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**Information technology —  
Telecommunications and information  
exchange between systems — Local  
and metropolitan area networks —  
Specific requirements —**

**Part 1AB:  
Station and media access control  
connectivity discovery**

*Technologies de l'information — Télécommunications et échange  
d'information entre systèmes — Réseaux locaux et métropolitains —  
Exigences spécifiques —*

*Partie 1AB: Découverte de connectivité des stations et du contrôle  
d'accès aux supports*



Reference number  
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This second edition of ISO/IEC/IEEE 8802-1AB cancels and replaces the first edition (ISO/IEC/IEEE 8802-1AB:2014, which has been technically revised).

**IEEE Std 802.1AB™-2016**  
(Revision of  
IEEE Std 802.1AB-2009)

**IEEE Standard for  
Local and metropolitan area networks—  
Station and Media Access Control  
Connectivity Discovery**

Sponsor  
**LAN/MAN Standards Committee  
of the  
IEEE Computer Society**

Approved 29 January 2016  
**IEEE-SA Standards Board**

**Abstract:** A protocol and a set of managed objects that can be used for discovering the physical topology from adjacent stations in IEEE 802<sup>®</sup> LANs are defined in this document.

**Keywords:** IEEE 802.1AB<sup>™</sup>, link layer discovery protocol, management information base, topology discovery, topology information

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## **Introduction**

This introduction is not part of IEEE Std 802.1AB™-2016, IEEE Standard for Local and metropolitan area networks—Station and Media Access Control Connectivity Discovery.
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This revision of IEEE Std 802.1AB does not include any new functionality. It simply incorporates the following into the base text of the 2009 revision:

- IEEE Std 802.1AB-2009/Cor 1-2013
- IEEE Std 802.1AB-2009/Cor 2-2015

Three annexes from the 2009 revision have been deleted:

- Annex D (Using LLDP to detect potential communication problems) was deleted because it was considered to be no longer useful.
- Annex E and Annex F were deleted because the material in them can be found in Annex D of IEEE Std 802.1Q-2014 and Clause 79 of IEEE Std 802.3-2012, respectively.

The bibliography (found in Annex G of the 2009 revision) is Annex D in this revision.

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## 1. Overview

The Link Layer Discovery Protocol (LLDP) specified in this standard allows stations attached to an IEEE 802<sup>®</sup> LAN to advertise, to other stations attached to the same IEEE 802 LAN, the major capabilities provided by the system incorporating that station, the management address or addresses of the entity or entities that provide management of those capabilities, and the identification of the station’s point of attachment to the IEEE 802 LAN required by those management entity or entities.

The information distributed via this protocol is stored by its recipients in a standard Management Information Base (MIB), making it possible for the information to be accessed by a Network Management System (NMS) using a management protocol such as the Simple Network Management Protocol (SNMP).

## 1.1 Scope

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]).<sup>1</sup>

## 1.2 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.

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<sup>1</sup>The numbers in brackets correspond to those in the bibliography in Annex D.

## 2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in the text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEEE Std 802<sup>®</sup>, IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture.<sup>2, 3</sup>

IEEE Std 802.1AC<sup>™</sup>, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Service Definition.

IEEE Std 802.1AE<sup>™</sup>, IEEE Standard for Local and Metropolitan Area Networks—Media Access Control (MAC) Security.

IEEE Std 802.1AX<sup>™</sup>, IEEE Standard for Local and Metropolitan Area Networks—Link Aggregation.

IEEE Std 802.1Q<sup>™</sup>, IEEE Standards for Local and Metropolitan Area Networks: Bridges and Bridged Networks.

IEEE Std 802.1X<sup>™</sup>, IEEE Standard for Local and Metropolitan Area Networks—Port-Based Network Access Control.

IEEE Std 802.3<sup>™</sup>, IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements—Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.

IETF RFC 2863, The Interfaces Group MIB, June 2000.<sup>4</sup>

IETF RFC 3046, DHCP Relay Agent Information Option, January 2001.

IETF RFC 3232, Assigned Numbers: RFC 1700 is Replaced by an On-line Database, January 2002.<sup>5</sup>

IETF RFC 3410, Introduction and Applicability Statements for Internet Standard Management Framework, December 2002.

IETF RFC 3417, Transport Mappings for the Simple Network Management Protocol (SNMP), December 2002.

IETF RFC 3418, Management Information Base (MIB) for the Simple Network Management Protocol (SNMP), December 2002.

IETF RFC 3629, UTF-8, a transformation format of ISO 10646, November 2003.

IETF RFC 4502, Remote Network Monitoring Management Information Base Version 2, May 2006.

<sup>2</sup>IEEE and 802 are registered trademarks in the U.S. Patent & Trademark Office, owned by The Institute of Electrical and Electronics Engineers, Incorporated.

<sup>3</sup>IEEE publications are available from The Institute of Electrical and Electronics Engineers (<http://standards.ieee.org>).

<sup>4</sup>IETF documents (i.e., RFCs) are available for download at <http://www.rfc-archive.org/>.

<sup>5</sup>The IETF RFC 3232 ianaAddressFamilyNumbers on-line database module is accessible at <http://www.iana.org>.

# ISO/IEC/IEEE 8802-1AB:2017(E)

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IEEE Standard for Local and metropolitan area networks—Station and Media Access Control Connectivity Discovery

IETF RFC 4639, Cable Device Management Information Base for Data-Over-Cable Service Interface Specification (DOCSIS) Compliant Cable Modems and Cable Modem Termination Systems, December 2006.

IETF RFC 4789, Simple Network Management Protocol (SNMP) over IEEE 802 Networks, November 2006.

IETF RFC 6933, Entity MIB (Version 4), May 2013.

ISO/IEC 8824-1 [ITU-T Rec. X.680 (2002)], Abstract Syntax Notation One (ASN.1): Specification of Basic Notation.<sup>6</sup>

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<sup>6</sup>ASN.1 standards are available at <http://asn1.elibel.tm.fr/en/standards/index.htm#asn1>.