



**IEEE Standard for
Local and metropolitan area networks—**

Virtual Bridged Local Area Networks

**Amendment 8: Management Information Base
(MIB) Definitions for VLAN Bridges**

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

IEEE
3 Park Avenue
New York, NY 10016-5997, USA
9 March 2009

IEEE Std 802.1ap™-2008
(Amendment to
IEEE Std 802.1Q™-2005)

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Approved 10 December 2008

IEEE-SA Standards Board

Abstract: This amendment includes management information base (MIB) definitions in IEEE Std 802.1Q.

Keywords: LANs, local area networks, MAC Bridges, Management Information Base, MANs, metropolitan area networks, MIB, Simple Network Management Protocol, SNMP, transparent bridging, VLANs

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

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SECOND PRINTING: 10 July 2009. Correction to 17.7.5 is included in this Printing.

PDF: ISBN 973-0-7381-5859-4 STD95856
Print: ISBN 973-1-5044-6240-2 STDPD95856

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Introduction

This introduction is not part of IEEE Std 802.1ap-2008, IEEE Standards for Local and Metropolitan Area Networks—Virtual Bridged Local Area Networks—Amendment 8: Provider Backbone Bridges.

Up until the publication of IEEE Std 802.1agTM, VLAN Bridging had not included a SMIV2 Management Information Base (MIB) for any feature aspects. However, a prose description of the required Bridge management has been documented in Clause 12 of each new amendment to IEEE Std 802.1QTM. Previous versions of this standard (e.g., IEEE Std 802.1Q-2005, IEEE Std 802.1Q-1998) relied on MIB modules defined by the IETF Bridge Working Group. This definition occurred much later than the IEEE 802.1Q feature definition and was guided solely on the requirements described in Clause 12.

IETF RFC 4663 describes more details of the IETF transition of responsibility for bridging-related MIB modules from the IETF Bridge MIB Working Group to the IEEE 802.1 Working Group. The conclusion of a multi-year effort, IEEE Std 802.1ap is the new baseline set of MIBs for IEEE Std 802.1Q that are contained in Clause 17. All future amendments of IEEE Std 802.1Q will include both the bridge management description in Clause 12 as well as a SMIV2 MIB in Clause 17.

While the use of the original IETF MIBs (i.e., IETF RFC 4188, IETF RFC 4318, and IETF RFC 4363) is still possible for some VLAN Bridging features, IEEE Std 802.1ap presents a complete set that can be used independently from the original IETF MIBs. It should be noted that the use of the existing IETF MIBs was considered. However, there were several reasons that influenced the IEEE 802.1 committee to create new MIBs for all aspects. These include the following:

- a) The right time to move all the MIBs to the IEEE would be at the beginning
- b) A new MIB set would allow the complete OID root to be under the IEEE arc
- c) Some minor modifications and consolidation (e.g., removal of source routing, merging of xSTP) were desired in the IETF MIBs
- d) To avoid duplication of the base Bridge MIB modules within a PBB MIB module, the base Bridge MIB modules needed to re-indexed by component to allow their use within a Backbone Edge Bridge (BEB)

Notwithstanding the creation of this new IEEE MIB set for IEEE Std 802.1Q, there are still various IETF MIB defined objects that are imported by the MIB modules defined in this standard. Where there was no need to change an object (e.g., VlanId), the IEEE 802.1 committee viewed it prudent to re-use the IETF object that was already in use.

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IEEE Standard for
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Virtual Bridged Local Area Networks

Amendment 8: Management Information Base (MIB) Definitions for VLAN Bridges

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[This amendment is based on IEEE Std 802.1Q™-2005.]

Editorial Note

This amendment specifies changes to IEEE Std 802.1Q-2005, as amended by IEEE Std 802.1ad™-2005, IEEE Std 802.1ak™-2007, IEEE Std 802.1ag™-2007, and IEEE Std 802.1ah™-2008, that enable a provider to scale a Provider Bridged Network by interconnecting many Provider Bridged Networks over a Provider Backbone Bridged Network. The resulting backbone network can support interconnection of up to 2^{24} equivalent of separate LANs, Bridged Local Area Networks, or Virtual Bridged Local Area Networks. Changes are applied to the base text of IEEE Std 802.1Q-2005 as amended by IEEE Std 802.1ad-2005, IEEE Std 802.1ak-2007, IEEE Std 802.1ag-2007, and IEEE Std 802.1ah-2008. 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. Overview

1.1 Scope

Insert the following list item after existing list item j), renumbering subsequent list items accordingly:

- k) Defines SMlv2 (IETF STD 58) MIB modules for the management of VLAN-aware Bridge capabilities including Spanning Tree Protocols and Provider Bridges.

2. Normative references

Delete the following references:

~~IETF RFC 1493 (July 1993), *Definitions of Managed Objects for Bridges*, Decker, E., Langille, P., Rijhsinghani, A., and McCloghrie, K.~~

~~IETF RFC 2674 (Aug. 1999), *Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions*, Bell, E., Smith, A., Langille, P., Rijhsinghani, A., and McCloghrie, K.~~

Insert the following new reference alphanumerically:

IEEE Std 802.1AX™-2008, IEEE Standard for Local and metropolitan area networks—Link Aggregation.

3. Definitions

Replace the following definition in the correct collating sequence:

~~3.17 Bridge Port: A port supporting the MAC relay entity of a bridge component.~~

3.17 Bridge Port: A service access point (SAP) that provides the EISS to the MAC Relay Entity of a VLAN-aware Bridge component, or that provides the ISS to the MAC Relay Entity of a MAC Bridge, and the interface stack that supports that SAP (see 6.1.4, 8.5).

NOTE—In simple cases specific MAC procedures (6.7) provide the ISS (directly) or the EISS (using the procedures specified in 6.9), and each Bridge Port corresponds to a single and distinct LAN attachment. More complex interface stacks can aggregate multiple LANs to support a single Bridge Port, or can multiplex many Bridge Ports over a single LAN or set of LANs.¹

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

4. Abbreviations

Change the following abbreviation as follows:

MIB Management Information Base (~~ISO/IEC 7498-4~~)(Clause 17)

5. Conformance

Insert a new item to the end of the list in 5.4.1 as follows:

5.4.1 VLAN-aware Bridge component options

An implementation of a VLAN-aware Bridge component may

- o) Support SMIV2 MIB modules for the management of VLAN-aware Bridge capabilities (Clause 17).

NOTE—In previous versions of IEEE Std 802.1Q, the MIB modules were maintained by IETF (e.g., IETF RFC 4363 for the Q-BRIDGE MIB). For this standard, the entire set of MIB modules required to manage a Bridge is contained in Clause 17.

8. Principles of Bridge operation

Change 8.12 as follows:

8.12 Bridge Management Entity

In order to facilitate interoperable management of Bridges by remote means (as opposed to management via some kind of management console attached directly to the Bridge), it is recommended that SNMP should be the protocol that is used, in conjunction with the SMIPv2 MIB modules specified in Clause 17, the following documents:

- a) ~~IETF RFC 1493²,~~
- b) ~~IETF RFC 2674³,~~
- c) ~~RSTP MIB⁴,~~
- d) ~~MSTP MIB⁵.~~
- e) ~~Provider Bridges MIB.~~
- f) ~~CFM MIB (17.5).~~

~~NOTE—This standard is not fully complete, in terms of its specification of management capability using SNMP. Management of network components supporting MSTP and Provider Bridges is possible, but in the absence of a standardized MIB to ensure interoperability, such management operations may be complex. It is anticipated that a new project will be initiated in order to standardize an SMIPv2 MIB definition as an amendment to this standard.~~

²At the time of writing, there is a proposed update of this MIB: <http://www.ietf.org/internet-drafts/draft-ietf-bridge-bridgemib-smiv2-08.txt>

³At the time of writing, there is a proposed update of this MIB: <http://www.ietf.org/internet-drafts/draft-ietf-bridge-ext-v2-03.txt>

⁴At the time of writing, there is a proposed update of this MIB: <http://www.ietf.org/internet-drafts/draft-ietf-bridge-rstpmib-05.txt>

⁵At the time of writing, a MSTP and Provider Bridges MIB is yet to be defined.

9. Tagged frame format

9.8 Backbone Service Instance Tag Control Information

Change Table 9-3 as follows:

Table 9-3—Reserved I-SID values

I-SID value (hexadecimal)	Meaning/Use
0	<u>Reserved for use by future amendments to this standard.</u>
1	<u>Default value—Unassigned ISID on a VIP.</u>
02 through FF	Reserved for use by future amendments to this standard.
FFFFFF	Reserved for implementation use. This I-SID value shall not be configured as an identifier for a backbone service instance or transmitted in a Backbone Service Instance Tag header. This I-SID value may be used to indicate a wildcard match for the I-SID in management operations.

NOTE—There is a distinction between the range of I-SIDs that an implementation can support, and the maximum number of active backbone service instances supported at any one time. An implementation that supports only 2^{16} active backbone service instances, for example, may use I-SIDs chosen from anywhere in the identifier space. Implementations of this standard support the full range of I-SIDs, even if the number of active backbone service instances is limited.

12. Bridge management

Change items in 12.8.1.1.3 as follows:

12.8.1.1.3 Outputs

- g) Root Port (13.23.5 of this standard, ~~17.17.5~~17.18.5 of IEEE Std 802.1D).
- h) Max Age (13.23.7 of this standard, ~~17.18.18~~17.18.7 of IEEE Std 802.1D).

Delete the note and change items in 12.8.2.1.3 as follows:

12.8.2.1.3 Outputs

- a) Uptime—count in seconds of the time elapsed since the Port was last reset or initialized (BEGIN, 13.23).
- b) ~~State—the current state of the Port (i.e., Disabled, Port State—Discarding, Listening, Learning, or Forwarding, or Blocking) (8.4, 13.35 of this standard, 17.5 of IEEE Std 802.1D).~~

~~NOTE—The current IETF Bridge MIB (IETF RFC 1493) uses disabled, blocking, listening, learning, forwarding, and broken dot1dStpPortStates. The learning and forwarding states correspond exactly to the Learning and Forwarding Port States specified in this standard. Disabled, blocking, listening, and broken all correspond to the Discarding Port State—while those dot1dStpPortStates serve to distinguish reasons for discarding frames, the operation of the Forwarding and Learning processes is the same for all of them. The dot1dStpPortState broken represents the failure or unavailability of the port's MAC as indicated by MAC_Operational_FALSE; disabled represents exclusion of the port from the active topology by management setting of the Administrative Port State to Disabled; blocking represents exclusion of the port from the active topology by the spanning tree algorithm [computing an Alternate or Backup Port Role (17.7)]; listening represents a port that the spanning tree algorithm has selected to be part of the active topology (computing a Root Port or Designated Port role) but is temporarily discarding frames to guard against loops or incorrect learning.~~

- e) Designated Root (~~13.24.12~~13.24.2 of this standard, ~~17.18.17~~17.19.4 of IEEE Std 802.1D).
- f) Designated Cost (~~13.24.12~~13.24.2 of this standard, ~~17.18.17~~17.19.4 of IEEE Std 802.1D).
- g) Designated Bridge (~~13.24.12~~13.24.2 of this standard, ~~17.18.17~~17.19.4 of IEEE Std 802.1D).
- h) Designated Port (~~13.24.12~~13.24.2 of this standard, ~~17.18.17~~17.19.4 of IEEE Std 802.1D).

Insert a note in 12.10.1.8.1 as follows:

12.10.1.8.1 Inputs

- c) A Protocol Group Identifier (6.8.2).

NOTE—While the intent is to identify VID traffic, an ID of 0 may be used to indicate untagged traffic that needs prioritization.

Delete the existing text of Clause 17 and replace with the following:

17. Management Information Base (MIB)

The clause contains a complete SMIV2 Management Information Base (MIB) set for all features of this standard. Previous versions of this standard (e.g., IEEE Std 802.1Q-2005, IEEE Std 802.1Q-1998) relied on MIB modules defined by the IETF Bridge Working Group. IETF RFC 4663 describes more details of the IETF transition of responsibility for bridging-related MIB modules from the IETF Bridge MIB Working Group to the IEEE 802.1 Working Group.

17.1 Internet Standard Management Framework

For a detailed overview of the documents that describe the current Internet Standard Management Framework, please refer to section 7 of IETF RFC 3410 [B7].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This clause specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, IETF RFC 2578, IETF RFC 2579, and IETF RFC 2580.

Control of the transmission of Fault Alarms, which are Notifications in SNMP, are described by STD 62, IETF RFC 3413, IETF RFC 3417, and IETF RFC 4789. As a consequence of the concentration of control of the reporting of SNMP Notifications in the SNMP-TARGET-MIB and SNMP-NOTIFICATION-MIB of IETF RFC 3413, the variables controlling Fault Alarm notifications described in Clause 12 [item e) in 12.14.5.1.3, item f) in 12.14.6.1.3, and item j) in 12.14.7.1.3] require no specific objects in the MIB modules in 17.7.

17.2 Structure of the MIB

The IEEE 802.1Q MIB is divided into a number of modules corresponding to the project that created the functionality. The managed objects in most of these modules have been re-indexed to allow their use within the PBB MIB module (and thus avoid a duplication of objects).

A summary of the modules contained in this clause is presented in Table 17.1.

Table 17.1—Structure of the MIB modules

Module	Subclause	Defining IEEE standard	Reference	Notes
IEEE8021-TC MIB	17.7.1	802.1ap	—	Textual conventions for all modules
IEEE8021-BRIDGE MIB	17.7.2	802.1D, 802.1p, and 802.1t	802.1D	Adapted from IETF RFC 4188 and IETF RFC 4363
IEEE8021-SPANNING-TREE MIB	17.7.3	802.1w	802.1D 17	Adapted from IETF RFC 4318
IEEE8021-Q-BRIDGE MIB	17.7.4	802.1Q, 802.1u, and 802.1v	8	Adapted from IETF RFC 4363
IEEE8021-PB MIB	17.7.5	802.1ad	16	Initial version in IEEE Std 802.1ap
IEEE8021-MSTP MIB	17.7.6	802.1s	13	Initial version in IEEE Std 802.1ap
IEEE8021-CFM MIB	17.7.7.1	802.1ag	20	Initial version in IEEE Std 802.1ag
IEEE8021-CFM MIBV2	17.7.7.2	802.1ag	20	Initial version in IEEE Std 802.1ap
IEEE8021-PBB MIB	17.7.8	802.1ah	26	Initial version in IEEE Std 802.1ap

17.2.1 Structure of the IEEE8021-TC MIB

The purpose of the IEEE8021-TC MIB is to define textual conventions used throughout the IEEE 802.1Q MIB modules. Textual conventions (TCs) originally appeared in each of the MIB modules for IEEE Std 802.1Q produced by the IETF. However, with the transition of all modules for IEEE Std 802.1Q to this clause, it made sense to have a single module with all the textual conventions contained within it. Note that many of the original IETF TCs are still used in the various MIB modules for VLAN-Bridge management and they have not been imported here.

The textual conventions contained in this IEEE8021-TC module are summarized in Table 17.2.

Table 17.2—IEEE8021-TC MIB Structure

IEEE MIB object	Reference
IEEE8021PbbComponentIdentifier	12.3 l)
IEEE8021PbbComponentIdentifierOrZero	12.3 l)
IEEE8021PbbServiceIdentifier	12.16.3, 12.16.5
IEEE8021PbbServiceIdentifierOrUnassigned	12.16.3, 12.16.5
IEEE8021PbbIngressEgress	12.16.3, 12.16.5, 12.16.6
IEEE8021PriorityCodePoint	12.6.2.6
IEEE8021BridgePortNumber	12.3 i), 17.3.2.2
IEEE8021BridgePortNumberOrZero	12.3 i), 17.3.2.2
IEEE8021BridgePortType	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
IEEE8021VlanIndex	9.6
IEEE8021VlanIndexOrWildcard	9.6
IEEE8021MstIdentifier	13.7
IEEE8021ServiceSelectorType	—
IEEE8021ServiceSelectorValueOrNone	—
IEEE8021ServiceSelectorValue	—
IEEE8021PortAcceptableFrameTypes	12.10.1.3, 12.13.3.3, 12.13.3.4
IEEE8021PriorityValue	12.13.3.3

The textual conventions used by IEEE 802.1Q MIB modules not contained in this TC module, but contained in IETF RFC 4318 and IETF RFC 4363 are as follows:

BridgeId
Timeout
PortList
VlanIdOrAny
VlanIdOrNone
VlanIdOrAnyOrNone

17.2.2 Structure of the IEEE8021-BRIDGE MIB

The work in this standard is based upon the BRIDGE MIB version in IETF RFC 4188 and the P-BRIDGE MIB originally in IETF RFC 4363. While many tables and objects are similar, this IEEE8021-BRIDGE MIB has been re-indexed and re-rooted with its inclusion in this clause.

Objects in this MIB module are arranged into subtrees. Each subtree is organized as a set of related objects. The overall structure and assignment of objects to their subtrees is shown below. Where appropriate, the corresponding IETF RFC 4188 object name, IEEE Std 802.1D management object name, and reference is also included. If the IETF RFC mapping is missing, it means there is no equivalent in the old MIBs. If the Managed Object is missing, it means that no managed object is specified in the referenced clause.

Table 17.3 that follows indicates the structure of the IEEE8021-BRIDGE MIB module as well as showing its relationship to the IETF MIB that is being obsoleted.

Table 17.3—IEEE8021-BRIDGE MIB structure and relationship to IETF RFC 4188 and this standard

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021BridgeBaseTable	dot1dBase	12.4.1
ieee8021BridgeBaseComponentId*	—	—
ieee8021BridgeBaseBridgeAddress	dot1dBaseBridgeAddress	12.4.1.1.3 a)
ieee8021BridgeBaseNumPorts	dot1dBaseNumPorts	12.4.1.1.3 c)
ieee8021BridgeBaseComponentType	—	12.3 m)
ieee8021BridgeBaseDeviceCapabilities	dot1dDeviceCapabilities	12.10.1.1.3 b)
ieee8021BridgeBaseTrafficClassesEnabled	dot1dTrafficClassesEnabled	—
ieee8021BridgeBaseMmrpEnabledStatus	dot1dGmrpStatus	—
ieee8021BridgeBaseRowStatus		
ieee8021BridgeBasePortTable	dot1dBasePortTable	12.4.2
ieee8021BridgeBasePortComponentId*	—	—
ieee8021BridgeBasePort*	dot1dBasePort	12.4.2.1.2 a)
ieee8021BridgeBasePortIfIndex	dot1dBasePortIfIndex	—
ieee8021BridgeBasePortDelayExceededDiscards	dot1dBasePortDelayExceededDiscards	12.6.1.1.3 f)
ieee8021BridgeBasePortMtuExceededDiscards	dot1dBasePortMtuExceededDiscards	12.6.1.1.3 g)
ieee8021BridgePortCapabilities	dot1dPortCapabilities	12.10.1.1.3 c)
ieee8021BridgeBasePortTypeCapabilities		—
ieee8021BridgeBasePortType		—
ieee8021BridgeBasePortExternal		—

Table 17.3—IEEE8021-BRIDGE MIB structure and relationship to IETF RFC 4188 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021BridgeBasePortAdminPointToPoint	dot1dStpPortAdminPointToPoint	12.8.2.1.3 o)
ieee8021BridgeBasePortOperPointToPoint	dot1dStpPortOperPointToPoint	12.8.2.1.3 p)
ieee8021BridgeBasePortName	ifDescr	12.4.2.1.3 a)
ieee8021BridgeTpPortTable	dot1dTpPortTable	12.4.2, C.4
ieee8021BridgeTpPortComponentId*	—	—
ieee8021BridgeTpPort*	dot1dTpPort	—
ieee8021BridgeTpPortMaxInfo	dot1dTpPortMaxInfo	—
ieee8021BridgeTpPortInFrames	dot1dTpPortInFrames	12.6.1.1.3 a)
ieee8021BridgeTpPortOutFrames	dot1dTpPortOutFrames	12.6.1.1.3 d)
ieee8021BridgeTpPortInDiscards	dot1dTpPortInDiscards	12.6.1.1.3 c)
ieee8021BridgePortPriorityTable	dot1dPortPriorityTable	12.6.2
(AUGMENTS ieee8021BridgeBasePortEntry)	(AUGMENTS dot1dBasePortEntry)	—
ieee8021BridgePortDefaultUserPriority	dot1dPortDefaultUserPriority	—
ieee8021BridgePortNumTrafficClasses	dot1dPortNumTrafficClasses	—
ieee8021BridgePortPriorityCodePointSelection		12.6.2.6, 12.6.2.7
ieee8021BridgePortUseDEI		12.6.2.12, 12.6.2.13
ieee8021BridgePortRequireDropEncoding		12.6.2.14, 12.6.2.15
ieee8021BridgePortServiceAccessPrioritySelection		12.6.2.16, 12.6.2.17
ieee8021BridgeUserPriorityRegenTable	dot1dUserPriorityRegenTable	6.4
ieee8021BridgeUserPriorityRegenComponentId*		—
ieee8021BridgeBasePort*	dot1dBasePort	—
ieee8021BridgeUserPriority*	dot1dUserPriority	—
ieee8021BridgeRegenUserPriority	dot1dRegenUserPriority	—
ieee8021BridgeTrafficClassTable	dot1dTrafficClassTable	Table 8-3
ieee8021BridgeTrafficClassComponentId*		—

Table 17.3—IEEE8021-BRIDGE MIB structure and relationship to IETF RFC 4188 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021BridgeBasePort*	dot1dBasePort	—
ieee8021BridgeTrafficClassPriority*	dot1dTrafficClassPriority	—
ieee8021BridgeTrafficClass	dot1dTrafficClass	—
ieee8021BridgePortOutboundAccessPriorityTable	dot1dPortOutboundAccessPriorityTable	Table 8-3
ieee8021BridgePortOutboundAccessPriorityComponentId*		—
ieee8021BridgeBasePort*	dot1dBasePort	—
ieee8021BridgePortOutboundAccessPriority*	dot1dPortOutboundAccessPriority	—
ieee8021BridgePortDecodingTable		12.6.2
ieee8021BridgePortDecodingComponentId*		—
ieee8021BridgePortDecodingPortNum*		—
ieee8021BridgePortDecodingPriorityCodePointRow*		—
ieee8021BridgePortDecodingPriorityCodePoint*		—
ieee8021BridgePortDecodingPriority		12.6.2.8, 12.6.2.9
ieee8021BridgePortDecodingDropEligible		12.6.2.8, 12.6.2.9
ieee8021BridgePortEncodingTable		12.6.2
ieee8021BridgePortEncodingComponentId*		—
ieee8021BridgePortEncodingPortNum*		—
ieee8021BridgePortEncodingPriorityCodePointRow*		—
ieee8021BridgePortEncodingPriorityCodePoint*		—
ieee8021BridgePortEncodingDropEligible*		—
ieee8021BridgePortEncodingPriority		12.6.2.10, 12.6.2.11
ieee8021BridgeServiceAccessPriorityTable		—
ieee8021BridgeServiceAccessPriorityComponentId*		—
ieee8021BridgeServiceAccessPriorityPortNum*		—
ieee8021BridgeServiceAccessPriorityReceived*		—

Table 17.3—IEEE8021-BRIDGE MIB structure and relationship to IETF RFC 4188 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021BridgeServiceAccessPriorityValue		12.6.2.18, 12.6.2.19
ieee8021BridgePortMrpTable	dot1dPortGarpTable	12.9
(AUGMENTS ieee8021BridgeBasePortEntry)	(AUGMENTS dot1dBasePortEntry)	14.4.2, 14.6.1
ieee8021BridgePortMrpJoinTime	dot1dPortGarpJoinTime	—
ieee8021BridgePortMrpLeaveTime	dot1dPortGarpLeaveTime	—
ieee8021BridgePortMrpLeaveAllTime	dot1dPortGarpLeaveAllTime	—
ieee8021BridgePortmMrpTable	dot1dPortGmrpTable	12.11
(AUGMENTS ieee8021BridgeBasePortEntry)	(AUGMENTS dot1dBasePortEntry)	—
ieee8021BridgePortmMrpEnabledStatus	dot1dPortGmrpStatus	—
ieee8021BridgePortMmrpFailedRegistrations	dot1dPortGmrpFailedRegistrations	—
ieee8021BridgePortMmrpLastPduOrigin	dot1dPortGmrpLastPduOrigin	—
ieee8021BridgePortRestrictedGroupRegistration	dot1dPortRestrictedGroupRegistration	11.2.3.2.3, 12.11.1.3
ieee8021BridgeILanIfTable		17.3.2.2
ieee8021BridgeILanIfRowStatus		—
ieee8021BridgeDot1dPortTable		17.5.3
ieee8021BridgeBasePortComponentId*		—
ieee8021BridgeBasePort*		—
ieee8021BridgeDot1dPortRowStatus		—

*This object is an INDEX of the table in which it resides.

The IEEE8021-BRIDGE MIB contains the following object subtrees:

- a) The ieee8021BridgeBase Subtree
This subtree contains the objects that are applicable to all types of Bridges.
- b) The ieee8021BridgeTp Subtree
This subtree contains objects that describe the entity's state with respect to transparent bridging. If transparent bridging is not supported, this subtree will not be implemented. This subtree is applicable to transparent-only Bridges.
- c) The ieee8021BridgePriority Subtree
This subtree contains the objects for configuring and reporting status of priority-based queuing mechanisms in a bridge. This includes per Bridge Port user_priority treatment, mapping of user_priority in frames into internal traffic classes, and outbound user_priority and access_priority.

- d) The ieee8021BridgeMrp Subtree
This subtree contains the objects for configuring and reporting on operation of the Multiple Registration Protocol (MRP).
- e) The ieee8021BridgeMmrp Subtree
This subtree contains the objects for configuring and reporting on operation of the MRP MAC Registration Protocol (MMRP).
- f) The ieee8021BridgeInternal LAN Subtree
This subtree contains the objects for configuring and reporting on operation of the Internal LAN interface. An I-LAN Interface is used to create internal connections between Bridge Ports in an IEEE 802.1 device.

The following IEEE 802.1D management objects in Table 17.4 have not been included in the BRIDGE-MIB module for the indicated reasons. Note that the assumption is made that the base modules SNMPv2-MIB [RFC3418] and IF-MIB [RFC2863] will be implemented as a default on all Bridges.

Table 17.4—Clause 12 objects not in the IEEE8021-BRIDGE MIB^a

IEEE 802.1D object	Disposition
Bridge.BridgeName	Same as sysDescr (SNMPv2-MIB)
Bridge.BridgeUpTime	Same as sysUpTime (SNMPv2-MIB)
Bridge.PortAddresses	Same as ifPhysAddress (IF-MIB)
BridgePort.RoutingType	Derivable from the implemented subtrees
Transmission Priority	These objects are not required as per the PICS Proforma and are not considered useful.
.TransmissionPriorityName	
.OutboundUserPriority	
.OutboundAccessPriority	

^aClause 12 changes should be made in a future project to remove objects not considered useful.

17.2.3 Structure of the IEEE8021-SPANNING-TREE MIB

A RSTP MIB originally appeared in IETF RFC 4318. While many tables and objects are similar, the IEEE8021-SPANNING-TREE MIB has been merged with spanning tree objects from the original BRIDGE MIB in IETF RFC 4188 and also re-indexed and re-rooted with its inclusion in this subclause.

This subclause defines an SMIPv2 MIB module for managing the Rapid Spanning Tree Protocol (RSTP) capability originally defined by the IEEE Std 802.1t™ and IEEE Std 802.1w™ amendments to IEEE Std 802.1D-1998 for bridging between Local Area Network (LAN) segments. The objects in this MIB are defined to apply both to transparent bridging and to Bridges connected by subnetworks other than LAN segments.

The IEEE8021-RSTP MIB in this clause, however, is based on IEEE Std 802.1D-2004, though the references are to this standard.

Table 17.5 that follows indicates the structure of the IEEE8021-RSTP MIB module as well as showing its relationship to the IETF MIB that is being obsoleted.

Table 17.5—IEEE8021-SPANNING-TREE MIB structure and relationship to IETF RFC 4318 and this standard

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021SpanningTreeTable	dot1dStp	12.8.1
ieee8021SpanningTreeComponentId*		—
ieee8021SpanningTreeProtocolSpecification	dot1dStpProtocolSpecification	—
ieee8021SpanningTreePriority	dot1dStpPriority	12.8.1.1.3 a)
ieee8021SpanningTreeTimeSinceTopologyChange	dot1dStpTimeSinceTopologyChange	12.8.1.1.3 b)
ieee8021SpanningTreeTopChanges	dot1dStpTopChanges	12.8.1.1.3 c)
ieee8021SpanningTreeDesignatedRoot	dot1dStpDesignatedRoot	12.8.1.1.3 e)
ieee8021SpanningTreeRootCost	dot1dStpRootCost	12.8.1.1.3 f)
ieee8021SpanningTreeRootPort	dot1dStpRootPort	12.8.1.1.3 g)
ieee8021SpanningTreeMaxAge	dot1dStpMaxAge	12.8.1.1.3 h)
ieee8021SpanningTreeHelloTime	dot1dStpHelloTime	12.8.1.1.3 k)
ieee8021SpanningTreeHoldTime	dot1dStpHoldTime	12.8.1.1.3 m)
ieee8021SpanningTreeForwardDelay	dot1dStpForwardDelay	12.8.1.1.3 i)
ieee8021SpanningTreeBridgeMaxAge	dot1dStpBridgeMaxAge	12.8.1.1.3 j)
ieee8021SpanningTreeBridgeHelloTime	dot1dStpBridgeHelloTime	12.8.1.1.3 k)
ieee8021SpanningTreeBridgeForwardDelay	dot1dStpBridgeForwardDelay	12.8.1.1.3 l)
ieee8021SpanningTreeVersion	dot1dStpVersion	12.8.1.1.3 n)
ieee8021SpanningTreeRstpTxHoldCount	dot1dStpTxHoldCount	12.8.1.1.3 m)
ieee8021SpanningTreePortTable	dot1dStpPortTable	12.8.2
ieee8021SpanningTreePortComponentId*	—	—
ieee8021SpanningTreePort*	dot1dStpPort	12.8.2.1.2 a)
ieee8021SpanningTreePortPriority	dot1dStpPortPriority	12.8.2.1.3 c)
ieee8021SpanningTreePortState	dot1dStpPortState	12.8.2.1.3 b)
ieee8021SpanningTreePortEnable	dot1dStpPortEnable	12.8.2.1.3 m)
ieee8021SpanningTreePortPathCost	dot1dStpPortPathCost	12.8.2.1.3 d)
ieee8021SpanningTreePortDesignatedRoot	dot1dStpPortDesignatedRoot	12.8.2.1.3 e)
ieee8021SpanningTreePortDesignatedCost	dot1dStpPortDesignatedCost	12.8.2.1.3 f)
ieee8021SpanningTreePortDesignatedBridge	dot1dStpPortDesignatedBridge	12.8.2.1.3 g)
ieee8021SpanningTreePortDesignatedPort	dot1dStpPortDesignatedPort	12.8.2.1.3 h)

Table 17.5—IEEE8021-SPANNING-TREE MIB structure and relationship to IETF RFC 4318 and this standard (*continued*)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021SpanningTreePortForwardTransitions	dot1dStpPortForwardTransitions	—
ieee8021SpanningTreeRstpPortProtocolMigration	dot1dStpPortProtocolMigration	12.8.2.5
ieee8021SpanningTreeRstpPortAdminEdgePort	dot1dStpPortAdminEdgePort	12.8.2.1.3 k)
ieee8021SpanningTreeRstpPortOperEdgePort	dot1dStpPortOperEdgePort	12.8.2.1.3 l)
ieee8021SpanningTreeRstpPortAdminPathCost	dot1dStpPortAdminPathCost	12.8.2.1.3 d)

*This object is an INDEX of the table in which it resides.

The IEEE8021-SPANNING-TREE MIB contains the following object subtrees:

- a) The ieee8021SpanningTree Subtree
This subtree contains the objects that denote the Bridge's state with respect to the Spanning Tree Protocol.
- b) The ieee8021SpanningTreePort Subtree
This subtree contains the objects that denote the Bridge Port's state with respect to the Spanning Tree Protocol.

For compatibility with the original MIB defined in IETF RFC 4318, the IEEE8021-SPANNING-TREE-MIB continues to use disabled, blocking, listening, learning, forwarding, and broken ieee8021SpanningTreePortStates. The learning and forwarding states correspond exactly to the Learning and Forwarding Port States specified in Clause 12 of this standard. Disabled, blocking, listening, and broken all correspond to the Discarding Port State—while those ieee8021SpanningTreePortStates serve to distinguish reasons for discarding frames, the operation of the Forwarding and Learning processes is the same for all of them. The ieee8021SpanningTreePortState broken represents the failure or unavailability of the Port's MAC as indicated by MAC_Operational FALSE; disabled represents exclusion of the Port from the active topology by management setting of the Administrative Port State to Disabled; blocking represents exclusion of the Port from the active topology by the spanning tree algorithm [computing an Alternate or Backup Port Role (17.7 of IEEE Std 802.1D)]; listening represents a Port that the spanning tree algorithm has selected to be part of the active topology (computing a Root Port or Designated Port role) but is temporarily discarding frames to guard against loops or incorrect learning.

The following IEEE 802.1D management objects in Table 17.4 have not been included in the STP-MIB module for the indicated reasons.

Table 17.6—Clause 12 objects not in the IEEE8021-SPANNING-TREE MIB^a

IEEE 802.1D object	Disposition
SpanningTreeProtocol	
.BridgeIdentifier	Combination of ieee8021SpanningTreePriority and ieee8021BridgeBaseBridgeAddress
.TopologyChange	Since this is transitory, it is not considered useful
SpanningTreeProtocolPort	
.Uptime	Same as ifLastChange (IF-MIB)
.PortIdentifier	Combination of ieee8021SpanningTreePort and ieee8021SpanningTreePortPriority
.TopologyChangeAcknowledged	Since this is transitory, it is not considered useful
.DiscardLackOfBuffers	Redundant

^aClause 12 changes should be made in a future project to remove objects that are not considered useful.

17.2.4 Structure of the IEEE8021-Q-BRIDGE MIB

A Q-BRIDGE MIB originally appeared in IETF RFC 4363. While many tables and objects are similar, it has been re-indexed and re-rooted with its inclusion in this subclause.

Objects in this MIB module are arranged into subtrees. Each subtree is organized as a set of related objects. Where appropriate, the corresponding IETF RFC 4363 object name and IEEE Std 802.1Q management reference is also included.

Unlike IEEE Std 802.1D-1998, this standard does not define exact syntax for a set of managed objects. The following cross-references indicate only the subclause numbering of the descriptions of management operations from Clause 12.

Table 17.7 that follows indicates the structure of the IEEE8021-Q-BRIDGE MIB module as well as showing its relationship to the IETF MIB that is being obsoleted.

Table 17.7—IEEE8021-QBRIDGE MIB structure and relationship to IETF RFC 4363 and this standard

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021QBridgeTable	dot1qBase	12.4
ieee8021QBridgeComponentId*	—	—
ieee8021QBridgeVlanVersionNumber	dot1qVlanVersionNumber	12.10.1.1
ieee8021QBridgeMaxVlanId	dot1qMaxVlanId	9.6
ieee8021QBridgeMaxSupportedVlans	dot1qMaxSupportedVlans	12.10.1.1
ieee8021QBridgeNumVlans	dot1qNumVlans	12.7.1.1
ieee8021QBridgeMvrpEnabledStatus	dot1qGvrpStatus	—
ieee8021QBridgeCVlanPortTable		
ieee8021QBridgeCVlanPortComponentId*		
ieee8021QBridgeCVlanPortNumber		
ieee8021QBridgeCVlanPortRowStatus		
ieee8021QBridgeFdbTable	dot1qFdbTable	12.7.1
ieee8021QBridgeFdbComponentId*	—	—
ieee8021QBridgeFdbId*	dot1qFdbId	—
ieee8021QBridgeFdbDynamicCount	dot1qFdbDynamicCount	12.7.1.1.3
ieee8021QBridgeFdbLearnedEntryDiscards		
ieee8021QBridgeFdbAgingTime		
ieee8021QBridgeTpFdbTable	dot1qTpFdbTable	12.7.1
ieee8021QBridgeFdbComponentId*	—	—
ieee8021QBridgeFdbId*	—	—
ieee8021QBridgeTpFdbAddress*	dot1qTpFdbAddress	—
ieee8021QBridgeTpFdbPort	dot1qTpFdbPort	—
ieee8021QBridgeTpFdbStatus	dot1qTpFdbStatus	—
ieee8021QBridgeTpGroupTable	dot1qTpGroupTable	12.7.4
ieee8021QBridgeVlanCurrentComponentId*	—	—
ieee8021QBridgeVlanIndex*	—	—

Table 17.7—IEEE8021-QBRIDGE MIB structure and relationship to IETF RFC 4363 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021QBridgeTpGroupAddress*	dot1qTpGroupAddress	—
ieee8021QBridgeTpGroupEgressPorts	dot1qTpGroupEgressPorts	—
ieee8021QBridgeTpGroupLearnt	dot1qTpGroupLearnt	—
ieee8021QBridgeForwardAllTable	dot1qForwardAllTable	12.7.2, 12.7.7
ieee8021QBridgeForwardAllComponentId*	—	—
ieee8021QBridgeVlanIndex*	—	—
ieee8021QBridgeForwardAllPorts	dot1qForwardAllPorts	—
ieee8021QBridgeForwardAllStaticPorts	dot1qForwardAllStaticPorts	—
ieee8021QBridgeForwardAllForbiddenPorts	dot1qForwardAllForbiddenPorts	—
ieee8021QBridgeForwardUnregisteredTable	dot1qForwardUnregisteredTable	12.7.2, 12.7.7
ieee8021QBridgeForwardUnregisteredComponentId*	—	—
ieee8021QBridgeVlanIndex*	—	—
ieee8021QBridgeForwardUnregisteredPorts	dot1qForwardUnregisteredPorts	—
ieee8021QBridgeForwardUnregisteredStaticPorts	dot1qForwardUnregisteredStaticPorts	—
ieee8021QBridgeForwardUnregisteredForbiddenPorts	dot1qForwardUnregisteredForbidden Ports	—
ieee8021QBridgeStaticUnicastTable	dot1qStaticUnicastTable	12.7.7, 8.8.1
ieee8021QBridgeFdbComponentId*	—	—
ieee8021QBridgeFdbId*	—	—
ieee8021QBridgeStaticUnicastAddress*	dot1qStaticUnicastAddress	—
ieee8021QBridgeStaticUnicastReceivePort*	dot1qStaticUnicastReceivePort	—
ieee8021QBridgeStaticUnicastStaticEgressPorts	dot1qStaticUnicastAllowedToGoTo	8.5
ieee8021QBridgeStaticUnicastForbiddenEgressPorts	dot1qStaticUnicastAllowedToGoTo	8.5
ieee8021QBridgeStaticUnicastStorageType		
ieee8021QBridgeStaticUnicastRowStatus	dot1qStaticUnicastStatus	—

Table 17.7—IEEE8021-QBRIDGE MIB structure and relationship to IETF RFC 4363 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021QBridgeStaticMulticastTable	dot1qStaticMulticastTable	12.7.7, 8.8.1
ieee8021QBridgeVlanCurrentComponentId*	—	—
ieee8021QBridgeVlanIndex*	—	—
ieee8021QBridgeStaticMulticastAddress*	dot1qStaticMulticastAddress	—
ieee8021QBridgeStaticMulticastReceivePort*	dot1qStaticMulticastReceivePort	—
ieee8021QBridgeStaticMulticastStaticEgressPorts	dot1qStaticMulticastStaticEgressPorts	—
ieee8021QBridgeStaticMulticastForbiddenEgressPorts	dot1qStaticMulticastForbiddenEgress Ports	—
ieee8021QBridgeStaticMulticastStorageType		—
ieee8021QBridgeStaticMulticastRowStatus	dot1qStaticMulticastStatus	—
ieee8021QBridgeVlan	dot1qVlan	—
ieee8021QBridgeVlanNumDeletes	dot1qVlanNumDeletes	—
ieee8021QBridgeVlanCurrentTable	dot1qVlanCurrentTable	12.10.2
ieee8021QBridgeVlanCurrentComponentId*	—	—
ieee8021QBridgeVlanTimeMark*	dot1qVlanTimeMark	—
ieee8021QBridgeVlanIndex*	dot1qVlanIndex	—
ieee8021QBridgeVlanFdbId	dot1qVlanFdbId	—
ieee8021QBridgeVlanCurrentEgressPorts	dot1qVlanCurrentEgressPorts	12.10.2.1
ieee8021QBridgeVlanCurrentUntaggedPorts	dot1qVlanCurrentUntaggedPorts	12.10.2.1
ieee8021QBridgeVlanStatus	dot1qVlanStatus	—
ieee8021QBridgeVlanCreationTime	dot1qVlanCreationTime	—
ieee8021QBridgeVlanStaticTable	dot1qVlanStaticTable	12.7.5
ieee8021QBridgeVlanStaticComponentId*	—	—
ieee8021QBridgeVlanStaticVlanIndex*	—	—
ieee8021QBridgeVlanStaticName	dot1qVlanStaticName	12.10.2.1
ieee8021QBridgeVlanStaticEgressPorts	dot1qVlanStaticEgressPorts	12.7.7.3, 11.2.3.2.3

Table 17.7—IEEE8021-QBRIDGE MIB structure and relationship to IETF RFC 4363 and this standard (continued)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021QBridgeVlanForbiddenEgressPorts	dot1qVlanForbiddenEgressPorts	12.7.7.3, 11.2.3.2.3
ieee8021QBridgeVlanStaticUntaggedPorts	dot1qVlanStaticUntaggedPorts	12.10.2.1
ieee8021QBridgeVlanStaticRowStatus	dot1qVlanStaticRowStatus	—
ieee8021QBridgeNextFreeLocalVlanTable	dot1qVlan	—
ieee8021QBridgeNextFreeLocalVlanComponentId*	—	—
ieee8021QBridgeNextFreeLocalVlanIndex	dot1qNextFreeLocalVlanIndex	—
ieee8021QBridgePortVlanTable	dot1qPortVlanTable	12.10.1
(AUGMENTS ieee8021BridgeBasePortEntry)	(AUGMENTS dot1dBasePortEntry)	—
ieee8021QBridgePvid	dot1qPvid	12.10.1.1
ieee8021QBridgePortAcceptableFrameTypes	dot1qPortAcceptableFrameTypes	12.10.1.3
ieee8021QBridgePortIngressFiltering	dot1qPortIngressFiltering	12.10.1.4
ieee8021QBridgePortmvrpEnabledStatus	dot1qPortGvrpStatus	—
ieee8021QBridgePortmvrpFailedRegistrations	dot1qPortGvrpFailedRegistrations	—
ieee8021QBridgePortmvrpLastPduOrigin	dot1qPortGvrpLastPduOrigin	—
ieee8021QBridgePortRestrictedVlanRegistration	dot1qPortRestrictedVlanRegistration	11.2.3.2.3, 12.10.1.7.
ieee8021QBridgePortVlanStatisticsTable	dot1qPortVlanStatisticsTable	12.1.3
ieee8021BridgeBasePortComponentId*	—	—
ieee8021BridgeBasePort*	dot1dBasePort	—
ieee8021QBridgeVlanIndex*	dot1qVlanIndex	—
ieee8021QBridgeTpVlanPortInFrames	dot1qTpVlanPortInFrames dot1qTpVlanPortHCInFrames	12.6.1.1.3(a)
ieee8021QBridgeTpVlanPortOutFrames	dot1qTpVlanPortOutFrames dot1qTpVlanPortHCOutFrames	12.6.1.1.3(d)
ieee8021QBridgeTpVlanPortInDiscards	dot1qTpVlanPortInDiscards dot1qTpVlanPortHCInDiscards	12.6.1.1.3
ieee8021QBridgeLearningConstraintsTable	dot1qLearningConstraintsTable	12.10.3.1
ieee8021QBridgeLearningConstraintsComponentId*	—	—
ieee8021QBridgeConstraintVlan*	dot1qConstraintVlan	—

Table 17.7—IEEE8021-QBRIDGE MIB structure and relationship to IETF RFC 4363 and this standard (*continued*)

IEEE MIB table/object	IETF MIB table/object	Reference
ieee8021QBridgeConstraintSet*	dot1qConstraintSet	—
ieee8021QBridgeConstraintType	dot1qConstraintType	—
ieee8021QBridgeConstraintStatus	dot1qConstraintStatus	—
ieee8021QBridgeLearningConstraintDefaultsTable	dot1qVlan	12.10.3.1
ieee8021QBridgeLearningConstraintDefaultsComponentId*	—	—
ieee8021QBridgeLearningConstraintDefaultsSet	dot1qConstraintSetDefault	—
ieee8021QBridgeLearningConstraintDefaultsType	dot1qConstraintTypeDefault	—
ieee8021QBridgeProtocolGroupTable	dot1vProtocolGroupTable	12.10.1
ieee8021QBridgeProtocolGroupComponentId*	—	—
ieee8021QBridgeProtocolTemplateFrameType*	dot1vProtocolTemplateFrameType	12.10.1.8
ieee8021QBridgeProtocolTemplateProtocolValue*	dot1vProtocolTemplateProtocolValue	12.10.1.8
ieee8021QBridgeProtocolGroupId	dot1vProtocolGroupId	12.10.1.8
ieee8021QBridgeProtocolGroupRowStatus	dot1vProtocolGroupRowStatus	—
ieee8021QBridgeProtocolPortTable	dot1vProtocolPortTable	12.10.1
ieee8021BridgeBasePortComponentId*	—	—
ieee8021BridgeBasePort*	dot1dBasePort	—
ieee8021QBridgeProtocolPortGroupId*	dot1vProtocolPortGroupId	12.10.1.2
ieee8021QBridgeProtocolPortGroupVid	dot1vProtocolPortGroupVid	12.10.1.2
ieee8021QBridgeProtocolPortRowStatus	dot1vProtocolPortRowStatus	—

*This object is an INDEX of the table in which it resides.

The IEEE8021-Q-BRIDGE MIB contains the following object subtrees:

- a) The ieee8021QBridgeBase Subtree
This subtree contains the objects that are applicable to all Bridges implementing IEEE Std 802.1Q virtual LANs.
- b) The ieee8021QBridgeTp Subtree
This subtree contains objects that control the operation and report the status of transparent bridging. This includes management of the dynamic Filtering Databases for both unicast and multicast forwarding. This subtree will be implemented by all Bridges that perform destination-address filtering.

- c) The ieee8021QBridgeStatic Subtree
This subtree contains objects that control static configuration information for transparent bridging. This includes management of the static entries in the Filtering Databases for both unicast and multicast forwarding.
- d) The ieee8021QBridgeVlan Subtree
This subtree contains objects that control configuration and report status of the Virtual LANs known to a Bridge. This includes management of the statically configured VLANs as well as reporting VLANs discovered by other means [e.g., MRP VLAN Registration Protocol (MVRP)]. It also controls configuration and reports status of per-Port objects relating to VLANs and reports traffic statistics. It also provides for management of the VLAN Learning Constraints.
- e) The ieee8021QBridgeProtocol Subtree
This subtree contains objects that control configuration and report status of the mappings from Protocol Templates to Protocol Group Identifiers used for Port-and-Protocol-based VLAN Classification.

The following Clause 12 management objects have not been included in the IEEE8021-Q-BRIDGE MIB for the indicated reasons in Table 17.8. Note that the assumption is made the base modules SNMPv2-MIB and IF-MIB will be implemented as a default on all Bridges.

Table 17.8—Clause 12 management not in IEEE8021-Q-BRIDGE MIB^a

Clause 12 operation	Disposition
Reset Bridge (12.4.1.4)	Not considered useful
Reset VLAN Bridge (12.10.1.5)	Not considered useful
Read forwarding Port counters (12.6.1.1)	
Discard on error details	Not considered useful
Read permanent database (12.7.6.1)	
Permanent database size	Not considered useful
Number of static filtering entries	Count rows in ieee8021QBridgeStaticUnicastTable + ieee8021QBridgeStaticMulticastTable
Number of static VLAN registration entries	Count rows in ieee8021QBridgeVlanStaticTable
Read filtering entry range (12.7.7.4)	Use GetNext operation
Read filtering database (12.7.1.1)	
Filtering database size	Not considered useful
Number of dynamic group address entries (12.7.1.3)	Count rows applicable to each FDB in ieee8021QBridgeTpGroupTable
Read GARP state (12.9.3.1)	Not considered useful
Notify VLAN registration failure (12.10.1.6)	Not considered useful
Notify learning constraint violation (12.10.3.10)	Not considered useful

^aClause 12 changes should be made in a future project to remove object not considered useful.

17.2.5 Structure of the IEEE8021-PB MIB

The IEEE8021-PB MIB provides objects to configure and manage the IEEE Std 802.1ad provider bridging amendment.

Objects in this MIB module are arranged into subtrees. Each subtree is organized as a set of related objects. Where appropriate, the corresponding Clause 12 management reference is also included.

Table 17.9 that follows indicates the structure of the IEEE8021-PB MIB module as well as showing its relationship to the IETF MIB that is being obsoleted.

Table 17.9—IEEE8021-PB MIB structure and relationship to this standard

IEEE MIB table	IEEE MIB object	Reference
ieee8021PbVidTranslationTable		12.13.2.1, 12.13.2.2
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbVidTranslationLocalVid*	—
	ieee8021PbVidTranslationRelayVid	—
	ieee8021PbVidTranslationRowStatus	—
ieee8021PbCVidRegistrationTable		12.13.2.1, 12.13.2.2
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbCVidRegistrationCVid*	—
	ieee8021PbCVidRegistrationSVid	—
	ieee8021PbCVidRegistrationUntaggedPep	—
	ieee8021PbCVidRegistrationUntaggedCep	—
	ieee8021PbCVidRegistrationRowStatus	—
ieee8021PbEdgePortTable		12.13.3.3, 12.13.3.4
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbEdgePortSVid*	—
	ieee8021PbEdgePortPVID	—
	ieee8021PbEdgePortDefaultUserPriority	—

Table 17.9—IEEE8021-PB MIB structure and relationship to this standard (continued)

IEEE MIB table	IEEE MIB object	Reference
	ieee8021PbEdgePortAcceptableFrameTypes	—
	ieee8021PbEdgePortEnableIngressFiltering	—
ieee8021PbServicePriorityRegenerationTable		12.13.3.5, 12.13.3.6
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbServicePriorityRegenerationSVid*	—
	ieee8021PbServicePriorityRegenerationReceivedPriority*	—
	ieee8021PbServicePriorityRegenerationRegeneratedPriority	—
ieee8021PbCnpTable		12.13.3
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbCnpCComponentId	—
	ieee8021PbCnpSVid	—
	ieee8021PbCnpRowStatus	—
ieee8021PbPnpTable		12.13.3
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbPnpRowStatus	—
ieee8021PbCepTable		12.13.3
	ieee8021BridgeBasePortComponentId*	—
	ieee8021BridgeBasePort*	—
	ieee8021PbCepCComponentId	—
	ieee8021PbCepCepPortNumber	—
	ieee8021PbPnpRowStatus	—

*This object is an INDEX of the table in which it resides.

17.2.6 Structure of the IEEE8021-MSTP MIB

The IEEE8021-MSTP MIB provides objects to configure and manage the IEEE Std 802.1s™ multiple spanning tree amendment.

Objects in this MIB module are arranged into subtrees. Each subtree is organized as a set of related objects. Where appropriate, the corresponding Clause 12 management reference is also included.

Table 17.10 that follows indicates the structure of the IEEE8021-MSTP MIB module.

Table 17.10—IEEE8021-MSTP MIB structure and relationship to this standard

IEEE MIB table	IEEE MIB object	Reference
ieee8021MstpCistTable		12.8.1.1, 12.8.1.3
	ieee8021MstpCistComponentId*	—
	ieee8021MstpCistBridgeIdentifier	IEEE 802.1D-2004 9.2.5
	ieee8021MstpCistTopologyChange	—
	ieee8021MstpCistRegionalRootIdentifier	13.16.4
	ieee8021MstpCistPathCost	—
	ieee8021MstpCistMaxHops	13.22.1
ieee8021MstpTable		12.8.1.2, 12.8.1.4, 12.12.3.2, 12.12.1
	ieee8021MstpComponentId*	—
	ieee8021MstpId*	—
	ieee8021MstpBridgeId	13.23.2
	ieee8021MstpTimeSinceTopologyChange	13.21
	ieee8021MstpTopologyChanges	13.21
	ieee8021MstpTopologyChange	—
	ieee8021MstpDesignatedRoot	13.23.3
	ieee8021MstpRootPathCost	13.23.3
	ieee8021MstpRootPort	13.23.5
	ieee8021MstpBridgePriority	13.23.2
	ieee8021MstpVids0	
	ieee8021MstpVids1	
	ieee8021MstpVids2	
	ieee8021MstpVids3	