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## **TelephonyClient:1 Device**

**For UPnP Version 1.0**

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## 1 Overview and Scope

This device definition is compliant with the UPnP Device Architecture version 1.0. It defines a device type referred to herein as *TelephonyClient* device.

### 1.1 Introduction

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

### 1.2 Notation

- In this document, features are described as Required, Recommended, or Optional as follows:

The key words “MUST,” “MUST NOT,” “REQUIRED,” “SHALL,” “SHALL NOT,” “SHOULD,” “SHOULD NOT,” “RECOMMENDED,” “MAY,” and “OPTIONAL” in this specification are to be interpreted as described in *TelephonyClient:1*.

In addition, the following keywords are used in this specification:

**PROHIBITED** – The definition or behavior is an absolute prohibition of this specification. Opposite of **REQUIRED**.

**CONDITIONALLY REQUIRED** – The definition or behavior depends on a condition. If the specified condition is met, then the definition or behavior is **REQUIRED**, otherwise it is **PROHIBITED**.

**CONDITIONALLY OPTIONAL** – The definition or behavior depends on a condition. If the specified condition is met, then the definition or behavior is **OPTIONAL**, otherwise it is **PROHIBITED**.

These keywords are thus capitalized when used to unambiguously specify requirements over protocol and application features and behavior that affect the interoperability and security of implementations. When these words are not capitalized, they are meant in their natural-language sense.

- 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.
- A double colon delimiter, “::”, signifies a hierarchical parent-child (parent::child) relationship between the two objects separated by the double colon. This delimiter is used in multiple contexts, for example: Service::Action(), Action()::Argument, parentProperty::childProperty.

## 1.3 Vendor-defined Extensions

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

## 1.4 References

### 1.4.1 Normative References

This section lists the normative references used in this specification and includes the tag inside square brackets that is used for each such reference:

[DEVICE] – UPnP Device Architecture, version 1.0.

Available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0-20080424.pdf>.

Latest version available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0.pdf>.

[RFC 2119] – S. Bradner, RFC 2119: Key words for use in RFCs to Indicate Requirement Levels, 1997.

Available at: <http://www.faqs.org/rfcs/rfc2119.html>.

[XML] – “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/>.

### 1.4.2 Informative References

This section lists the informative references that are provided as information in helping understand this specification:

[PHONEARCH] – TelephonyArchitecture:1, UPnP Forum, March 22, 2011.

Available at: <http://www.upnp.org/specs/phone/UPnP-phone-TelephonyArchitecture-v1-20110322.pdf>.

Latest version available at: <http://www.upnp.org/specs/phone/UPnP-phone-TelephonyArchitecture-v1.pdf>.

## 2 Device Definitions

### 2.1 Device Type

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

**urn:schemas-upnp-org:device:TelephonyClient:1**

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

### 2.2 Terms and Abbreviations

#### 2.2.1 Abbreviations

**Table 2-1: Abbreviations**

Definition	Description
TS	Telephony Server
TC	Telephony Client
TelCP	Telephony Control Point
IS	Input Service
ICP	Input Control Point

#### 2.2.2 Terms

##### 2.2.2.1 Telephony Server

The term Telephony Server (TS) refers to 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.

##### 2.2.2.2 Telephony Client

The term Telephony Client (TC) to 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.

##### 2.2.2.3 Telephony Control Point

The term Telephony Control Point (TelCP) refers to 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.

##### 2.2.2.4 InputConfig Service

The Term Input Service (IS) refers to 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.

### 2.2.2.5 InputConfig Control point

The Term Input Control Point (ICP) refers to 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 dvicees to be used for input, matching capabilities and selecting the appropriate dvice role such as receiving side or sending side etc.

## 2.3 [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..

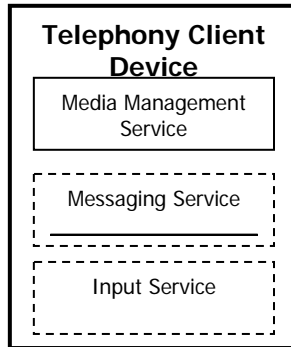


Figure 2-1: TelephonyClient Device Architecture.

## 2.4 Device Model

[TelephonyClient](#) products MUST 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 2-2: Device Requirements

DeviceType	Root	R/O <sup>1</sup>	ServiceType	R/O <sup>2</sup>	Service ID <sup>3</sup>
<a href="#">TelephonyClient:1</a>	<a href="#">Root</a> or <a href="#">Embedded</a>	<a href="#">R</a>	<a href="#">MediaManagement:1</a>	<a href="#">R</a>	MediaManagement
			<a href="#">Messaging:1</a>	<a href="#">O</a>	Messaging
			<a href="#">InputConfig:1</a>	<a href="#">O</a>	InputConfig
			<a href="#">DeviceProtection:1</a>	<a href="#">O</a>	DeviceProtection1
			<i>Non-standard services embedded by a UPnP vendor go here.</i>	<a href="#">X</a>	<i>TBD</i>
<i>Standard devices embedded by a UPnP vendor go here.</i>	<a href="#">Embedded</a>	<a href="#">O</a>	<i>Services as defined by the corresponding standard UPnP Device Definition go here.</i>		



DeviceType	Root	R/O <sup>1</sup>	ServiceType	R/O <sup>2</sup>	Service ID <sup>3</sup>
<i>Non-standard devices embedded by a UPnP vendor go here.</i>	<i>Embedded</i>	<i>X</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>

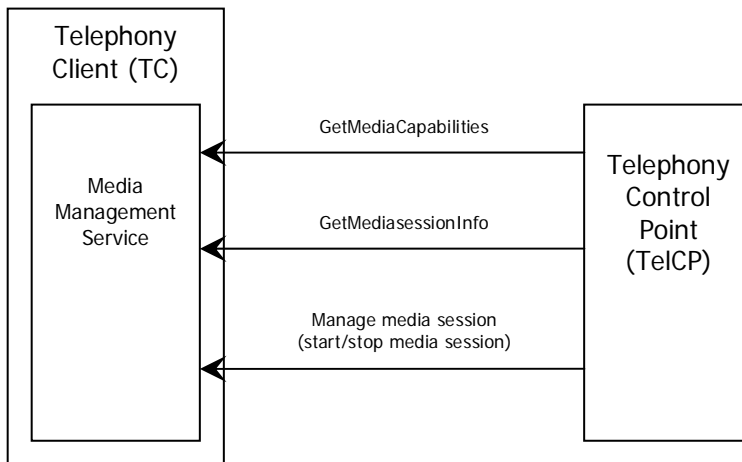
<sup>1</sup> **R** = REQUIRED, **O** = OPTIONAL, **X** = Non-standard.

<sup>2</sup> **R** = REQUIRED, **O** = OPTIONAL, **X** = Non-standard.

<sup>3</sup> Prefixed by urn:[upnp-org:serviceId](http://upnp-org.org/serviceId):

## 2.5 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 2: Interaction Between a Telephony Client and Telephony Control Point**

A Telephony Client Device may include messaging and presence service as well. However, features of such services are purely optional. Please see Section 2 of Telephony Architecture document for more details of the Telephony Client (TC) architecture.

### 3 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:1
    </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>
    <modelName>model number</modelName>
    <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:1
        </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:1
        </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>
    </serviceList>
  </device>
</root>

```

```

</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>

```

## **4 Test**

No semantic tests have been specified for this device.