INTERNATIONAL STANDARD

ISO/IEC/ IEEE 8802-1BR

First edition
2016-10-15

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

Part 1BR: Virtual bridged local area networks — Bridge port extension

Technologies de l'information — Télécommunications et échange d'informations entre systèmes — Réseaux de zones locales et métropolitaines — Exigences spécifiques —

Partie 1BR: Réseaux de zone locale virtuelle pontée — Extension du port de pontage

Reference number
ISO/IEC/IEEE 8802-1BR:2016(E)

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IEEE Standard for
Local and metropolitan area networks—

Virtual Bridged Local Area Networks—Bridge Port Extension

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

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3 Park Avenue
New York, NY 10016-5997
USA

16 July 2012

IEEE Std 802.1BR™-2012

IEEE Std 802.1BR™-2012

IEEE Standard for
Local and metropolitan area networks—

Virtual Bridged Local Area Networks—
Bridge Port Extension

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of the
IEEE Computer Society

Approved 14 May 2012

IEEE-SA Standards Board

Abstract: This standard specifies the operation of Bridge Port Extenders, including management, protocols, and algorithms. Bridge Port Extenders operate in support of the MAC Service by Extended Bridges.

Keywords: Bridged Local Area Networks, Data Center Bridging, DCB, Edge Virtual Bridging, EVB, IEEE 802.1BR, LANs, local area networks, MAC Bridges, MANs, metropolitan area networks, Virtual Bridged Local Area Networks

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

Print: ISBN 978-0-7381-7281-1 STD97256
PDF: ISBN 978-0-7381-7387-0 STDPD97256

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Introduction

This introduction is not part of IEEE Std 802.1BR-2012, IEEE Standard for Local and metropolitan area networks—Virtual Bridged Local Area Networks—Bridge Port Extension.

This standard specifies the devices, protocols, procedures, and managed objects necessary to extend a bridge and its management beyond its physical enclosure using IEEE 802® LAN technologies.

To this end, it:

a) Identifies and isolates traffic between ports within an Extended Bridge;
b) Specifies a tag format for this identification;
c) Establishes an Extended Bridge consisting of a Controlling Bridge and one or more Bridge Port Extenders;
d) Specifies the functionality and the specific requirements of a Bridge Port Extender;
e) Extends the MAC service of a Bridge Port across the interconnected Bridge Port Extenders, including support of Customer Virtual Local Area Networks (C-VLANs).
f) Establishes the requirements of bridge components and systems for the attachment of Bridge Port Extenders;
g) Specifies a protocol to provide for the configuration and monitoring of Bridge Port Extenders by a Controlling Bridge; and
h) Establishes the requirements for Bridge Management to support Port Extension, identifying the managed objects and defining the management operations.

This standard contains state-of-the-art material. The area covered by this standard is undergoing evolution. Revisions are anticipated within the next few years to clarify existing material, to correct possible errors, and to incorporate new related material. Information on the current revision state of this and other IEEE 802 standards may be obtained from:

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Contents

Figures

Tables

IEEE Standard for
Local and metropolitan area networks—

Virtual Bridged Local Area Networks—
Bridge Port Extension

1. Overview

This standard specifies a Bridge Port Extender that provides the capability to extend MAC service over an Extended Bridge. This capability may be used, for example, to extend a bridge over multiple physical devices or to extend the MAC service of a bridge to a virtual end station.

1.1 Scope

This standard specifies the devices, protocols, procedures, and managed objects necessary to extend a bridge and its management beyond its physical enclosure using IEEE 802® LAN technologies.

To this end, it:

a) Identifies and isolates traffic between ports within an Extended Bridge;
b) Specifies a tag format for this identification;
c) Establishes an Extended Bridge consisting of a Controlling Bridge and one or more Bridge Port Extenders;
d) Specifies the functionality and the specific requirements of a Bridge Port Extender;
e) Extends the MAC service of a Bridge Port across the interconnected Bridge Port Extenders, including support of Customer Virtual Local Area Networks (C-VLANs).

f) Establishes the requirements of bridge components and systems for the attachment of Bridge Port Extenders;

g) Specifies a protocol to provide for the configuration and monitoring of Bridge Port Extenders by a Controlling Bridge; and

h) Establishes the requirements for Bridge Management to support Port Extension, identifying the managed objects and defining the management operations.

1.2 Purpose

The purpose of this standard is to extend a bridge, and the management of its objects, beyond its physical enclosure using IEEE 802 LAN technologies and interoperable interfaces.

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 802.1AB™, IEEE Standard for Local and metropolitan area networks—Station and Media Access Control—Connectivity Discovery.[1, 2]

IEEE Std 802.1Q™-2011, IEEE Standard for Local and Metropolitan Area Networks—Media Access Control (MAC) and Virtual Bridged Local Area Networks (as amended).

IEEE Std 802.1Qaz™-2011, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—Amendment 18: Enhanced Transmission Selection for Bandwidth Sharing Between Traffic Classes.

IEEE Std 802.1Qbb™-2011, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—Amendment 17: Priority-based Flow Control.

IEEE Std 802.1Qbc™-2011, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—Amendment 16: Provider Bridging—Remote Customer Service Interfaces.

IEEE Std 802.1Qbe™-2011, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—Amendment 15: Multiple I-SID Registration Protocol.

IEEE Std 802.1Qbg™-2012, IEEE Standard for Local and metropolitan area networks—Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks—Admendment 21: Edge Virtual Bridging.

IEEE Std 802.3.1™-2011, IEEE Standard for Management Information Base (MIB) Definitions for Ethernet.

IETF RFC 1042, A Standard for the Transmission of IP Datagrams over IEEE 802 Networks, Postel, J., and Reynolds, J., February 1988.[3]

IETF RFC 1390, STD 36, Transmission of IP and ARP over FDDI Networks, Katz, D., January 1993.

IETF RFC 2578, STD 58, Structure of Management Information Version 2 (SMIv2), McCloghrie, K., et al., April 1999.

ISO/IEC TR 11802-5:1997, Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Technical reports and guidelines—Part 5: Media Access Control (MAC) Bridging of Ethernet V2.0 in Local Area Networks.[4]

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