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Part 3-13: Audio Video Device Control Protocol – Rendering Control Service**

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CONTENTS

FOREWORD	5
ORIGINAL UPNP DOCUMENTS (informative)	7
1. Overview and Scope	9
1.1. Introduction.....	9
1.2. Multi-input Devices	9
2. Service Modeling Definitions	10
2.1. Service Type	10
2.2. State Variables	10
2.2.1. <u>LastChange</u>	13
2.2.2. <u>PresetNameList</u>	14
2.2.3. <u>Brightness</u>	15
2.2.4. <u>Contrast</u>	15
2.2.5. <u>Sharpness</u>	15
2.2.6. <u>RedVideoGain</u>	15
2.2.7. <u>GreenVideoGain</u>	15
2.2.8. <u>BlueVideoGain</u>	15
2.2.9. <u>RedVideoBlackLevel</u>	15
2.2.10. <u>GreenVideoBlackLevel</u>	16
2.2.11. <u>BlueVideoBlackLevel</u>	16
2.2.12. <u>ColorTemperature</u>	16
2.2.13. <u>HorizontalKeystone</u>	16
2.2.14. <u>VerticalKeystone</u>	17
2.2.15. <u>Mute</u>	17
2.2.16. <u>Volume</u>	17
2.2.17. <u>VolumeDB</u>	17
2.2.18. <u>Loudness</u>	18
2.2.19. <u>A_ARG_TYPE_Channel</u>	18
2.2.20. <u>A_ARG_TYPE_InstanceID</u>	18
2.2.21. <u>A_ARG_TYPE_PresetName</u>	18
2.2.22. Relationships Between State Variables	19
2.3. Eventing and Moderation	19
2.3.1. Event Model	20
2.4. Actions.....	21
2.4.1. <u>ListPresets</u>	22
2.4.2. <u>SelectPreset</u>	22
2.4.3. <u>GetBrightness</u>	23
2.4.4. <u>SetBrightness</u>	23
2.4.5. <u>GetContrast</u>	24
2.4.6. <u>SetContrast</u>	24
2.4.7. <u>GetSharpness</u>	24
2.4.8. <u>SetSharpness</u>	25
2.4.9. <u>GetRedVideoGain</u>	25
2.4.10. <u>SetRedVideoGain</u>	26
2.4.11. <u>GetGreenVideoGain</u>	26
2.4.12. <u>SetGreenVideoGain</u>	26
2.4.13. <u>GetBlueVideoGain</u>	27

2.4.14.	<u>SetBlueVideoGain</u>	27
2.4.15.	<u>GetRedVideoBlackLevel</u>	28
2.4.16.	<u>SetRedVideoBlackLevel</u>	28
2.4.17.	<u>GetGreenVideoBlackLevel</u>	29
2.4.18.	<u>SetGreenVideoBlackLevel</u>	29
2.4.19.	<u>GetBlueVideoBlackLevel</u>	30
2.4.20.	<u>SetBlueVideoBlackLevel</u>	30
2.4.21.	<u>GetColorTemperature</u>	31
2.4.22.	<u>SetColorTemperature</u>	31
2.4.23.	<u>GetHorizontalKeystone</u>	32
2.4.24.	<u>SetHorizontalKeystone</u>	32
2.4.25.	<u>GetVerticalKeystone</u>	33
2.4.26.	<u>SetVerticalKeystone</u>	33
2.4.27.	<u>GetMute</u>	34
2.4.28.	<u>SetMute</u>	34
2.4.29.	<u>GetVolume</u>	35
2.4.30.	<u>SetVolume</u>	35
2.4.31.	<u>GetVolumeDB</u>	36
2.4.32.	<u>SetVolumeDB</u>	36
2.4.33.	<u>GetVolumeDBRange</u>	37
2.4.34.	<u>GetLoudness</u>	37
2.4.35.	<u>SetLoudness</u>	38
2.4.36.	Relationships Between Actions	38
2.4.37.	Common Error Codes	38
2.5.	Theory of Operation	39
2.5.1.	Multi-input Devices	39
2.5.2.	Presets	40
2.5.3.	Controlling the Display of Visual Content	40
2.5.4.	Controlling Audio Content	40
3.	XML Service Description	42
4.	Test	55
5.	“LastChange” State Variable Schema	56

LIST OF TABLES

Table 1: State Variables	10
Table 2-1: allowedValueRange for <u>Brightness</u>	11
Table 2-2: allowedValueRange for <u>Contrast</u>	11
Table 2-3: allowedValueRange for <u>Sharpness</u>	11
Table 2-4: allowedValueRange for <u>RedVideoGain</u>	11
Table 2-5: allowedValueRange for <u>GreenVideoGain</u>	12
Table 2-6: allowedValueRange for <u>BlueVideoGain</u>	12
Table 2-7: allowedValueRange for <u>RedVideoBlackLevel</u>	12
Table 2-8: allowedValueRange for <u>GreenVideoBlackLevel</u>	12
Table 2-9: allowedValueRange for <u>BlueVideoBlackLevel</u>	12
Table 2-10: allowedValueRange for <u>ColorTemperature</u>	12
Table 2-11: allowedValueRange for <u>HorizontalKeystone</u>	12
Table 2-12: allowedValueRange for <u>VerticalKeystone</u>	13
Table 2-13: allowedValueRange for <u>Volume</u>	13
Table 2-14: allowedValueRange for <u>VolumeDB</u>	13
Table 2-15: allowedValueList for <u>A ARG TYPE Channel</u>	13
Table 2-16: allowedValueList for <u>A ARG TYPE PresetName</u>	13
Table 2: Event moderation	19
Table 3: Actions	21

INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 3-13: Audio Video Device Control Protocol – Rendering Control Service

FOREWORD

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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:

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 QosDevice:2 Service	ISO/IEC 29341-11-10

UPnP Document Title	ISO/IEC 29341 Part
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 template is compliant with the UPnP Device Architecture version 1.0. It defines a service type referred to herein as RenderingControl:*/*.

1.1. Introduction

Most rendering devices contain a number of dynamically configurable attributes that affect how the current content is rendered. For example, video rendering devices, such as TVs, allow user control of display characteristics such as brightness and contrast, whereas audio rendering devices allow control of audio characteristics such as volume, balance, equalizer settings, etc. The RenderingControl:*/* service is intended to provide Control Points with the ability to query and/or adjust any rendering attribute that the device supports.

The RenderingControl:*/* service enables a Control Point to:

- Discover the set of attributes supported by the device.
- Retrieve the current setting of any supported attribute
- Change the setting of (e.g. control) any modifiable attribute
- Restore the settings defined by a named Preset

The RenderingControl:*/* service DOES NOT:

- Control the flow of the associated content (e.g. Play, Stop, Pause, Seek, etc.).
- Provide a mechanism to enumerate locally stored content.
- Provide a mechanism to select the content that is to be rendered.
- Provide a mechanism to send content to another device (via the home network or direct connection).