# ISO/IEC 29341-3-2

Edition 1.0 2008-11

# INTERNATIONAL STANDARD

## Information technology – UPnP Device Architecture – Part 3-2: Audio Video Device Control Protocol – Media Renderer Device



ISO/IEC 29341-3-2:2008(E)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE D

ICS 35.200

ISBN 978-2-88910-843-5

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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:

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| UPnP Basic:1 Device | ISO/IEC 29341-2 |
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| UPnP MediaRenderer:1 Device | ISO/IEC 29341-3-2 |
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# 1. Overview and Scope

This device template is compliant with the UPnP Device Architecture version 1.0. It defines a device type referred to herein as MediaRenderer:1.

The MediaRenderer template defines a general-purpose device template that can be used to instantiate any Consumer Electronic (CE) device that is capable of rendering AV content from the home network. It exposes a set of rendering controls in which a Control Point can control how the specified AV content is rendered. This includes controlling various rendering features such as brightness, contrast, volume, etc.

Example instances of a MediaRenderer include traditional devices such as TVs and stereo systems. Some more contemporary examples include digital devices such as MP3 players and Electronic Picture Frames (EPFs). Although most of these examples typically render one specific type of content (e.g. a TV typically renders video content), a MediaRenderer is able to support a number of different data formats and transfer protocols. For example, a sophisticated implementation of a TV MediaRenderer could also support MP3 data so that its speakers could be used to play MP3 audio content.

The MediaRenderer device template is very lightweight and is easy to implement on low-resource devices such as an MP3 player. However, it can also be used to expose the high-end capabilities of such device as a PC.

A full-featured MediaRenderer exposes the following capabilities:

- Control various rendering characteristics
- Expose the supported transfer protocols and data formats
- Control the flow of the content (e.g. FF, REW, etc), if appropriate depending on the transfer protocol.



The MediaRenderer DOES NOT enable Control Points to:

- Send AV content to another device
- Retrieve any type of meta-data associated with the content

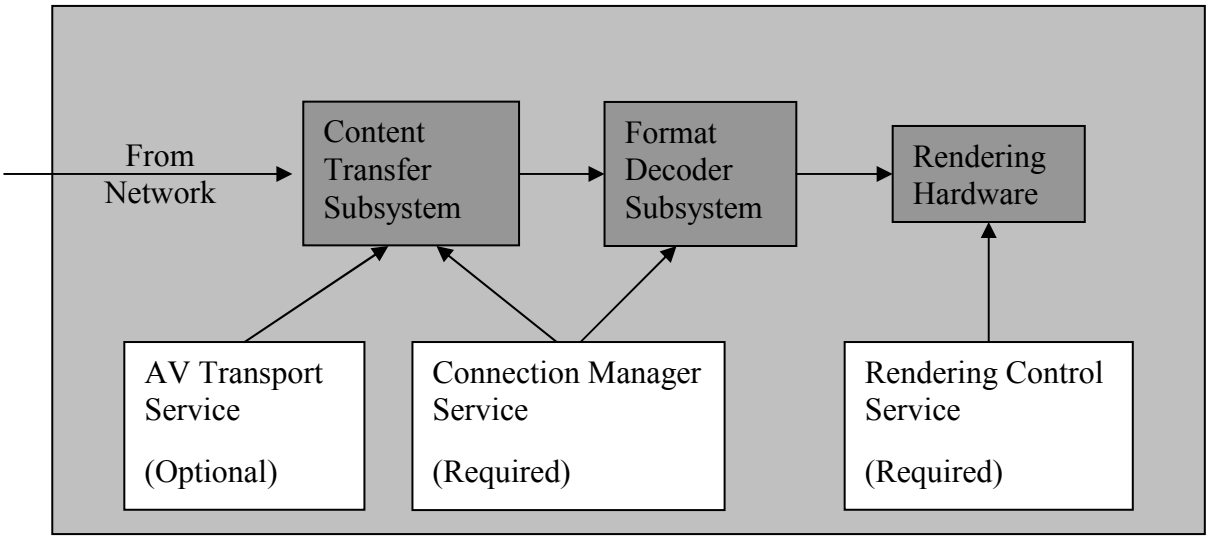


**Figure 1: MediaRenderer:1 Functional Diagram** – The un-shaded blocks represent the UPnP services that are contained by a MediaRenderer. The shaded blocks represent various device-specific modules that the UPnP services might interact with. However, the internal architecture of a MediaRenderer device is vendor specific.