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INTERNATIONAL STANDARD



**Information technology – UPnP device architecture –
Part 17-11: Quality of Service Device Control Protocol – Level 3 – Quality of
Service Manager Service**

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INFORMATION TECHNOLOGY – UPnP DEVICE ARCHITECTURE –

Part 17-11: Quality of Service Device Control Protocol – Level 3 – Quality of Service Manager Service

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International Standard ISO/IEC 29341-17-11 was prepared by UPnP Forum Steering committee¹, was adopted, under the fast track procedure, by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

The list of all currently available parts of the ISO/IEC 29341 series, under the general title *Information technology – UPnP device architecture*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

¹ UPnP Forum Steering committee, UPnP Forum, 3855 SW 153rd Drive, Beaverton, Oregon 97006 USA. See also "Introduction".

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1 Overview and Scope

This service definition is compliant with the UPnP Device Architecture version 1.0.

This service-type enables modeling of 'Quality of Service Manager' function capabilities. *QoSManager* functionality is the combination of *QoSManager* service and control point functionality that discovers and controls *QoSDevice* and *QoSPolicyHolder* services running on the network. The *QoSManager* function is responsible for requesting, updating, releasing and in general controlling the Quality of Service assigned by networking devices to various traffic streams. The *QoSManager* service is invoked from an UPnP Control Point to perform the functions related to setting up QoS² for that traffic stream. Once the network is configured with respect to the QoS for the upcoming traffic stream, the *QoSManager* service will hand back control to the Control Point. This service provides a mechanism for a Control Point to:

- Be agnostic of the QoS capabilities and associated details about the various QoS Devices on the network at the expense of potential network inefficiency.
- Abstract the tasks of setting up, modifying and revoking the QoS associated with every traffic stream
- *QoSManager:3* defines new capabilities to set up Parameterized QoS. Control Points may now request reservations for specific resources for the exclusive use of individual streams. Successful resource reservation ensures that streams will always have the bandwidth and other resources to transport time critical data.
- *QoSManager:3* defines a method for Control Points to request preemption of existing reservations on the UPnP-QoS network if necessary to admit a new stream.
- *QoSManager:3* supports a mechanism for providing a list of blocking streams to a Control Point so that it can handle preemption on its own, if desired.

A *QoSManager* is a dual-role entity that exposes a *QoSManager* Service to the Control Point while acting as a Control Point for the *QoSPolicyHolder* Service and *QoSDevice* Services running on the network. This document describes the components of the UPnP *QoSManager* Service and the *QoS Manager*. The *QoS Manager* provides the Control Point functionality that discovers and controls *QoSDevice* Services and the *QoSPolicyHolder* Services running on the network. Additional information concerning the *QoS Manager* may be found in:

- UPnP QoS Architecture document [QoS Architecture]
- UPnP QoSDevice Service Definition Document [QOS DEVICE]
- UPnP QoSPolicyHolder Service Definition Document [POLICY HOLDER]

1.1 References & Terms

1.1.1 References

Unless explicitly stated otherwise herein, implementation of the mandatory provisions of any standard referenced by this specification shall be mandatory for compliance with this specification. This clause lists the normative references used in this document and includes the tag inside square brackets that is used for each sub reference:

1.1.1.1 Normative References

[XML] – *Extensible Markup Language (XML) 1.0 (Second Edition)*, T. Bray, J.Paoli, C. M. Sperberg McQueen, E Maler, eds. W3C Recommendations, 6 October 2000.

[DEVICE] - UPnP Device Architecture, version 1.0, UPnP Forum, July 20, 2006. Available at: <http://upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0-20060720.pdf>

² Quality of Service

Latest version available at: <http://upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0.pdf>

[POLICY HOLDER] – UPnP QosPolicyHolder:3 Service Document.
Available at: <http://www.upnp.org/specs/qos/UPnP-qos-QosPolicyHolder-v3-Service-20081130.pdf>

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[QOS DEVICE] – UPnP QosDevice:3 Service Document.
Available at: <http://www.upnp.org/specs/qos/UPnP-qos-QosDevice-v3-Service-20081130.pdf>

Latest version available at: <http://www.upnp.org/specs/qos/UPnP-qos-QosDevice-v3-Service.pdf>

[QDA:3] – UPnP QosDevice:3 Underlying Technology Interface Addendum
Available at: <http://www.upnp.org/specs/qos/UPnP-qos-QosDevice-v3-Addendum-20081130.pdf>

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<http://www.iana.org/assignments/port-numbers>

[IANA Protocols] – *Assigned Internet Protocol Numbers*, IANA,
Available at: <http://www.iana.org/assignments/protocol-numbers>

[RFC 2141] – *URN Syntax*, R. Moats, May 1997, Available at:
<http://www.ietf.org/rfc/rfc2141.txt>

[RFC 2211] – *Specification of the Controlled-Load Network Element Service*, J. Wroclawski, September 1997. Available at: <http://www.ietf.org/rfc/rfc2211.txt>

[RFC 2212] – *Specification of Guaranteed Quality of Service*, S. Shenker et al., September 1997. Available at: <http://www.ietf.org/rfc/rfc2212.txt>

[RFC 3339] – *Date and Time on the Internet: Timestamps*, G. Klyne, July 2002. Available at: <http://www.ietf.org/rfc/rfc3339.txt>

[RFC 3927] – *Dynamic Configuration of IPv4 Link-Local Addresses*, Internet Engineering Task Force, S. Cheshire et al., March 2005. Available at: <http://www.ietf.org/rfc/rfc3927.txt>

[RFC 3986] – *Uniform Resource Identifiers (URI): Generic Syntax*, T. Berners-Lee et al., January 2005. Available at: <ftp://ftp.rfc-editor.org/in-notes/rfc3986.txt>

1.1.1.2 Informative References

This clause lists the informative references used in this document and includes the tag inside square brackets that is used for each sub reference:

[CDS:2] – UPnP AV ContentDirectory Service Definition document version 2.0.
Available at: <http://www.upnp.org/specs/av/UPnP-av-ContentDirectory-v2-Service.pdf>
Latest version available at: <http://www.upnp.org/specs/av/UPnP-av-ContentDirectory-v2-Service-20060531.pdf>

[IEEE 802.3-2002] – IEEE Std 802.3, 2000 Edition, Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications, LAN MAN Standards Committee of the IEEE Computer Society, 2000.

[IEEE 802.1D] – IEEE Std 802.1D – 2004, Media Access Control (MAC) Bridges, IEEE Computer Society, 2004.

[QoS Architecture] – *UPnP QoS Architecture V3.0* Available at:
<http://www.upnp.org/specs/qos/UPnP-qos-Architecture-v3-20081130.pdf>

Latest version available at: <http://www.upnp.org/specs/qos/UPnP-qos-Architecture-v3.pdf>

[HPAV] – HomePlug AV Specification v1.1, HomePlug Power Alliance, 2007.

[PACKETC] – PacketCable Specification Multimedia Specification,
Available at: <http://www.packetcable.com/downloads/specs/PKT-SP-MM-I03-051221.pdf>

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Available at: <http://www.ietf.org/rfc/rfc1363.txt>