



# ***AllJoyn Smart Home Service Framework***

## ***High Level Interface Design***

***July 3, 2014***

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# 1 Introduction

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## 1.1 Purpose

This document provides a high level introduction to the interfaces design of AllJoyn Smart Home Service framework.

## 1.2 Scope

This document describes the related interfaces and API of the AllJoyn Smart Home Service framework.

## 1.3 References

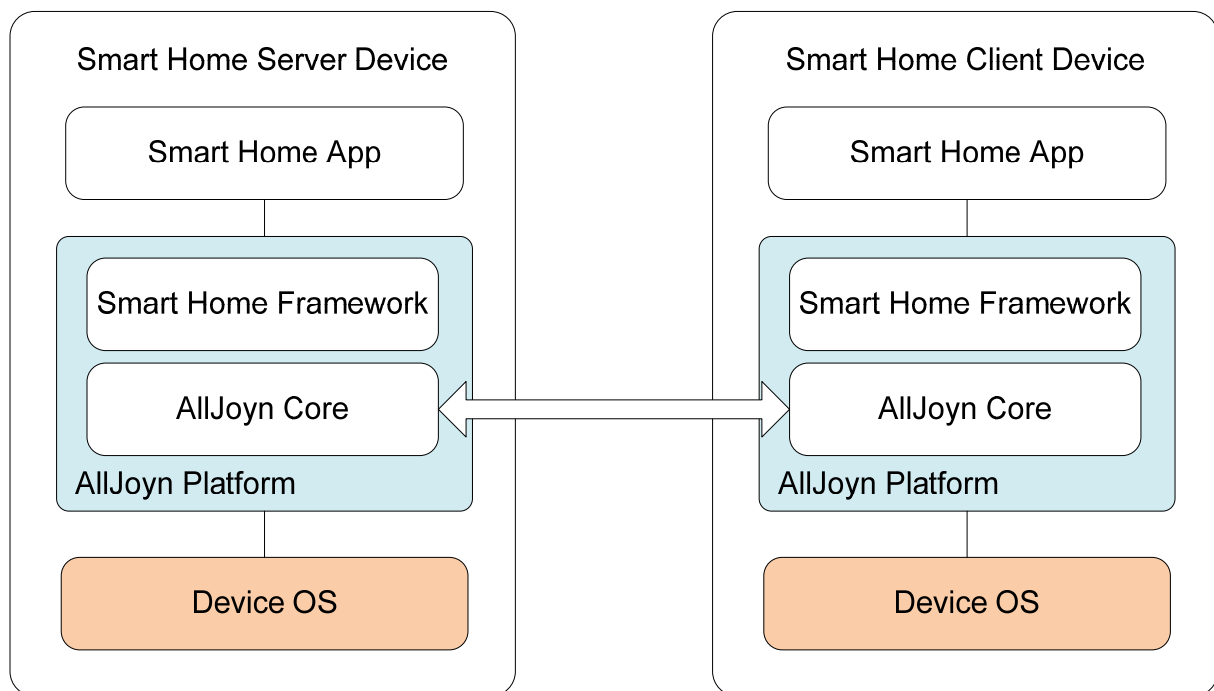
- AllJoyn™ About Feature 1.0 Interface Specification

## 2 Interface Design

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### 2.1 Overview

The Smart Home service framework provides the interface between AllJoyn smart home server and AllJoyn smart home client. Home appliances can be managed centrally at the smart home server. Figure 1 illustrates the relationship between the smart home server device and the smart home client device.



**Figure 1: Smart Home service framework architecture within the AllJoyn framework**

### 2.2 Interface design

To achieve the set of smart home service requirements, the interfaces of appliances centralized management interfaces, centralized security interfaces, group control interfaces, and data & logging needs to be designed and developed.

#### 2.2.1 Centralized management

The centralized management interface provides the capability to manage home appliances in a centralized management manner through smart home server. The appliances register on the smart home server and make the appliances services available for appliances service discovery and service invoke.

### 2.2.1.1 Interface name

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

### 2.2.1.2 Properties

Property name	Signature	List of values	Writable	Description
Version	q	Positive integers	no	Interface version number

### 2.2.1.3 Methods

#### 2.2.1.3.1 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.
objectDescription	a(oa(ssss))		Array of object paths and the list of name, inputSig, outSig and argNames provided by each object. <ul style="list-style-type: none"><li>■ name -- Name of the called method.</li><li>■ inputSig -- Signature of input parameters or NULL for none.</li><li>■ outSig -- Signature of output parameters or NULL for none.</li><li>■ argNames -- Comma separated list of input and then output arg names.</li></ul>

##### Output

None.

##### Description

Register the supported interfaces provided by the appliance on the smart home server.

## 2.2.1.3.2 Execute

**Inputs**

Parameters name	Signature	List of values	Description
isReturn	b	<ul style="list-style-type: none"> <li>■ 0-has return value</li> <li>■ 1-no return value</li> </ul>	<p>The parameter is set to describe whether the called method has values to return.</p> <ul style="list-style-type: none"> <li>■ When it is equal to 0, the called method has return value.</li> <li>■ When it is equal to 1, the called method doesn't have return value.</li> </ul>
deviceId	s		The identification of the appliance.
objectPath	o		Bus object path of the interface provided by the appliance
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.

## 2.2.1.4 Signals

Signal name	Parameters		Sessionless	Description
ReturnValue	<b>Name</b>	<b>Signature</b>	No	<p>This signal is used to return the data / value that is delivered in the output of the appliance method call.</p> <ul style="list-style-type: none"> <li>■ deviceId -- The identification of the appliance.</li> <li>■ methodName -- Name of the called method.</li> <li>■ value -- The data / value that is delivered in the output.</li> </ul>
	deviceId	s		
	methodName	s		
	value	v		

## 2.2.2 Centralized security

The centralized security interface provides the capability to share appliances services under the protection of authority control through the smart home server. So that specific service of a home appliance can be accessed and used by allowed users.

### 2.2.2.1 Interface name

Interface Name	Version	Secure	Object path
org.alljoyn.SmartHome.CentralizedSecurity	1	yes	/SmartHome/CentralizedSecurity

### 2.2.2.2 Properties

Property name	Signature	List of values	Writable	Description
Version	q	Positive integers	no	Interface version number

### 2.2.2.3 Methods

#### 2.2.2.3.1 CreateSecurityGroup

##### Inputs

Parameters name	Signature	List of values	Description
groupName	s		The name of a security group.
deviceIdList	as		Array of the identifications of the appliance

##### Output

None.

##### Description

Create a group of appliances that have the same security rules for accessing control.

#### 2.2.2.3.2 GetSecurityGroup

##### Inputs

None.

##### Output

Return signature	Description
as	Return the array of the name of security groups

##### Description

Get complete set of security groups created on the smart home server.

## 2.2.2.3.3 SetSecurityRules

**Inputs**

Parameters name	Signature	List of values	Description
userId	s		The identification of the user.
groupName	s		The name of a security group.
allowed	b	<ul style="list-style-type: none"> <li>■ 0-allowed</li> <li>■ 1-not allowed</li> </ul>	<p>The parameter is set to describe whether the user is allowed to control the security group.</p> <ul style="list-style-type: none"> <li>■ When it is equal to 0, the user is allowed to control the security group.</li> <li>■ When it is equal to 1, the user is not allowed to control the security group.</li> </ul>

**Output**

None.

**Description**

This method is utilised to configure the allowed users who have the privilege to control the security group.

## 2.2.3 Group control

The group control interface provides the capability to control bunch of home appliances in a group manner.

## 2.2.3.1 Interface name

Interface Name	Version	Secured	Object path
org.alljoyn.SmartHome.GroupControl	1	yes	/SmartHome/GroupControl

## 2.2.3.2 Properties

Property name	Signature	List of values	Writable	Description
Version	q	Positive integers	no	Interface version number

## 2.2.3.3 Methods

## 2.2.3.3.1 AddGroup

**Inputs**



Parameters name	Signature	List of values	Description
groupName	s		The name of appliances group.
groupArgs	a(sosv)		Array of device ID, object paths, method name, and method arguments in a group.

**Output**

None.

**Description**

Create an appliances group containing a collection of appliances on the smart home server.

## 2.2.3.3.2 GetGroupList

**Inputs**

None.

**Output**

Return signature	Description
as	Return the array of the name of appliances group

**Description**

Get the complete set of appliances groups created on the smart home server.

## 2.2.3.3.3 ControlGroup

**Inputs**

Parameters name	Signature	List of values	Description
groupName	s		The name of appliances group.

**Output**

None.

**Description**

Control a group of appliances group identified by the groupName.

## 2.2.3.3.4 DeleteGroup

**Inputs**

Parameters name	Signature	List of values	Description
groupName	s		The name of appliances group.

**Output**

None.

**Description**

Delete an appliances group containing a collection of appliances created on the smart home server.

## 2.2.4 Data & logging

The data & logging interface provides the capability to aggregate available appliance data and log information.

### 2.2.4.1 Interface name

Interface Name	Version	Secured	Object path
org.alljoyn.SmartHome.DataLog	1	yes	/SmartHome/DataLog

### 2.2.4.2 Properties

Property name	Signature	List of values	Writable	Description
Version	q	Positive integers	no	Interface version number

### 2.2.4.3 Methods

#### 2.2.4.3.1 GetLogData

**Inputs**

Parameters name	Signature	List of values	Description
deviceId	s		The identification of the appliance.
filter	rssu		The conditions used for filtering the appliances log data, including duration of log (i.e., log start time and end time), or number of entries of the newest log.

**Output**

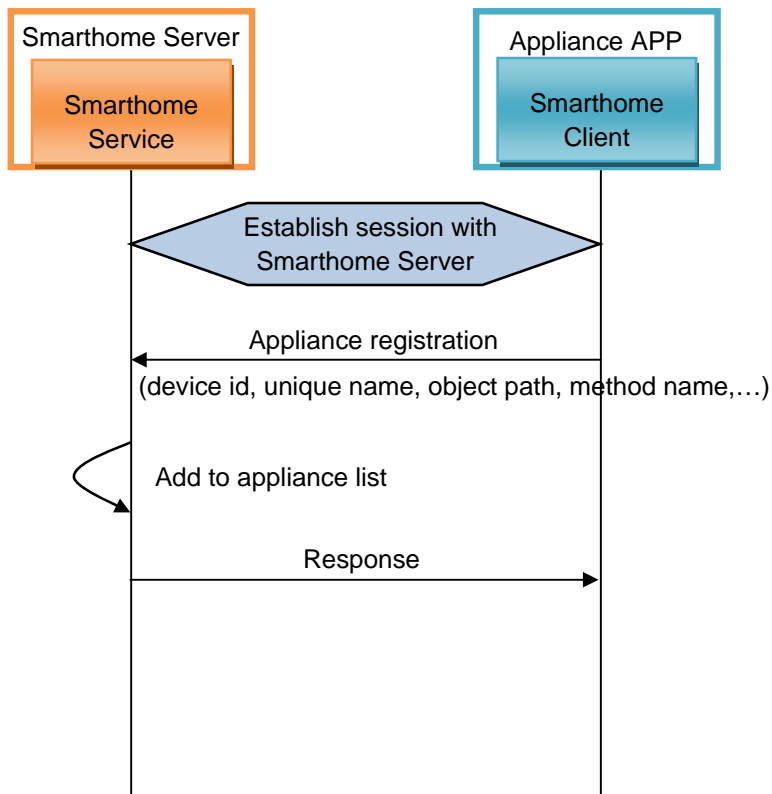
Return signature	Description
ay	Return the log data

**Description**

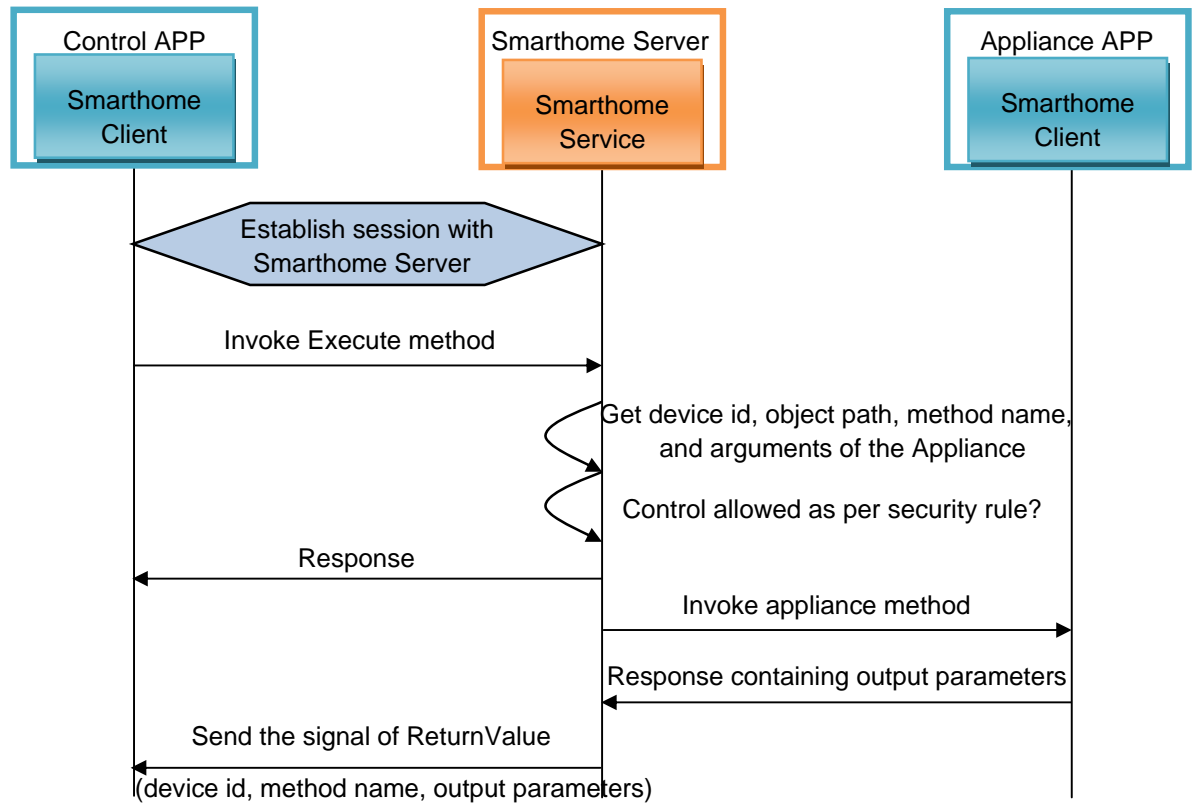
Get the log data of the appliances and the smart home server.

## 2.3 Call flows

### 2.3.1 Appliance Registration



## 2.3.2 Appliance Management



### 2.3.3 Set security rules

