

INTERNATIONAL STANDARD

Information technology – UPnP Device Architecture –
Part 4-14: Audio Video Device Control Protocol –
Level 2 – Scheduled Recording Service

ISO/IEC 29341-4-14:2008
<https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008>



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
Web: 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

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 It also gives information on projects, withdrawn and replaced publications.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

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

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

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
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00



ISO/IEC 29341-4-14

Edition 1.0 2008-11

INTERNATIONAL STANDARD

Information technology – UPnP Device Architecture –
Part 4-14: Audio Video Device Control Protocol –
Level 2 – Scheduled Recording Service

[ISO/IEC 29341-4-14:2008](https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008)

<https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

XE

ICS 35.200

ISBN 2-8318-1006-9

CONTENTS

FOREWORD	10
ORIGINAL UPNP DOCUMENTS (informative)	12
1 Overview and Scope	14
1.1 Introduction	14
1.2 Notation	14
1.2.1 Data Types	15
1.2.2 Strings Embedded in Other Strings	15
1.2.3 Extended Backus-Naur Form	15
1.3 Derived Data Types	16
1.3.1 Comma Separated Value (CSV) Lists	16
1.4 Management of XML Namespaces in Standardized DCPs	17
1.4.1 Namespace Prefix Requirements	19
1.4.2 Namespace Names, Namespace Versioning and Schema Versioning	20
1.4.3 Namespace Usage Examples	21
1.5 Vendor-defined Extensions	22
1.6 References	22
2 Service Modeling Definitions	25
2.1 ServiceType	25
2.2 Terms and Abbreviations	25
2.2.1 Abbreviations	25
2.2.2 Terms	25
2.3 ScheduledRecording Service Architecture	31
2.3.1 recordSchedule	31
2.3.2 recordTask	32
2.4 State Variables	33
2.4.1 State Variable Overview	33
2.4.2 SortCapabilities	35
2.4.3 SortLevelCapability	35
2.4.4 StateUpdateID	35
2.4.5 LastChange	36
2.4.6 A_ARG_TYPE_PropertyList	38
2.4.7 A_ARG_TYPE_DataTypeID	39
2.4.8 A_ARG_TYPE_ObjectID	39
2.4.9 A_ARG_TYPE_ObjectIDList	39
2.4.10 A_ARG_TYPE_PropertyInfo	39
2.4.11 A_ARG_TYPE_Index	39
2.4.12 A_ARG_TYPE_Count	39
2.4.13 A_ARG_TYPE_SortCriteria	39
2.4.14 A_ARG_TYPE_RecordSchedule	39
2.4.15 A_ARG_TYPE_RecordTask	40
2.4.16 A_ARG_TYPE_RecordScheduleParts	40
2.5 Eventing and Moderation	41
2.6 Actions	41
2.6.1 GetSortCapabilities()	42
2.6.2 GetPropertyList()	43
2.6.3 GetAllowedValues()	44

2.6.4	<u>GetStateUpdateID()</u>	45
2.6.5	<u>BrowseRecordSchedules()</u>	46
2.6.6	<u>BrowseRecordTasks()</u>	50
2.6.7	<u>CreateRecordSchedule()</u>	52
2.6.8	<u>DeleteRecordSchedule()</u>	54
2.6.9	<u>GetRecordSchedule()</u>	56
2.6.10	<u>EnableRecordSchedule()</u>	57
2.6.11	<u>DisableRecordSchedule()</u>	58
2.6.12	<u>DeleteRecordTask()</u>	59
2.6.13	<u>GetRecordTask()</u>	60
2.6.14	<u>EnableRecordTask()</u>	61
2.6.15	<u>DisableRecordTask()</u>	62
2.6.16	<u>ResetRecordTask()</u>	63
2.6.17	<u>GetRecordScheduleConflicts()</u>	63
2.6.18	<u>GetRecordTaskConflicts()</u>	65
2.6.19	Common Error Codes	66
2.7	State Diagram of <u>recordTask</u>	67
2.7.1	A Full-Featured State Diagram	67
2.7.2	A Minimal-Implementation State Diagram	72
2.7.3	<u>recordTask</u> State Example	75
2.8	ScheduledRecording Service Priority Model	76
2.8.1	Introduction of the ScheduledRecording Service Priority Model	76
2.8.2	Ordered Priority within Each Priority Level	77
2.8.3	Setting the Initial Priority Level of a <u>recordSchedule</u>	78
2.8.4	Sorting <u>recordSchedule</u> Instances Based on their Current Priority Settings	80
2.9	Theory of Operation	80
2.9.1	Introduction	80
2.9.2	Checking the Capabilities of a ScheduledRecording Service	80
2.9.3	Adding a Scheduled Recording Entry to the List	90
2.9.4	Deleting a <u>recordSchedule</u>	103
2.9.5	Browsing <u>recordSchedule</u> and <u>recordTask</u> instances	103
2.9.6	Rating System	109
2.9.7	Conflict Detection and Resolution	110
3	XML Service Description	111
4	Test	120
Annex A	(normative) srs XML Document	121
A.1	<u>A ARG TYPE RecordSchedule</u> AVDT XML Document	121
A.2	<u>A ARG TYPE RecordTask</u> AVDT XML Document	122
A.3	<u>A ARG TYPE RecordScheduleParts</u> AVDT XML Document	122
Annex B	(normative) AV Working Committee Extended Properties	124
B.1	Base Properties	124
B.1.1	<u>@id</u>	124
B.1.2	<u>title</u>	125
B.1.3	<u>class</u>	125
B.1.4	<u>additionalStatusInfo</u>	125
B.1.5	<u>cdsReference</u>	126
B.2	Priority Properties	126
B.2.1	<u>priority</u>	127

B.2.2	<u>desiredPriority</u>	128
B.2.3	<u>desiredPriority@type</u>	129
B.3	Output Control Properties	130
B.3.1	<u>recordDestination</u>	130
B.3.2	<u>desiredRecordQuality</u>	132
B.4	Content Identification Related Properties	134
B.4.1	<u>scheduledCDSObjectID</u>	134
B.4.2	<u>scheduledChannelID</u>	135
B.4.3	<u>scheduledStartDateTime</u>	136
B.4.4	<u>scheduledDuration</u>	136
B.4.5	<u>scheduledProgramCode</u>	137
B.5	Matching Content Criteria Properties	137
B.5.1	<u>matchingName</u>	138
B.5.2	<u>matchingID</u>	139
B.6	Matching Qualifying Criteria Properties	140
B.6.1	<u>matchingChannelID</u>	140
B.6.2	<u>matchingStartDateTimeRange</u>	140
B.6.3	<u>matchingDurationRange</u>	141
B.6.4	<u>matchingRatingLimit</u>	141
B.6.5	<u>matchingEpisodeType</u>	143
B.7	Content Control Properties	144
B.7.1	<u>totalDesiredRecordTasks</u>	144
B.7.2	<u>scheduledStartDateTimeAdjust</u>	145
B.7.3	<u>scheduledDurationAdjust</u>	145
B.7.4	<u>activePeriod</u>	145
B.7.5	<u>durationLimit</u>	146
B.7.6	<u>channelMigration</u>	147
B.7.7	<u>timeMigration</u>	147
B.7.8	<u>allowDuplicates</u>	147
B.8	Storage Related Properties	148
B.8.1	<u>persistedRecordings</u>	148
B.9	Schedule State Properties	149
B.9.1	<u>scheduleState</u>	149
B.9.2	<u>abnormalTasksExist</u>	151
B.10	Statistics Properties	151
B.10.1	<u>currentRecordTaskCount</u>	151
B.10.2	<u>totalCreatedRecordTasks</u>	151
B.10.3	<u>totalCompletedRecordTasks</u>	152
B.11	Task General Properties	152
B.11.1	<u>recordScheduleID</u>	152
B.11.2	<u>recordedCDSObjectID</u>	152
B.12	Task Content Identification Properties	153
B.12.1	<u>taskCDSObjectID</u>	153
B.12.2	<u>taskChannelID</u>	154
B.12.3	<u>taskStartDateTime</u>	154
B.12.4	<u>taskDuration</u>	154
B.12.5	<u>taskProgramCode</u>	155
B.12.6	<u>recordQuality</u>	155
B.13	Task Matched Content Criteria Properties	157

INTERNATIONAL STANDARD PREVIEW
(standards.iteh.ai)

ISO/IEC 29341-4-14:2008

<https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b36-a1e7-2a2b78d7b86/iso-iec-29341-4-14-2008>

2022-07-26 10:26:00

B.13.1	<u>matchedName</u>	157
B.13.2	<u>matchedID</u>	158
B.14	Task Matched Qualifying Criteria Properties	158
B.14.1	<u>matchedRating</u>	158
B.14.2	<u>matchedRating@type</u>	159
B.14.3	<u>matchedEpisodeType</u>	159
B.15	Task Matched Content Control Properties	159
B.15.1	<u>taskStartDateTimeAdjust</u>	159
B.15.2	<u>taskDurationAdjust</u>	160
B.15.3	<u>taskDurationLimit</u>	160
B.15.4	<u>taskDurationLimit@effect</u>	160
B.15.5	<u>taskChannelMigration</u>	160
B.15.6	<u>taskTimeMigration</u>	161
B.16	Task State Properties	161
B.16.1	<u>taskState</u>	161
B.17	ContentDirectory Service Imported Properties	169
Annex C	(normative) AV Working Committee Class Definitions	174
C.1	Class Hierarchy	174
C.1.1	Relationships between Classes and Properties	175
C.1.2	<u>recordScheduleParts</u> Properties	176
C.1.3	<u>recordSchedule</u> Properties	180
C.1.4	<u>recordTask</u> Properties	183
C.2	Class Definitions	187
C.3	<u>object</u> Base Class	187
C.3.1	<u>object.recordSchedule</u> Class	189
C.3.2	<u>object.recordTask</u> Class	198
Annex D	(normative) EBNF Syntax Definitions	200
D.1	Priority Syntax	200
D.2	Date&time Syntax	200
D.3	Class Name Syntax	201
Annex E	(informative) ScheduledRecording Service Relationship to ContentDirectory Service	202
Annex F	(informative) ScheduledRecording Service Relationship to EPG	203
Annex G	(informative) AVDT Examples	204
G.1	<u>A ARG TYPE RecordSchedule</u> AVDT Example	204
G.2	<u>A ARG TYPE RecordTask</u> AVDT Example	220
G.3	<u>A ARG TYPE RecordScheduleParts</u> AVDT Example	238

LIST OF TABLES

Table 1-1:	EBNF Operators	16
Table 1-2:	CSV Examples	17
Table 1-3:	Namespace Definitions.....	18
Table 1-4:	Schema-related Information	19
Table 1-5:	Default Namespaces for the AV Specifications.....	20
Table 2-1:	Abbreviations	25
Table 2-1:	Properties in XML	27
Table 2-2:	State Variables	33
Table 2-3:	allowedValueList for the <u>DataTypeID</u> argument.....	35
Table 2-4:	Allowed Elements in <StateEvent> Element.....	36
Table 2-5:	Eventing and Moderation.....	41
Table 2-6:	Actions.....	41
Table 2-7:	Arguments for <u>GetSortCapabilities()</u>	42
Table 2-8:	Error Codes for <u>GetSortCapabilities()</u>	43
Table 2-9:	Arguments for <u>GetPropertyList()</u>	43
Table 2-10:	Error Codes for <u>GetPropertyList()</u>	44
Table 2-11:	Arguments for <u>GetAllowedValues()</u>	44
Table 2-12:	Error Codes for <u>GetAllowedValues()</u>	45
Table 2-13:	Arguments for <u>GetStateUpdateID()</u>	46
Table 2-14:	Error Codes for <u>GetStateUpdateID()</u>	46
Table 2-15:	Arguments for <u>BrowseRecordSchedules()</u>	46
Table 2-16:	Error Codes for <u>BrowseRecordSchedules()</u>	50
Table 2-17:	Arguments for <u>BrowseRecordTasks()</u>	51
Table 2-18:	Error Codes for <u>BrowseRecordTasks()</u>	52
Table 2-19:	Arguments for <u>CreateRecordSchedule()</u>	53
Table 2-20:	Error Codes for <u>CreateRecordSchedule()</u>	54
Table 2-21:	Arguments for <u>DeleteRecordSchedule()</u>	55
Table 2-22:	Error Codes for <u>DeleteRecordSchedule()</u>	55
Table 2-23:	Arguments for <u>GetRecordSchedule()</u>	56
Table 2-24:	Error Codes for <u>GetRecordSchedule()</u>	56
Table 2-25:	Arguments for <u>EnableRecordSchedule()</u>	57
Table 2-26:	Error Codes for <u>EnableRecordSchedule()</u>	57
Table 2-27:	Arguments for <u>DisableRecordSchedule()</u>	58
Table 2-28:	Error Codes for <u>DisableRecordSchedule()</u>	58
Table 2-29:	Arguments for <u>DeleteRecordTask()</u>	59
Table 2-30:	Error Codes for <u>DeleteRecordTask()</u>	59
Table 2-31:	Arguments for <u>GetRecordTask()</u>	60
Table 2-32:	Error Codes for <u>GetRecordTask()</u>	60
Table 2-33:	Arguments for <u>EnableRecordTask()</u>	61

Table 2-34:	Error Codes for EnableRecordTask()	61
Table 2-35:	Arguments for DisableRecordTask()	62
Table 2-36:	Error Codes for DisableRecordTask()	62
Table 2-37:	Arguments for ResetRecordTask()	63
Table 2-38:	Error Codes for ResetRecordTask()	63
Table 2-39:	Arguments for GetRecordScheduleConflicts()	64
Table 2-40:	Error Codes for GetRecordScheduleConflicts()	64
Table 2-41:	Arguments for GetRecordTaskConflicts()	65
Table 2-42:	Error Codes for GetRecordTaskConflicts()	65
Table 2-43:	Common Error Codes	66
Table 2-44:	recordTask State Timeline.....	76
Table 2-45:	Example 1: Fewer recordSchedule instances than the Number of Supported Priority Levels.	77
Table 2-46:	Example 2: More recordSchedule instances than the Number of Supported Priority Levels.	78
Table 2-47:	Existing recordSchedule Priorities	79
Table 2-48:	desiredPriority Property Set to “RS-C”	79
Table 2-49:	desiredPriority Property Set to “HIGHEST”, “L1_H”, or “RS-A”	79
Table 2-50:	desiredPriority Property Set to “LOWEST”, “L3_LOW”, or “RS-B”	80
Table 2-51:	desiredPriority Property Set to “RS-C”	80
Table B-1:	Base Properties Overview	124
Table B-2:	allowedValueList for the class Property	125
Table B-3:	Priority Properties	126
Table B-4:	allowedValueList for the priority Property	127
Table B-5:	Primary allowedValueList for the desiredPriority Property.....	128
Table B-6:	Additional allowedValueList for the desiredPriority Property	129
Table B-7:	allowedValueList for the desiredPriority@type Property.....	130
Table B-8:	Output Control Properties	130
Table B-9:	desiredRecordQuality Example	132
Table B-10:	allowedValueList for the desiredRecordQuality Property	133
Table B-11:	allowedValueList for the desiredRecordQuality@type Property.....	134
Table B-12:	Content Identification Related Properties	134
Table B-13:	allowedValueList for the scheduledChannelID@type Property	136
Table B-14:	Matching Content Criteria Properties	137
Table B-15:	allowedValueList for the matchingName@type Property	138
Table B-16:	allowedValueList for the matchingID@type Property	139
Table B-17:	Matching Qualifying Criteria Properties	140
Table B-18:	allowedValueList for the matchingRatingLimit Property Using the MPAA Rating System (matchingRatingLimit@type = “MPAA.ORG”)	142
Table B-19:	allowedValueList for the matchingRatingLimit Property Using the RIAA Rating System (matchingRatingLimit@type = “RIAA.ORG”)	142

Table B-20:	allowedValueList for the matchingRatingLimit Property Using the ESRB Rating System (matchingRatingLimit@type = "ESRB.ORG").....	142
Table B-21:	allowedValueList for the matchingRatingLimit Property Using the TVGUIDELINES Rating System (matchingRatingLimit@type = "TVGUIDELINES.ORG").....	142
Table B-22:	allowedValueList for the matchingRatingLimit@type Property.....	143
Table B-23:	allowedValueList for the matchingEpisodeType Property.....	144
Table B-24:	Content Control Properties.....	144
Table B-25:	allowedValueList for the durationLimit@effect Property.....	147
Table B-26:	Storage Related Properties.....	148
Table B-27:	Schedule State Properties.....	149
Table B-28:	allowedValueList for the scheduleState Property.....	150
Table B-29:	allowedValueList for the scheduleState@currentErrors Property.....	150
Table B-30:	Statistics Properties.....	151
Table B-31:	Task General Properties.....	152
Table B-32:	Task Content Identification Properties.....	153
Table B-33:	recordQuality Example.....	156
Table B-34:	allowedValueList for the recordQuality Property.....	157
Table B-35:	Task Matched Content Criteria Properties.....	157
Table B-36:	Task Matched Qualifying Criteria Properties.....	158
Table B-37:	Task Matched Content Control Properties.....	159
Table B-38:	State Related Properties.....	161
Table B-39:	allowedValueList for the taskState Property.....	162
Table B-40:	allowedValueList for the taskState Property.....	163
Table B-41:	allowedValueList for the taskState@phase Property.....	164
Table B-42:	allowedValueList for the taskState@xxx Properties.....	167
Table C-1:	Class Properties Overview for recordScheduleParts usage.....	177
Table C-2:	Class Properties Overview for recordSchedule usage.....	180
Table C-3:	Class Properties Overview for recordTask usage.....	184
Table C-4:	object Base Class Properties.....	188
Table C-5:	object.recordSchedule Base Class Properties.....	189
Table C-6:	object.recordSchedule.direct Class Properties.....	190
Table C-7:	object.recordSchedule.direct.manual Class Properties.....	191
Table C-8:	object.recordSchedule.direct.cdsEPG Class Properties.....	192
Table C-9:	object.recordSchedule.direct.cdsNonEPG Class Properties.....	193
Table C-10:	object.recordSchedule.direct.programCode Class Properties.....	193
Table C-11:	object.recordSchedule.query Class Properties.....	194
Table C-12:	object.recordSchedule.query.contentName Class Properties.....	195
Table C-13:	object.recordSchedule.query.contentID Class Properties.....	197
Table C-14:	object.recordTask Base Class Properties.....	199

ITEH STANDARD PREVIEW
(standards.iteh.ai)

ISO/IEC 29341-4-14:2008
<https://standards.iteh.ai/catalog/standards/sist/71d7c32-5772-4b56-a1e7-2a2b78d7b86/iso-iec-29341-4-14-2008>

LIST OF FIGURES

Figure 1: Creating a new *recordSchedule*31

Figure 2: Capability check.32

Figure 3: Browse *recordSchedule*.32

Figure 4: Delete a *recordSchedule*32

Figure 5: A Full-Featured State Diagram.....68

Figure 6: A Minimal-Implementation State Diagram.....73

Figure 7: Class hierarchy for the ScheduledRecording service.....174

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/IEC 29341-4-14:2008
<https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008>

INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 4-14: Audio Video Device Control Protocol – Level 2 – Scheduled Recording 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, Chuo-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

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 29341-4-14 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 WANPPPConnection: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

UPnP Document Title	ISO/IEC 29341 Part
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 29341-4-14:2008](https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008)

<https://standards.iteh.ai/catalog/standards/sist/471d7c32-5772-4b56-a1e7-f2a2b78d7b86/iso-iec-29341-4-14-2008>