee8021BridgePortMrpGroup
        DESCRIPTION
            "This group is mandatory for devices supporting any
            of the MRP applications: e.g., MMRP, defined by the
            extended filtering services of 802.1D; or MVRP,
            defined by 802.1Q (refer to the Q-BRIDGE-MIB for
            conformance statements for MVRP)."

        GROUP       ieee8021BridgePortMmrpGroup
        DESCRIPTION
            "This group is mandatory for devices supporting the
            MMRP application, as defined by IEEE 802.1D Extended
            Filtering Services."

        GROUP       ieee8021BridgePortDecodingGroup
        DESCRIPTION
            "This group is optional and supports Priority Code Point
            Decoding Table for a Port of a provider bridge."

        GROUP       ieee8021BridgePortEncodingGroup
        DESCRIPTION
            "This group is optional and supports Priority Code Point
            Encoding Table for a Port of a provider bridge."

        GROUP       ieee8021BridgeServiceAccessPriorityGroup
        DESCRIPTION
            "This group is optional and supports Priority Code Point
            Encoding Table for a Port of a provider bridge."

        OBJECT      ieee8021BridgePortNumTrafficClasses
        MIN-ACCESS  read-only
        DESCRIPTION
            "Write access is not required."

        OBJECT      ieee8021BridgeTrafficClass
        MIN-ACCESS  read-only
        DESCRIPTION
            "Write access is not required."

        OBJECT      ieee8021BridgeRegenUserPriority
        MIN-ACCESS  read-only
        DESCRIPTION
            "Write access is not required."

       ::= { ieee8021BridgeCompliances 2 }

END
```

17.7.5 Definitions for the IEEE8021-PB MIB module

Delete the entire text of 17.7.5, and insert the following text:

```
IEEE8021-PB-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, OBJECT-TYPE
        FROM SNMPv2-SMI
    TruthValue, RowStatus
        FROM SNMPv2-TC
    ieee802dot1mibs, IEEE8021PbbComponentIdentifierOrZero,
    IEEE8021PbbComponentIdentifier, IEEE8021BridgePortNumber,
    IEEE8021PortAcceptableFrameTypes, IEEE8021PriorityValue,
    IEEE8021BridgePortNumberOrZero, IEEE8021BridgePortType
        FROM IEEE8021-TC-MIB
    ieee8021BridgeBasePortComponentId, ieee8021BridgeBasePort
        FROM IEEE8021-BRIDGE-MIB
    VlanId, VlanIdOrNone
        FROM Q-BRIDGE-MIB
    MODULE-COMPLIANCE, OBJECT-GROUP
        FROM SNMPv2-CONF;

ieee8021PbMib MODULE-IDENTITY
    LAST-UPDATED "201104060000Z" -- April 6, 2011
    ORGANIZATION "IEEE 802.1 Working Group"
    CONTACT-INFO
        "  WG-URL: http://grouper.ieee.org/groups/802/1/index.html
         WG-EMail: stds-802-1@ieee.org

          Contact: David Levi
           Postal: C/O IEEE 802.1 Working Group
                   IEEE Standards Association
                   445 Hoes Lane
                   P.O. Box 1331
                   Piscataway
                   NJ 08855-1331
                   USA
           E-mail: STDS-802-1-L@LISTSERV.IEEE.ORG"
    DESCRIPTION
        "Provider Bridge MIB module.

         Unless otherwise indicated, the references in this MIB
         module are to IEEE 802.1Q-2011.

         Copyright (C) IEEE.
         This version of this MIB module is part of IEEE802.1Q;
         see the draft itself for full legal notices."

    REVISION     "201104060000Z" -- April 6, 2011
    DESCRIPTION
         "Additions to support Remote Customer Service Interfaces."
    REVISION     "201102270000Z" -- February 27, 2011
    DESCRIPTION
         "Change to ieee8021PbEdgePortAcceptableFrameTypes
          permissible values, addition of
          IEEE8021BridgePortNumberOrZero to IMPORTS,
          as part of 2011 revision of IEEE Std 802.1Q."
```



```
    REVISION     "201008260000Z" -- August 26, 2010
    DESCRIPTION
         "Minor edits to contact information etc. as part of
          revision of Std 802.1Q."

    REVISION     "200810150000Z" -- October 15, 2008
    DESCRIPTION
        "Initial version."
    ::= { ieee802dot1mibs 5 }

ieee8021PbNotifications  OBJECT IDENTIFIER ::= { ieee8021PbMib 0 }
ieee8021PbObjects        OBJECT IDENTIFIER ::= { ieee8021PbMib 1 }
ieee8021PbConformance    OBJECT IDENTIFIER ::= { ieee8021PbMib 2 }

-- ============================================================
-- ieee8021PbVidTranslationTable:
-- ============================================================

ieee8021PbVidTranslationTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbVidTranslationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table is used to configure the VID Translation Table
        defined in 12.13.2 a) of 802.1Q-2006.  The VID
        Translation Table is used to implement a bi-directional
        mapping between a local S-VID, used in data and protocol
        frames transmitted and received through a CNP or PNP,
        and a relay S-VID, used by the filtering and forwarding
        process.  Each row in this table is indexed by component,
        port, and local S-VID value and indicates the relay S-VID
        value to be used for the specified S-VID.  If no entry for
        a component, port, and local-svid is present in this table
        is present then the relay S-VID used for a frame received
        on that port with the local S-VID value will be the S-VID
        that has the same numeric value as the local S-VID of the
        received frame.

        Entries in this table must be persistent over power up
        restart/reboot."
    REFERENCE   "12.13.2 a), 12.13.2.1, 12.13.2.2"
    ::= { ieee8021PbObjects 1 }

ieee8021PbVidTranslationEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbVidTranslationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry for the S-VID translation table which includes
        both the Local and Relay S-VIDs between which the PNP or CNP
        translates.

        Note that the component ID of entries in this table must refer
        to the S-VLAN Component of a Provider Bridge."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort,
            ieee8021PbVidTranslationLocalVid }
    ::= { ieee8021PbVidTranslationTable 1 }
```

```
Ieee8021PbVidTranslationEntry ::= SEQUENCE {
      ieee8021PbVidTranslationLocalVid
          VlanId,
      ieee8021PbVidTranslationRelayVid
          VlanId,
      ieee8021PbVidTranslationRowStatus
          RowStatus
}

ieee8021PbVidTranslationLocalVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The S-VID on received(transmitted) at the ISS of a CNP or PNP."
    ::= { ieee8021PbVidTranslationEntry 1 }

ieee8021PbVidTranslationRelayVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The translated S-VID delivered(received) over the EISS from a
        CNP or PNP.  The default value of this object on creation will
        be the value of the corresponding instance of
        ieee8021PbVidTranslationLocalVid."
    ::= { ieee8021PbVidTranslationEntry 2 }

ieee8021PbVidTranslationRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This indicates the status of an entry in this table, and is
        used to create/delete entries.

        It is an implementation specific decision as to whether any
        column in this table may be set while the corresponding
        instance of this object is valid(1)."
    ::= { ieee8021PbVidTranslationEntry 3 }

-- ============================================================
-- ieee8021PbCVidRegistrationTable:
-- ============================================================

ieee8021PbCVidRegistrationTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbCVidRegistrationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table used in a CEP to create the mapping between a C-VID
        and a service represented by an S-VID.

        Note that the component ID of entries in this table must refer
        to the S-VLAN component of a Provider Edge Bridge and the Port
        Number must refer to the port number of the Customer Edge Port
        associated with that Provider Edge Bridge.
```



```
        Entries in this table must be persistent over power up
        restart/reboot."
    REFERENCE   "12.13.3.1, 12.13.3.2"
    ::= { ieee8021PbObjects 2 }

ieee8021PbCVidRegistrationEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbCVidRegistrationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An element of the C-VID registration table accessed by PB
        C-VLAN component, Customer Edge Port bridge port number, and
        C-VID.  Each element contains the mapping between a C-VID and
        the S-VID which carries the service and booleans for handling
        untagged frames at the PEP and CEP."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort,
            ieee8021PbCVidRegistrationCVid }
    ::= { ieee8021PbCVidRegistrationTable 1 }

Ieee8021PbCVidRegistrationEntry ::= SEQUENCE {
      ieee8021PbCVidRegistrationCVid
          VlanId,
      ieee8021PbCVidRegistrationSVid
          VlanId,
      ieee8021PbCVidRegistrationUntaggedPep
          TruthValue,
      ieee8021PbCVidRegistrationUntaggedCep
          TruthValue,
      ieee8021PbCVidRegistrationRowStatus
          RowStatus
}

ieee8021PbCVidRegistrationCVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "C-VID of this C-VID registration entry."
    ::= { ieee8021PbCVidRegistrationEntry 1 }

ieee8021PbCVidRegistrationSVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "S-VID for this C-VID registration entry."
    ::= { ieee8021PbCVidRegistrationEntry 2 }

ieee8021PbCVidRegistrationUntaggedPep OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "A flag indicating if this C-VID should be carried untagged
        at the PEP.  A value of true(1) means untagged."
    DEFVAL { true }
    ::= { ieee8021PbCVidRegistrationEntry 3 }
```

```
ieee8021PbCVidRegistrationUntaggedCep OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "A flag indicating if this C-VID should be carried untagged
        at the CEP.  A value of true(1) means untagged."
    DEFVAL { true }
    ::= { ieee8021PbCVidRegistrationEntry 4 }

ieee8021PbCVidRegistrationRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This indicates the status of an entry in this table, and is
        used to create/delete entries.

        The value of ieee8021PbCVidRegistrationSVid must be set before
        an entry in this table can be made valid.

        It is an implementation specific decision as to whether any
        column in this table may be set while the corresponding
        instance of this object is valid(1)."
    ::= { ieee8021PbCVidRegistrationEntry 5 }

-- ============================================================
-- ieee8021PbEdgePortTable:
-- ============================================================

ieee8021PbEdgePortTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbEdgePortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A Provider Edge Port (PEP) table which indicate the subset of
        parameters needed for each PEP."
    REFERENCE   "12.13.3.3, 12.13.3.4"
    ::= { ieee8021PbObjects 3 }

ieee8021PbEdgePortEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbEdgePortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the PEP table indexed by ComponentID and S-VID and
        containing parameters used to configure ingress filtering on
        the PEP, thus affecting traffic transiting from the provider
        network to the customer edge port.  The columns allow the
        default C-VID value and default User Priority to be specified
        and PEP's ingress filtering operation to be controlled.

        Note that the component ID of entries in this table must refer
        to an S-VLAN component of a provider edge bridge and the Bridge
        Port number must refer to the port number of a Customer Edge
        Port associated with that Provider Edge Bridge."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort,
            ieee8021PbEdgePortSVid }
```



```
    ::= { ieee8021PbEdgePortTable 1 }

Ieee8021PbEdgePortEntry ::= SEQUENCE {
      ieee8021PbEdgePortSVid
          VlanId,
      ieee8021PbEdgePortPVID
          VlanId,
      ieee8021PbEdgePortDefaultUserPriority
          IEEE8021PriorityValue,
      ieee8021PbEdgePortAcceptableFrameTypes
          IEEE8021PortAcceptableFrameTypes,
      ieee8021PbEdgePortEnableIngressFiltering
          TruthValue
}

ieee8021PbEdgePortSVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The 12 bit S-VID associated with the PEP."
    ::= { ieee8021PbEdgePortEntry 1 }

ieee8021PbEdgePortPVID OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "A 12-bit C-VID to be used for untagged frames received at
        the Provider Edge Port."
    ::= { ieee8021PbEdgePortEntry 2 }

ieee8021PbEdgePortDefaultUserPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "An integer range 0-7 to be used for untagged frames received
        at the Provider Edge Port."
    ::= { ieee8021PbEdgePortEntry 3 }

ieee8021PbEdgePortAcceptableFrameTypes OBJECT-TYPE
    SYNTAX      IEEE8021PortAcceptableFrameTypes
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "the Acceptable Frame Types for frames received at the PEP.
        The permissible values for the parameter are:
            1) Admit all frames;
            2) Admit only Untagged and Priority-Tagged frames;
            3) Admit only VLAN-Tagged frames."
    DEFVAL { admitAll }
    ::= { ieee8021PbEdgePortEntry 4 }

ieee8021PbEdgePortEnableIngressFiltering OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
```

```
        "Filtering parameter for frames received at the PEP.
        The permissible values for the parameter are:
            true(1)  Enabled;
            false(2) Disabled."
    DEFVAL { true }
    ::= { ieee8021PbEdgePortEntry 5 }

-- ============================================================
-- ieee8021PbServicePriorityRegenerationTable:
-- ============================================================

ieee8021PbServicePriorityRegenerationTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbServicePriorityRegenerationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The priority regeneration table for this PEP."
    REFERENCE   "12.13.3.5, 12.13.3.6"
    ::= { ieee8021PbObjects 4 }

ieee8021PbServicePriorityRegenerationEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbServicePriorityRegenerationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An element of the PEP priority regeneration table indexed
        by Component ID, bridge port number, S-VID, and received
        priority.  Each element contains the regenerated priority.

        Note that the component ID of entries in this table must refer
        to the S-VLAN component of a Provider Edge Bridge and the Port
        Number must refer to the port number of the Customer Edge Port
        associated with that S-VLAN component."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort,
            ieee8021PbServicePriorityRegenerationSVid,
            ieee8021PbServicePriorityRegenerationReceivedPriority }
    ::= { ieee8021PbServicePriorityRegenerationTable 1 }

Ieee8021PbServicePriorityRegenerationEntry ::= SEQUENCE {
      ieee8021PbServicePriorityRegenerationSVid
          VlanId,
      ieee8021PbServicePriorityRegenerationReceivedPriority
          IEEE8021PriorityValue,
      ieee8021PbServicePriorityRegenerationRegeneratedPriority
          IEEE8021PriorityValue
}

ieee8021PbServicePriorityRegenerationSVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "S-VID for this regeneration table entry."
    ::= { ieee8021PbServicePriorityRegenerationEntry 1 }

ieee8021PbServicePriorityRegenerationReceivedPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  not-accessible
```



```
    STATUS      current
    DESCRIPTION
        "Received priority for this regeneration table entry."
    ::= { ieee8021PbServicePriorityRegenerationEntry 2 }

ieee8021PbServicePriorityRegenerationRegeneratedPriority OBJECT-TYPE
    SYNTAX      IEEE8021PriorityValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The regenerated priority contained in this regeneration table
        entry."
    ::= { ieee8021PbServicePriorityRegenerationEntry 3 }

-- ============================================================
-- ieee8021PbCnpTable
-- ============================================================

ieee8021PbCnpTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbCnpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table is used for dynamic creation and deletion of
        Customer Network Ports on S-VLAN components or I-components.
        Creation of an entry in this table will implicitly also
        create a corresponding entry in the ieee8021BridgeBasePortTable.

        Entries in this table must be persistent across reinitializations
        of the management system."
    REFERENCE   "12.3.3"
    ::= { ieee8021PbObjects 5 }

ieee8021PbCnpEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbCnpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Represents a dynamically created Customer Network Port."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort }
    ::= { ieee8021PbCnpTable 1 }

Ieee8021PbCnpEntry ::= SEQUENCE {
    ieee8021PbCnpCComponentId
        IEEE8021PbbComponentIdentifierOrZero,
    ieee8021PbCnpSVid
        VlanIdOrNone,
    ieee8021PbCnpRowStatus
        RowStatus
}

ieee8021PbCnpCComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifierOrZero
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The component ID of the C-Vlan component if this is an
        internal customer network port.  The value must be 0 for
```

```
        an external customer network port.

        This value must be consistent with the value of the
        corresponding instance of ieee8021PbCnpSVid.
        Both must be non-zero, or both must be zero."
    ::= { ieee8021PbCnpEntry 1 }

ieee8021PbCnpSVid OBJECT-TYPE
    SYNTAX      VlanIdOrNone
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The S-VID for service for an internal customer network port.
        For an external port, this value must be 0.

        This value must be consistent with the value of the
        corresponding instance of ieee8021PbCnpCComponentId.
        Both must be non-zero, or both must be zero."
    ::= { ieee8021PbCnpEntry 2 }

ieee8021PbCnpRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is used for creation/deletion of entries in
        this table.

        All columns in this table must have valid values before
        this object can be set to active(1).

        While the value of this object is active(1), the values
        of other columns in the same entry may not be modified."
    ::= { ieee8021PbCnpEntry 3 }

-- ============================================================
-- ieee8021PbPnpTable
-- ============================================================

ieee8021PbPnpTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbPnpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table is used for dynamic creation and deletion of
        Provider Network Ports on S-VLAN components or B-components.
        Creation of an entry in this table will implicitly also
        create a corresponding entry in the ieee8021BridgeBasePortTable.

        Entries in this table must be persistent across reinitializations
        of the management system."
    REFERENCE   "12.13.3"
    ::= { ieee8021PbObjects 6 }

ieee8021PbPnpEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbPnpEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```



```
        "Represents a dynamically created Provider Network Port."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort }
    ::= { ieee8021PbPnpTable 1 }

Ieee8021PbPnpEntry ::= SEQUENCE {
    ieee8021PbPnpRowStatus
        RowStatus
}

ieee8021PbPnpRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is used for creation/deletion of entries in
        this table."
    ::= { ieee8021PbPnpEntry 1 }

-- ============================================================
-- ieee8021PbCepTable
-- ============================================================

ieee8021PbCepTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbCepEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
       "This table is used to create Customer Edge Ports, CEPs, on a
        provider edge bridge.  It is indexed by the ComponentId of the
        PEB's S-VLAN component and by the port number for the CEP.  Note that
        the CEP's port number belongs to the set of port numbers
        associated with the PEB's S-VLAN component.

        Entries in this table must be persistent across reinitializations
        of the management system.  However, note that some column values,
        as noted below, may change across system reinitializations."
    ::= { ieee8021PbObjects 7 }

ieee8021PbCepEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbCepEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The entry of the ieee8021PbCepTable.  Note that the component
         index must refer to the S-VLAN component of a PEB, and that the port
         number for the CEP is allocated from the port number space of
         that S-VLAN component."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort }
    ::= { ieee8021PbCepTable 1 }

Ieee8021PbCepEntry ::=
    SEQUENCE {
        ieee8021PbCepCComponentId  IEEE8021PbbComponentIdentifierOrZero,
        ieee8021PbCepCepPortNumber IEEE8021BridgePortNumberOrZero,
        ieee8021PbCepRowStatus     RowStatus
    }
```

```
ieee8021PbCepCComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifierOrZero
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This column is an implmentation specific column that may be
         used to map the C component associated with this CEP to other
         tables within the system, such as the Entity MIB.  This
         column may not be created or modified by management station
         action.  A value of 0 is always legal, and non-zero values
         will be interpreted in an implementation specific manner.
         The value of this column may or may not persist across system
         restarts."
    ::= { ieee8021PbCepEntry 1 }

ieee8021PbCepCepPortNumber  OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumberOrZero
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This column is an implementation specific column that may be
         used to map the CEP to other tables within the system, for
         example the Entity MIB.  This column may not be created or
         modified by management station action.  A value of 0 is
         always legal, and non-zero values will be interpreted in an
         implementation specific manner.  The value of this column
         may or may not persist across system restarts."
    ::= { ieee8021PbCepEntry 2 }

ieee8021PbCepRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This indicates the status of the entry, and is used to create
        and delete entries in this table."
    ::= { ieee8021PbCepEntry 3 }

-- ============================================================
-- ieee8021PbRcapTable
-- ============================================================

ieee8021PbRcapTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbRcapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
       "This table is used to create Remote Customer Access Ports, on a
        provider edge bridge.  It is indexed by the ComponentId of the
        PEB's S-VLAN component and by the port number for the RCAP.  Note that
        the index port number belongs to the set of port numbers
        associated with the PEB's primary S-VLAN component.

        Entries in this table must be persistent across reinitializations
        of the management agent.  However, note that some column values,
        as noted below, may change across system reinitializations."
    ::= { ieee8021PbObjects 8 }

ieee8021PbRcapEntry OBJECT-TYPE
```



```
    SYNTAX      Ieee8021PbRcapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The entry of the ieee8021PbRcapTable.  Note that the component
         index must refer to the primary S-VLAN component of a PEB, and that
         the port number index for the RCAP is allocated from the port
         number space of that S-VLAN component."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort }
    ::= { ieee8021PbRcapTable 1 }

Ieee8021PbRcapEntry ::=
    SEQUENCE {
        ieee8021PbRcapSComponentId   IEEE8021PbbComponentIdentifierOrZero,
        ieee8021PbRcapRcapPortNumber IEEE8021BridgePortNumberOrZero,
        ieee8021PbRcapRowStatus      RowStatus
    }

ieee8021PbRcapSComponentId OBJECT-TYPE
    SYNTAX      IEEE8021PbbComponentIdentifierOrZero
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This column is an implmentation specific column that may be
         used to map the Port-mapping S-VLAN component associated with
         this RCAP to other tables within the system, such as the
         Entity MIB.  This column may not be created or modified
         by management station action.  A value of 0 is always legal,
         and non-zero values will be interpreted in an implementation
         specific manner. The value of this column may or may not
         persist across system restarts."
    ::= { ieee8021PbRcapEntry 1 }

ieee8021PbRcapRcapPortNumber  OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumberOrZero
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This column is an implementation specific column that may be
         used to map the RCAP to other tables within the system, for
         example the Entity MIB.  This column may not be created or
         modified by management station action.  A value of 0 is
         always legal, and non-zero values will be interpreted in an
         implementation specific manner.  The value of this column
         may or may not persist across system restarts."
    ::= { ieee8021PbRcapEntry 2 }

ieee8021PbRcapRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This indicates the status of the entry, and is used to create
        and delete entries in this table."
    ::= { ieee8021PbRcapEntry 3 }

-- ============================================================
-- ieee8021PbInternalInterfaceTable:
```

```
-- ============================================================

ieee8021PbInternalInterfaceTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Ieee8021PbIiEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table used in a Port-mapping S-VLAN component associated with
        a Remote Customer Access Port to manage the mapping between
        external S-VIDs and internal interfaces/S-VIDs.

        Note that the component ID of entries in this table must refer
        to the primary S-VLAN component of a Provider Edge Bridge and
        the Port Number must refer to the port number of a Remote
        Customer Access Port associated with that S-VLAN component.

        Entries in this table must be persistent over power up
        restart/reboot."
    REFERENCE   "12.13.4.1, 12.13.4.2"
    ::= { ieee8021PbObjects 9 }

ieee8021PbIiEntry OBJECT-TYPE
    SYNTAX      Ieee8021PbIiEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An element of the internal interface table accessed by PB
        S-VLAN component ID, Remnote Customer Access Port bridge port
        number, and external S-VID.  Each element contains the mapping
        between an external S-VID and the internal port it selects and,
        except in the case of a C-tagged service interface the
        internal S-VID which carries the service ."
    INDEX { ieee8021BridgeBasePortComponentId,
            ieee8021BridgeBasePort,
            ieee8021PbIiExternalSVid }
    ::= { ieee8021PbInternalInterfaceTable 1 }

Ieee8021PbIiEntry ::= SEQUENCE {
      ieee8021PbIiExternalSVid       VlanId,
      ieee8021PbIiInternalPortNumber IEEE8021BridgePortNumberOrZero,
      ieee8021PbIiInternalPortType   IEEE8021BridgePortType,
      ieee8021PbIiInternalSVid       VlanIdOrNone,
      ieee8021PbIiRowStatus          RowStatus
}

ieee8021PbIiExternalSVid OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "External S-VID for this internal interface table entry."
    ::= { ieee8021PbIiEntry 1 }

ieee8021PbIiInternalPortNumber OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortNumberOrZero
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The port number for the internal port on the primary
```



```
        S-VLAN component.  This port number is used in FDB entries
        that reference an RCSI.

        The port number of the Remote Customer Access Port can
        be used to identify a PNP on the primary S-VLAN component
        connected to a PNP on the Port-mapping S-VLAN component."
    ::= { ieee8021PbIiEntry 2 }

ieee8021PbIiInternalPortType OBJECT-TYPE
    SYNTAX      IEEE8021BridgePortType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The port type of the internal port on the primary
        S-VLAN component. This indicates the type of RCSI as follows:

             providerNetworkPort(3) - Indicates a PNP (not an RCSI)
             customerNetworkPort(4) - Indicates a Port-based RCSI
             customerEdgePort(5) - Indicates a C-tagged RCSI

        Other port type values are not valid for this field."
    ::= { ieee8021PbIiEntry 3 }

ieee8021PbIiInternalSVid OBJECT-TYPE
    SYNTAX      VlanIdOrNone
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Internal S-VID for this external S-VID entry."
    ::= { ieee8021PbIiEntry 4 }

ieee8021PbIiRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This indicates the status of an entry in this table, and is
        used to create/delete entries.

        The value of ieee8021PbIiExternalSVid must be set before
        an entry in this table can be made valid.

        It is an implementation specific decision as to whether any
        column in this table may be set while the corresponding
        instance of this object is valid(1)."
    ::= { ieee8021PbIiEntry 5 }

-- ================================================================
-- Conformance Information
-- ================================================================

ieee8021PbGroups
    OBJECT IDENTIFIER ::= { ieee8021PbConformance 1 }
ieee8021PbCompliances
    OBJECT IDENTIFIER ::= { ieee8021PbConformance 2 }

-- ================================================================
-- Units of conformance
-- ================================================================
```

```
ieee8021PbVidTranslationGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbVidTranslationRelayVid,
        ieee8021PbVidTranslationRowStatus
    }
    STATUS      current
    DESCRIPTION
        "The collection of objects used to represent a PB
        C-VID/S-VID translation."
    ::= { ieee8021PbGroups 1 }

ieee8021PbCVidRegistrationGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbCVidRegistrationSVid,
        ieee8021PbCVidRegistrationUntaggedPep,
        ieee8021PbCVidRegistrationUntaggedCep,
        ieee8021PbCVidRegistrationRowStatus
    }
    STATUS      current
    DESCRIPTION
        "The collection of objects used to represent a CEP translation."
    ::= { ieee8021PbGroups 2 }

ieee8021PbEdgePortGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbEdgePortPVID,
        ieee8021PbEdgePortDefaultUserPriority,
        ieee8021PbEdgePortAcceptableFrameTypes,
        ieee8021PbEdgePortEnableIngressFiltering
    }
    STATUS      current
    DESCRIPTION
        "The collection of objects user to represent a PEP."
    ::= { ieee8021PbGroups 3 }

ieee8021PbServicePriorityRegenerationGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbServicePriorityRegenerationRegeneratedPriority
    }
    STATUS      current
    DESCRIPTION
        "A regenerated priority value for a PEP."
    ::= { ieee8021PbGroups 4 }

ieee8021PbDynamicCnpGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbCnpCComponentId,
        ieee8021PbCnpSVid,
        ieee8021PbCnpRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A set of objects used for dynamic creation and deletion
        of customer network ports."
    ::= { ieee8021PbGroups 5 }

ieee8021PbDynamicPnpGroup OBJECT-GROUP
    OBJECTS {
```



```
        ieee8021PbPnpRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A set of objects used for dynamic creation and deletion
        of provider network ports."
    ::= { ieee8021PbGroups 6 }

ieee8021PbDynamicCepGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbCepCComponentId,
        ieee8021PbCepCepPortNumber,
        ieee8021PbCepRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A set of objects used for dynamic creation and deletion
        of customer edge ports."
    ::= { ieee8021PbGroups 7 }

ieee8021PbDynamicRcapGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbRcapSComponentId,
        ieee8021PbRcapRcapPortNumber,
        ieee8021PbCepRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A set of objects used for dynamic creation and deletion
        of remote customer access ports."
    ::= { ieee8021PbGroups 8 }

ieee8021PbInternalInterfaceGroup OBJECT-GROUP
    OBJECTS {
        ieee8021PbIiInternalPortNumber,
        ieee8021PbIiInternalPortType,
        ieee8021PbIiInternalSVid,
        ieee8021PbIiRowStatus
    }
    STATUS      current
    DESCRIPTION
        "A set of objects used for dynamic creation and deletion
        of internal interfaces on a Port-mapping S-VLAN component."
    ::= { ieee8021PbGroups 9 }


-- ============================================================
-- Compliance statements
-- ============================================================

ieee8021PbCompliance MODULE-COMPLIANCE
    STATUS      current
    DESCRIPTION
        "The compliance statement for device support of Provider
         Bridge services."

    MODULE
        MANDATORY-GROUPS {
            ieee8021PbVidTranslationGroup,
```

```
            ieee8021PbCVidRegistrationGroup,
            ieee8021PbEdgePortGroup,
            ieee8021PbServicePriorityRegenerationGroup
        }

        GROUP       ieee8021PbDynamicCnpGroup
        DESCRIPTION
            "This group is optional and supports dynamic creation
            and deletion of customer network ports."

        GROUP       ieee8021PbDynamicPnpGroup
        DESCRIPTION
            "This group is optional and supports dynamic creation
            and deletion of provider network ports."

        GROUP       ieee8021PbDynamicCepGroup
        DESCRIPTION
            "This group is optional and supports dynamic creation
            and deletion of customer edge ports."

        GROUP       ieee8021PbDynamicRcapGroup
        DESCRIPTION
            "This group is optional and supports dynamic creation
            and deletion of remote customer access ports."

        GROUP       ieee8021PbInternalInterfaceGroup
        DESCRIPTION
            "This group is optional and supports dynamic creation
            and deletion of internal interfaces on Port-mapping
            S-VLAN components."

    ::= { ieee8021PbCompliances 1 }

END
```

22. Connectivity Fault Management in systems

22.6 CFM in Provider Bridges

Change 22.6 as follows:

The S-VLAN component of a Provider Bridge is, for the purposes of this standard, an example of a VLAN-aware Bridge. Fortunately, the many combinations possible when configuring CFM on Customer Bridges and Provider Bridges, connected using Port-based ~~or S-tagged~~, C-tagged, or remote customer service interfaces, can be simplified.

22.6.3 Maintenance C-VLAN on a C-tagged service interface

Insert the following subclause, 22.6.4 (including Figure 22-11), after 22.6.3, and renumber the subsequent figures in Clause 22 accordingly:

22.6.4 Maintenance Points and Port-mapping S-VLAN components

When a Port-mapping S-VLAN component is used to provide remote customer service interfaces (RCSIs) there is little justification for making all possible CFM entities manageable. The other Provider Bridge components can provide the necessary maintenance points for service OAM. There is one maintenance point that can only be provided by the Port-mapping S-VLAN component and that is the point below the Bridge Port Transmit and Receive process (8.5) on the Remote Customer Access Port. This MP can be used to protect the LAN to the neighboring PBN.

Figure 22-11 extends Figure 22-10, showing the minimum set of CFM entities required for a C-tagged RCSI, if the Provider Bridge supports CFM. The S-VLAN component and C-VLAN component support the same set of CFM entities as in Figure 22-10. The Port-mapping S-VLAN component that provides the RCSIs supports at least one more CFM entity, as shown, that can protect the LAN to the neighboring PBN.

Similarly, in the case of a Port-based RCSI or an internal Provider Network Port the required service CFM entities can be provided by the S-VLAN component. Thus the only CFM entity required from the Port-mapping S-VLAN component is the one shown in Figure 22-11 which is independent of the number and type of internal Ports provided.

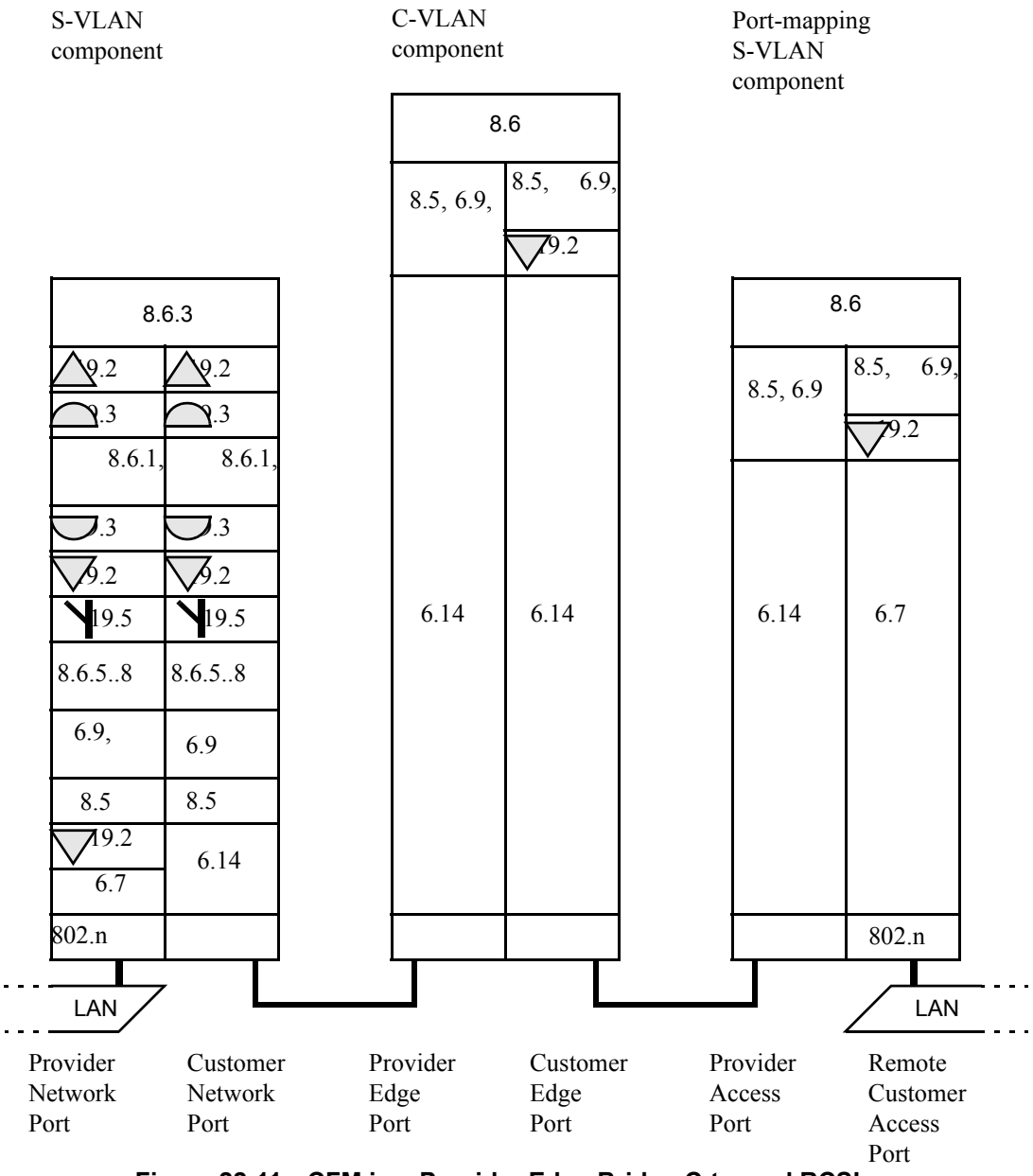

Figure 22-11—CFM in a Provider Edge Bridge C-tagged RCSI

25. Support of the MAC Service by Provider Backbone Bridged Networks

25.4 S-tagged service interface

Change Note 2 in 25.4 as follows:

NOTE 2—It is always possible to build equipment that includes both Backbone Edge Bridge and Provider Edge Bridge components. In particular, it is possible for a BEB to support a C-tagged service interface or Remote Customer Service Interface for attachment to a C-VLAN bridged network. The resulting components are B-component to I-component to C-VLAN component to Port-mapping S-VLAN component.

Annex A

(normative)

PICS proforma—Bridge implementations[3]

A.5 Major capabilities

Insert the following row in A.5 below PEB (Can the Bridge...Provider Edge Bridge...?):

Item	Feature	Status	References	Support
RCSI	Can the Bridge be configured to operate as a Provider Edge Bridge with one or more Ports operating as Remote Customer Access Ports?	PEB:O	5.10.2	Yes [ ] No [ ]

Change PB-2 and BEB-1 in A.5 as shown:

Item	Feature	Status	References	Support
PB-2	State which Ports support the following values for the Provider Bridge Port Type: — Provider Network Port; — Customer Network Port; — Customer Edge Port; — Remote Customer Access Port.	PB:M	5.10	 Ports: _____ Ports: _____ Ports: _____ Ports: _____

Item	Feature	Status	References	Support
BEB-1	State which Ports support the following values for the Backbone Edge Bridge Port Type: —Provider Instance Port; —Customer Network Port; —Provider Network Port; —Customer Backbone Port; — Customer Edge Port; — Remote Customer Access Port.	BEB: M	5.11	 PIP: _____ CNP: _____ PNP: _____ CBP: _____ CEP: _____ RCAP: _____

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A.14 Bridge management

Insert the following rows in A.14 below MGT-91 (Set Service Priority Regeneration Table), and renumber the subsequent rows in A.14 accordingly:

Item	Feature	Status	References	Support
MGT-92	Read Internal Interface Table Entry	MGT AND RCSI:M	12.13.4.1	Yes [ ] N/A [ ]
MGT-93	Configure Internal Interface Table Entry	MGT AND RCSI:M	12.13.4.2	Yes [ ] N/A [ ]

A.23 Connectivity Fault Management

Insert the following rows in A.23 below CFM-62 (Does the Provider Edge Bridge support...?), and renumber the subsequent rows in A.23 accordingly:

Item	Feature	Status	References	Support
CFM-63	Does the Provider Edge Bridge support the creation of a Down MEP on the interface corresponding to a Remote Customer Access Port?	RCSI AND BRG AND CFM: M	22.6.4	Yes [ ] No [ ]
CFM-64	Does the Provider Edge Bridge support the creation of a Down MEP on the interface corresponding to a Customer Edge Port connected to a Provider Access Port?	RCSI AND BRG AND CFM: M	22.6.4	Yes [ ] No [ ]

Annex M

(informative)

Bibliography

Insert the following reference after [B5] in Annex M, and renumber the subsequent references in Annex M accordingly:

[B6] External Network Network Interface (ENNI)—Phase 1, *Metro Ethernet ForumTechnical Specification MEF 26*, January 2010; http://metroethernetforum.org/PDF_Documents/MEF26.pdf.