

IEEE Standard for
Local and metropolitan area networks—

Link Aggregation

Amendment 1: Protocol Addressing

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

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

IEEE Std 802.1AXbk™-2012
(Amendment to
IEEE Std 802.1AX™-2008)

25 May 2012

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Local and metropolitan area networks—**

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Approved 29 March 2012

IEEE-SA Standards Board

Abstract: Link Aggregation allows one or more links to be aggregated together to form a Link Aggregation Group, such that a Media Access Control (MAC) Client can treat the Link Aggregation Group as if it were a single link. To this end, it specifies the establishment of data terminal equipment (DTE) to DTE logical links, consisting of N parallel instances of full-duplex, point-to-point links operating at the same data rate. The MAC independent Link Aggregation capability, and general information relevant to specific MAC types that support Link Aggregation, are defined in this standard.

Keywords: Aggregated Link, Aggregator, IEEE 802.1AX, IEEE 802.1AXbk, Link Aggregation, Link Aggregation Group, local area network, management

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Introduction

This introduction is not part of IEEE Std 802.1AXbk-2012, IEEE Standard for Local and Metropolitan Area Networks—Link Aggregation—Amendment 1: Protocol Addressing.

This amendment to IEEE Std 802.1AX-2008 specifies changes to the addressing used by the link aggregation control and marker protocols to allow an aggregated link to span Two-Port Media Access Control (MAC) Relays and to span Provider Bridged Networks and Provider Backbone Bridged Networks. Changes are applied to the base text of IEEE Std 802.1AX-2008.

The majority of the content of this standard is from IEEE Std 802.3TM, where it was originally developed as the amendment project IEEE P802.3ad. Management information is from Clause 30 with the bulk of the functionality from Clause 43 and its annexes.

List of special symbols

For the benefit of those who have received this document by electronic means, what follows is a list of special symbols and operators. If any of these symbols or operators fail to print out correctly on your machine, the editors apologize and hope that this table will at least help you to sort out the meaning of the resulting funny-shaped blobs and strokes.

Special symbols and operators

Printed character	Meaning	Font
*	Boolean AND	Symbol
+	Boolean OR, arithmetic addition	Symbol
^	Boolean XOR	Times New Roman
!	Boolean NOT	Symbol
×	Multiplication	Symbol
<	Less than	Symbol
≤	Less than or equal to	Symbol
>	Greater than	Symbol
≥	Greater than or equal to	Symbol
=	Equal to	Symbol
≠	Not equal to	Symbol
←	Assignment operator	Symbol
∈	Indicates membership	Symbol
∉	Indicates nonmembership	Symbol
±	Plus or minus (a tolerance)	Symbol
°	Degrees	Symbol
∑	Summation	Symbol
√	Square root	Symbol
—	Big dash (em dash)	Times New Roman
-	Little dash (en dash), subtraction	Times New Roman
	Vertical bar	Times New Roman
†	Dagger	Times New Roman
‡	Double dagger	Times New Roman
α	Lower case alpha	Symbol
β	Lower case beta	Symbol
γ	Lower case gamma	Symbol
δ	Lower case delta	Symbol
ε	Lower case epsilon	Symbol
λ	Lambda	Symbol
μ	Micro	Times New Roman
Ω	Omega	Symbol

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IEEE Standard for Local and metropolitan area networks—

Link Aggregation

Amendment 1: Protocol Addressing

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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.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Deletions and insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.¹

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

5. Link Aggregation

5.2 Link Aggregation operation

5.2.7 Aggregator Parser/Multiplexer

5.2.7.1 Aggregator Parser state diagram

5.2.7.1.1 Constants

Change the text of 5.2.7.1.1 as shown:

~~Slow_Protocols_Multicast~~

~~The value of the Slow Protocols Multicast address. (See IEEE Std 802.3 Table 57A-1.)~~

Slow_Protocols_Type

The value of the Slow Protocols Length/Type field. (See IEEE Std 802.3 Annex 57A.)

Marker_subtype

The value of the Subtype field for the Marker protocol. (See 5.5.3.)

Value: Integer

2

Marker_Information

The encoding of the Marker Information TLV_type field. (See 5.5.3.)

Value: Integer

1

Marker_Response_Information

The encoding of the Marker Response Information TLV_type field. (See 5.5.3.)

Value: Integer

2

5.2.7.1.2 Variables

Change the text of 5.2.7.1.2 as shown:

DA

SA

mac_service_data_unit

status

The parameters of the MA_DATA.indication primitive as defined in IEEE Std 802.3 Clause 2.

Protocol_DA

One of the addresses selected from Table 5-2 determined by the setting of the aAggPortProtocolDA managed object (6.3.2.2.1). A particular instance of link aggregation shall use the same destination address for LACP as it does for the Marker protocol.

Value: 48 bits

Length/Type

The value of the Length/Type field in a received frame.

Value: Integer

Subtype

The value of the octet following the Length/Type field in a Slow Protocol frame.
(See IEEE Std 802.3 Annex 57A.)

Value: Integer

TLV_type

The value contained in the octet following the Version Number in a received Marker or Marker Response frame. This identifies the “type” for the Type/Length/Value (TLV) tuple. (See 5.5.3.)

Value: Integer

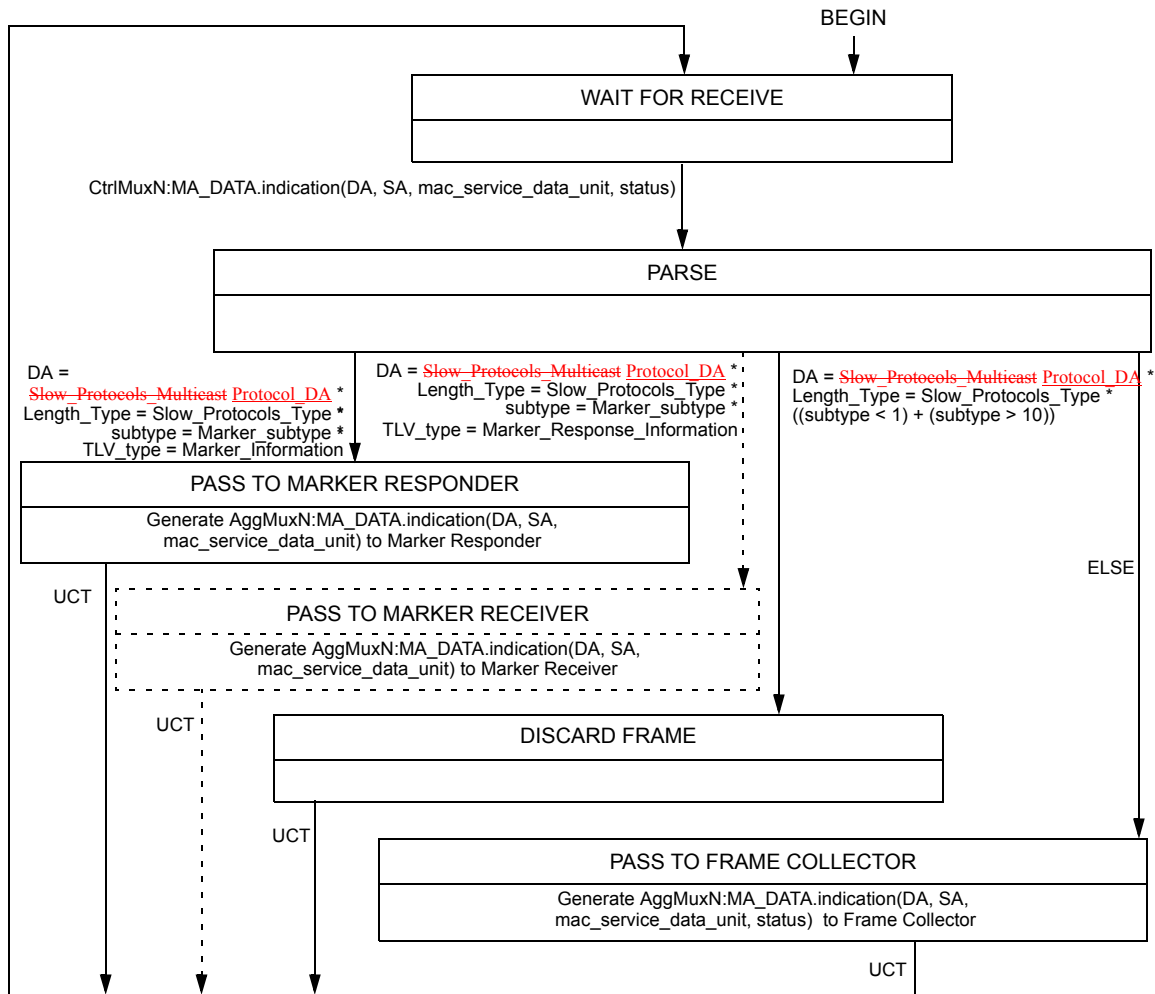
BEGIN

A Boolean variable that is set to TRUE when the System is initialized or reinitialized, and is set to FALSE when (re-)initialization has completed.

Value: Boolean

5.2.8 Aggregator**5.2.8.1 State diagram**

Change Figure 5-6 as shown:



If the optional Marker Receiver is not implemented, Marker Responses shall be passed to the Frame Collector. If the port state is not Collecting, all frames that would have been passed to the MAC Client through the Collector will be discarded.

Figure 5-6—Aggregator Parser state diagram

5.2.9 Control Parser/Multiplexer

5.2.9.1 Control Parser state diagram

5.2.9.1.1 Constants

Change the text of 5.2.9.1.1 as shown:

~~Slow_Protocols_Multicast~~

~~The value of the Slow Protocols Multicast address. (See IEEE Std 802.3 Table 57A–1.)~~

Slow_Protocols_Type

The value of the Slow Protocols Length/Type field. (See IEEE Std 802.3 Table 57A–2.)

LACP_subtype

The value of the Subtype field for the Link Aggregation Control Protocol. (See IEEE Std 802.3 Table 57A–3.)

Value: Integer

1

5.2.9.1.2 Variables

Change the text of 5.2.9.1.2 as shown:

DA

SA

mac_service_data_unit

status

The parameters of the MA_DATA.indication primitive, as defined in IEEE Std 802.3 Clause 2.

Protocol_DA

One of the addresses selected from Table 5–2 determined by the setting of the aAggPortProtocolDA managed object (6.3.2.2.1). A particular instance of link aggregation shall use the same destination address for LACP as it does for the Marker protocol.

Value: 48 bits

Length/Type

The value of the Length/Type field in a received frame.

Value: Integer

Subtype

The value of the octet following the Length/Type field in a Slow Protocol frame. (See IEEE Std 802.3 Annex 57A.)

Value: Integer

BEGIN

A Boolean variable that is set to TRUE when the System is initialized or reinitialized, and is set to FALSE when (re-)initialization has completed.

Value: Boolean

5.2.9.1.3 Messages

5.2.9.1.4 State diagram

Change Figure 5-7 as shown:

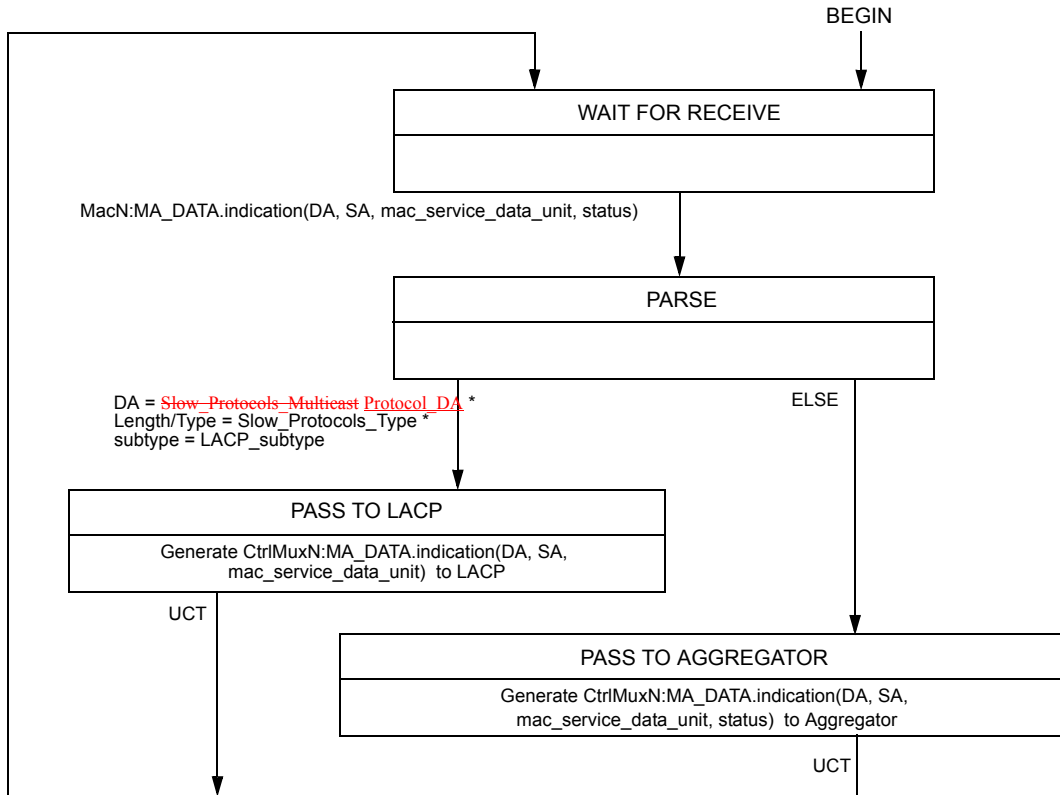


Figure 5-7—Control Parser state diagram

5.2.10 Addressing

Change text of 5.2.10 and insert new subclause header 5.2.10.1, as shown:

Each IEEE 802.3 MAC has an associated individual MAC address, whether that MAC is used for Link Aggregation or not (see IEEE Std 802.3 Clause 4).

Each Aggregator to which one or more ports are attached has an associated ~~globally-unique~~ individual MAC address (see 5.3.3). The MAC address of the Aggregator may be the ~~globally-unique~~ individual MAC addresses of one of the MACs in the associated Link Aggregation Group, or it may be a distinct MAC address. The manner in which such addresses are chosen is not otherwise constrained by this standard.

5.2.10.1 Source address

Protocol entities sourcing frames from within the Link Aggregation sublayer (e.g., LACP and the Marker protocol) use the MAC address of the MAC within an underlying port as the source address in frames transmitted through that port. The MAC Client sees only the Aggregator and not the underlying MACs, and therefore uses the Aggregator's MAC address as the source address in transmitted frames. If a MAC Client submits a frame to the Aggregator for transmission without specifying a source address, the Aggregator inserts its own MAC address as the source address for transmitted frames.

NOTE—This behavior causes the Aggregator to behave the same way as a standard MAC with regard to frames submitted by its client.

Insert new subclause 5.2.10.2 as shown:

5.2.10.2 Destination address

Protocol entities sourcing frames from within the Link Aggregation sublayer (e.g., LACP and the Marker protocol) use one of the MAC addresses listed in Table 5–2 as the destination address for such frames. These addresses are in the range of the C-VLAN component reserved addresses (see Table 8-1 in IEEE Std 802.1Q-2011) and the S-VLAN component reserved addresses (see Table 8-2 in IEEE Std 802.1Q-2011). The choice of address used determines the scope of propagation of Link Aggregation control and marker PDUs within a bridged LAN, as follows:

- a) The ***Nearest Customer Bridge*** group address is an address that no conformant C-VLAN component or IEEE 802.1D Bridge forwards. However, this address is relayed by TPMR components and S-VLAN components. Therefore, Link Aggregation control and marker PDUs received on this address represent information about stations that are not separated from the recipient station by any intervening C-VLAN components or IEEE Std 802.1D Bridges. There may, however, be TPMR components and/or S-VLAN components in the path between the originating and receiving stations.

NOTE 1—This address was selected in order to make it possible to communicate information between adjacent Customer Bridges and for that communication to be transparent to the presence or absence of TPMRs or S-VLAN components in the communication path. The scope of this address is the same as that of a customer-to-customer MACSec connection.

- b) The ***Slow_Protocols_Multicast*** group address is an address that no conformant Two-Port MAC Relay (TPMR) component, S-VLAN component, C-VLAN component, or IEEE 802.1D Bridge can forward. Link Aggregation control and marker PDUs transmitted using this destination address can therefore travel no further than those stations that can be reached via a single individual LAN from the originating station. Link Aggregation control and marker PDUs received on this address therefore represent information about stations that are attached to the same individual LAN segment as the recipient station.

NOTE 2—This address was selected in order to make it possible to transmit an Link Aggregation Control or Marker frame containing information specific to a single individual LAN, and for that information not to be propagated further than the extent of that individual LAN.

- c) The ***Nearest non-TPMR Bridge*** group MAC address is an address that no conformant C-VLAN component, S-VLAN component, or IEEE 802.1D Bridge can forward. However, this address is relayed by TPMR components. Therefore, Link Aggregation control and marker PDUs received on this address represent information about stations that are not separated from the recipient station by any intervening C-VLAN component, S-VLAN component, or IEEE 802.1D Bridge. There may, however, be one or more TPMR components in the path between the originating and receiving stations.

NOTE 3—This address was selected in order to make it possible to communicate information between adjacent bridges and for that communication to be transparent to the presence or absence of TPMRs in the transmission path. This address is primarily intended for use within provider bridged networks.

NOTE 4—Where an aggregation extends across multiple LANs connected by non-TPMR bridges, it may be possible for more than two Customer Bridges to be reached using one of the above addresses. In such a case, it should be noted that link aggregation is not supported across more than two systems, as specified in 5.1.2(n).

Table 5–2—Link Aggregation protocol destination addresses

Assignment	Value
Nearest Customer Bridge group address	01-80-C2-00-00-00
IEEE 802.3 Slow_Protocols_Multicast group address	01-80-C2-00-00-02
Nearest non-TPMR Bridge group address	01-80-C2-00-00-03

The use and encoding of the Slow_Protocols_Multicast group address are specified in IEEE Std 802.3 Annex 57A.

5.3 Link Aggregation Control

Change the text of 5.3.3 as shown:

5.3.3 Aggregator identification

Each Aggregator to which one or more ports are attached shall be assigned a unique, ~~globally~~ globally or locally administered individual MAC address. The MAC address assigned to the Aggregator may be the same as the MAC address assigned to one of its bound ports. No Aggregator shall be assigned a MAC address that is the same as that of a port bound to a different Aggregator within the System. When receiving frames, a port is never required to recognize more than one unicast address, i.e., the Aggregator’s MAC address.

NOTE—This allows Aggregators to be uniquely addressed, and allows (but does not require) the unique address to be allocated from the same set of addresses as are assigned to the ports. It also acknowledges the fact that locally administered addresses may be used in particular implementations or environments. The stated restriction on the allocation of MAC addresses to Aggregators may have implications with regard to the choice of selection algorithm.

An Aggregator also shall be assigned an integer identifier that is used by Link Aggregation Control to uniquely identify the Aggregator within the System. This value will typically be the same as the interface identifier (ifIndex) used for management purposes.

5.3.6 Link Aggregation Group identification

5.3.6.1 Construction of the Link Aggregation Group Identifier

5.3.6.2 Representation of the Link Aggregation Group Identifier

Renumber Table 5-1 as Table 5-3 and change the text of 5.3.6.2 to refer to the new table number, as shown:

In order to allow for convenient transcription and interpretation by human network personnel, this standard provides a convention for representing compound LAG IDs. Using this format

- a) All fields are written as hexadecimal numbers, two digits per octet, in canonical format.

- b) Octets are presented in order, from left to right. Within fields carrying numerical significance (e.g., priority values), the most significant octet is presented first, and the least significant octet last.
- c) Within fields that carry MAC addresses, successive octets are separated by dashes (-), in accordance with the hexadecimal representation for MAC addresses defined in IEEE Std 802-1990.
- d) Parameters of the LAG ID are separated by commas.

For example, consider the parameters for the two Partners in a Link Aggregation Group shown in ~~Table 5-5~~ Table 5-3.

Table 5-3—Example Partner parameters

	Partner SKP	Partner TLQ
System Parameters (S, T)	System Priority = 0x8000 (see 5.4.2.2) System Identifier = AC-DE-48-03-67-80	System Priority = 0x8000 (see 5.4.2.2) System Identifier = AC-DE-48-03-FF-FF
Key Parameter (K, L)	Key = 0x0001	Key = 0x00AA
Port Parameters (P, Q)	Port Priority = 0x80 (see 5.4.2.2) Port Number = 0x0002	Port Priority = 0x80 (see 5.4.2.2) Port Number = 0x0002

The complete LAG ID derived from this information is represented as follows, for an Individual link:

[(SKP), (TLQ)] = [(8000,AC-DE-48-03-67-80,0001,80,0002), (8000,AC-DE-48-03-FF-FF,00AA,80,0002)]

The corresponding LAG ID for a set of Aggregateable links is represented as follows:

[(SKP), (TLQ)] = [(8000,AC-DE-48-03-67-80,0001,00,0000), (8000,AC-DE-48-03-FF-FF,00AA,00,0000)]

NOTE—The difference between the two representations is that, for an Aggregateable link, the port identifier components are zero.

It is recommended that this format be used whenever displaying LAG ID information for use by network personnel.

5.4 Link Aggregation Control Protocol (LACP)

5.4.2 LACPDU structure and encoding

5.4.2.2 LACPDU structure

Change the text of item a) in 5.4.2.2 as shown:

- a) *Destination Address (DA)*. The DA in LACPDUs shall be one of the addresses specified in Table 5-2, as specified by aAggPortProtocolDA (6.3.2.2.1) is the Slow_Protocols_Multicast address. Its use and encoding are specified in IEEE Std 802.3 Annex 57A.

5.5 Marker protocol

5.5.3 Marker and Marker Response PDU structure and encoding

5.5.3.2 Marker and Marker Response PDU structure

Change the text of item a) in 5.5.3.2 as shown:

- a) *Destination Address.* The DA in all Marker and Marker Response PDUs shall be one of the addresses specified in Table 5–2, as specified by aAggPortProtocolDA (6.3.2.2.1). A particular instance of link aggregation shall use the same destination address for the Marker protocol as it does for LACP, is the Slow_Protocols_Multicast address. Its use and encoding are specified in IEEE Std 802.3 Annex 57A.

5.5.4 Protocol definition

5.5.4.2 Marker Responder state diagram

The Marker Responder shall implement the function specified in Figure 5–20, with its associated parameters (5.5.4.2.1 through 5.5.4.2.2).

Delete subclause 5.5.4.2.1 and renumber subsequent subclauses appropriately.

~~5.5.4.2.1 Constants~~

~~Slow_Protocols_Multicast~~

~~The value of the Slow_Protocols_reserved_multicast address. (See IEEE Std 802.3 Table 57A–1.)~~

Change the renumbered subclause 5.5.4.2.1 as shown:

5.5.4.2.1 Variables

DA

SA

mac_service_data_unit

status

The parameters of the MA_DATA.request and MA_DATA.indication primitives, as defined in IEEE Std 802.3 Clause 2.

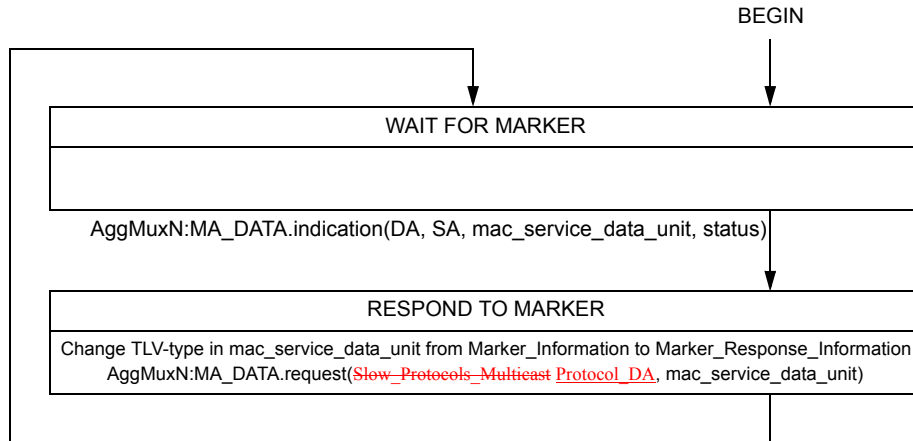
Protocol_DA

One of the addresses selected from Table 5–2 determined by the setting of the aAggPortProtocolDA managed object (6.3.2.2.1).

Value: 48 bits

5.5.4.2.2 Messages

Change Figure 5-20 as shown:



The value of N (the port number) in the AggMuxN:MA_DATA.request primitive shall be the same as that of the received AggMuxN:MA_DATA.indication

Figure 5–20—Marker Responder state diagram

6. Management

6.2 Managed objects

6.2.5 Capabilities

Change Table 6-1 as shown:

Table 6–1—Link Aggregation capabilities

Object name	Object type	Operations supported	DTE				
			Basic package (mandatory)	Mandatory package (mandatory)	Recommended package (optional)	Optional package (optional)	Aggregation Port statistics (optional)
oAggregator (6.3.2)							
aAggID	ATTRIBUTE	GET	X				
aAggDescription	ATTRIBUTE	GET	X				
aAggName	ATTRIBUTE	GET-SET	X				
aAggActorSystemID	ATTRIBUTE	GET-SET	X				
aAggActorSystemPriority	ATTRIBUTE	GET-SET	X				
aAggAggregateOrIndividual	ATTRIBUTE	GET	X				
aAggActorAdminKey	ATTRIBUTE	GET-SET	X				
aAggActorOperKey	ATTRIBUTE	GET	X				
aAggMACAddress	ATTRIBUTE	GET	X				
aAggPartnerSystemID	ATTRIBUTE	GET	X				
aAggPartnerSystemPriority	ATTRIBUTE	GET	X				
aAggPartnerOperKey	ATTRIBUTE	GET	X				
aAggAdminState	ATTRIBUTE	GET-SET	X				
aAggOperState	ATTRIBUTE	GET	X				
aAggTimeOfLastOperChange	ATTRIBUTE	GET	X				
aAggDataRate	ATTRIBUTE	GET	X				
aAggOctetsTxOK	ATTRIBUTE	GET		X			
aAggOctetsRxOK	ATTRIBUTE	GET		X			
aAggFramesTxOK	ATTRIBUTE	GET	X				
aAggFramesRxOK	ATTRIBUTE	GET	X				
aAggMulticastFramesTxOK	ATTRIBUTE	GET			X		
aAggMulticastFramesRxOK	ATTRIBUTE	GET			X		

Table 6–1—Link Aggregation capabilities (continued)

Object name	Object type	Operations supported	DTE					
			Basic package (mandatory)	Mandatory package (mandatory)	Recommended package (optional)	Optional package (optional)	Aggregation Port statistics (optional)	Aggregation Port debug information (optional)
aAggBroadcastFramesTxOK	ATTRIBUTE	GET				X		
aAggBroadcastFramesRxOK	ATTRIBUTE	GET				X		
aAggFramesDiscardedOnTx	ATTRIBUTE	GET			X			
aAggFramesDiscardedOnRx	ATTRIBUTE	GET			X			
aAggFramesWithTxErrors	ATTRIBUTE	GET			X			
aAggFramesWithRxErrors	ATTRIBUTE	GET			X			
aAggUnknownProtocolFrames	ATTRIBUTE	GET			X			
aAggLinkUpDownNotificationEnable	ATTRIBUTE	GET-SET	X					
nAggLinkUpNotification	NOTIFICATION		X					
nAggLinkDownNotification	NOTIFICATION		X					
aAggPortList	ATTRIBUTE	GET			X			
aAggCollectorMaxDelay	ATTRIBUTE	GET-SET	X					
oAggregationPort (6.3.2)								
aAggPortID	ATTRIBUTE	GET	X					
aAggPortActorSystemPriority	ATTRIBUTE	GET-SET	X					
aAggPortActorSystemID	ATTRIBUTE	GET	X					
aAggPortActorAdminKey	ATTRIBUTE	GET-SET	X					
aAggPortActorOperKey	ATTRIBUTE	GET	X					
aAggPortPartnerAdminSystemPriority	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperSystemPriority	ATTRIBUTE	GET	X					
aAggPortPartnerAdminSystemID	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperSystemID	ATTRIBUTE	GET	X					
aAggPortPartnerAdminKey	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperKey	ATTRIBUTE	GET	X					
aAggPortSelectedAggID	ATTRIBUTE	GET	X					
aAggPortAttachedAggID	ATTRIBUTE	GET	X					
aAggPortActorPort	ATTRIBUTE	GET	X					
aAggPortActorPortPriority	ATTRIBUTE	GET-SET	X					
aAggPortPartnerAdminPort	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperPort	ATTRIBUTE	GET	X					
aAggPortPartnerAdminPortPriority	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperPortPriority	ATTRIBUTE	GET	X					
aAggPortActorAdminState	ATTRIBUTE	GET-SET	X					

Table 6–1—Link Aggregation capabilities (continued)

Object name	Object type	Operations supported	DTE					
			Basic package (mandatory)	Mandatory package (mandatory)	Recommended package (optional)	Optional package (optional)	Aggregation Port statistics (optional)	Aggregation Port debug information (optional)
aAggPortActorOperState	ATTRIBUTE	GET	X					
aAggPortPartnerAdminState	ATTRIBUTE	GET-SET	X					
aAggPortPartnerOperState	ATTRIBUTE	GET	X					
aAggPortAggregateOrIndividual	ATTRIBUTE	GET	X					
aAggPortProtocolDA	ATTRIBUTE	GET-SET	X					
oAggPortStats (6.3.3)								
aAggPortStatsID	ATTRIBUTE	GET						X
aAggPortStatsLACPDUrx	ATTRIBUTE	GET						X
aAggPortStatsMarkerPDUrx	ATTRIBUTE	GET						X
aAggPortStatsMarkerResponsePDUrx	ATTRIBUTE	GET						X
aAggPortStatsUnknownRx	ATTRIBUTE	GET						X
aAggPortStatsIllegalRx	ATTRIBUTE	GET						X
aAggPortStatsLACPDUtx	ATTRIBUTE	GET						X
aAggPortStatsMarkerPDUtx	ATTRIBUTE	GET						X
aAggPortStatsMarkerResponsePDUtx	ATTRIBUTE	GET						X
oAggPortDebugInformation (6.3.4)								
aAggPortDebugInformationID	ATTRIBUTE	GET						X
aAggPortDebugRxState	ATTRIBUTE	GET						X
aAggPortDebugLastRxTime	ATTRIBUTE	GET						X
aAggPortDebugMuxState	ATTRIBUTE	GET						X
aAggPortDebugMuxReason	ATTRIBUTE	GET						X
aAggPortDebugActorChurnState	ATTRIBUTE	GET						X
aAggPortDebugPartnerChurnState	ATTRIBUTE	GET						X
aAggPortDebugActorChurnCount	ATTRIBUTE	GET						X
aAggPortDebugPartnerChurnCount	ATTRIBUTE	GET						X
aAggPortDebugActorSyncTransitionCount	ATTRIBUTE	GET						X
aAggPortDebugPartnerSyncTransitionCount	ATTRIBUTE	GET						X
aAggPortDebugActorChangeCount	ATTRIBUTE	GET						X
aAggPortDebugPartnerChangeCount	ATTRIBUTE	GET						X
Common Attributes Template								
aCMCounter	ATTRIBUTE	GET	X	X	X	X	X	X

6.3 Management for Link Aggregation

6.3.2 Aggregation Port managed object class

Insert new subclause 6.3.2.2:

6.3.2.2 Aggregation Port Extension Attributes

6.3.2.2.1 aAggPortProtocolDA

ATTRIBUTE

APPROPRIATE SYNTAX:

MACAddress

BEHAVIOUR DEFINED AS:

A 6-octet read-write MACAddress value specifying the destination address to be used when sending Link Aggregation Control and Marker PDUs on this port, corresponding to the value of Protocol_DA in 5.2.7.1.2, 5.2.9.1.2 and 5.5.4.2.1. The default value shall be the the IEEE 802.3 Slow_Protocols_Multicast address.

Annex C

(normative)

SNMP MIB definitions for Link Aggregation

Change clause C.3 as shown:

C.3 Security considerations

There are a number of management objects defined in this MIB that have 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 can have a negative effect on network operations.

SNMPv1 by itself is not a secure environment. Even if the network itself is secure (e.g., by using IPSec), there is no control as to who on the secure network is allowed to access (read/change/create/delete) the objects in this MIB.

It is recommended that the implementers consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model IETF RFC 2274 and the View-based Access Control Model IETF RFC 2275 is recommended. It then becomes a user responsibility to ensure that the SNMP entity giving access to an instance of this MIB is properly configured to give access only to those principals (users) that have legitimate rights to access (read/change/create/delete) them, as appropriate.

The object dot3adAggPortProtocolDA sets the destination address for LACP frames and could be manipulated by an attacker to force a misconfiguration error causing the LAG to fail.

C.4 Structure of the MIB

C.4.1 Relationship to the managed objects defined in Clause 6

Change Table C-1 as shown:

Table C-1—Managed object cross reference table

Definition in Clause 6	MIB object
6.3.1.1.1 aAggID	ifIndex value (see IETF RFC 2233)
6.3.1.1.4 aAggActorSystemID	dot3adAggActorSystemID
6.3.1.1.5 aAggActorSystemPriority	dot3adAggActorSystemPriority
6.3.1.1.6 aAggAggregateOrIndividual	dot3adAggAggregateOrIndividual
6.3.1.1.7 aAggActorAdminKey	dot3adAggActorAdminKey
6.3.1.1.8 aAggActorOperKey	dot3adAggActorOperKey
6.3.1.1.10 aAggPartnerSystemID	dot3adAggPartnerSystemID
6.3.1.1.11 aAggPartnerSystemPriority	dot3adAggPartnerSystemPriority
6.3.1.1.12 aAggPartnerOperKey	dot3adAggPartnerOperKey
6.3.1.1.30 aAggPortList	dot3adAggPortListTable
6.3.1.1.32 aAggCollectorMaxDelay	dot3adAggCollectorMaxDelay
6.3.2.1.1 aAggPortID	ifIndex value (see IETF RFC 2233)
6.3.2.1.2 aAggPortActorSystemPriority	dot3adAggPortActorSystemPriority
6.3.2.1.3 aAggPortActorSystemID	dot3adAggPortActorSystemID
6.3.2.1.4 aAggPortActorAdminKey	dot3adAggPortActorAdminKey
6.3.2.1.5 aAggPortActorOperKey	dot3adAggPortActorOperKey
6.3.2.1.6 aAggPortPartnerAdminSystemPriority	dot3adAggPortPartnerAdminSystemPriority
6.3.2.1.7 aAggPortPartnerOperSystemPriority	dot3adAggPortPartnerOperSystemPriority
6.3.2.1.8 aAggPortPartnerAdminSystemID	dot3adAggPortPartnerAdminSystemID
6.3.2.1.9 aAggPortPartnerOperSystemID	dot3adAggPortPartnerOperSystemID
6.3.2.1.10 aAggPortPartnerAdminKey	dot3adAggPortPartnerAdminKey
6.3.2.1.11 aAggPortPartnerOperKey	dot3adAggPortPartnerOperKey
6.3.2.1.12 aAggPortSelectedAggID	dot3adAggPortSelectedAggID
6.3.2.1.13 aAggPortAttachedAggID	dot3adAggPortAttachedAggID
6.3.2.1.14 aAggPortActorPort	dot3adAggPortActorPort
6.3.2.1.15 aAggPortActorPortPriority	dot3adAggPortActorPortPriority
6.3.2.1.16 aAggPortPartnerAdminPort	dot3adAggPortPartnerAdminPort
6.3.2.1.17 aAggPortPartnerOperPort	dot3adAggPortPartnerOperPort

Table C–1—Managed object cross reference table (continued)

Definition in Clause 6	MIB object
6.3.2.1.18 aAggPortPartnerAdminPortPriority	dot3adAggPortPartnerAdminPortPriority
6.3.2.1.19 aAggPortPartnerOperPortPriority	dot3adAggPortPartnerOperPortPriority
6.3.2.1.20 aAggPortActorAdminState	dot3adAggPortActorAdminState
6.3.2.1.21 aAggPortActorOperState	dot3adAggPortActorOperState
6.3.2.1.22 aAggPortPartnerAdminState	dot3adAggPortPartnerAdminState
6.3.2.1.23 aAggPortPartnerOperState	dot3adAggPortPartnerOperState
6.3.2.1.24 aAggPortAggregateOrIndividual	dot3adAggPortAggregateOrIndividual
6.3.2.2.1 aAggPortProtocolDA	dot3adAggPortProtocolDA
6.3.3.1.1 aAggPortStatsID	ifIndex value (see IETF RFC 2233) of the port
6.3.3.1.2 aAggPortStatsLACPDUsRx	dot3adAggPortStatsLACPDUsRx
6.3.3.1.3 aAggPortStatsMarkerPDUsRx	dot3adAggPortStatsMarkerPDUsRx
6.3.3.1.4 aAggPortStatsMarkerResponsePDUsRx	dot3adAggPortStatsMarkerResponsePDUsRx
6.3.3.1.5 aAggPortStatsUnknownRx	dot3adAggPortStatsUnknownRx
6.3.3.1.6 aAggPortStatsIllegalRx	dot3adAggPortStatsIllegalRx
6.3.3.1.7 aAggPortStatsLACPDUsTx	dot3adAggPortStatsLACPDUsTx
6.3.3.1.8 aAggPortStatsMarkerPDUsTx	dot3adAggPortStatsMarkerPDUsTx
6.3.3.1.9 aAggPortStatsMarkerResponsePDUsTx	dot3adAggPortStatsMarkerResponsePDUsTx
6.3.4.1.1 aAggPortDebugInformationID	ifIndex value (see IETF RFC 2233) of the port
6.3.4.1.2 aAggPortDebugRxState	dot3adAggPortDebugRxState
6.3.4.1.3 aAggPortDebugLastRxTime	dot3adAggPortDebugLastRxTime
6.3.4.1.4 aAggPortDebugMuxState	dot3adAggPortDebugMuxState
6.3.4.1.5 aAggPortDebugMuxReason	dot3adAggPortDebugMuxReason
6.3.4.1.6 aAggPortDebugActorChurnState	dot3adAggPortDebugActorChurnState
6.3.4.1.7 aAggPortDebugPartnerChurnState	dot3adAggPortDebugPartnerChurnState
6.3.4.1.8 aAggPortDebugActorChurnCount	dot3adAggPortDebugActorChurnCount
6.3.4.1.9 aAggPortDebugPartnerChurnCount	dot3adAggPortDebugPartnerChurnCount
6.3.4.1.10 aAggPortDebugActorSyncTransitionCount	dot3adAggPortDebugActorSyncTransitionCount
6.3.4.1.11 aAggPortDebugPartnerSyncTransitionCount	dot3adAggPortDebugPartnerSyncTransitionCount
6.3.4.1.12 aAggPortDebugActorChangeCount	dot3adAggPortDebugActorChangeCount
6.3.4.1.13 aAggPortDebugPartnerChangeCount	dot3adAggPortDebugPartnerChangeCount

Change clause C.6 as shown:

C.6 Definitions for Link Aggregation MIB

In the following MIB definition,^{2,3} should there be any discrepancy between the DESCRIPTION text and the BEHAVIOUR DEFINED AS in the corresponding definition in Clause 6, the definition in Clause 6 shall take precedence.

~~NOTE—The ASCII for C.6 is available at <http://www.ieee802.org/3/publication/index.html>.~~

~~NOTE—The MIB module included in IEEE Std 802.3ad-2000 is the technical base for this MIB module, rather than the MIB module included in IEEE Std 802.1AX-2008, which contained errors. No guidance is provided as to the persistence of any objects or discontinuity of any counters.~~

Replace the MIB module in clause C.6 with the following:

²MIB definitions are available at <http://www.ietf.org/http://www.ieee802.org/1/pages/MIBS.html>.

³*Copyright release for SNMP MIB:* Users of this standard may freely reproduce the SNMP MIB in this annex so it can be used for its intended purpose.

```
IEEE8023-LAG-MIB DEFINITIONS ::= BEGIN

-----
-- IEEE 802.1AX MIB from 802.1AXbk
-----

IMPORTS
    MODULE-IDENTITY, OBJECT-TYPE, Counter32, TimeTicks
        FROM SNMPv2-SMI
    DisplayString, MacAddress, TEXTUAL-CONVENTION, TruthValue
        FROM SNMPv2-TC
    MODULE-COMPLIANCE, OBJECT-GROUP
        FROM SNMPv2-CONF
    InterfaceIndex
        FROM IF-MIB
    PortList
        FROM Q-BRIDGE-MIB
    ;

lagMIB MODULE-IDENTITY
    LAST-UPDATED "201201160000Z"
    ORGANIZATION "IEEE 802.1 Working Group"
    CONTACT-INFO
        " WG-URL: http://www.ieee802.org/1/
          WG-EMail: stds-802-1-L@IEEE.ORG

          Contact: Tony Jeffree
          Postal: C/O IEEE 802.1 Working Group
                 IEEE Standards Association
                 445 Hoes Lane
                 Piscataway
                 NJ 08854
                 USA
          E-mail: stds-802-1-L@IEEE.ORG"
    DESCRIPTION
        "The Link Aggregation module for managing IEEE 802.1AX."
    REVISION "201201160000Z"
    DESCRIPTION
        "Updated for IEEE 802.1AXbk"
    REVISION "200706290000Z"
    DESCRIPTION
        "References updated 04 Jun 2007 for IEEE 802.1AX"
    REVISION "200006270000Z"
    DESCRIPTION
        "Original publication IEEE 802.3ad"
    ::= { iso(1) member-body(2) us(840) 802dot3(10006)
          snmpmibs(300) 43 }

lagMIBObjects OBJECT IDENTIFIER ::= { lagMIB 1 }

-----
-- Textual Conventions
-----
```

```

LacpKey ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The Actor or Partner Key value."
    SYNTAX      INTEGER (0..65535)

LacpState ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The Actor and Partner State values from the LACPDU."
    SYNTAX      BITS {
        lacpActivity(0),
        lacpTimeout(1),
        aggregation(2),
        synchronization(3),
        collecting(4),
        distributing(5),
        defaulted(6),
        expired(7)
    }

ChurnState ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The state of the Churn Detection machine."
    SYNTAX      INTEGER {
        noChurn(1),
        churn(2),
        churnMonitor(3)
    }

-----

-- groups in the LAG MIB
-----

dot3adAgg OBJECT IDENTIFIER ::= { lagMIBObjects 1 }
dot3adAggPort OBJECT IDENTIFIER ::= { lagMIBObjects 2 }

-----

-- The Tables Last Changed Object
-----

dot3adTablesLastChanged OBJECT-TYPE
    SYNTAX      TimeTicks
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object indicates the time of the

```

```

        most recent change to the dot3adAggTable,
        dot3adAggPortListTable, or dot3adAggPortTable."
 ::= { lagMIBObjects 3 }

-----
-- The Aggregator Configuration Table
-----

dot3adAggTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Dot3adAggEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table that contains information about every
        Aggregator that is associated with this System."
    REFERENCE
        "6.3.2"
    ::= { dot3adAgg 1 }

dot3adAggEntry OBJECT-TYPE
    SYNTAX      Dot3adAggEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of the Aggregator parameters. This is indexed
        by the ifIndex of the Aggregator."
    INDEX { dot3adAggIndex }
    ::= { dot3adAggTable 1 }

Dot3adAggEntry ::=
    SEQUENCE {
        dot3adAggIndex
            InterfaceIndex,
        dot3adAggMACAddress
            MacAddress,
        dot3adAggActorSystemPriority
            INTEGER,
        dot3adAggActorSystemID
            MacAddress,
        dot3adAggAggregateOrIndividual
            TruthValue,
        dot3adAggActorAdminKey
            LACPKey,
        dot3adAggActorOperKey
            LACPKey,
        dot3adAggPartnerSystemID
            MacAddress,
        dot3adAggPartnerSystemPriority
            INTEGER,
        dot3adAggPartnerOperKey
            LACPKey,
        dot3adAggCollectorMaxDelay
            INTEGER
    }

```

```
dot3adAggIndex OBJECT-TYPE
    SYNTAX      InterfaceIndex
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The unique identifier allocated to this Aggregator by the local System.
        This attribute identifies an Aggregator instance among the subordinate
        managed objects of the containing object. This value is read-only."
    REFERENCE
        "6.3.1.1.1"
    ::= { dot3adAggEntry 1 }
```

```
dot3adAggMACAddress OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A 6-octet read-only value carrying the individual
        MAC address assigned to the Aggregator."
    REFERENCE
        "6.3.1.1.9"
    ::= { dot3adAggEntry 2 }
```

```
dot3adAggActorSystemPriority OBJECT-TYPE
    SYNTAX      INTEGER (0..65535)
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "A 2-octet read-write value indicating the priority value
        associated with the Actor's System ID."
    REFERENCE
        "6.3.1.1.5"
    ::= { dot3adAggEntry 3 }
```

```
dot3adAggActorSystemID OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A 6-octet read-write MAC address value used as a unique
        identifier for the System that contains this Aggregator.
        NOTE-From the perspective of the Link Aggregation
        mechanisms described in Clause 5, only a single
        combination of Actor's System ID and System Priority are
        considered, and no distinction is made between the
        values of these parameters for an Aggregator and the
        port(s) that are associated with it; i.e., the protocol
        is described in terms of the operation of aggregation
        within a single System. However, the managed objects
        provided for the Aggregator and the port both allow
        management of these parameters. The result of this is to
        permit a single piece of equipment to be configured by
        management to contain more than one System from the
        point of view of the operation of Link Aggregation. This
        may be of particular use in the configuration of
        equipment that has limited aggregation capability (see 5.6)."
```

REFERENCE

"6.3.1.1.4"
 ::= { dot3adAggEntry 4 }

dot3adAggAggregateOrIndividual OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"A read-only Boolean value indicating whether the
Aggregator represents an Aggregate ('TRUE') or
an Individual link ('FALSE')."

REFERENCE

"6.3.1.1.6"
 ::= { dot3adAggEntry 5 }

dot3adAggActorAdminKey OBJECT-TYPE

SYNTAX LcpKey
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"The current administrative value of the Key for the Aggregator.
The administrative Key value may differ from the operational
Key value for the reasons discussed in 5.6.2. This is a 16-bit,
read-write value. The meaning of particular Key values
is of local significance."

REFERENCE

"6.3.1.1.7"
 ::= { dot3adAggEntry 6 }

dot3adAggActorOperKey OBJECT-TYPE

SYNTAX LcpKey
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The current operational value of the Key for the Aggregator.
The administrative Key value may differ from the operational
Key value for the reasons discussed in 5.6.2.
This is a 16-bit read-only value. The meaning of particular Key
values is of local significance."

REFERENCE

"6.3.1.1.8"
 ::= { dot3adAggEntry 7 }

dot3adAggPartnerSystemID OBJECT-TYPE

SYNTAX MacAddress
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"A 6-octet read-only MAC address value consisting
of the unique identifier for the current protocol Partner of
this Aggregator. A value of zero indicates that there is no
known Partner. If the aggregation is manually configured, this
System ID value will be a value assigned by the local System."

REFERENCE


```
"6.3.1.1.10"
 ::= { dot3adAggEntry 8 }
```

```
dot3adAggPartnerSystemPriority OBJECT-TYPE
```

```
SYNTAX          INTEGER (0..65535)
```

```
MAX-ACCESS      read-only
```

```
STATUS          current
```

```
DESCRIPTION
```

```
"A 2-octet read-only value that indicates the priority
value associated with the Partner's System ID. If the
aggregation is manually configured, this System Priority value
will be a value assigned by the local System."
```

```
REFERENCE
```

```
"6.3.1.1.11"
```

```
::= { dot3adAggEntry 9 }
```

```
dot3adAggPartnerOperKey OBJECT-TYPE
```

```
SYNTAX          LACPKey
```

```
MAX-ACCESS      read-only
```

```
STATUS          current
```

```
DESCRIPTION
```

```
"The current operational value of the Key for the
Aggregator's current protocol Partner. This is
a 16-bit read-only value. If the aggregation is manually
configured, this Key value will be a value assigned by the
local System."
```

```
REFERENCE
```

```
"6.3.1.1.12"
```

```
::= { dot3adAggEntry 10 }
```

```
dot3adAggCollectorMaxDelay OBJECT-TYPE
```

```
SYNTAX          INTEGER (0..65535)
```

```
MAX-ACCESS      read-write
```

```
STATUS          current
```

```
DESCRIPTION
```

```
"The value of this 16-bit read-write attribute defines
the maximum delay, in tens of microseconds, that
may be imposed by the Frame Collector between
receiving a frame from an Aggregator Parser, and
either delivering the frame to its MAC Client or discarding
the frame (see 5.2.3.1.1)."
```

```
REFERENCE
```

```
"6.3.1.1.32"
```

```
::= { dot3adAggEntry 11 }
```

```
-----
-- The Aggregation Port List Table
-----
```

```
dot3adAggPortListTable OBJECT-TYPE
```

```
SYNTAX          SEQUENCE OF Dot3adAggPortListEntry
```

```
MAX-ACCESS      not-accessible
```

```
STATUS          current
```

```
DESCRIPTION
```

"A table that contains a list of all the ports associated with each Aggregator."

REFERENCE

"6.3.1.1.30"

::= { dot3adAgg 2 }

dot3adAggPortListEntry OBJECT-TYPE

SYNTAX Dot3adAggPortListEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A list of the ports associated with a given Aggregator. This is indexed by the ifIndex of the Aggregator."

INDEX { dot3adAggIndex }

::= { dot3adAggPortListTable 1 }

Dot3adAggPortListEntry ::=

SEQUENCE {

dot3adAggPortListPorts
PortList

}

dot3adAggPortListPorts OBJECT-TYPE

SYNTAX PortList

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The complete set of ports currently associated with this Aggregator. Each bit set in this list represents an Actor Port member of this Link Aggregation."

REFERENCE

"6.3.1.1.30"

::= { dot3adAggPortListEntry 1 }

-- The Aggregation Port Table

dot3adAggPortTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3adAggPortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table that contains Link Aggregation Control configuration information about every Aggregation Port associated with this device. A row appears in this table for each physical port."

REFERENCE

"6.3.2"

::= { dot3adAggPort 1 }

dot3adAggPortEntry OBJECT-TYPE

SYNTAX Dot3adAggPortEntry

```

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A list of Link Aggregation Control configuration
    parameters for each Aggregation Port on this device."
INDEX { dot3adAggPortIndex }
 ::= { dot3adAggPortTable 1 }

```

```

Dot3adAggPortEntry ::=
SEQUENCE {
    dot3adAggPortIndex
        InterfaceIndex,
    dot3adAggPortActorSystemPriority
        INTEGER,
    dot3adAggPortActorSystemID
        MacAddress,
    dot3adAggPortActorAdminKey
        LACPKey,
    dot3adAggPortActorOperKey
        LACPKey,
    dot3adAggPortPartnerAdminSystemPriority
        INTEGER,
    dot3adAggPortPartnerOperSystemPriority
        INTEGER,
    dot3adAggPortPartnerAdminSystemID
        MacAddress,
    dot3adAggPortPartnerOperSystemID
        MacAddress,
    dot3adAggPortPartnerAdminKey
        LACPKey,
    dot3adAggPortPartnerOperKey
        LACPKey,
    dot3adAggPortSelectedAggID
        InterfaceIndex,
    dot3adAggPortAttachedAggID
        InterfaceIndex,
    dot3adAggPortActorPort
        INTEGER,
    dot3adAggPortActorPortPriority
        INTEGER,
    dot3adAggPortPartnerAdminPort
        INTEGER,
    dot3adAggPortPartnerOperPort
        INTEGER,
    dot3adAggPortPartnerAdminPortPriority
        INTEGER,
    dot3adAggPortPartnerOperPortPriority
        INTEGER,
    dot3adAggPortActorAdminState
        LACPState,
    dot3adAggPortActorOperState
        LACPState,
    dot3adAggPortPartnerAdminState
        LACPState,
    dot3adAggPortPartnerOperState
        LACPState,
    dot3adAggPortAggregateOrIndividual
        TruthValue

```

}

```
dot3adAggPortIndex OBJECT-TYPE
  SYNTAX      InterfaceIndex
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "The ifIndex of the port"
  REFERENCE
    "6.3.2.1.1"
  ::= { dot3adAggPortEntry 1 }
```

```
dot3adAggPortActorSystemPriority OBJECT-TYPE
  SYNTAX      INTEGER (0..255)
  MAX-ACCESS  read-write
  STATUS      current
  DESCRIPTION
    "A 2-octet read-write value used to define the priority
    value associated with the Actor's System ID."
  REFERENCE
    "6.3.2.1.2"
  ::= { dot3adAggPortEntry 2 }
```

```
dot3adAggPortActorSystemID OBJECT-TYPE
  SYNTAX      MacAddress
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "A 6-octet read-only MAC address value that defines
    the value of the System ID for the System that contains this
    Aggregation Port."
  REFERENCE
    "6.3.2.1.3"
  ::= { dot3adAggPortEntry 3 }
```

```
dot3adAggPortActorAdminKey OBJECT-TYPE
  SYNTAX      LACPKey
  MAX-ACCESS  read-write
  STATUS      current
  DESCRIPTION
    "The current administrative value of the Key for the
    Aggregation Port. This is a 16-bit read-write value.
    The meaning of particular Key values is of local significance."
  REFERENCE
    "6.3.2.1.4"
  ::= { dot3adAggPortEntry 4 }
```

```
dot3adAggPortActorOperKey OBJECT-TYPE
  SYNTAX      LACPKey
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "The current operational value of the Key for the
    Aggregation Port. This is a 16-bit read-only value."
```

The meaning of particular Key values is of local significance."
 REFERENCE
 "6.3.2.1.5"
 ::= { dot3adAggPortEntry 5 }

dot3adAggPortPartnerAdminSystemPriority OBJECT-TYPE
 SYNTAX INTEGER (0..255)
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "A 2-octet read-write value used to define the administrative value of priority associated with the Partner's System ID. The assigned value is used, along with the value of aAggPortPartnerAdminSystemID, aAggPortPartnerAdminKey, aAggPortPartnerAdminPort, and aAggPortPartnerAdminPortPriority, in order to achieve manually configured aggregation."
 REFERENCE
 "6.3.2.1.6"
 ::= { dot3adAggPortEntry 6 }

dot3adAggPortPartnerOperSystemPriority OBJECT-TYPE
 SYNTAX INTEGER (0..255)
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "A 2-octet read-only value indicating the operational value of priority associated with the Partner's System ID. The value of this attribute may contain the manually configured value carried in aAggPortPartnerAdminSystemPriority if there is no protocol Partner."
 REFERENCE
 "6.3.2.1.7"
 ::= { dot3adAggPortEntry 7 }

dot3adAggPortPartnerAdminSystemID OBJECT-TYPE
 SYNTAX MacAddress
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "A 6-octet read-write MACAddress value representing the administrative value of the Aggregation Port's protocol Partner's System ID. The assigned value is used, along with the value of aAggPortPartnerAdminSystemPriority, aAggPortPartnerAdminKey, aAggPortPartnerAdminPort, and aAggPortPartnerAdminPortPriority, in order to achieve manually configured aggregation."
 REFERENCE
 "6.3.2.1.8"
 ::= { dot3adAggPortEntry 8 }

dot3adAggPortPartnerOperSystemID OBJECT-TYPE
 SYNTAX MacAddress
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"A 6-octet read-only MACAddress value representing the current value of the Aggregation Port's protocol Partner's System ID. A value of zero indicates that there is no known protocol Partner. The value of this attribute may contain the manually configured value carried in aAggPortPartnerAdminSystemID if there is no protocol Partner."

REFERENCE

"6.3.2.1.9"

::= { dot3adAggPortEntry 9 }

dot3adAggPortPartnerAdminKey OBJECT-TYPE

SYNTAX LcpKey
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"The current administrative value of the Key for the protocol Partner. This is a 16-bit read-write value. The assigned value is used, along with the value of aAggPortPartnerAdminSystemPriority, aAggPortPartnerAdminSystemID, aAggPortPartnerAdminPort, and aAggPortPartnerAdminPortPriority, in order to achieve manually configured aggregation."

REFERENCE

"6.3.2.1.10"

::= { dot3adAggPortEntry 10 }

dot3adAggPortPartnerOperKey OBJECT-TYPE

SYNTAX LcpKey
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The current operational value of the Key for the protocol Partner. The value of this attribute may contain the manually configured value carried in aAggPortPartnerAdminKey if there is no protocol Partner. This is a 16-bit read-only value."

REFERENCE

"6.3.2.1.11"

::= { dot3adAggPortEntry 11 }

dot3adAggPortSelectedAggID OBJECT-TYPE

SYNTAX InterfaceIndex
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The identifier value of the Aggregator that this Aggregation Port has currently selected. Zero indicates that the Aggregation Port has not selected an Aggregator, either because it is in the process of detaching from an Aggregator or because there is no suitable Aggregator available for it to select. This value is read-only."

REFERENCE

"6.3.2.1.12"

::= { dot3adAggPortEntry 12 }

dot3adAggPortAttachedAggID OBJECT-TYPE

```

SYNTAX      InterfaceIndex
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The identifier value of the Aggregator that this Aggregation
    Port is currently attached to. Zero indicates that the Aggregation
    Port is not currently attached to an Aggregator. This value is
    read-only."
REFERENCE
    "6.3.2.1.13"
 ::= { dot3adAggPortEntry 13 }

```

dot3adAggPortActorPort OBJECT-TYPE

```

SYNTAX      INTEGER (0..65535)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The port number locally assigned to the Aggregation Port.
    The port number is communicated in LACPDUs as the
    Actor_Port. This value is read-only."
REFERENCE
    "6.3.2.1.14"
 ::= { dot3adAggPortEntry 14 }

```

dot3adAggPortActorPortPriority OBJECT-TYPE

```

SYNTAX      INTEGER (0..255)
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "The priority value assigned to this Aggregation Port.
    This 16-bit value is read-write."
REFERENCE
    "6.3.2.1.15"
 ::= { dot3adAggPortEntry 15 }

```

dot3adAggPortPartnerAdminPort OBJECT-TYPE

```

SYNTAX      INTEGER (0..65535)
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "The current administrative value of the port number
    for the protocol Partner. This is a 16-bit read-write value.
    The assigned value is used, along with the value of
    aAggPortPartnerAdminSystemPriority,
    aAggPortPartnerAdminSystemID, aAggPortPartnerAdminKey,
    and aAggPortPartnerAdminPortPriority,
    in order to achieve manually configured aggregation."
REFERENCE
    "6.3.2.1.16"
 ::= { dot3adAggPortEntry 16 }

```

dot3adAggPortPartnerOperPort OBJECT-TYPE

```

SYNTAX      INTEGER (0..65535)
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"The operational port number assigned to this Aggregation Port by the Aggregation Port's protocol Partner. The value of this attribute may contain the manually configured value carried in aAggPortPartnerAdminPort if there is no protocol Partner. This 16-bit value is read-only."

REFERENCE

"6.3.2.1.17"

::= { dot3adAggPortEntry 17 }

dot3adAggPortPartnerAdminPortPriority OBJECT-TYPE

SYNTAX INTEGER (0..255)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The current administrative value of the port priority for the protocol Partner. This is a 16-bit read-write value. The assigned value is used, along with the value of aAggPortPartnerAdminSystemPriority, aAggPortPartnerAdminSystemID, aAggPortPartnerAdminKey, and aAggPortPartnerAdminPort, in order to achieve manually configured aggregation."

REFERENCE

"6.3.2.1.18"

::= { dot3adAggPortEntry 18 }

dot3adAggPortPartnerOperPortPriority OBJECT-TYPE

SYNTAX INTEGER (0..255)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The priority value assigned to this Aggregation Port by the Partner. The value of this attribute may contain the manually configured value carried in aAggPortPartnerAdminPortPriority if there is no protocol Partner. This 16-bit value is read-only."

REFERENCE

"6.3.2.1.19"

::= { dot3adAggPortEntry 19 }

dot3adAggPortActorAdminState OBJECT-TYPE

SYNTAX LACPState

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"A string of 8 bits, corresponding to the administrative values of Actor_State (5.4.2) as transmitted by the Actor in LACPDUs. The first bit corresponds to bit 0 of Actor_State (LACP_Activity), the second bit corresponds to bit 1 (LACP_Timeout), the third bit corresponds to bit 2 (Aggregation), the fourth bit corresponds to bit 3 (Synchronization), the fifth bit corresponds to bit 4 (Collecting), the sixth bit corresponds to bit 5 (Distributing), the seventh bit corresponds to bit 6 (Defaulted), and the eighth bit corresponds to bit 7 (Expired). These values allow administrative control over the values of LACP_Activity, LACP_Timeout and Aggregation. This attribute value is read-write."

REFERENCE


```
"6.3.2.1.20"
 ::= { dot3adAggPortEntry 20 }
```

```
dot3adAggPortActorOperState OBJECT-TYPE
```

```
SYNTAX      LacpState
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "A string of 8 bits, corresponding to the current
    operational values of Actor_State as transmitted by the
    Actor in LACPDUs. The bit allocations are as defined in
    6.3.2.1.20. This attribute value is read-only."
REFERENCE
    "6.3.2.1.21"
 ::= { dot3adAggPortEntry 21 }
```

```
dot3adAggPortPartnerAdminState OBJECT-TYPE
```

```
SYNTAX      LacpState
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "A string of 8 bits, corresponding to the current administrative
    value of Actor_State for the protocol Partner. The bit
    allocations are as defined in 6.3.2.1.20. This attribute value is
    read-write. The assigned value is used in order to achieve
    manually configured aggregation."
REFERENCE
    "6.3.2.1.22"
 ::= { dot3adAggPortEntry 22 }
```

```
dot3adAggPortPartnerOperState OBJECT-TYPE
```

```
SYNTAX      LacpState
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "A string of 8 bits, corresponding to the current values of
    Actor_State in the most recently received LACPDU transmitted
    by the protocol Partner. The bit allocations are as defined in
    6.3.2.1.20. In the absence of an active protocol Partner, this
    value may reflect the manually configured value
    aAggPortPartnerAdminState. This attribute value is read-only."
REFERENCE
    "6.3.2.1.23"
 ::= { dot3adAggPortEntry 23 }
```

```
dot3adAggPortAggregateOrIndividual OBJECT-TYPE
```

```
SYNTAX      TruthValue
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "A read-only Boolean value indicating whether the
    Aggregation Port is able to Aggregate ('TRUE') or is
    only able to operate as an Individual link ('FALSE')."
REFERENCE
    "6.3.2.1.24"
```

```
::= { dot3adAggPortEntry 24 }
```

```
-----  
-- LACP Statistics Table  
-----
```

```
dot3adAggPortStatsTable OBJECT-TYPE  
SYNTAX      SEQUENCE OF Dot3adAggPortStatsEntry  
MAX-ACCESS  not-accessible  
STATUS      current  
DESCRIPTION  
    "A table that contains Link Aggregation information  
    about every port that is associated with this device.  
    A row appears in this table for each physical port."  
REFERENCE  
    "6.3.3"  
 ::= { dot3adAggPort 2 }
```

```
dot3adAggPortStatsEntry OBJECT-TYPE  
SYNTAX      Dot3adAggPortStatsEntry  
MAX-ACCESS  not-accessible  
STATUS      current  
DESCRIPTION  
    "A list of Link Aggregation Control Protocol statistics  
    for each port on this device."  
INDEX { dot3adAggPortIndex }  
 ::= { dot3adAggPortStatsTable 1 }
```

```
Dot3adAggPortStatsEntry ::=  
SEQUENCE {  
    dot3adAggPortStatsLACPDUrx  
        Counter32,  
    dot3adAggPortStatsMarkerPDUrx  
        Counter32,  
    dot3adAggPortStatsMarkerResponsePDUrx  
        Counter32,  
    dot3adAggPortStatsUnknownRx  
        Counter32,  
    dot3adAggPortStatsIllegalRx  
        Counter32,  
    dot3adAggPortStatsLACPDUtx  
        Counter32,  
    dot3adAggPortStatsMarkerPDUtx  
        Counter32,  
    dot3adAggPortStatsMarkerResponsePDUtx  
        Counter32  
}
```

```
dot3adAggPortStatsLACPDUrx OBJECT-TYPE  
SYNTAX      Counter32  
MAX-ACCESS  read-only  
STATUS      current  
DESCRIPTION  
    "The number of valid LACPDU received on this
```

Aggregation Port. This value is read-only."
 REFERENCE
 "6.3.3.1.2"
 ::= { dot3adAggPortStatsEntry 1 }

dot3adAggPortStatsMarkerPDUsRx OBJECT-TYPE
 SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The number of valid Marker PDUs received on this
 Aggregation Port. This value is read-only."
 REFERENCE
 "6.3.3.1.3"
 ::= { dot3adAggPortStatsEntry 2 }

dot3adAggPortStatsMarkerResponsePDUsRx OBJECT-TYPE
 SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The number of valid Marker Response PDUs received on this
 Aggregation Port. This value is read-only."
 REFERENCE
 "6.3.3.1.4"
 ::= { dot3adAggPortStatsEntry 3 }

dot3adAggPortStatsUnknownRx OBJECT-TYPE
 SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The number of frames received that either:
 - carry the Slow Protocols Ethernet Type value
 (IEEE Std 802.3 Annex 57A.4), but contain an
 unknown PDU, or:
 - are addressed to the Slow Protocols group MAC
 Address (IEEE Std 802.3 Annex 57A.4), but do
 not carry the Slow Protocols Ethernet Type.
 This value is read-only."
 REFERENCE
 "6.3.3.1.5"
 ::= { dot3adAggPortStatsEntry 4 }

dot3adAggPortStatsIllegalRx OBJECT-TYPE
 SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The number of frames received that carry the Slow
 Protocols Ethernet Type value (IEEE Std 802.3 Annex
 57A.4), but contain a badly formed PDU or an illegal
 value of Protocol Subtype (IEEE Std 802.3 Annex 57A.4).
 This value is read-only."
 REFERENCE

```
"6.3.3.1.6"  
 ::= { dot3adAggPortStatsEntry 5 }
```

```
dot3adAggPortStatsLACPDUsTx OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of LACPDUs transmitted on this  
    Aggregation Port. This value is read-only."  
REFERENCE  
    "6.3.3.1.7"  
 ::= { dot3adAggPortStatsEntry 6 }
```

```
dot3adAggPortStatsMarkerPDUsTx OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of Marker PDUs transmitted on this  
    Aggregation Port. This value is read-only."  
REFERENCE  
    "6.3.3.1.8"  
 ::= { dot3adAggPortStatsEntry 7 }
```

```
dot3adAggPortStatsMarkerResponsePDUsTx OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of Marker Response PDUs transmitted  
    on this Aggregation Port. This value is read-only."  
REFERENCE  
    "6.3.3.1.9"  
 ::= { dot3adAggPortStatsEntry 8 }
```

```
-- -----  
-- LACP Debug Table  
-- -----
```

```
dot3adAggPortDebugTable OBJECT-TYPE  
SYNTAX SEQUENCE OF Dot3adAggPortDebugEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
    "A table that contains Link Aggregation debug  
    information about every port that is associated with  
    this device. A row appears in this table for each  
    physical port."  
REFERENCE  
    "6.3.4"  
 ::= { dot3adAggPort 3 }
```

```
dot3adAggPortDebugEntry OBJECT-TYPE  
SYNTAX Dot3adAggPortDebugEntry
```

```

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A list of the debug parameters for a port."
INDEX { dot3adAggPortIndex }
 ::= { dot3adAggPortDebugTable 1 }

```

```

Dot3adAggPortDebugEntry ::=
SEQUENCE {
    dot3adAggPortDebugRxState
        INTEGER,
    dot3adAggPortDebugLastRxTime
        TimeTicks,
    dot3adAggPortDebugMuxState
        INTEGER,
    dot3adAggPortDebugMuxReason
        DisplayString,
    dot3adAggPortDebugActorChurnState
        ChurnState,
    dot3adAggPortDebugPartnerChurnState
        ChurnState,
    dot3adAggPortDebugActorChurnCount
        Counter32,
    dot3adAggPortDebugPartnerChurnCount
        Counter32,
    dot3adAggPortDebugActorSyncTransitionCount
        Counter32,
    dot3adAggPortDebugPartnerSyncTransitionCount
        Counter32,
    dot3adAggPortDebugActorChangeCount
        Counter32,
    dot3adAggPortDebugPartnerChangeCount
        Counter32
}

```

dot3adAggPortDebugRxState OBJECT-TYPE

```

SYNTAX INTEGER {
    currentRx(1),
    expired(2),
    defaulted(3),
    initialize(4),
    lacpDisabled(5),
    portDisabled(6)
}

```

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION

```

```

    "This attribute holds the value 'currentRx' if the Receive
state machine for the Aggregation Port is in the
CURRENT state, 'expired' if the Receive state machine
is in the EXPIRED state, 'defaulted' if the Receive state
machine is in the DEFAULTED state, 'initialize' if the
Receive state machine is in the INITIALIZE state,
'lacpDisabled' if the Receive state machine is in the
LACP_DISABLED state, or 'portDisabled' if the Receive
state machine is in the PORT_DISABLED state.
This value is read-only."

```

REFERENCE

"6.3.4.1.2"

::= { dot3adAggPortDebugEntry 1 }

dot3adAggPortDebugLastRxTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of aTimeSinceSystemReset (See IEEE Std 802.3 Annex F.2.1) when the last LACPDU was received by this Aggregation Port.

This value is read-only."

REFERENCE

"6.3.4.1.3"

::= { dot3adAggPortDebugEntry 2 }

dot3adAggPortDebugMuxState OBJECT-TYPE

SYNTAX INTEGER {
detached(1),
waiting(2),
attached(3),
collecting(4),
distributing(5),
collectingDistributing(6)
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This attribute holds the value 'detached' if the Mux state machine (5.4.14) for the Aggregation Port is in the DETACHED state, 'waiting' if the Mux state machine is in the WAITING state, 'attached' if the Mux state machine for the Aggregation Port is in the ATTACHED state, 'collecting' if the Mux state machine for the Aggregation Port is in the COLLECTING state, 'distributing' if the Mux state machine for the Aggregation Port is in the DISTRIBUTING state, and 'collectingDistributing' if the Mux state machine for the Aggregation Port is in the COLLECTING_DISTRIBUTING state.

This value is read-only."

REFERENCE

"6.3.4.1.4"

::= { dot3adAggPortDebugEntry 3 }

dot3adAggPortDebugMuxReason OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A human-readable text string indicating the reason for the most recent change of Mux machine state.

This value is read-only."

REFERENCE

"6.3.4.1.5"

::= { dot3adAggPortDebugEntry 4 }

```

dot3adAggPortDebugActorChurnState OBJECT-TYPE
    SYNTAX      ChurnState
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The state of the Actor Churn Detection machine
        (5.4.17) for the Aggregation Port. A value of 'noChurn'
        indicates that the state machine is in either the
        NO_ACTOR_CHURN or the ACTOR_CHURN_MONITOR
        state, and 'churn' indicates that the state machine is in the
        ACTOR_CHURN state. This value is read-only."
    REFERENCE
        "6.3.4.1.6"
    ::= { dot3adAggPortDebugEntry 5 }

dot3adAggPortDebugPartnerChurnState OBJECT-TYPE
    SYNTAX      ChurnState
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The state of the Partner Churn Detection machine
        (5.4.17) for the Aggregation Port. A value of 'noChurn'
        indicates that the state machine is in either the
        NO_PARTNER_CHURN or the PARTNER_CHURN_MONITOR
        state, and 'churn' indicates that the state machine is
        in the PARTNER_CHURN state.
        This value is read-only."
    REFERENCE
        "6.3.4.1.7"
    ::= { dot3adAggPortDebugEntry 6 }

dot3adAggPortDebugActorChurnCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Actor Churn state
        machine has entered the ACTOR_CHURN state.
        This value is read-only."
    REFERENCE
        "6.3.4.1.8"
    ::= { dot3adAggPortDebugEntry 7 }

dot3adAggPortDebugPartnerChurnCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Partner Churn
        state machine has entered the PARTNER_CHURN state.
        This value is read-only."
    REFERENCE
        "6.3.4.1.9"
    ::= { dot3adAggPortDebugEntry 8 }

```

```
dot3adAggPortDebugActorSyncTransitionCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Actor's Mux state
        machine (5.4.15) has entered the IN_SYNC state.
        This value is read-only."
    REFERENCE
        "6.3.4.1.10"
    ::= { dot3adAggPortDebugEntry 9 }

dot3adAggPortDebugPartnerSyncTransitionCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Partner's Mux
        state machine (5.4.15) has entered the IN_SYNC state.
        This value is read-only."
    REFERENCE
        "6.3.4.1.11"
    ::= { dot3adAggPortDebugEntry 10 }

dot3adAggPortDebugActorChangeCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Actor's perception of
        the LAG ID for this Aggregation Port has changed.
        This value is read-only."
    REFERENCE
        "6.3.4.1.12"
    ::= { dot3adAggPortDebugEntry 11 }

dot3adAggPortDebugPartnerChangeCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the number of times the Partner's perception of
        the LAG ID (see 5.3.6.1) for this Aggregation Port has changed.
        This value is read-only."
    REFERENCE
        "6.3.4.1.13"
    ::= { dot3adAggPortDebugEntry 12 }

-----
-- Extension of the Aggregation Port Table
-----
dot3adAggPortXTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Dot3adAggPortXEntry
    MAX-ACCESS  not-accessible
```



```

STATUS      current
DESCRIPTION
    "A table that extends dot3adAggPortTable."
REFERENCE
    "6.3.2"
 ::= { dot3adAggPort 4 }

```

```

dot3adAggPortXEntry OBJECT-TYPE
SYNTAX      Dot3adAggPortXEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "A list of extension parameters for Aggregation Port."
AUGMENTS { dot3adAggPortEntry }
 ::= { dot3adAggPortXTable 1 }

```

```

Dot3adAggPortXEntry ::=
SEQUENCE {
    dot3adAggPortProtocolDA
        MacAddress
}

```

```

dot3adAggPortProtocolDA OBJECT-TYPE
SYNTAX      MacAddress
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "A 6-octet read-write MACAddress value specifying
    the destination address to be used when sending Link
    Aggregation Control and Marker PDUs on this port,
    corresponding to the value of Protocol_DA
    in 5.2.7.1.2, 5.2.9.1.2 and 5.5.4.2.1.
    The default DA is the IEEE 802.3 Slow_Protocols_Multicast
    address."
REFERENCE
    "6.3.2.2.1"
DEFVAL { '0180C2000002'h }
 ::= { dot3adAggPortXEntry 1 }

```

```

-----
-- IEEE 802.3ad MIB - Conformance Information
-----

```

```

dot3adAggConformance OBJECT IDENTIFIER ::= { lagMIB 2 }

```

```

dot3adAggGroups OBJECT IDENTIFIER ::= { dot3adAggConformance 1 }

```

```

dot3adAggCompliances OBJECT IDENTIFIER
 ::= { dot3adAggConformance 2 }

```

```

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

```

```
dot3adAggGroup OBJECT-GROUP
  OBJECTS {
    dot3adAggActorSystemID,
    dot3adAggActorSystemPriority,
    dot3adAggAggregateOrIndividual,
    dot3adAggActorAdminKey,
    dot3adAggMACAddress,
    dot3adAggActorOperKey,
    dot3adAggPartnerSystemID,
    dot3adAggPartnerSystemPriority,
    dot3adAggPartnerOperKey,
    dot3adAggCollectorMaxDelay
  }
  STATUS          current
  DESCRIPTION
    "A collection of objects providing information about an
    aggregation."
  ::= { dot3adAggGroups 1 }

dot3adAggPortListGroup OBJECT-GROUP
  OBJECTS {
    dot3adAggPortListPorts
  }
  STATUS          current
  DESCRIPTION
    "A collection of objects providing information about every
    port in an aggregation."
  ::= { dot3adAggGroups 2 }

dot3adAggPortGroup OBJECT-GROUP
  OBJECTS {
    dot3adAggPortActorSystemPriority,
    dot3adAggPortActorSystemID,
    dot3adAggPortActorAdminKey,
    dot3adAggPortActorOperKey,
    dot3adAggPortPartnerAdminSystemPriority,
    dot3adAggPortPartnerOperSystemPriority,
    dot3adAggPortPartnerAdminSystemID,
    dot3adAggPortPartnerOperSystemID,
    dot3adAggPortPartnerAdminKey,
    dot3adAggPortPartnerOperKey,
    dot3adAggPortSelectedAggID,
    dot3adAggPortAttachedAggID,
    dot3adAggPortActorPort,
    dot3adAggPortActorPortPriority,
    dot3adAggPortPartnerAdminPort,
    dot3adAggPortPartnerOperPort,
    dot3adAggPortPartnerAdminPortPriority,
    dot3adAggPortPartnerOperPortPriority,
    dot3adAggPortActorAdminState,
    dot3adAggPortActorOperState,
    dot3adAggPortPartnerAdminState,
    dot3adAggPortPartnerOperState,
    dot3adAggPortAggregateOrIndividual
  }
  STATUS          current
  DESCRIPTION
```

```

    "A collection of objects providing information about every
    port in an aggregation."
 ::= { dot3adAggGroups 3 }

```

```

dot3adAggPortStatsGroup OBJECT-GROUP
OBJECTS {
    dot3adAggPortStatsLACPDUsRx,
    dot3adAggPortStatsMarkerPDUsRx,
    dot3adAggPortStatsMarkerResponsePDUsRx,
    dot3adAggPortStatsUnknownRx,
    dot3adAggPortStatsIllegalRx,
    dot3adAggPortStatsLACPDUsTx,
    dot3adAggPortStatsMarkerPDUsTx,
    dot3adAggPortStatsMarkerResponsePDUsTx
}
STATUS current
DESCRIPTION
    "A collection of objects providing information about every
    port in an aggregation."
 ::= { dot3adAggGroups 4 }

```

```

dot3adAggPortDebugGroup OBJECT-GROUP
OBJECTS {
    dot3adAggPortDebugRxState,
    dot3adAggPortDebugLastRxTime,
    dot3adAggPortDebugMuxState,
    dot3adAggPortDebugMuxReason,
    dot3adAggPortDebugActorChurnState,
    dot3adAggPortDebugPartnerChurnState,
    dot3adAggPortDebugActorChurnCount,
    dot3adAggPortDebugPartnerChurnCount,
    dot3adAggPortDebugActorSyncTransitionCount,
    dot3adAggPortDebugPartnerSyncTransitionCount,
    dot3adAggPortDebugActorChangeCount,
    dot3adAggPortDebugPartnerChangeCount
}
STATUS current
DESCRIPTION
    "A collection of objects providing debug information about
    every aggregated port."
 ::= { dot3adAggGroups 5 }

```

```

dot3adTablesLastChangedGroup OBJECT-GROUP
OBJECTS {
    dot3adTablesLastChanged
}
STATUS current
DESCRIPTION
    "A collection of objects providing information about the time
    of changes to the configuration of aggregations and their ports."
 ::= { dot3adAggGroups 6 }

```

```

dot3adAggPortProtocolDAGroup OBJECT-GROUP
OBJECTS {
    dot3adAggPortProtocolDA
}
STATUS current

```

```
DESCRIPTION
    "A collection of objects providing information about the protocol
    destination address in use for ports in an aggregation."
 ::= { dot3adAggGroups 7 }
```

```
-----
-- compliance statements
-----
```

```
dot3adAggCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The compliance statement for device support of
        Link Aggregation."
```

```
MODULE
    MANDATORY-GROUPS {
        dot3adAggGroup,
        dot3adAggPortGroup,
        dot3adTablesLastChangedGroup
    }
```

```
GROUP dot3adAggPortListGroup
DESCRIPTION
    "This group is optional."
```

```
GROUP dot3adAggPortStatsGroup
DESCRIPTION
    "This group is optional."
```

```
GROUP dot3adAggPortDebugGroup
DESCRIPTION
    "This group is optional."
```

```
GROUP dot3adAggPortProtocolDAGroup
DESCRIPTION
    "This group is optional."
```

```
::= { dot3adAggCompliances 1 }
```

```
END
```