
RAClient:1 Device

For UPnP™ Version 1.0

Status: Standardized DCP

Date: September 30, 2009

Document Version: 1.0

Device Template Version: 2.00

This Standardized DCP has been adopted as a Standardized DCP by the Steering Committee of the UPnP™ Forum, pursuant to Section 2.1(c)(ii) of the UPnP™ Forum Membership Agreement. UPnP™ Forum Members have rights and licenses defined by Section 3 of the UPnP™ Forum Membership Agreement to use and reproduce the Standardized DCP in UPnP™ Compliant Devices. All such use is subject to all of the provisions of the UPnP™ Forum Membership Agreement.

THE UPNP™ FORUM TAKES NO POSITION AS TO WHETHER ANY INTELLECTUAL PROPERTY RIGHTS EXIST IN THE STANDARDIZED DCPS. THE STANDARDIZED DCPS ARE PROVIDED "AS IS" AND "WITH ALL FAULTS". THE UPNP™ FORUM MAKES NO WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE STANDARDIZED DCPS, INCLUDING BUT NOT LIMITED TO ALL IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE, OF REASONABLE CARE OR WORKMANLIKE EFFORT, OR RESULTS OR OF LACK OF NEGLIGENCE.

Copyright © 2009 UPnP™ Forum. All rights Reserved.

Authors	Company
Bich Nguyen (Co-chair)	Cisco
Ayodele Damola	Ericsson
Bryan Roe	Intel
Gunner Danneels	Intel
Alexander Kokhanyuk	Motorola
Vlad Stirbu	Nokia
Cathy Chan	Nokia
Jeffrey Kang	Philips
Wouter van der Beek	Philips
Shrikant Kanaparti	Samsung
Se-Hee Han	Samsung
Mahfuzur Rahman (Co-chair)	Samsung

Authors	Company
Sanjeev Verma	Samsung

UPnP Forum in no way guarantees the accuracy or completeness of this author list and in no way implies any rights for or support from those members listed. This list is not the specifications' contributor list that is kept on the UPnP Forum's website.

Contents

Contents.....	3
List of Tables.....	4
List of Figures.....	5
1 Overview and Scope.....	6
1.1 Introduction.....	6
1.2 Notation.....	6
1.3 Vendor-defined Extensions.....	7
1.4 References.....	7
1.4.1 Normative References.....	7
1.4.2 Informative References.....	7
2 Device Definitions.....	8
2.1 Device Type.....	8
2.2 Terms and Abbreviations.....	8
2.2.1 Abbreviations.....	8
2.2.2 Terms.....	8
2.3 <i>RAClient</i> Device Architecture.....	9
2.4 Device Model.....	9
2.4.1 Description of Device Requirements.....	10
2.5 Theory of Operation.....	10
3 XML Device Description.....	11
4 Test.....	13

List of Tables

Table 2-1:	Abbreviations.....	8
Table 2-2:	Device Requirements.....	9

List of Figures

Figure 2-1: RAClient Device Architecture.....	9
---	---

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 *RAClient* device.

1.1 Introduction

The *RAClient* device is a UPnP device that allows control points to configure Remote Access Clients. This device provides control points with the following functionality:

- Enumerate the Remote Access Transport mechanisms supported by the Remote Access Client (RAC).
- Enumerate the Credentials Delivery mechanisms supported by the RAC.
- Configure active Remote Access Transport profiles.

This device does not address:

- Configure filters for allowing which local devices are visible in remote networks
- Configure filters for allowing which remote devices are visible in the local network
- Control level and content level Access Control for local devices which are exposed to remote networks

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 [RFC 2119].

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>.

[RATAConfig] – RATAConfig:1, UPnP Forum,

Available at: <http://www.upnp.org/specs/ra/UPnP-ra-RATAConfig-v1-Service-20090930.pdf>.

Latest version available at: <http://www.upnp.org/specs/ra/UPnP-ra-RATAConfig-v1-Service.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:

[RAARCH] – RAArchitecture:1, UPnP Forum,

Available at: <http://www.upnp.org/specs/ra/UPnP-ra-RAArchitecture-v1-20090930.pdf>.

Latest version available at: <http://www.upnp.org/specs/ra/UPnP-ra-RAArchitecture-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:RAClient:1

RAClient 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
RA	Remote Access
RAC	Remote Access Client
RADA	Remote Access Discovery Agent
RAS	Remote Access Server
RATA	Remote Access Transport Agent

2.2.2 Terms

2.2.2.1 Management Console

The collection of Control Points used to configure and monitor Remote Access related services.

2.2.2.2 Remote Access Client

The Remote Access Client (RAC) is the peer physical device that is not part of the physical home network. The RAC is exposing only the UPnP devices and services that are embedded in the physical device.

2.2.2.3 Remote Access Network Interface

The RA network interface is the network interface that is created by the Remote Access Transport Agent. The settings for this interface are contained in a RATA profile.

2.2.2.4 Remote Access Server

The Remote Access Server (RAS) is the peer physical device located in the home network. RAS is exposing to the RAC the UPnP devices and services available in the physical home network as well as any embedded in the physical RAS device.

2.2.2.5 Remote Access Transport profile

A RATA profile is a configured RATA connection ready to be used by either accepting connections on the RAS side or to initiate connections on the RAC side.

2.2.2.6 Remote device

A remote device is a UPnP device that is not attached to the physical network where the RADA is located.

2.3 RAClient Device Architecture

This device is hosted by the Remote Access Client and is active on the LAN network interface. The device embeds the RATAConfig service that is used to configure the RA Transport Agent associated with the RA network interface.

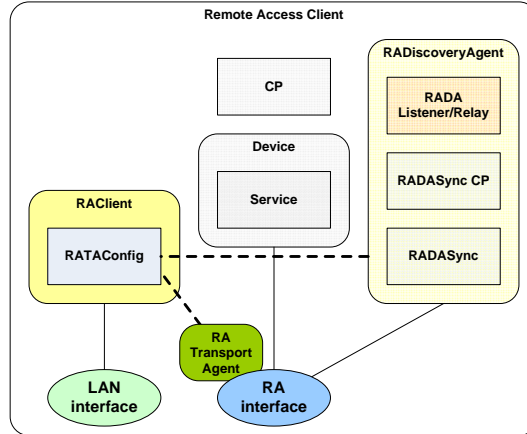


Figure 2-1: RAClient Device Architecture.

2.4 Device Model

RAClient products MUST implement minimum version numbers of all REQUIRED embedded devices and services specified in the table below. A RAClient device can be either a Root device or can be Embedded in another UPnP device (RAClient or other). A RAClient 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 ¹	ServiceType	R/O ²	Service ID ³
<u>RAClient:1</u>	<u>Root</u> or <u>Embedded</u>	<u>R</u>	<u>RATAConfig:1</u>	<u>R</u>	RATAConfig
			<u>Standard non-RA services defined by UPnP (QoS, Security, etc.) go here.</u>	<u>X</u>	<u>TBD</u>
			<u>Non-standard services embedded by a UPnP vendor go here.</u>	<u>X</u>	<u>TBD</u>
<u>Standard devices embedded by a UPnP vendor go here.</u>	<u>Embedded</u>	<u>O</u>	<u>Services as defined by the corresponding standard UPnP Device Definition go here.</u>		
<u>Non-standard devices embedded by a UPnP vendor go here.</u>	<u>Embedded</u>	<u>X</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>

¹ **R** = REQUIRED, **O** = OPTIONAL, **X** = Non-standard.

² **R** = REQUIRED, **O** = OPTIONAL, **X** = Non-standard.

³ Prefixed by urn:[upnp-org:serviceId](#):

2.4.1 Description of Device Requirements

The interfaces exposed by the *RAClient* device SHOULD be available only to authorized RA Management Consoles.

2.5 Theory of Operation

Refer to the Section 4.3 and Section 4.4 of the Remote Access Architecture document.

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:RAClient: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:RATAConfig:1
        </serviceType>
        <serviceId>
          urn:upnp-org:serviceId:RATAConfig
        </serviceId>
        <SCPDURL>URL to service description</SCPDURL>
        <controlURL>URL for control</controlURL>
        <eventSubURL>URL for eventing</eventSubURL>
      </service>

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

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

    </serviceList>
  </deviceList>

```

```
<!-- Declarations for standard non-RA 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.