

# INTERNATIONAL STANDARD

iTeh STANDARD PREVIEW

Information technology – UPnP Device Architecture –  
Part 10-10: Quality of Service Device Control Protocol – Quality of Service  
Device Service

[ISO/IEC 29341-10-10:2008](https://standards.iso.org/standards/catalog/standards/sist/27ac0c29-1ace-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

<https://standards.iso.org/standards/catalog/standards/sist/27ac0c29-1ace-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008>



**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2008 ISO/IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about ISO/IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: [www.iec.ch/webstore/custserv](http://www.iec.ch/webstore/custserv)

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: [csc@iec.ch](mailto:csc@iec.ch)  
Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00



ISO/IEC 29341-10-10

Edition 1.0 2008-11

# INTERNATIONAL STANDARD

---

Information technology – UPnP Device Architecture –  
Part 10-10: Quality of Service Device Control Protocol – Quality of Service  
Device Service

*STANDARD PREVIEW*  
*(standards.iteh.ai)*  
<https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008>

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**M**

---

ICS 35.200

ISBN 978-2-88910-899-2

# CONTENTS

FOREWORD .....	4
ORIGINAL UPNP DOCUMENTS (informative) .....	6
<b>1. Overview and Scope .....</b>	<b>8</b>
1.1. Referenced Specifications .....	8
1.1.1. Normative References .....	8
1.1.2. Informative References .....	8
<b>2. Service Modeling Definitions .....</b>	<b>9</b>
2.1. ServiceType .....	9
2.2. Namespaces .....	9
2.3. State Variables .....	9
2.3.1. Derived data Types .....	9
2.3.2. A_ARG_TYPE_TrafficDescriptor .....	10
2.3.3. A_ARG_TYPE_TrafficDescriptorsPerInterface .....	11
2.3.4. A_ARG_TYPE_TrafficHandle .....	12
2.3.5. A_ARG_TYPE_NumTrafficDescriptors .....	12
2.3.6. A_ARG_TYPE_QosDeviceCapabilities .....	12
2.3.7. A_ARG_TYPE_QosDeviceState .....	14
2.3.8. PathInformation .....	16
2.3.9. A_ARG_TYPE_QosDeviceInfo .....	19
2.3.10. Relationships between State Variables .....	20
2.4. Eventing and Moderation .....	21
2.4.1. Event Model .....	21
2.5. Actions .....	22
2.5.1. GetQosDeviceCapabilities .....	22
2.5.2. GetQosState .....	22
2.5.3. SetupTrafficQos .....	23
2.5.4. ReleaseTrafficQos .....	24
2.5.5. GetPathInformation .....	25
2.5.6. GetQosDeviceInfo .....	25
2.5.7. Non-Standard Actions Implemented by a UPnP Vendor .....	26
2.5.8. Relationships Between Actions .....	27
2.5.9. Common Error Codes .....	27
2.6. Theory of Operation .....	28
<b>3. XML Service Descriptions .....</b>	<b>29</b>
<b>4. Test .....</b>	<b>32</b>

I T E H STANDARD PREVIEW  
 (standards.iteh.ai)

[ISO/IEC 29341-10-10:2008](https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1ace-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

[https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1ace-4f90-a967-](https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1ace-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

[207825eb0425/iso-iec-29341-10-10-2008](https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1ace-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

## LIST OF TABLES

Table 2-1: State Variables .....	10
Table 2-2: Event Moderation .....	21
Table 2-3: Actions.....	22
Table 2-4: Arguments for GetQosDeviceCapabilities.....	22
Table 2-5: Error Codes for GetQosDeviceCapabilities.....	22
Table 2-6: Arguments for GetQosState.....	23
Table 2-7: Error Codes for GetQosState.....	23
Table 2-8: Arguments for SetupTrafficQos.....	24
Table 2-9: Error Codes for SetupTrafficQos.....	24
Table 2-10: Arguments for ReleaseTrafficQos.....	24
Table 2-11: Error Codes for ReleaseTrafficQos.....	25
Table 2-12: Arguments for GetPathInformation .....	25
Table 2-13: Error Codes for GetPathInformation .....	25
Table 2-14: Arguments for GetQosDeviceInfo.....	26
Table 2-15: Error Codes for GetQosDeviceInfo.....	26
Table 2-16: Common Error Codes (standards.iteh.ai).....	27

ISO/IEC 29341-10-10:2008

<https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008>

## INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

### Part 10-10: Quality of Service Device Control Protocol Quality of Service Device Service

#### FOREWORD

- 1) ISO (International Organization for Standardization) and IEC (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. Their preparation is entrusted to technical committees; any ISO and IEC member body interested in the subject dealt with may participate in this preparatory work. International governmental and non-governmental organizations liaising with ISO and IEC also participate in this preparation.
- 2) In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.
- 3) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC and ISO member bodies.
- 4) IEC, ISO and ISO/IEC publications have the form of recommendations for international use and are accepted by IEC and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 5) In order to promote international uniformity, IEC and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.
- 6) ISO and IEC provide no marking procedure to indicate their approval and cannot be rendered responsible for any equipment declared to be in conformity with an ISO/IEC publication.
- 7) All users should ensure that they have the latest edition of this publication.
- 8) No liability shall attach to IEC or ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC or ISO member bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/IEC publications.
- 9) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

IEC and ISO draw attention to the fact that it is claimed that compliance with this document may involve the use of patents as indicated below.

ISO and IEC take no position concerning the evidence, validity and scope of the putative patent rights. The holders of the putative patent rights have assured IEC and ISO that they are willing to negotiate free licences or licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of the putative patent rights are registered with IEC and ISO.

Intel Corporation has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Intel Corporation  
Standards Licensing Department  
5200 NE Elam Young Parkway  
MS: JFS-98  
USA – Hillsboro, Oregon 97124

Microsoft Corporation has informed IEC and ISO that it has patent applications or granted patents as listed below:

6101499 / US; 6687755 / US; 6910068 / US; 7130895 / US; 6725281 / US; 7089307 / US; 7069312 / US;  
10/783 524 / US

Information may be obtained from:

Microsoft Corporation  
One Microsoft Way  
USA – Redmond WA 98052

Philips International B.V. has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Philips International B.V. – IP&S  
High Tech campus, building 44 3A21  
NL – 5656 Eindhoven

NXP B.V. (NL) has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

NXP B.V. (NL)  
High Tech campus 60  
NL – 5656 AG Eindhoven

Matsushita Electric Industrial Co. Ltd. has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Matsushita Electric Industrial Co. Ltd.  
1-3-7 Shiromi, Chuoh-ku  
JP – Osaka 540-6139

Hewlett Packard Company has informed IEC and ISO that it has patent applications or granted patents as listed below:

5 956 487 / US; 6 170 007 / US; ~~6 139 177 / US; 6 529 936 / US~~; 6 470 339 / US; 6 571 388 / US; 6 205  
466 / US [https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-  
207825eb0425/iso-iec-29341-10-10-2008](https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

Information may be obtained from:

Hewlett Packard Company  
1501 Page Mill Road  
USA – Palo Alto, CA 94304

Samsung Electronics Co. Ltd. has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Digital Media Business, Samsung Electronics Co. Ltd.  
416 Maetan-3 Dong, Yeongtang-Gu,  
KR – Suwon City 443-742

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC and ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 29341-10-10 was prepared by UPnP Implementers Corporation and adopted, under the PAS procedure, by joint technical committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

The list of all currently available parts of the ISO/IEC 29341 series, under the general title *Universal plug and play (UPnP) 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.

## ORIGINAL UPnP DOCUMENTS (informative)

Reference may be made in this document to original UPnP documents. These references are retained in order to maintain consistency between the specifications as published by ISO/IEC and by UPnP Implementers Corporation. The following table indicates the original UPnP document titles and the corresponding part of ISO/IEC 29341:

UPnP Document Title	ISO/IEC 29341 Part
UPnP Device Architecture 1.0	ISO/IEC 29341-1
UPnP Basic:1 Device	ISO/IEC 29341-2
UPnP AV Architecture:1	ISO/IEC 29341-3-1
UPnP MediaRenderer:1 Device	ISO/IEC 29341-3-2
UPnP MediaServer:1 Device	ISO/IEC 29341-3-3
UPnP AVTransport:1 Service	ISO/IEC 29341-3-10
UPnP ConnectionManager:1 Service	ISO/IEC 29341-3-11
UPnP ContentDirectory:1 Service	ISO/IEC 29341-3-12
UPnP RenderingControl:1 Service	ISO/IEC 29341-3-13
UPnP MediaRenderer:2 Device	ISO/IEC 29341-4-2
UPnP MediaServer:2 Device	ISO/IEC 29341-4-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11
UPnP ContentDirectory:2 Service	ISO/IEC 29341-4-12
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13
UPnP ScheduledRecording:1	ISO/IEC 29341-4-14
UPnP DigitalSecurityCamera:1 Device	ISO/IEC 29341-5-1
UPnP DigitalSecurityCameraMotionImage:1 Service	ISO/IEC 29341-5-10
UPnP DigitalSecurityCameraSettings:1 Service	ISO/IEC 29341-5-11
UPnP DigitalSecurityCameraStillImage:1 Service	ISO/IEC 29341-5-12
UPnP HVAC_System:1 Device	ISO/IEC 29341-6-1
UPnP HVAC_ZoneThermostat:1 Device	ISO/IEC 29341-6-2
UPnP ControlValve:1 Service	ISO/IEC 29341-6-10
UPnP HVAC_FanOperatingMode:1 Service	ISO/IEC 29341-6-11
UPnP FanSpeed:1 Service	ISO/IEC 29341-6-12
UPnP HouseStatus:1 Service	ISO/IEC 29341-6-13
UPnP HVAC_SetpointSchedule:1 Service	ISO/IEC 29341-6-14
UPnP TemperatureSensor:1 Service	ISO/IEC 29341-6-15
UPnP TemperatureSetpoint:1 Service	ISO/IEC 29341-6-16
UPnP HVAC_UserOperatingMode:1 Service	ISO/IEC 29341-6-17
UPnP BinaryLight:1 Device	ISO/IEC 29341-7-1
UPnP DimmableLight:1 Device	ISO/IEC 29341-7-2
UPnP Dimming:1 Service	ISO/IEC 29341-7-10
UPnP SwitchPower:1 Service	ISO/IEC 29341-7-11
UPnP InternetGatewayDevice:1 Device	ISO/IEC 29341-8-1
UPnP LANDevice:1 Device	ISO/IEC 29341-8-2
UPnP WANDevice:1 Device	ISO/IEC 29341-8-3
UPnP WANConnectionDevice:1 Device	ISO/IEC 29341-8-4
UPnP WLANAccessPointDevice:1 Device	ISO/IEC 29341-8-5
UPnP LANHostConfigManagement:1 Service	ISO/IEC 29341-8-10
UPnP Layer3Forwarding:1 Service	ISO/IEC 29341-8-11
UPnP LinkAuthentication:1 Service	ISO/IEC 29341-8-12
UPnP RadiusClient:1 Service	ISO/IEC 29341-8-13
UPnP WANCableLinkConfig:1 Service	ISO/IEC 29341-8-14
UPnP WANCommonInterfaceConfig:1 Service	ISO/IEC 29341-8-15
UPnP WANDSLLinkConfig:1 Service	ISO/IEC 29341-8-16
UPnP WANEthernetLinkConfig:1 Service	ISO/IEC 29341-8-17
UPnP WANIPConnection:1 Service	ISO/IEC 29341-8-18
UPnP WANPOTSLinkConfig:1 Service	ISO/IEC 29341-8-19
UPnP WANPPPoEConnection:1 Service	ISO/IEC 29341-8-20
UPnP WLANConfiguration:1 Service	ISO/IEC 29341-8-21
UPnP Printer:1 Device	ISO/IEC 29341-9-1
UPnP Scanner:1.0 Device	ISO/IEC 29341-9-2
UPnP ExternalActivity:1 Service	ISO/IEC 29341-9-10
UPnP Feeder:1.0 Service	ISO/IEC 29341-9-11
UPnP PrintBasic:1 Service	ISO/IEC 29341-9-12
UPnP Scan:1 Service	ISO/IEC 29341-9-13
UPnP QoS Architecture:1.0	ISO/IEC 29341-10-1
UPnP QoSDevice:1 Service	ISO/IEC 29341-10-10
UPnP QoSManager:1 Service	ISO/IEC 29341-10-11
UPnP QoSPolicyHolder:1 Service	ISO/IEC 29341-10-12
UPnP QoS Architecture:2	ISO/IEC 29341-11-1
UPnP QOS v2 Schema Files	ISO/IEC 29341-11-2



<b>UPnP Document Title</b>	<b>ISO/IEC 29341 Part</b>
UPnP QosDevice:2 Service	ISO/IEC 29341-11-10
UPnP QosManager:2 Service	ISO/IEC 29341-11-11
UPnP QosPolicyHolder:2 Service	ISO/IEC 29341-11-12
UPnP RemoteUIClientDevice:1 Device	ISO/IEC 29341-12-1
UPnP RemoteUIServerDevice:1 Device	ISO/IEC 29341-12-2
UPnP RemoteUIClient:1 Service	ISO/IEC 29341-12-10
UPnP RemoteUIServer:1 Service	ISO/IEC 29341-12-11
UPnP DeviceSecurity:1 Service	ISO/IEC 29341-13-10
UPnP SecurityConsole:1 Service	ISO/IEC 29341-13-11

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

[ISO/IEC 29341-10-10:2008](https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008)

<https://standards.iteh.ai/catalog/standards/sist/27ac0c29-1aee-4f90-a967-207825eb0425/iso-iec-29341-10-10-2008>

# 1. Overview and Scope

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

This service-type enables modeling of ‘QoS Device’ function capabilities. QosDevice service is a function typically implemented in source, sink and intermediate network elements that are in the path of traffic. QosDevice Service is responsible for providing the appropriate network resources to traffic and state of the device as requested by QosManager Service. [QM]

This document does not address the procedure for end to end set up a new traffic stream or revoke an existing traffic stream.

## 1.1. Referenced Specifications

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.

### 1.1.1. Normative References

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

[Annex\_G] – IEEE 802.1D-2004, Annex G, *IEEE Standard for Information technology - Telecommunications and information exchange between systems - IEEE standard for local and metropolitan area networks - Common specifications - Media access control (MAC) Bridges*, 2004.

[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.

[QM] – UPnP QosManager:1 Service Document. Note that only the schema definition used for the A\_ARG\_TYPE\_TrafficDescriptor is normative for UPnP QosDevice:1 service specification and the schema is defined in the UPnP QosManager:1 document.

[DEVICE] - [UPnP Device Architecture, version 1.0.1](#).

### 1.1.2. Informative References

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

[Qos Architecture] – UPnP Qos Architecture:1 Document

## 2. Service Modeling Definitions

### 2.1. ServiceType

The following service type identifies a service that is compliant with this template:

**urn:schemas-upnp-org:service:QosDevice:1**

The shorthand QosDevice is used herein to refer to this type of service.

### 2.2. Namespaces

The XML[XML] in this document should be read as if the following namespace definitions are in effect.

```
xmlns="http://www.upnp.org/schemas/TrafficDescriptorv1.xsd" [QM]
xmlns="urn:schemas-upnp-org:service:QosManager:1" [QM]
```

### 2.3. State Variables

*Reader Note: For first-time reader, it may be more insightful to read the action definitions before reading the state variable definitions.*

#### 2.3.1. Derived data Types

This section defines some derived data types that are represented as UPnP string data types with special syntax.

##### 2.3.1.1. XML Fragments as UPnP Arguments

The UPnP QoS Framework often uses XML Fragments as arguments in UPnP actions. The containing UPnP data type is a string. This places restrictions on a string's content; it has to represent a well-formed XML fragment (this includes a complete XML document).

The XML schemas used in UPnP-QoS are defined in the respective files located on <http://www.upnp.org/schemas/>

In their XML fragments, implementations may use an explicit reference to appropriate name spaces.

At several places in the XML schemas there is room for vendor differentiation through the use of the “any”-tag. When extending UPnP-QoS with their own XML tags, vendors should use a name space to prevent collisions of their tags with those of other vendors. It is recommended that implementations are not required to retrieve the corresponding schemas from the Internet.

Finally, an XML fragment, in adherence to the UPnP V1.0 architecture[QoS Architecture], needs to be escaped by using the normal XML rules, [XML] Section 2.4 Character Data and Markup, before embedding it in a SOAP request or response message. The XML escaping rules are summarized from the [XML] reference mentioned above:

- The (<) character is encoded as (&lt;)
- The (>) character is encoded as (&gt;)
- The (&) character is encoded as (&amp;)
- The (") character is encoded as (&quot;)
- The (') character is encoded as (&apos;)

**Table 2-1: State Variables**

Variable Name	Req. or Opt. <sup>1</sup>	Data Type	Allowed Value <sup>2</sup>	Default Value <sup>2</sup>	Eng. Units
A_ARG_TYPE_TrafficDescriptor	R	String (XML fragment)	See section 2.3.2	n/a	n/a
A_ARG_TYPE_TrafficDescriptorsPerInterface	R	String (XML fragment)	See section 2.3.3	n/a	n/a
A_ARG_TYPE_TrafficHandle	R	String	See section 2.3.4	n/a	n/a
A_ARG_TYPE_NumTrafficDescriptors	R	Integer	See section 2.3.5	n/a	n/a
A_ARG_TYPE_QosDeviceCapabilities	R	String (XML fragment)	See section 2.3.6	n/a	n/a
A_ARG_TYPE_QosDeviceState	R	String (XML fragment)	See section 2.3.7	n/a	n/a
PathInformation	O	String (XML fragment)	See section 2.3.8	n/a	n/a
A_ARG_TYPE_QosDeviceInfo	O	String (XML fragment)	See section 2.3.9	n/a	n/a
A_ARG_TYPE_QosStateId	R	String		n/a	n/a

<sup>1</sup> R = Required, O = Optional, X = Non-standard.

<sup>2</sup> Values listed in this column are required. To specify standard optional values or to delegate assignment of values to the vendor, you must reference a specific instance of an appropriate table below.

### 2.3.2. A\_ARG\_TYPE\_TrafficDescriptor

This is an escaped XML string, as specified in section 2.3.1.1, which contains QoS related information for a traffic stream. Refer to [QM] document, for details of this XML fragment using the namespace, `xmlns="http://www.upnp.org/schemas/TrafficDescriptorv1.xsd"`.