
**Information technology — UPnP
Device Architecture —**

**Part 1-2:
UPnP Device Architecture Version 2.0**

*Technologies de l'information — Architecture de dispositif UPnP —
Partie 1-2: Architecture de dispositif UPnP, version 2.0*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, 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 either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

CONTENTS

Introduction	1
0 Addressing	7
0.1 Determining whether to use Auto-IP	7
0.2 Choosing an address	7
0.3 Testing the address	8
0.4 Forwarding rules	8
0.5 Periodic checking for dynamic address availability	9
0.6 Device naming and DNS interaction	9
0.7 Name to IP address resolution	9
0.8 References	9
1 Discovery	10
1.1 SSDP message format	13
1.1.1 SSDP Start-line	13
1.1.2 SSDP message header fields	13
1.1.3 SSDP header field extensions	14
1.1.4 UUID format and recommended generation algorithms	14
1.1.5 SSDP processing rules	14
1.2 Advertisement	15
1.2.1 Advertisement protocols and standards	15
1.2.2 Device available - NOTIFY with ssdp:alive	16
1.2.3 Device unavailable -- NOTIFY with ssdp:byebye	21
1.2.4 Device Update – NOTIFY with ssdp:update	23
1.3 Search	25
1.3.1 Search protocols and standards	25
1.3.2 Search request with M-SEARCH	26
1.3.3 Search response	29
1.4 References	32
2 Description	32
2.1 Generic requirements on HTTP usage	35
2.2 Generic requirements on XML usage	38
2.3 Device description	38
2.4 UPnP Device Template	43
2.5 Service description	44
2.5.1 Defining and processing extended data types	51
2.5.2 String equivalents of extended data types	52
2.5.3 Generic requirements	53
2.5.4 Ordering of Elements	53
2.5.5 Versioning	54
2.6 UPnP Service Template	54
2.7 Non-standard vendor extensions and limitations	54
2.7.1 Placement of Additional Elements and Attributes	56
2.8 UPnP Device Schema	56
2.9 UPnP Service Schema	56
2.10 UPnP Datatype Schema	56
2.11 Retrieving a description using HTTP	57

2.12	References	59
3	Control	60
3.1	Control protocols	63
3.1.1	SOAP Profile	63
3.2	Actions	67
3.2.1	Action invocation	67
3.2.2	Action Response	70
3.2.3	UPnP Action Schema	72
3.2.4	Recommendations and additional requirements	72
3.2.5	Action error response	73
3.2.6	UPnP Error Schema	76
3.3	Query for variable	76
3.4	References	77
4	Eventing	77
4.1	Unicast eventing	78
4.1.1	Subscription	79
4.1.2	SUBSCRIBE with NT and CALLBACK	81
4.1.3	Renewing a subscription with SUBSCRIBE with SID	84
4.1.4	Canceling a subscription with UNSUBSCRIBE	85
4.2	Multicast Eventing	86
4.3	Event messages	88
4.3.1	Error Cases	88
4.3.2	Unicast eventing: Event messages: NOTIFY	89
4.3.3	Multicast Eventing: Event messages: NOTIFY	92
4.4	UPnP Event Schema	95
4.5	Augmenting the UPnP Device and Service Schemas	95
4.6	References	95
5	Presentation	96
5.1	References	97
Annex A (normative) IP Version 6 Support		98
A.0	Note (informative)	98
A.1	Introduction	98
A.2	General Principles	98
A.2.1	UPnP Device Architecture V1.0	98
A.2.2	UPnP Device Architecture V2.0	99
A.2.3	IPv6 and Dual Stack	99
A.2.4	Device operation	100
A.2.5	Control point operation	101
A.3	Addressing	101
A.3.1	UPnP Messaging on IPv6 Interfaces	101
A.3.2	Summary of boot/startup process	102
A.3.3	Address Selection and RFC 6724	102
A.4	Discovery	102
A.4.1	OPT and NLS	102
A.4.2	Advertisement	103
A.4.3	Advertisement: Device unavailable	103
A.4.4	Advertisement: Device update	104
A.4.5	Search	104

A.4.6	Search response	104
A.5	Description	104
A.6	Control	104
A.7	Eventing	105
A.8	Presentation	105
A.9	References	105
A.9.1	Normative	105
A.9.2	Informative	106
Annex B	Schemas	107
B.1	UPnP Device Schema	107
B.2	UPnP Service Schema	111
B.3	UPnP Control Schema	115
B.4	UPnP Error Schema	116
B.5	UPnP Event Schema	117
B.6	UPnP Cloud Schema	118
B.7	Schema references	119
Annex C	Cloud	120
C.1	Introduction	120
C.1.1	What is UPnP™ Cloud Technology (UCA)?	120
C.1.2	Audience	120
C.1.3	In this Annex	120
C.1.4	UDA compared to UCA	122
C.1.5	UCA General Communications Paths	124
C.1.6	UCA Specific Communication Paths	125
C.1.7	UCA Steps as Analogies to UDA	126
C.2	Terms and Definitions	127
C.2.1	Acronyms	127
C.2.2	General Cloud Terms and Definitions	128
C.2.3	Device and Control Point Terms and Definitions	128
C.2.4	Service Terms and Definitions	129
C.2.5	Groups	129
C.3	References	129
C.4	General XMPP Features	130
C.4.1	XMPP Jabber IDs or <u>JIDs</u>	130
C.5	Creating a Device or Control Point Resource	132
C.5.1	Finding a UCS	132
C.5.2	Account Creation	132
C.5.3	Authentication	133
C.5.4	Binding Devices and Control Points as a Resource	135
C.5.5	Embedded Devices	138
C.6	Presence and Discovery	140
C.6.1	Presence (Analog to NOTIFY with ssdp:alive)	140
C.6.2	XMPP disco#items (analog to M-SEARCH for users UCCDs and UCC-CPs)	144
C.6.3	Presence update (analog to NOTIFY with ssdp:update)	145
C.6.4	Presence "unavailable" (Analog to NOTIFY with ssdp:byebye)	145
C.6.5	Service Level Discovery	146
C.6.6	IQ:Query for DDD and SCPD Exchange (analog of HTTP GET for DDD and SCPD)	146

C.7	PubSub (Analog of Eventing)	155
C.7.1	Creating the UCCD PubSub structure	159
C.7.2	Creating a UCCD PubSub collection	161
C.7.3	Publishing a UCCD PubSub event	166
C.7.4	Subscribing to a UCCD PubSub collection	169
C.7.5	Unsubscribing to a UCCD PubSub collection	171
C.7.6	Permissions model	173
C.8	SOAP over XMPP (Analog of Control)	173
C.9	Support for Binary (Media) Transport	177
C.10	UCA errorCodes	177
C.11	UCA Schemas	178
C.12	Closing a UCA Session	178
C.13	UCA over BOSH and WebSocket	178
Figure 1:	— Protocol stack	1
Figure 1-1:	— Discovery architecture	11
Figure 1-2:	— Advertisement protocol stack	15
Figure 1-3:	— Initial and repeat announcements, no announcement spreading	17
Figure 1-4:	— Initial and repeat announcements, message spreading of repeat announcements	18
Figure 1-5:	— Search protocol stack	25
Figure 2-1:	— Description architecture	33
Figure 2-2:	— Description retrieval protocol stack	57
Figure 3-1:	— Control architecture	61
Figure 3-2:	— Control protocol stack	63
Figure 4-1:	— Unicast eventing architecture	78
Figure 4-2:	— Unicast eventing protocol stack	79
Figure 4-3:	— Multicast eventing architecture	86
Figure 4-4:	— Multicast eventing protocol stack	87
Figure 5-1:	— Presentation architecture	96
Figure 5-2:	— Presentation protocol stack	96
Figure C-1:	— Protocol stacks UDA versus UCA	122
Figure C-2:	— Protocol stack UCA UCCD/UCC-CP and UCA Servers (UCS or UCOD)	123
Figure C-3:	— General UCA Configuration	124
Figure C-4:	— Specific UCA communications	125
Figure C-5:	— XMPP Authentication Negotiation	133
Figure C-6:	— Stanza routing for applications with UCA and other XMPP functionality	138
Figure C-7:	— UDA to UCA Mapping of embedded devices	140
The individual presence exchange between the UCCDs, UCC-CPs, and UCS for an N connected UPnP scenario is illustrated in		
Figure C-8:	— Self <presence> stanza flows	144
Figure C-9:	— Combined Connect, Announce and Describe Message Flow	153
Figure C-10:	— PubSub Hierarchy Event Structure Creation	158
Figure C-11:	— BOSH and WebSocket UCA Stack	178
Figure C-12:	— BOSH and WebSocket at UCA component stacks	180

Table 1 — Acronyms.....	4
Table 1-1 — Root device discovery messages.....	16
Table 1-2 — Embedded device discovery messages.....	16
Table 1-3 — Service discovery messages.....	16
Table 2-1: — Vendor extensions	54
Table 3-1: — SOAP 1.1 UPnP Profile	64
Table 3-2: — mustUnderstand attribute	65
Table 3-3: — UPnP Defined Action error codes	75
Table 4-4: — HTTP Status Codes indicating a Subscription Error.....	83
Table 4-5: — HTTP Status Codes indicating a Resubscription Error.....	85
Table 4-6: — HTTP Status Codes indicating a Cancel Subscription Error	86
Table 4-7: — HTTP Status Codes indicating a Notify Error.....	92
Table 4-8: — Multicast event levels	94
Table A-1: — Matching of Device Address to Multicast Scope.....	100
Table C-1: — Acronyms	127
Table C-2: — Mapping of DDD iconList to [XEP-0084].....	150
Table C-3: — Summary of Requirements for DDD elements.....	154
Table C-4: — PubSub Node Types.....	155
Table C-5: — PubSub Node Access Models	155
Table C-6: — PubSub Affiliations and their Privileges to "publishing" as defined by [XEP-0060] and further restricted by UCA (see footnotes).....	156
Table C-7: — PubSub Affiliations and their Privileges to "subscribers"	157

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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <http://www.iso.org/directives>).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on the voluntary nature of Standards, the meaning of the ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#).

ISO/IEC 29341-1-2 was prepared by UPnP Forum 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 ISO/IEC 29341 series, under the general title *Information technology — UPnP Device Architecture*, can be found on the [ISO web site](#).

Introduction

ISO and IEC 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 these patent rights. The holders of -these patent rights have assured ISO and IEC that they are willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with ISO and IEC.

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

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

Huawei Technologies Co., Ltd. has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Huawei Technologies Co., Ltd.
Administration Building, Bantian Longgang District
Shenzhen – China 518129

Qualcomm Incorporated has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Qualcomm Incorporated
5775 Morehouse Drive
San Diego, CA – USA 92121

Telecom Italia S.p.A. has informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Telecom Italia S.p.A.
Via Reiss Romoli, 274
Turin - Italy 10148

Cisco Systems informed IEC and ISO that it has patent applications or granted patents.

Information may be obtained from:

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA – USA 95134

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. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Original UPnP Document

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 and later by UPnP Forum. 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 29341-1:2008
UPnP Device Architecture Version 1.0	ISO/IEC 29341-1:2011
UPnP Device Architecture 1.1	ISO/IEC 29341-1-1:2011
UPnP Device Architecture 2.0	ISO/IEC 29341-1-2
UPnP Basic:1 Device	ISO/IEC 29341-2
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2008
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2011
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:1 Device	ISO/IEC 29341-3-2
UPnP MediaRenderer:2 Device	ISO/IEC 29341-3-2:2011
UPnP MediaServer:1 Device	ISO/IEC 29341-3-3
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2008
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2011
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2008
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2011
UPnP ContentDirectory:2 Service	ISO/IEC 29341-4-12
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2008
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2011
UPnP ScheduledRecording:1	ISO/IEC 29341-4-14
UPnP ScheduledRecording:2	ISO/IEC 29341-4-14:2011
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 29341-4-4:2008
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4:2011
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 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 HVAC_ZoneThermostat:1 Device	ISO/IEC 29341-6-2

UPnP BinaryLight:1 Device	ISO/IEC 29341-7-1
UPnP Dimming:1 Service	ISO/IEC 29341-7-10
UPnP SwitchPower:1 Service	ISO/IEC 29341-7-11
UPnP DimmableLight:1 Device	ISO/IEC 29341-7-2
UPnP InternetGatewayDevice:1 Device	ISO/IEC 29341-8-1
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 LANDevice:1 Device	ISO/IEC 29341-8-2
UPnP WANPPPConnection:1 Service	ISO/IEC 29341-8-20
UPnP WLANConfiguration:1 Service	ISO/IEC 29341-8-21
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 Printer:1 Device	ISO/IEC 29341-9-1
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 Scanner:1.0 Device	ISO/IEC 29341-9-2
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 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 QOS v2 Schema Files	ISO/IEC 29341-11-2
UPnP RemoteUIClientDevice:1 Device	ISO/IEC 29341-12-1
UPnP RemoteUIClient:1 Service	ISO/IEC 29341-12-10
UPnP RemoteUIServer:1 Service	ISO/IEC 29341-12-11
UPnP RemoteUIServerDevice:1 Device	ISO/IEC 29341-12-2
UPnP DeviceSecurity:1 Service	ISO/IEC 29341-13-10
UPnP SecurityConsole:1 Service	ISO/IEC 29341-13-11
UPnP ContentDirectory:3 Service	ISO/IEC 29341-14-12:2011
UPnP MediaServer:3 Device	ISO/IEC 29341-14-3:2011
UPnP ContentSync:1	ISO/IEC 29341-15-10:2011
UPnP Low Power Architecture:1	ISO/IEC 29341-16-1:2011
UPnP LowPowerProxy:1 Service	ISO/IEC 29341-16-10:2011

UPnP LowPowerDevice:1 Service	ISO/IEC 29341-16-11:2011
UPnP QoS Architecture:3	ISO/IEC 29341-17-1:2011
UPnP QoSDevice:3 Service	ISO/IEC 29341-17-10:2011
UPnP QoSManager:3 Service	ISO/IEC 29341-17-11:2011
UPnP QoSPolicyHolder:3 Service	ISO/IEC 29341-17-12:2011
UPnP QoSDevice:3 Addendum	ISO/IEC 29341-17-13:2011
UPnP RemoteAccessArchitecture:1	ISO/IEC 29341-18-1:2011
UPnP InboundConnectionConfig:1 Service	ISO/IEC 29341-18-10:2011
UPnP RADAConfig:1 Service	ISO/IEC 29341-18-11:2011
UPnP RADASync:1 Service	ISO/IEC 29341-18-12:2011
UPnP RATAConfig:1 Service	ISO/IEC 29341-18-13:2011
UPnP RAClient:1 Device	ISO/IEC 29341-18-2:2011
UPnP RAServer:1 Device	ISO/IEC 29341-18-3:2011
UPnP RADiscoveryAgent:1 Device	ISO/IEC 29341-18-4:2011
UPnP SolarProtectionBlind:1 Device	ISO/IEC 29341-19-1:2011
UPnP TwoWayMotionMotor:1 Service	ISO/IEC 29341-19-10:2011
UPnP AV Architecture:2	ISO/IEC 29341-20-1
UPnP AVTransport:3 Service	ISO/IEC 29341-20-10
UPnP ConnectionManager:3 Service	ISO/IEC 29341-20-11
UPnP ContentDirectory:4 Device	ISO/IEC 29341-20-12
UPnP RenderingControl:3 Service	ISO/IEC 29341-20-13
UPnP ScheduledRecording:2 Service	ISO/IEC 29341-20-14
UPnP MediaRenderer:3 Service	ISO/IEC 29341-20-2
UPnP MediaServer:4 Device	ISO/IEC 29341-20-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-20-4
UPnP InternetGatewayDevice:2 Device	ISO/IEC 29341-24-1
UPnP WANIPConnection:2 Service	ISO/IEC 29341-24-10
UPnP WANIPv6FirewallControl:1 Service	ISO/IEC 29341-24-11
UPnP WANConnectionDevice:2 Service	ISO/IEC 29341-24-2
UPnP WANDevice:2 Device	ISO/IEC 29341-24-3
UPnP Telephony Architecture:2	ISO/IEC 29341-26-1
UPnP CallManagement:2 Service	ISO/IEC 29341-26-10
UPnP MediaManagement:2 Service	ISO/IEC 29341-26-11
UPnP Messaging:2 Service	ISO/IEC 29341-26-12
UPnP PhoneManagement:2 Service	ISO/IEC 29341-26-13
UPnP AddressBook:1 Service	ISO/IEC 29341-26-14
UPnP Calendar:1 Service	ISO/IEC 29341-26-15
UPnP Presense:1 Service	ISO/IEC 29341-26-16
UPnP TelephonyClient:2 Device	ISO/IEC 29341-26-2
UPnP TelephonyServer:2 Device	ISO/IEC 29341-26-3
UPnP Friendly Info Update:1 Service	ISO/IEC 29341-27-1
UPnP MultiScreen MultiScreen Architecture:1	ISO/IEC 29341-28-1
UPnP MultiScreen Application Management:1 Service	ISO/IEC 29341-28-10
UPnP MultiScreen Screen:1 Device	ISO/IEC 29341-28-2
UPnP MultiScreen Application Management:2 Service	ISO/IEC 29341-29-10
UPnP MultiScreen Screen:2 Device	ISO/IEC 29341-29-2
UPnP IoT Management and Control Architecture Overview:1	ISO/IEC 29341-30-1

UPnP DataStore:1 Service	ISO/IEC 29341-30-10
UPnP IoT Management and Control Data Model:1 Service	ISO/IEC 29341-30-11
UPnP IoT Management and Control Transport Generic:1 Service	ISO/IEC 29341-30-12
UPnP IoT Management and Control:1 Device	ISO/IEC 29341-30-2
UPnP Energy Management:1 Service	ISO/IEC 29341-31-1