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INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 3-1: Audio Video Device Control Protocol – Audio Video Architecture

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International Standard ISO/IEC 29341-3-1 was prepared by UPnP Forum Steering committee[1], was adopted, under the fast track procedure, by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This International Standard replaces ISO/IEC 29341-3-1, first edition, published in 2008, and constitutes a technical revision.

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.

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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

1.1 Introduction

This document describes the overall UPnP AV Architecture, which forms the foundation for the UPnP AV Device and Service templates. The AV Architecture defines the general interaction between UPnP Control Points and UPnP AV devices. It is independent of any particular device type, content format, and transfer protocol. It supports a variety of devices such as TVs, VCRs, CD/DVD players/jukeboxes, settop boxes, stereos systems, MP3 players, still-image cameras, camcorders, electronic picture frames (EPFs), and the PC. The AV Architecture allows devices to support different types of formats for the entertainment content (such as MPEG2, MPEG4, JPEG, MP3, Windows Media Architecture (WMA), bitmaps (BMP), NTSC, PAL, ATSC, etc.) and multiple types of transfer protocols (such as IEC-61883/IEEE-1394, HTTP GET, RTP, HTTP PUT/POST, TCP/IP, etc.). The following clauses describe the AV Architecture and how the various UPnP AV devices and services work together to enable various end-user scenarios.

1.2 Goals

The UPnP AV Architecture was explicitly defined to meet the following goals:

- To support arbitrary transfer protocols and content formats.
- To enable the AV content to flow directly between devices without any intervention from the Control Point.
- To enable Control Points to remain independent of any particular transfer protocol and content format. This allows Control Points to transparently support new protocols and formats.
- Scalability, i.e. support of devices with very low resources, especially memory and processing power as well as full-featured devices.

1.3 Non-Goals

The UPnP AV Architecture does not enable any of the following:

- Two-way Interactive Communication, such as audio and video conferencing, Internet gaming, etc.
- Access Control, Content Protection, and Digital Rights Management
- Synchronized playback to multiple rendering devices

1.4 Notation

Table 1-1 — Default Short Names for the AV Specifications

AV Specification Name	Short Name
AVTransport	AVT
ConnectionManager	CM
ContentDirectory	CDS
MediaRenderer	MR
MediaServer	MS
RenderingControl	RCS
ScheduledRecording	SRS

1.5 References

This clause lists the normative references used in the UPnP AV specifications and includes the tag inside square brackets that is used for each such reference:

[AVT] – *AVTransport:2*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-AVTransport-v2-Service-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av/UPnP-av-AVTransport-v2-Service.pdf.

[CDS] – *ContentDirectory:3*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-ContentDirectory-v3-Service-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av/UPnP-av-ContentDirectory-v3-Service.pdf.

[CM] – *ConnectionManager:2*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-ConnectionManager-v2-Service-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av/UPnP-av-ConnectionManager-v2-Service.pdf.

[MR] – *MediaRenderer:2*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-MediaRenderer-v2-Device-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av /UPnP-av-MediaRenderer-v2-Device.pdf.

[MS] – *MediaServer:3*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-MediaServer-v3-Device-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av/UPnP-av-MediaServer-v3-Device.pdf.

[RCS] – *RenderingControl:2*, UPnP Forum, September 30, 2008. Available at: http://www.upnp.org/specs/av/UPnP-av-RenderingControl-v2-Service-20080930.pdf. Latest version available at: http://www.upnp.org/specs/av/UPnP-av-RenderingControl-v2-Service.pdf.