

P802.1ABdh

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Type of Project: Amendment to IEEE Standard 802.1AB-2016

PAR Request Date: 24-Apr-2019

PAR Approval Date:

PAR Expiration Date:

Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.1ABdh

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Local and metropolitan area networks - Station and Media Access Control Connectivity Discovery
Amendment: Support for Multiframe Protocol Data Units

3.1 Working Group: Higher Layer LAN Protocols Working Group (C/LM/WG802.1)

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3.2 Sponsoring Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2021

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 05/2022

5.1 Approximate number of people expected to be actively involved in the development of this project: 30

5.2.a. Scope of the complete standard: The scope of this standard is to define a protocol and management elements, suitable for advertising information to stations attached to the same IEEE 802 LAN, for the purpose of populating physical topology and device discovery management information databases. The protocol facilitates the identification of stations connected by IEEE 802 LANs/MANs, their points of interconnection, and access points for management protocols. This standard defines a protocol that a) Advertises connectivity and management information about the local station to adjacent stations on the same IEEE 802 LAN. b) Receives network management information from adjacent stations on the same IEEE 802 LAN. c) Operates with all IEEE 802 access protocols and network media. d) Establishes a network management information schema and object definitions that are suitable for storing connection information about adjacent stations. e) Provides compatibility with the IETF PTOPO MIB (IETF RFC 2922 [B9]).

5.2.b. Scope of the project: This amendment specifies protocols, procedures and managed objects that support the transmission and reception of a set of Link Layer Discovery Protocol (LLDP) Type Length Values (TLVs) that exceed the space available in a single frame. This amendment defines the transmission of multiple frames, additional TLVs and the procedures needed to support the transmission of those TLVs across multiple frames. This amendment maintains existing functionality while communicating with a peer that supports updated functionality. This amendment defines a method to further restrict the size of the LLDP Data Unit (LLDPDU) and extensions in order to meet timing constraints in the network. This amendment also addresses errors and omissions in the description of existing functionality.

5.3 Is the completion of this standard dependent upon the completion of another standard?: Yes

If yes please explain: This amendment will specify a new Link Layer Discovery Protocol (LLDP) Type-Length-Value (TLV) and its associated Management Information Base (MIB) and YANG model. IEEE P802.1ABcu is currently specifying the YANG model for IEEE Std 802.1AB which must be completed in order for this amendment to specify its extension.

5.4 Purpose: An IETF MIB (IETF RFC 2922 [B9]) and a number of vendor specific MIBs have been created to describe a network's physical topology and associated systems within that topology. This standard specifies the necessary protocol and management elements to a) Facilitate multi-vendor inter-operability and the use of standard management tools to discover and make available physical topology information for network management.

b) Make it possible for network management to discover certain configuration inconsistencies or malfunctions that can result in impaired communication at higher layers. c) Provide information to assist network management in making resource changes and/or re-configurations that correct configuration inconsistencies or malfunctions identified in b) above.

5.5 Need for the Project: The set of TLVs that an LLDP agent exchanges with a peer must fit into a single LLDPDU. The size of the LLDPDU is restricted by the maximum size of the information field for the particular link technology. In some cases, the size of the LLDPDU must be further reduced to meet timing constraints on the network. IEEE Std 802.1AB is widely supported and used in several different environments. Many of these environments have the need to transmit and receive more TLVs than can fit into a single frame. In addition, the number of unique TLVs in use continues to grow. Standards organizations and vendors can define their own sets of TLVs. Environments that need to advertise more information than can fit into a single LLDPDU currently have no solution other than defining a new and incompatible protocol. Given the popularity and wide deployment of LLDP there is a need to allow a migration to a version of the LLDP protocol that supports the transmission and reception of sets of TLVs that exceed the space provided by a single frame.

5.6 Stakeholders for the Standard: Developers and users of networking environments including integrated circuit developers, operating system software developers, bridge and end-node adaptor vendors, network operators and users.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: Yes

If yes please explain: The amendment may require a new EtherType value and/or a new multicast MAC address. The amendment will define protocol identifiers within the standard. The amendment will extend the YANG data model specified in IEEE P802.1ABcu identified by a Uniform Resource Name (URN) based on the Registration Authority (RA) URN tutorial and IEEE Std 802d. The amendment will also extend the Simple Network Management Protocol (SNMP) MIB module specified in IEEE Std 802.1AB identified by an Object Identifier (OID).

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes: #5.3: While 'YANG' (developed by the Internet Engineering Task Force) appears to be an acronym its expansion 'Yet Another Next Generation' is not meaningful.

IEEE Std 802.1AB - IEEE Standard for Local and metropolitan area networks - Station and Media Access Control Connectivity Discovery
IEEE P802.1ABcu - Draft Standard for Local and Metropolitan Area Networks - Station and Media Access Control Connectivity Discovery
Amendment: YANG Data Model

#6.1.b IEEE Std 802 IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture

IEEE Std 802d IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture Amendment 1: Allocation of Uniform Resource Name (URN) Values in IEEE 802 Standards

RA URN tutorial: <http://standards.ieee.org/develop/regauth/tut/ieeearn.pdf>