INTERNATIONAL STANDARD

# ISO/IEC/IEEE 8802-1AR

Second edition
2020-03

# Telecommunications and exchange between information technology systems — Requirements for local and metropolitan area networks —

## Part 1AR: Secure device identity

*Télécommunications et échange entre systèmes informatiques — Exigences pour les réseaux locaux et métropolitains —*

*Partie 1AR: Identité de dispositif sécurisé*



Reference number
ISO/IEC/IEEE 8802-1AR:2020(E)

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**IEEE Std 802.1AR-2018**
(Revision of
IEEE Std 802.1AR-2009)

## IEEE Standard for
## Local and Metropolitan Area Networks—

# Secure Device Identity

Sponsor

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



Approved 14 June 2018

**IEEE-SA Standards Board**

**Abstract:** A Secure Device Identifier (DevID) is cryptographically bound to a device and supports authentication of the device's identity. An Initial Device Identifier (IDevID) provide by the supplier of a device can be supplemented by Local Device Identifiers (LDevIDs) facilitating enrollment (provisioning of authentication and authorization credentials) by local network administrators.

**Keywords:** access control, authentication, authorization, certificate, IEEE 802.1AR, LANs, local area networks, MAC security, MANs, metropolitan area networks, PKI, port-based network access control, secure association, Secure Device Identifier, security, X.509



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PDF: ISBN 978-1-5044-5019-5 STD23186
Print: ISBN 978-1-5044-5020-1 STDPD23186

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## Introduction

This introduction is not part of IEEE Std 802.1AR-2018, IEEE Standard for Local and Metropolitan Area Networks—Secure Device Identity.

This standard specifies Secure Device Identifiers (DevIDs) for use with IEEE Std 802.1X™ [B1][1] and other industry standards and protocols that authenticate, provision, and authorize communicating devices.

Each DevID comprises an RFC 5280 conformant X.509 certificate that identifies the subject device and can include authorization information signed by the certificate's issuer, a secret private key that corresponds to the certificate's subject public key, and any certificate chain required to facilitate the certificate's use. A device's DevID module stores each of its DevID secrets securely and supports signing operations that prove possession of the secret (and thus that the device is the subject of the associated DevID certificate), while ensuring that the secret remains confidential so the device cannot be impersonated by others.

An Initial Device Identifier (IDevID) provided by a device's supplier can be supplemented by one or more Local Device Identifiers (LDevIDs), each using an existing or a freshly generated secret, facilitating enrollment (provisioning of authentication and authorization credentials to authenticated devices) by a local network administrator.

The first edition of IEEE Std 802.1AR was published in 2009. This revision added the ECDSA P-384/SHA-384 signature suite option; removed the RSA-2048/OPAQUE option (that permitted the use of an undisclosed hash function); restructured the document to enable future signature suite changes, for clarity (particularly in conformance statements and the PICS), and revised the MIB. A DevID module can now implement more than one signature suite (facilitating interoperability and the use of a device in different authentication environments) and additional service operations (that do not conflict with mandatory requirements) as long as these are disclosed (facilitating backwards compatibility and support of DevID functionality by other modules, e.g., TPM).



[1]Numbers in brackets correspond to entries in the Bibliography in Annex C.

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