AllJoyn™ Smart Home Service Framework 1.0 Interface Specification

December 5, 2014

Contents

[1.1 Purpose 4](#_Toc395865241)

[1.2 Scope 4](#_Toc395865242)

[1.3 Release history 4](#_Toc395865243)

[1.4 References 4](#_Toc395865244)

[2.1 Overview 5](#_Toc395865245)

[2.2 Appliance Registration 5](#_Toc395865246)

[2.3 Appliance Registration call flows 5](#_Toc395865247)

[2.4 Appliance Management 6](#_Toc395865248)

[2.5 Appliance Management call flows 6](#_Toc395865249)

[2.6 Error handling 7](#_Toc395865250)

[2.7 Centralized Management 7](#_Toc395865251)

[2.7.1 Interface name 7](#_Toc395865252)

[2.7.2 Properties 7](#_Toc395865253)

[2.7.3 Methods 8](#_Toc395865254)

[2.7.4 Signals 10](#_Toc395865255)

[2.7.5 AllJoyn Introspection XML 10](#_Toc395865256)

Figures

[Figure 1. Smart Home service framework architecture within the AllJoyn framework 5](#_Toc395865257)

[Figure 2. Appliance registration call flow 6](#_Toc395865258)

[Figure 3. Appliance management call flow 7](#_Toc395865259)

Tables

[Table 1. Smart Home service interface errors 7](#_Toc395865260)

# Introduction

## Purpose

This document describes the specification of the AllJoyn™ Smart Home Service 1.0 interface. This interface is required by an application to provide a centralized management mechanism to manage the home appliances, i.e. smart home clients, in the user’s home network connected to a proximal smart home server.

## Scope

This document is targeted to the developers for AllJoyn applications.

## Release history

|  |  |
| --- | --- |
| Release version | What changed |
| 14.06 | Centralized Management interface version 1 was added. |

## References

Except for RFCs, the following are reference documents found on the AllSeen Alliance

web site's Docs/Downloads section.

* *AllJoyn™ Framework Tutorial*
* *AllJoyn™ Data Type Signature*

*(https://www.allseenalliance.org/docs/api/java/org/alljoyn/bus/annotation/Signature.html)*

# Specification

## Overview

The Smart Home service framework provides the interface between AllJoyn smart home server and AllJoyn smart home client. The smart home server provides the centralized management service for smart home applications. Home appliances can be managed centrally at the smart home server. illustrates the relationship between the smart home server device and the smart home client device.



Figure 1. Smart Home service framework architecture

## Appliance Registration

A smart home client can join the centralize management system by registering with the smart home server. Once the smart home client successfully attaches to the smart home server, the smart home server can enable the centralized management service for the smart home client, i.e., the smart home client can be controlled through the smart home server.

## Appliance Registration call flows

[Figure 2](#OLE_LINK2) illustrates the call flow for a smart home client to register with the smart home server.

(well known name, device Id, unique name,)

Establish session with Smart Home Server

Appliance registration

Add to appliance list

Smart Home Client

Appliance APP

Response

Smarthome Service

Smart Home Server

Figure 2. Appliance registration call flow

## Appliance Management

The smart home server provides the mechanism for the smart home application to control the appliances registered on the smart home server.

## Appliance Management call flows

[Figure 3](#OLE_LINK3) illustrates the call flow for a controller client to control a home appliance through the centralized management service enabled by the smart home server.

(device id, method name, output parameters)

Get device id, object path, method name, and arguments of the Appliance

Establish session with Smart Home Server

Invoke Appliance method

Invoke Execute method

Response

Response containing output parameters

Send ReturnValue signal to user

Smart Home Client

Control APP

Smart Home Service

SmartHome server

Smart Home Client

Appliance APP

Figure 3. Appliance management call flow

## Error handling

The method calls in the SmartHomeService interface will use the AllJoyn error message handling feature (ER\_BUS\_REPLY\_IS\_ERROR\_MESSAGE) to set the error name and error message. Table 1 lists the possible errors raised by the SmartHomeService interface.

Table 1. Smart Home service interface errors

| Error name | Error message |
| --- | --- |
| org.alljoyn.Error.LanguageNotSupported | Language not supported |

## Centralized Management

### Interface name

|  |  |  |  |
| --- | --- | --- | --- |
| **Interface Name** | **Version** | **Secured** | **Object path** |
| org.alljoyn.SmartHome.CentralizedManagement | 1 | yes | /org/alljoyn/SmartHome/CentralizedManagement |

### Properties

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property Name** | **Signature** | **List of values** | **Writable** | **Description** |
| Version | q | yes | no | Interface version  number |

### Methods

The following methods are exposed by a BusObject that implements the org.alljoyn SmartHome.CentralizedManagement interface.

#### ApplianceRegistration

Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters name** | **Signature** | **List of values** | **Description** |
| wellKnownName | s |  | Well-known name provided by the appliance |
| uniqueName | s |  | Unique name of the appliance |
| deviceId | s |  | The identification of the appliance. |

Output

None

Description

Join the centralized management system by registering with the smart home server.

#### ApplianceUnRegistration

Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters name** | **Signature** | **List of values** | **Description** |
| deviceId | s |  | The identification of the appliance. |

Output

None

Description

Leave the centralized management system by unregistering with the smart home server.

#### DeviceHeartBeat

Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters name** | **Signature** | **List of values** | **Description** |
| deviceId | s |  | The identification of the appliance. |
| validateCode | s |  | The smart home server validates the registered appliance using the validateCode provided by the appliance. |

Output

None

Description

Provide the heartbeat mechanism to verify whether the appliance stays in the centralized management system or not.

#### Execute

Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters name** | **Signature** | **List of values** | **Description** |
| isReturn | b |  | Whether the called method has values to return. |
| deviceId | s |  | The identification of the appliance. |
| objectPath | o |  | Bus object path of the interface provided by the appliance |
| interfaceName | s |  | Name of the called interface |
| methodName | s |  | Name of the called method. |
| arguments | v |  | The input parameters of the called method. |

Output

None

Description

Provide the mechanism to call the methods provided by the appliance through smart home server.

### Signals

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Signal name** | **Parameters** | | **Sessionless** | **Description** |
| ReturnValue | **Name** | **Signature** | No | This signal is used to return the status of the method call and the data / value generated from the method call.   * methodName -- Name of the called method. * ReturnStatus – The status of the method call. * value -- The data / value generated from the method call. |
| methodName | s |
| ReturnStatus | s |
| value | v |

### AllJoyn Introspection XML

The following XML defines the org.alljoyn.SmartHome.CentralizedManagement interface.

<node name="/SmartHomeService"

[xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"](http://www.w3.org/2001/XMLSchema-instance)

[xsi:noNamespaceSchemaLocation="http://www.allseenalliance.org/schemas/introspec](http://www.alljoyn.org/schemas/introspec) t.xsd">

<interface name="org.alljoyn.SmartHome.CentralizedManagement">

<property name="Version" type="q" access="read"/>

<method name="ApplicationRegistration">

<arg name="wellKnownName " type="s" direction="in"/>

<arg name="uniqueName" type="s" direction="in"/>

<arg name="deviceId" type="s" direction="in"/>

</method>

<method name="ApplianceUnRegistration">

<arg name="deviceId" type="s" direction="in"/>

</method>

<method name="DeviceHeartBeat">

<arg name="deviceId" type="s" direction="in"/>

<arg name="validateCode" type="s" direction="in"/>

</method>

<method name="Execute">

<arg name="isReturn" type="b" direction="in"/>

<arg name="deviceId" type="s" direction="in"/>

<arg name="objectPath" type="o" direction="in"/>

<arg name="interfaceName" type="s" direction="in"/>

<arg name="methodName" type="s" direction="in"/>

<arg name="arguments" type="v" direction="in"/>

</method>

<signal name="ReturnValue">

<arg name="methodName" type="s"/>

<arg name="ReturnStatus" type="s"/>

<arg name="value" type="v"/>

</signal>

</interface>

</node>