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**Information technology — UPnP  
Device Architecture —**

**Part 26-2:  
Telephony device control protocol —  
Level 2 — Telephony client device**

*Technologies de l'information — Architecture de dispositif UPnP —*

*Partie 26-2: Protocole de contrôle de dispositif de téléphonie —  
Niveau 2 — Dispositif de client de téléphonie*





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## Foreword

ISO (the International Organization for Standardization) and IEC (the 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 through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <http://www.iso.org/directives>).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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For an explanation on the voluntary nature of Standard, the meaning of the ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#)

ISO/IEC 29341-26-2 was prepared by UPnP Forum 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 ISO/IEC 29341 series, under the general title *Information technology — UPnP Device Architecture*, can be found on the [ISO web site](#).

## Introduction

ISO and IEC draw attention to the fact that it is claimed that compliance with this document may involve the use of patents as indicated below.

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6101499 / US; 6687755 / US; 6910068 / US; 7130895 / US; 6725281 / US; 7089307 / US;  
7069312 / US; 10/783 524 / US

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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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Hewlett Packard Company  
1501 Page Mill Road  
USA – Palo Alto, CA 94304

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Digital Media Business, Samsung Electronics Co. Ltd.  
416 Maetan-3 Dong, Yeongtang-Gu,  
KR – Suwon City 443-742

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Shenzhen – China 518129

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## Original UPnP Document

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 and later by UPnP Forum. 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 29341-1:2008
UPnP Device Architecture Version 1.0	ISO/IEC 29341-1:2011
UPnP Device Architecture 1.1	ISO/IEC 29341-1-1:2011
UPnP Device Architecture 2.0	ISO/IEC 29341-1-2
UPnP Basic:1 Device	ISO/IEC 29341-2
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2008
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2011
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:1 Device	ISO/IEC 29341-3-2
UPnP MediaRenderer:2 Device	ISO/IEC 29341-3-2:2011
UPnP MediaServer:1 Device	ISO/IEC 29341-3-3
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2008
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2011
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2008
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2011
UPnP ContentDirectory:2 Service	ISO/IEC 29341-4-12
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2008
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2011
UPnP ScheduledRecording:1	ISO/IEC 29341-4-14
UPnP ScheduledRecording:2	ISO/IEC 29341-4-14:2011
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 29341-4-4:2008
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4:2011
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 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

## ISO/IEC 29341-26-2:2017(E)

UPnP HVAC_UserOperatingMode:1 Service	ISO/IEC 29341-6-17
UPnP HVAC_ZoneThermostat:1 Device	ISO/IEC 29341-6-2
UPnP BinaryLight:1 Device	ISO/IEC 29341-7-1
UPnP Dimming:1 Service	ISO/IEC 29341-7-10
UPnP SwitchPower:1 Service	ISO/IEC 29341-7-11
UPnP DimmableLight:1 Device	ISO/IEC 29341-7-2
UPnP InternetGatewayDevice:1 Device	ISO/IEC 29341-8-1
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 LANDevice:1 Device	ISO/IEC 29341-8-2
UPnP WANPPPConnection:1 Service	ISO/IEC 29341-8-20
UPnP WLANConfiguration:1 Service	ISO/IEC 29341-8-21
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 Printer:1 Device	ISO/IEC 29341-9-1
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 Scanner:1.0 Device	ISO/IEC 29341-9-2
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 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 QOS v2 Schema Files	ISO/IEC 29341-11-2
UPnP RemoteUIClientDevice:1 Device	ISO/IEC 29341-12-1
UPnP RemoteUIClient:1 Service	ISO/IEC 29341-12-10
UPnP RemoteUIServer:1 Service	ISO/IEC 29341-12-11
UPnP RemoteUIServerDevice:1 Device	ISO/IEC 29341-12-2
UPnP DeviceSecurity:1 Service	ISO/IEC 29341-13-10
UPnP SecurityConsole:1 Service	ISO/IEC 29341-13-11
UPnP ContentDirectory:3 Service	ISO/IEC 29341-14-12:2011
UPnP MediaServer:3 Device	ISO/IEC 29341-14-3:2011



## ISO/IEC 29341-26-2:2017(E)

UPnP ContentSync:1	ISO/IEC 29341-15-10:2011
UPnP Low Power Architecture:1	ISO/IEC 29341-16-1:2011
UPnP LowPowerProxy:1 Service	ISO/IEC 29341-16-10:2011
UPnP LowPowerDevice:1 Service	ISO/IEC 29341-16-11:2011
UPnP QoS Architecture:3	ISO/IEC 29341-17-1:2011
UPnP QosDevice:3 Service	ISO/IEC 29341-17-10:2011
UPnP QosManager:3 Service	ISO/IEC 29341-17-11:2011
UPnP QosPolicyHolder:3 Service	ISO/IEC 29341-17-12:2011
UPnP QosDevice:3 Addendum	ISO/IEC 29341-17-13:2011
UPnP RemoteAccessArchitecture:1	ISO/IEC 29341-18-1:2011
UPnP InboundConnectionConfig:1 Service	ISO/IEC 29341-18-10:2011
UPnP RADAConfig:1 Service	ISO/IEC 29341-18-11:2011
UPnP RADASync:1 Service	ISO/IEC 29341-18-12:2011
UPnP RATAConfig:1 Service	ISO/IEC 29341-18-13:2011
UPnP RAClient:1 Device	ISO/IEC 29341-18-2:2011
UPnP RAServer:1 Device	ISO/IEC 29341-18-3:2011
UPnP RADiscoveryAgent:1 Device	ISO/IEC 29341-18-4:2011
UPnP SolarProtectionBlind:1 Device	ISO/IEC 29341-19-1:2011
UPnP TwoWayMotionMotor:1 Service	ISO/IEC 29341-19-10:2011
UPnP AV Architecture:2	ISO/IEC 29341-20-1
UPnP AVTransport:3 Service	ISO/IEC 29341-20-10
UPnP ConnectionManager:3 Service	ISO/IEC 29341-20-11
UPnP ContentDirectory:4 Device	ISO/IEC 29341-20-12
UPnP RenderingControl:3 Service	ISO/IEC 29341-20-13
UPnP ScheduledRecording:2 Service	ISO/IEC 29341-20-14
UPnP MediaRenderer:3 Service	ISO/IEC 29341-20-2
UPnP MediaServer:4 Device	ISO/IEC 29341-20-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-20-4
UPnP InternetGatewayDevice:2 Device	ISO/IEC 29341-24-1
UPnP WANIPConnection:2 Service	ISO/IEC 29341-24-10
UPnP WANIPv6FirewallControl:1 Service	ISO/IEC 29341-24-11
UPnP WANConnectionDevice:2 Service	ISO/IEC 29341-24-2
UPnP WANDevice:2 Device	ISO/IEC 29341-24-3
UPnP Telephony Architecture:2	ISO/IEC 29341-26-1
UPnP CallManagement:2 Service	ISO/IEC 29341-26-10
UPnP MediaManagement:2 Service	ISO/IEC 29341-26-11
UPnP Messaging:2 Service	ISO/IEC 29341-26-12
UPnP PhoneManagement:2 Service	ISO/IEC 29341-26-13
UPnP AddressBook:1 Service	ISO/IEC 29341-26-14
UPnP Calendar:1 Service	ISO/IEC 29341-26-15
UPnP Presense:1 Service	ISO/IEC 29341-26-16
UPnP TelephonyClient:2 Device	ISO/IEC 29341-26-2
UPnP TelephonyServer:2 Device	ISO/IEC 29341-26-3
UPnP Friendly Info Update:1 Service	ISO/IEC 29341-27-1
UPnP MultiScreen MultiScreen Architecture:1	ISO/IEC 29341-28-1
UPnP MultiScreen Application Management:1 Service	ISO/IEC 29341-28-10

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UPnP MultiScreen Screen:1 Device	ISO/IEC 29341-28-2
UPnP MultiScreen Application Management:2 Service	ISO/IEC 29341-29-10
UPnP MultiScreen Screen:2 Device	ISO/IEC 29341-29-2
UPnP IoT Management and Control Architecture Overview:1	ISO/IEC 29341-30-1
UPnP DataStore:1 Service	ISO/IEC 29341-30-10
UPnP IoT Management and Control Data Model:1 Service	ISO/IEC 29341-30-11
UPnP IoT Management and Control Transport Generic:1 Service	ISO/IEC 29341-30-12
UPnP IoT Management and Control:1 Device	ISO/IEC 29341-30-2
UPnP Energy Management:1 Service	ISO/IEC 29341-31-1

## 1 Scope

This document defines a device type named *TelephonyClient*, that complies with [1].

The *TelephonyClient* device is a UPnP device that allows control points to exploit a set of telephony features such as management of media session with a telephony server, messaging, presence etc via UPnP though other UPnP enabled home network devices. This device provides control points with the following functionality:

- Managing media session with a telephony server including setting up and terminating of media session with a telephony server.
- Messaging features including sending and retrieving messages and notifications of incoming messages.
- Enabling user friendly input capability.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[1] – UPnP Device Architecture, version 1.0, UPnP Forum, October 15, 2008. Available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0-20081015.pdf>. Latest version available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0.pdf>.

[2] – Extensible Markup Language (XML) 1.0 (Third Edition), François Yergeau, Tim Bray, Jean Paoli, C. M. Sperberg-McQueen, Eve Maler, eds., W3C Recommendation, February 4, 2004. Available at: <http://www.w3.org/TR/2004/REC-xml-20040204/>.

## 3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in [1] and the following apply.

### 3.1

#### Telephony Server

##### TS

a logical device that provides common telephony features (e.g. call/video call, messaging, address book) via UPnP to other devices in the home network. A TS is usually connected to a telephony service on its WAN interface, either wire line or mobile. For example, a TS may be a mobile phone or a home gateway with VoIP features.

### 3.2

#### Telephony Client

##### TC

a networked logical device that allows the user to enjoy the telephony features provided by the Telephony Server via UPnP. A TC may usually provide input/output features for voice and video. An example of a TC is a networked TV Set.

### 3.3

#### Telephony Control Point

##### TelCP

a software feature able to control the functionalities of both TS and TC. It may be embedded in a TS, a TC or also being a physical device on its own.

### 3.4

#### InputConfig Service

##### IS

a software feature that is able to provide user-friendly input capability via UPnP means and expose interfaces to describe capabilities of sender/receiver of devices to be used for input services and setup the input session between the devices using the matching profile (capability) from the ICP .

### 3.5

#### InputConfig Control point

##### ICP

a software feature that is able to control the functionalities of UPnP devices to be used to provide user-friendly input features. The control here refers to getting capabilities of UPnP dveices to be used for input, matching capabilities and selecting the appropriate dvice role such as receving side or sending side etc.

## 4 Notations and conventions

### 4.1 Text conventions

- Strings that are to be taken literally are enclosed in “double quotes”.
- Placeholder values that need to be replaced are enclosed in the curly brackets “{” and “}”.
- Words that are emphasized are printed in *italic*.
- Keywords that are defined by the UPnP Working Committee are printed using the forum character style.
- Keywords that are defined by the UPnP Device Architecture are printed using the arch character style.

### 4.2 Vendor-defined extensions

Whenever vendors create additional vendor-defined state variables, actions or properties, their assigned names and XML representation shall follow the naming conventions and XML rules as specified in [1], 2.5, “Description: Non-standard vendor extensions”.

## 5 Device Definitions

### 5.1 Device Type

The following service type identifies a device that is compliant with this specification:

urn:schemas-upnp-org:device:TelephonyClient:2

TelephonyClient device is used herein to refer to this device type.

### 5.2 TelephonyClient Device Architecture

This device is hosted by the Telephony Client and is active on the LAN network interface. The device can embed a number of telephony services including Media Management, Messaging,

Presence, and InputConfig, etc. The details for each of these services can be found in the Telephony Architecture document.

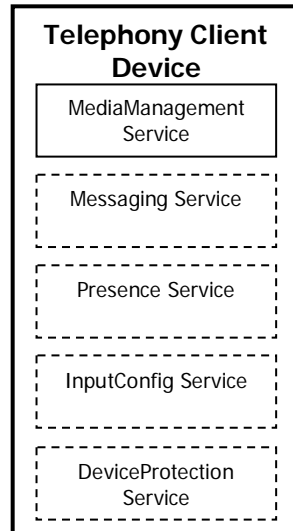


Figure 1 — TelephonyClient Device Architecture

### 5.3 Device Model

TelephonyClient products shall implement minimum version numbers of all required embedded devices and services specified in the table below. A TelephonyClient device can be either a Root device or can be Embedded in another UPnP device (TelephonyClient or other). A TelephonyClient device (Root or Embedded) can in turn contain other standard or non-standard Embedded UPnP devices.

Table 1 — Device Requirements

DeviceType	Root	R/A <sup>a</sup>	ServiceType	R/A <sup>a</sup>	Service ID <sup>b</sup>
<u>TelephonyClient:2</u>	<u>Root</u> or <u>Embedded</u>	<u>R</u>	<u>MediaManagement:2</u>	<u>R</u>	<u>MediaManagement</u>
			<u>Messaging:2</u>	<u>A</u>	<u>Messaging</u>
			<u>InputConfig:1</u>	<u>A</u>	<u>InputConfig</u>
			<u>DeviceProtection:1</u>	<u>A</u>	<u>DeviceProtection1</u>
			<u>Presence:1</u>	<u>A</u>	<u>Presence</u>
			<i>Non-standard services embedded by a UPnP vendor go here.</i>	<u>X</u>	<i>TBD</i>
<i>Standard devices embedded by a UPnP vendor go here.</i>	<u>Embedded</u>	<u>A</u>	<i>Services as defined by the corresponding standard UPnP Device Definition go here.</i>		
<i>Non-standard devices embedded by a UPnP vendor go here.</i>	<u>Embedded</u>	<u>X</u>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>
<sup>a</sup> <u>R</u> = required, <u>A</u> = allowed, <u>X</u> = Non-standard.					
<sup>b</sup> Prefixed by urn: <u>upnp-org:serviceid:</u>					

## 6 XML Device Description

```
<?xml version="1.0"?>
<root xmlns="urn:schemas-upnp-org:device-1-0">
```

```

<specVersion>
  <major>1</major>
  <minor>0</minor>
</specVersion>
<URLBase>base URL for all relative URLs</URLBase>
<device>
  <deviceType>
    urn:schemas-upnp-org:device:TelephonyClient:2
  </deviceType>
  <friendlyName>short user-friendly title</friendlyName>
  <manufacturer>manufacturer name</manufacturer>
  <manufacturerURL>URL to manufacturer site</manufacturerURL>
  <modelDescription>long user-friendly title</modelDescription>
  <modelName>model name</modelName>
  <modelNumber>model number</modelNumber>
  <modelURL>URL to model site</modelURL>
  <serialNumber>manufacturer's serial number</serialNumber>
  <UDN>uuid:UUID</UDN>
  <UPC>Universal Product Code</UPC>
  <iconList>
    <icon>
      <mimetype>image/format</mimetype>
      <width>horizontal pixels</width>
      <height>vertical pixels</height>
      <depth>color depth</depth>
      <url>URL to icon</url>
    </icon>
    <!-- XML to declare other icons, if any, go here -->
  </iconList>
  <serviceList>
    <service>
      <serviceType>
        urn:schemas-upnp-org:service:MediaManagement:2
      </serviceType>
      <serviceId>
        urn:upnp-org:serviceId:MediaManagement
      </serviceId>
      <SCPDURL>URL to service description</SCPDURL>
      <controlURL>URL for control</controlURL>
      <eventSubURL>URL for eventing</eventSubURL>
    </service>
    <service>
      <serviceType>
        urn:schemas-upnp-org:service:Messaging:2
      </serviceType>
      <serviceId>
        urn:upnp-org:serviceId:Messaging
      </serviceId>
      <SCPDURL>URL to service description</SCPDURL>
      <controlURL>URL for control</controlURL>
      <eventSubURL>URL for eventing</eventSubURL>
    </service>
    <service>
      <serviceType>
        urn:schemas-upnp-org:service:Presence:1
      </serviceType>
      <serviceId>
        urn:upnp-org:serviceId:Presence
      </serviceId>
      <SCPDURL>URL to service description</SCPDURL>
      <controlURL>URL for control</controlURL>
      <eventSubURL>URL for eventing</eventSubURL>
    </service>
    <service>
      <serviceType>
        urn:schemas-upnp-org:service:InputConfig:1
      </serviceType>

```

```

    <serviceId>
      urn:upnp-org:serviceId:InputConfig
    </serviceId>
    <SCPDURL>URL to service description</SCPDURL>
    <controlURL>URL for control</controlURL>
    <eventSubURL>URL for eventing</eventSubURL>
  </service>
<service>
  <serviceType>
    urn:schemas-upnp-org:service:DeviceProtection:1
  </serviceType>
  <serviceId>
    urn:upnp-org:serviceId:DeviceProtection1
  </serviceId>
  <SCPDURL>URL to service description</SCPDURL>
  <controlURL>URL for control</controlURL>
  <eventSubURL>URL for eventing</eventSubURL>
</service>

<!-- Declarations for standard non-Telephony services defined by
UPnP (if any)go here. -->

<!-- Declarations for other services defined by UPnP vendor
(if any)go here. -->

</serviceList>

<!-- Declarations for standard non-Telephony devices defined by UPnP
(if any)go here. -->

<!-- Declarations for other devices defined by UPnP vendor
(if any)go here. -->

</deviceList>
<presentationURL>URL for presentation</presentationURL>
</device>
</root>

```

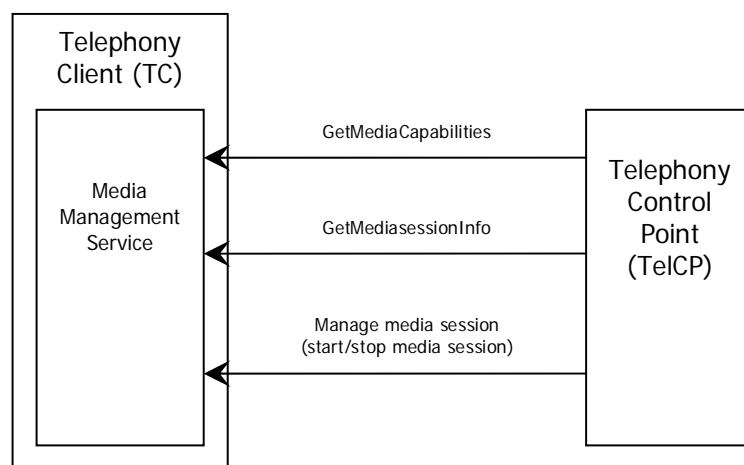
## 7 Test

No semantic tests have been specified for this device.

## Annex A (informative)

### Theory of Operation

The basic telephony feature a Telephony Client Device provides is the Media Management Service. The Media Management Service provides the feature to set-up media session on a Telephony Client (TC), under the control of a Telephony Control Point (TelCP). The architectural model shown in the diagram below at a very high level explains how media session parameters are gathered/negotiated by a Telephony Control Point (TelCP) to establish a media session between a Telephony Server (TS) and a Telephony Client (TC).



**Figure A.1 — Interaction Between a Telephony Client and Telephony Control Point**

A Telephony Client Device may can include messaging and presence services as well. However, features of such services are purely optional. Please see [3], clause 6, for more details of the Telephony Client (TC) architecture.



**Annex B**  
(informative)

**Bibliography**

The following documents, in whole or in part, may be useful for understanding this document but they are not essential for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[3] – *TelephonyArchitecture:2*, UPnP Forum, December 10, 2012. Available at: <http://www.upnp.org/specs/phone/UPnP-phone-TelephonyArchitecture-v2-20121210.pdf>. Latest version available at: <http://www.upnp.org/specs/phone/UPnP-phone-TelephonyArchitecture.pdf>.

