ISO/IEC 29341-9-12

Edition 1.0   2008-11

INTERNATIONAL STANDARD

**Information technology – UPnP Device Architecture –
Part 9-12: Imaging Device Control Protocol – Print Basic Service**

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FOREWORD

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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

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ISO/IEC 29341-9-12 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

1. Overview and Scope

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

This service-type enables the following functions:

- *Printing*

This service template does not address:

- *Faxing*

2. Service Modeling Definitions

2.1. ServiceType

A service that is compliant with this template is identified with the following service type: **urn:schemas-upnp-org:service:***PrintBasic:1.*

2.2. Terminology

This section defines terms that are used throughout this specification. These terms are always capitalized in order to indicate that they have the meaning defined in this section.

2.2.1. Conformance Terminology

The following terms have special meaning relating to conformance and so are always indicated in all capital letters:

a) MUST - This word, or the term "REQUIRED", mean that the definition is an absolute requirement of the specification.

b) MUST NOT - This phrase means that the definition is an absolute prohibition of the specification.

c) SHOULD - This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

d) SHOULD NOT - This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

e) MAY - This word, or the adjective "OPTIONAL", mean that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. An implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option

2.2.2. Other terminology

This document uses the terminology defined in the UPnP Device Architecture document, such as: action, SST variable, and action parameter. This sub-section defines the following additional terms which are capitalized in order to indicate their specific meaning as defined in this section.

a) Print Service (or Printer) - the UPnP entity that accepts actions from UCP (clients), returns responses, and sends events.

b)   PDL Data Stream - the stream of data to be printed as represented in a specified document format.

c)   Production Job Attributes - job attributes that are not inherent to the PDL Data Stream and so the UCP MAY override the PDL Data Stream instructions, if any, by supplying corresponding IN parameters when submitting the job (see section 2.4).

d)   Layout Job Attributes - job attributes that are inherent to the PDL Data Stream and *cannot* be overridden by supplying corresponding IN parameters when submitting the job (see section 2.4).

e)   Comma Separated Value (CSV) - a variable that contains multiple string values separated by the US-ASCII COMMA (',') character (see section 2.5.1.1).

f)   Distinguished Value – a special value defined by this specification for some action IN parameters. Use of Distinguished Value IN parameter allows a PDL Data Stream corresponding value to take effect when it would normally be overridden by the IN parameter. In the case where the Distinguished Value is absent in the PDL data stream and the IN parameter value is specified as 'device-setting', the Service uses its <defaultValue> value for the IN parameter.   See section 2.6.2.

g)   Tracked Job - a UPnP or non-UPnP job that is visible to a UPnP control point, i.e., has a JobId and appears in the JobIdList, and on which the control point can perform any of the Job operations defined in this document.

h)   Untracked Job - a non-UPnP job that is not visible to a UPnP control point, i.e., does not have a JobId and does not appear in the JobIdList, and on which the control point cannot perform any of the Job operations defined in this document.

2.2.3. Notation: use of quotation marks

Throughout this document, single quotes (') are used around literal string and integer values in running text, but not in Tables. The single quotes are not part of the values. Double quotes (") are used around words in running text to indicate special English meanings. Variable names, parameters names, and action names are not quoted.

2.3.   References

This section lists the references that this document refers to and the tag inside square brackets that is used for each such reference:

[DEVICE] - UPnP Device Architecture, version 1.0.

[HTTP] - RFC 2616 "Hypertext Transfer Protocol -- HTTP/1.1", R. Fielding, J. Gettys,   J. Mogul, H. Frystyk, L. Masinter, P. Leach, T. Berners-Lee. June 1999. (Format: TXT=422317, PS=5529857, PDF=550558 bytes) (Obsoletes RFC2068) (Updated by RFC2817) (Status: DRAFT STANDARD)

[MODEL] - RFC 2566 "Internet Printing Protocol/1.0 Model and Semantics", March 1999 and RFC 2911 "Internet Printing Protocol/1.1 Model and Semantics", September 2000, standards. Available at: http://www.ietf.org

[PWG5101.1] *IEEE-ISTO 5101.1-2001 Media Standardized Names <work in progress>, ftp://ftp.pwg.org/pub/pwg/standards/pwg5101.1.pdf, .doc, .rtf for standardized names*

[UPnP-ENHANCED] - Albright, S., Hastings, T., Zehler, P., and G Shults, "PrintEnhancedLayout:0.10 Service Template For UPnP Version 1.0", work in progress, TBD, 2001.

[XHTML-PRINT] - "XHTML (tm) - Print", version 0.60, May 11, 2001, <work in progress>, Available at: ftp://ftp.lexmark.com/pub/standards/xhtml-print.pdf

[MULTIPLEXED] - R. Herriot, "The MIME Application/Multiplexed Content-type", June 26, 2001, available at: http://search.ietf.org/internet-drafts/draft-herriot-application-multiplexed-04.txt (Subsequent versions, if any, will be available from the same location with the "04" incremented, and eventually as an information RFC.)