



BSI Standards Publication

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

Part 1DC: Quality of service provision by network systems

National foreword

This British Standard is the UK implementation of ISO/IEC/IEEE 8802-1DC:2025.

The UK participation in its preparation was entrusted to Technical Committee IST/6, Data communications.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 35463 8

ICS 35.110

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2025.

Amendments/corrigenda issued since publication

Date	Text affected
<hr/>	



**International
Standard**

**ISO/IEC/IEEE
8802-1DC**

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

**Part 1DC:
Quality of service provision by
network systems**

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

Partie 1DC: Qualité des services fournis par les systèmes de réseau

**First edition
2025-09**

Reference number
ISO/IEC/IEEE 8802-1DC:2025(en)

Full document details: BS ISO/IEC/IEEE 8802-1DC:2025

 **Documents**
Document Sharing Hub
© IEEE 2024



COPYRIGHT PROTECTED DOCUMENT

© IEEE 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from IEEE at the address below.

Institute of Electrical and Electronics Engineers, Inc
3 Park Avenue, New York
NY 10016-5997, USA

Email: stds.ipr@ieee.org
Website: www.ieee.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted.

IEEE Standards documents are developed within IEEE Societies and subcommittees of IEEE Standards Association (IEEE SA) Board of Governors. IEEE develops its standards through an accredited consensus development process, which brings together volunteers representing varied viewpoints and interests to achieve the final product. IEEE standards are documents developed by volunteers with scientific, academic, and industry-based expertise in technical working groups. Volunteers are not necessarily members of IEEE or IEEE SA and participate without compensation from IEEE. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

ISO/IEC/IEEE 8802-1DC was prepared by the LAN/MAN of the IEEE Computer Society (as IEEE Std 802.1DC-2024) and drafted in accordance with its editorial rules. It was adopted, under the “fast-track procedure” defined in the Partner Standards Development Organization cooperation agreement between ISO and IEEE, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

A list of all parts in the ISO/IEC/IEEE 8802 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

**IEEE Standard for
Local and Metropolitan Area Networks—
Quality of Service Provision by
Network Systems**

Developed by the
LAN/MAN Standards Committee
of the
IEEE Computer Society

Approved 26 September 2024
IEEE SA Standards Board

Abstract: This standard specifies procedures and managed objects for quality of service (QoS) features specified in IEEE Std 802.1Q, such as Per-Stream Filtering and Policing, queuing, transmission selection, stream control, and frame preemption, in a network system that is not a Bridge.

Keywords: asynchronous traffic shaping, CQF, credit-based shaper, cyclic queuing and forwarding, frame preemption, IEEE 802.1DC™, IEEE 802.1Q™, LAN, local area network, Per-Stream Filtering and Policing, priority, quality of service, scheduled traffic, Time-Sensitive Networking, TSN, Virtual Bridged Network, virtual LAN, VLAN Bridge

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All rights reserved. Published 1 November 2024. Printed in the United States of America.

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

PDF: ISBN 979-8-8557-1309-1 STD27372
Print: ISBN 979-8-8557-1310-7 STDPD27372

IEEE prohibits discrimination, harassment, and bullying.

For more information, visit <http://www.ieee.org/web/aboutus/whatis/policies/p9-26.html>.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

Important Notices and Disclaimers Concerning IEEE Standards Documents

IEEE Standards documents are made available for use subject to important notices and legal disclaimers. These notices and disclaimers, or a reference to this page (<https://standards.ieee.org/ipr/disclaimers.html>), appear in all IEEE standards and may be found under the heading “Important Notices and Disclaimers Concerning IEEE Standards Documents.”

Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents

IEEE Standards documents are developed within IEEE Societies and subcommittees of IEEE Standards Association (IEEE SA) Board of Governors. IEEE develops its standards through an accredited consensus development process, which brings together volunteers representing varied viewpoints and interests to achieve the final product. IEEE standards are documents developed by volunteers with scientific, academic, and industry-based expertise in technical working groups. Volunteers involved in technical working groups are not necessarily members of IEEE or IEEE SA and participate without compensation from IEEE. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

IEEE makes no warranties or representations concerning its standards, and expressly disclaims all warranties, express or implied, concerning all standards, including but not limited to the warranties of merchantability, fitness for a particular purpose and non-infringement. IEEE Standards documents do not guarantee safety, security, health, or environmental protection, or compliance with law, or guarantee against interference with or from other devices or networks. In addition, IEEE does not warrant or represent that the use of the material contained in its standards is free from patent infringement. IEEE Standards documents are supplied “AS IS” and “WITH ALL FAULTS.”

Use of an IEEE standard is wholly voluntary. The existence of an IEEE standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard.

In publishing and making its standards available, IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity, nor is IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing any IEEE Standards document should rely upon their own independent judgment in the exercise of reasonable care in any given circumstances or, as appropriate, seek the advice of a competent professional in determining the appropriateness of a given IEEE standard.

IN NO EVENT SHALL IEEE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO: THE NEED TO PROCURE SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE PUBLICATION, USE OF, OR RELIANCE UPON ANY STANDARD, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE AND REGARDLESS OF WHETHER SUCH DAMAGE WAS FORESEEABLE.

Translations

The IEEE consensus balloting process involves the review of documents in English only. In the event that an IEEE standard is translated, only the English language version published by IEEE is the approved IEEE standard.

Use by artificial intelligence systems

In no event shall material in any IEEE Standards documents be used for the purpose of creating, training, enhancing, developing, maintaining, or contributing to any artificial intelligence systems without the express, written consent of the IEEE SA in advance. “Artificial intelligence” refers to any software, application, or other system that uses artificial intelligence, machine learning, or similar technologies, to analyze, train, process, or generate content. Requests for consent can be submitted using the [Contact Us](#) form.¹

Official statements

A statement, written or oral, that is not processed in accordance with the IEEE SA Standards Board Operations Manual is not, and shall not be considered or inferred to be, the official position of IEEE or any of its committees and shall not be considered to be or be relied upon as, a formal position of IEEE or IEEE SA. At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that the presenter’s views should be considered the personal views of that individual rather than the formal position of IEEE, IEEE SA, the Standards Committee, or the Working Group. Statements made by volunteers may not represent the formal position of their employer(s) or affiliation(s). News releases about IEEE standards issued by entities other than IEEE SA should be considered the view of the entity issuing the release rather than the formal position of IEEE or IEEE SA.

Comments on standards

Comments for revision of IEEE Standards documents are welcome from any interested party, regardless of membership affiliation with IEEE or IEEE SA. However, **IEEE does not provide interpretations, consulting information, or advice pertaining to IEEE Standards documents.**

Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Since IEEE standards represent a consensus of concerned interests, it is important that any responses to comments and questions also receive the concurrence of a balance of interests. For this reason, IEEE and the members of its Societies and subcommittees of the IEEE SA Board of Governors are not able to provide an instant response to comments or questions except in those cases where the matter has previously been addressed. For the same reason, IEEE does not respond to interpretation requests. Any person who would like to participate in evaluating comments or revisions to an IEEE standard is welcome to join the relevant IEEE SA working group. You can indicate interest in a working group using the Interests tab in the Manage Profile & Interests area of the [IEEE SA myProject system](#).² An IEEE Account is needed to access the application.

Comments on standards should be submitted using the [Contact Us](#) form.¹

Laws and regulations

Users of IEEE Standards documents should consult all applicable laws and regulations. Compliance with the provisions of any IEEE Standards document does not constitute compliance to any applicable regulatory

¹ Available at: <https://standards.ieee.org/about/contact/>.

² Available at: <https://development.standards.ieee.org/myproject-web/public/view.html#landing>.

requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Data privacy

Users of IEEE Standards documents should evaluate the standards for considerations of data privacy and data ownership in the context of assessing and using the standards in compliance with applicable laws and regulations.

Copyrights

IEEE draft and approved standards are copyrighted by IEEE under U.S. and international copyright laws. They are made available by IEEE and are adopted for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practices and methods. By making these documents available for use and adoption by public authorities and private users, neither IEEE nor its licensors waive any rights in copyright to the documents.

Photocopies

Subject to payment of the appropriate licensing fees, IEEE will grant users a limited, non-exclusive license to photocopy portions of any individual standard for company or organizational internal use or individual, non-commercial use only. To arrange for payment of licensing fees, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; +1 978 750 8400; <https://www.copyright.com/>. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.

Updating of IEEE Standards documents

Users of IEEE Standards documents should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. An official IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect.

Every IEEE standard is subjected to review at least every 10 years. When a document is more than 10 years old and has not undergone a revision process, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE standard.

In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit [IEEE Xplore](#) or [contact IEEE](#).³ For more information about the IEEE SA or IEEE's standards development process, visit the IEEE SA Website.

Errata

Errata, if any, for all IEEE standards can be accessed on the [IEEE SA Website](#).⁴ Search for standard number and year of approval to access the web page of the published standard. Errata links are located under the

³ Available at: <https://ieeexplore.ieee.org/browse/standards/collection/ieee>.

⁴ Available at: <https://standards.ieee.org/standard/index.html>.

Additional Resources Details section. Errata are also available in [IEEE Xplore](#). Users are encouraged to periodically check for errata.

Patents

IEEE standards are developed in compliance with the [IEEE SA Patent Policy](#).⁵

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken by the IEEE with respect to the existence or validity of any patent rights in connection therewith. If a patent holder or patent applicant has filed a statement of assurance via an Accepted Letter of Assurance, then the statement is listed on the IEEE SA Website at <https://standards.ieee.org/about/sasb/patcom/patents.html>. Letters of Assurance may indicate whether the Submitter is willing or unwilling to grant licenses under patent rights without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination to applicants desiring to obtain such licenses.

Essential Patent Claims may exist for which a Letter of Assurance has not been received. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patents Claims, or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from the IEEE Standards Association.

IMPORTANT NOTICE

Technologies, application of technologies, and recommended procedures in various industries evolve over time. The IEEE standards development process allows participants to review developments in industries, technologies, and practices, and to determine what, if any, updates should be made to the IEEE standard. During this evolution, the technologies and recommendations in IEEE standards may be implemented in ways not foreseen during the standard's development. IEEE standards development activities consider research and information presented to the standards development group in developing any safety recommendations. Other information about safety practices, changes in technology or technology implementation, or impact by peripheral systems also may be pertinent to safety considerations during implementation of the standard. Implementers and users of IEEE Standards documents are responsible for determining and complying with all appropriate safety, security, environmental, health, data privacy, and interference protection practices and all applicable laws and regulations.

⁵ Available at: <https://standards.ieee.org/about/sasb/patcom/materials.html>.

Participants

At the time this standard was submitted to the IEEE SA Standards Board for approval, the IEEE 802.1 Working Group had the following membership:

Glenn Parsons, *Chair*
Jessy V. Rouyer, *Vice Chair*
János Farkas, *TSN Task Group Chair*
Norman Finn, *Editor*

Katsuyuki Akizuki	Yoshihiro Ito	Atsushi Sato
Venkat Arunarthi	Michael Karl	Frank Schewe
Ralf Assmann	Stephan Kehrer	Michael Seaman
Rudy Belliard	Marcel Kiessling	Maik Seewald
Christian Boiger	Gavin Lai	Ramesh Sivakolundu
Paul Bottorff	Yunping (Lily) Lyu	Johannes Specht
Radhakrishna Canchi	Christophe Mangin	Nemanja Stamenic
Feng Chen	Scott Mansfield	Marius Stanica
Abhijit Choudhury	Olaf Mater	Gunter Steindl
Anna Engelmann	David McCall	Karim Traore
Donald Fedyk	Martin Mittelberger	Max Turner
Geoffrey Garner	Hiroki Nakano	Balazs Varga
Craig Gunther	Takumi Nomura	Ganesh Venkatesan
Stephen Haddock	Donald R. Pannell	Leon Wessels
Mark Hantel	Dieter Proell	Ludwig Winkel
Marc Holness	Karen Randall	Jordon Woods
Daniel Hopf	Maximilian Riegel	Takahiro Yamaura
Woojung Huh	Silvana Rodrigues	Nader Zein
Satoko Itaya	Rajeev Roy	

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Boon Chong Ang	Ruslan Karmanov	Venkatesha Prasad
Butch Anton	Piotr Karocki	Dieter Proell
Daniilo Antonelli	Stuart Kerry	Adee Ran
Stefan Aust	Yongbum Kim	Maximilian Riegel
Christian Boiger	Jeff Koftinoff	Benjamin Rolfe
Vern Brethour	Gavin Lai	Jessy V. Rouyer
William Byrd	Hyeong Ho Lee	Frank Schewe
Radhakrishna Canchi	Jon Lewis	Reinhard Schrage
Paul Cardinal	Christophe Mangin	Jhony Sembiring
Pin Chang	Scott Mansfield	Johannes Specht
David Chen	William Rogelio Marchand Nino	Gunter Steindl
Rodney Cummings	Jonathon McLendon	Walter Struppler
János Farkas	Sven Meier	Max Turner
Donald Fedyk	Michael Montemurro	John Vergis
Norman Finn	Rajesh Murthy	Stephen Webb
Stephen Haddock	Satoshi Obara	Scott Willy
Marco Hernandez	Glenn Parsons	Andreas Wolf
Werner Hoelzl	Bansi Patel	Yu Yuan
Raj Jain	Arumugam Paventhan	Oren Yuen
Pranav Jha	Cam Posani	Qiyue Zou
Lokesh Kabra		

When the IEEE SA Standards Board approved this standard on 26 September 2024, it had the following membership:

	David J. Law , <i>Chair</i>	
	Jon W. Rosdahl , <i>Vice Chair</i>	
	Gary Hoffman , <i>Past Chair</i>	
	Alpesh Shah , <i>Secretary</i>	
Sara R. Biyabani	Hao Hu	Hiroshi Mano
Ted Burse	Yousef Kimiagar	Paul Nikolich
Stephen Dukes	Joseph L. Koepfinger*	Robby Robson
Doug Edwards	Howard Li	Lei Wang
J. Travis Griffith	Xiaohui Liu	F. Keith Waters
Guido R. Hiertz	John Haiying Lu	Sha Wei
Ronald W. Hotchkiss	Kevin W. Lu	Philip B. Winston
		Don Wright
*Member Emeritus		

Introduction

This introduction is not part of IEEE Std 802.1DC-2024, IEEE Standard for Local and Metropolitan Area Networks—Quality of Service Provision by Network Systems.

This standard specifies quality of service provision by network systems.

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:

Secretary, IEEE SA Standards Board
445 Hoes Lane
Piscataway, NJ 08854
USA

Contents

1.	Overview	12
1.1	Scope	12
1.2	Specification model	12
1.3	Specification precedence	12
1.4	Requirements terminology	12
1.5	Structure and relationship to other standards	13
1.6	Reference conventions	14
2.	Normative references	15
3.	Definitions	16
4.	Abbreviations	17
5.	Conformance	18
5.1	Protocol Implementation Conformance Statement (PICS)	18
5.2	Interpreting IEEE Std 802.1Q and IEEE Std 802.1CB for GFQoS systems	18
5.3	GFQoS system required behaviors	18
5.4	GFQoS system optional behaviors	19
5.5	GFQoS end system required behaviors	19
5.6	GFQoS end system optional behaviors	19
5.7	GFQoS forwarding system required behaviors	19
5.8	GFQoS forwarding system optional behaviors	19
6.	IEEE 802.1Q quality of service provision	21
6.1	Overview	21
6.2	List of GFQoS functions	21
6.2.1	Basic GFQoS functionality	21
6.2.2	Strict priority	21
6.2.3	Enhanced Internal Sublayer Service (EISS)	21
6.2.4	Priority-based Flow Control (PFC)	21
6.2.5	Frame preemption	21
6.2.6	Frame Replication and Elimination for Reliability	21
6.2.7	General flow classification and metering	22
6.2.8	Per-Stream Filtering and Policing (PSFP)	22
6.2.9	Enhanced Transmission Selection (ETS)	22
6.2.10	Scheduled traffic	22
6.2.11	Credit-based shaper (CBS)	22
6.2.12	Cyclic queuing and forwarding (CQF)	22
6.2.13	Asynchronous Traffic Shaping (ATS)	22
6.3	IEEE Std 802.1Q clauses and subclauses relevant to GFQoS	22
6.4	Other Bridge functions relevant to GFQoS provision	24
6.4.1	Link Aggregation	24
6.4.2	MAC Security entity	24
6.4.3	Priority/DSCP regeneration	24
6.5	GFQoS functions not specified	24
6.5.1	Congestion notification	24
6.5.2	Media QoS capabilities	24
6.5.3	Frame Replication and Elimination for Reliability	24
6.5.4	Control protocols	25

7.	GFQoS systems	26
7.1	GFQoS end systems, GFQoS forwarding systems, and streams	26
7.2	GFQoS provision model	26
7.2.1	Flow classification and metering	27
7.2.1.1	General flow classification and metering	28
7.2.1.2	Per-stream classification and metering	28
7.2.2	Queuing frames	28
7.2.3	Queue management	28
7.2.4	Transmission selection	28
7.2.5	Parameterization of frames	28
7.3	Requirements for GFQoS functions	30
7.3.1	Transmission by priority	30
7.3.2	Enhanced Internal Sublayer Service	31
7.3.3	Credit-based shaper	31
7.3.4	Frame preemption	32
8.	Managed objects	33
9.	YANG data model	34
9.1	YANG framework	34
9.2	IEEE 802.1DC YANG modules	34
9.3	Structure of the YANG modules	35
9.4	Security considerations	36
9.5	YANG Schema tree definitions	36
9.5.1	Tree diagram for ieee802-dot1dc-preemption-if	36
9.5.2	Tree diagram for ieee802-dot1dc-psfp-sys	36
9.5.3	Tree diagram for ieee802-dot1dc-gfqos	36
9.5.4	Tree diagram for ieee802-dot1dc-sched-if	37
9.5.5	Tree diagram for ieee802-dot1dc-cbsa-if	37
9.5.6	Tree diagram for ieee802-dot1dc-ats-if	37
9.6	YANG modules	37
9.6.1	YANG module for frame preemption	37
9.6.2	YANG module for Per-Stream Filtering and Policing	39
9.6.3	YANG module for GFQoS interface	40
9.6.4	YANG module for scheduled transmissions	42
9.6.5	YANG module for credit-based shaper	44
9.6.6	YANG module for Asynchronous Traffic Shaping	45
Annex A	(informative) Protocol Implementation Conformance Statement (PICS) proforma	47
A.1	Introduction	47
A.1.1	Abbreviations and special symbols	47
A.1.2	Instructions for completing the PICS proforma	48
A.1.3	Additional information	48
A.1.4	Exceptional information	48
A.1.5	Conditional items	49
A.1.6	Identification	49
A.2	PICS proforma for quality of service provision by network systems	50
A.2.1	Major capabilities/options	50
A.2.2	GFQoS end system capabilities/options	50
A.2.3	GFQoS forwarding system capabilities/options	51
Annex B	(informative) Bibliography	52

IEEE Standard for Local and Metropolitan Area Networks— Quality of Service Provision by Network Systems

1. Overview

1.1 Scope

This standard specifies procedures and managed objects for quality of service (QoS) features specified in IEEE Std 802.1Q, such as Per-Stream Filtering and Policing, queuing, transmission selection, stream control, and preemption, in a network system that is not a Bridge.

1.2 Specification model

The model of operation documented by this standard is simply a basis for describing the functionality of a compliant equipment. Implementations can adopt any internal model of operation compatible with the externally visible behavior that this standard specifies. Conformance of equipment to this standard is purely in respect of observable protocol.

1.3 Specification precedence

If any conflict among parts of this standard becomes apparent, information in normative tables takes precedence over other parts of the standard, followed by that in normative text, followed by that in normative figures. Non-normative tables, figures, and text are in annexes and are clearly marked as such.

1.4 Requirements terminology

For consistency with existing IEEE and IEEE 802.1 standards, requirements placed upon conformant implementations of this standard are expressed using the following terminology:

- a) Shall is used for mandatory requirements.
- b) May is used to describe implementation or administrative choices. “May” means “is permitted to,” and hence, “may” and “may not” mean precisely the same thing.
- c) Should is used for recommended choices. The behaviors described by “should” and “should not” are both permissible but not equally desirable choices.

The Protocol Implementation Conformance Statement (PICS) proformas (see Annex A) reflect the occurrences of the words “shall,” “may,” and “should” within the standard.