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# Information technology — Telecommunications and information exchange between systems — Local and metropolitan area networks — Overview and Architecture

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

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— *Part 2: Logical link control*

— *Part 5: Token ring access method and physical layer specifications*

— *Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications*

— *Part 1X: Port-based network access control*

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— *Part 1AE: Media access control (MAC) security*

— *Part 1AR: Secure device identity*

— *Part 1AS: Timing and synchronization for time-sensitive applications in bridged local area networks*

— *Part 15-4: Wireless medium access control (MAC) and physical layer (PHY) specifications for low-rate wireless personal area networks (WPANs)*

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# IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

IEEE
3 Park Avenue
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USA

**IEEE Std 802®-2014**
(Revision to
IEEE Std 802-2001)

**IEEE Std 802®-2014**
(Revision of
IEEE Std 802-2001)

# IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture

Sponsor

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of the
**IEEE Computer Society**

Approved 12 June 2014

**IEEE-SA Standards Board**

**Abstract**: This standard provides an overview to the family of IEEE 802® standards. It describes the reference models for the IEEE 802 standards and explains the relationship of these standards to the higher layer protocols; it provides a standard for the structure of IEEE 802 MAC addresses; it provides a standard for identification of public, private, prototype, and standard protocols; it specifies an object identifier hierarchy used within IEEE 802 for uniform allocation of object identifiers used in IEEE 802 standards; and it specifies a method for higher layer protocol identification.

**Keywords:** BANs, body area networks, EtherTypes, IEEE 802®, IEEE 802 architecture, IEEE 802 reference model, LANs, local area networks, MANs, metropolitan area networks, object identifiers, PANs, personal area networks, RANs, regional area networks, protocol development, protocol types

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## Introduction

This introduction is not part of IEEE Std 802-2014, IEEE Standard for Local and metropolitan area networks: Overview and Architecture.

This document is the third major revision of the IEEE 802® overview and architecture. This revision integrates two earlier amendments, IEEE Std 802a™-2003 (covering Ethertypes for prototype and vendor-specific protocol development) and IEEE Std 802b™-2004 (covering registration of object identifiers), into the previous major revision of the standard, IEEE Std 802®-2001. In addition, there has been extensive rework in this document to bring forward the practice of protocol identification using the EtherType. While the protocol identification mechanism specified by ISO/IEC 8802-2 (IEEE Std 802.2™, withdrawn) is still used, its use for new standards has been deprecated. Further, material about physical layer addressing and universal addressing has been added along with information about the IEEE Registration Authority (RA) to facilitate user procurement of address assignments.

Since the 2001 revision of this standard, the IEEE 802 standards and working groups have undergone many changes. IEEE Std 802.5™ was withdrawn; therefore, references to it have been removed from this revision. IEEE Std 802 has also been broadened to include a variety of wireless standards; therefore, a new informative annex has been added to address the variety of IEEE 802 standards (Annex D). Data rates for IEEE 802 standards now range from tens of kilobits per second to hundreds of gigabits per second and encompass copper, optical fiber, wireless, and free-space optical media.

With the diversity of IEEE 802 standards, another goal of this revision was to bring the reference models from these various standards into this standard. This consolidation enables the user to quickly see the differences and similarities of the architecture of IEEE 802 standards. The reference models are included in a new informative annex (Annex B).

## Contents

# IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture



## 1. Overview

### 1.1 Scope

This standard contains descriptions of the IEEE 802® standards published by the IEEE for frame-based data networks as well as a reference model (RM) for protocol standards. The IEEE 802 architecture is defined, and a specification for the identification of public, private, and standard protocols is included.

### 1.2 Purpose

This standard serves as the foundation for the family of IEEE 802 standards published by IEEE for local area networks (LANs), metropolitan area networks (MANs), personal area networks (PANs), and regional area networks (RANs).

## 2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used; therefore, each referenced document is cited in 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 (included any amendments or corrigenda) applies.

IEEE Std 802.1D™, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges.[1, 2]

IEEE Std 802.1Q™, IEEE Standard for Local and metropolitan area networks—Virtual Bridged Local Area Networks.

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

ISO/IEC 8802-2:1998, Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements—Part 2: Logical link control.[3] (ISO/IEC version of withdrawn standard IEEE Std 802.2)

ITU-T Recommendation X.660, Information technology—Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree.[4]

IETF RFC 2578, Structure of Management Information Version 2 (SMIv2).[5]

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