AllJoyn™ Lighting Service Framework Lamp Service 14.12 Interface Specification

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Contents

1 Introduction

1.1 Purpose

This document describes the specification of the AllJoyn™ Lighting Service Framework Lamp Service interface. An application uses this interface to control a Lamp; turn on or off, change color, etc.

1.2 Scope

This document is targeted to the developers who build the lighting service framework or extend the provided lighting service framework.

1.3 Release History

Release Version	What changed
14.02	Interface version 1 was added

1.4 References

Except for supporting information, the following are reference documents found on the

AllSeen Alliance web site's Docs/Downloads section

- *AllJoyn™ About Feature 14.12 Interface Specification*
- *AllJoyn™ Framework Tutorial*
- *Introduction to AllJoyn™ Thin Client*
- *AllJoyn™ Data Type Signature*
- *(https://www.allseenalliance.org/docs/api/java/org/alljoyn/bus/annotation/Signature.html)*

1.5 Acronyms and terms

Term	Definition
AllJoyn device	A device that supports the AllJoyn framework and can connect to a personal network.
Lamp	An AllJoyn device that provides light and supports the Lamp Service Interface, by which it is controlled.
Controller	An AllJoyn device that controls one or more Lamps.

2 Specification Overview

The Lamp Service interface is implemented on a target device, more specifically a lamp. A typical lamp is an AllJoyn thin client device. The interface allows a controller device to control the lamp by turning it on or off, changing its color, etc.

3 Error Handling

The method calls in the Lamp service interface 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 Lamp service interface.

Table 1. Lamp Service interface errors

Error	Description
LAMP_OK	Success
LAMP_ERR_NULL	Unexpected NULL pointer
LAMP_ERR_UNEXPECTED	An operation was unexpected at this time
LAMP_ERR_INVALID	A value was invalid
LAMP_ERR_UNKNOWN	A unknown value
LAMP_ERR_FAILURE	A failure has occurred
LAMP_ERR_BUSY	An operation failed and should be retried later
LAMP_ERR_REJECTED	The connection was rejected
LAMP_ERR_RANGE	Value provided was out of range
LAMP_ERR_INVALID_FIELD	Invalid param/state field
LAMP_ERR_MESSAGE	An invalid message was received
LAMP_ERR_INVALID_ARGS	The arguments were invalid
LAMP_ERR_EMPTY_NAME	The name was empty
LAMP_ERR_RESOURCES	Out of memory

4 Lamp Service Interface

4.1 Interface name

Interface Name	Version	Secured	Object path
org.allseen.LSF.LampService	1	No	/org/allseen/LSF/Lamp

4.1.1 Properties

Property Name	Signature	List of Values	Writable	Description
Version	u	Positive integers	No	Interface version number
LampServiceVersion	u	Positive integers	No	Lamp Service version number
LampFaults	au	Array of positive integers	No	The lamp faults

4.1.2 Methods

The following method(s) provide control of the lamp service.

4.1.2.1 ClearLampFault

Inputs

Parameter Name	Signature	List of Values	Description
LampFaultCode	u	Positive integers	The fault to be cleared.

Outputs

Parameter Name	Signature	List of Values	Description
LampResponseCode	u	Positive integers	The result code of the operation.

LampFaultCode	u	Positive integers	The fault code that was cleared

Description

Tell the service to clear the specified fault.

4.1.3 Signals

None

4.2 Interface name

Interface Name	Version	Secured	Object path
org.allseen.LSF.LampParameters	1	No	/org/allseen/LSF/Lamp

4.2.1 Properties

Property Name	Signature	List of Values	Writable	Description
Version	u	Positive integers	No	Interface version number
Energy_Usage_Milliwatts	u	Positive integers	No	Lamp current energy usage in milliwatts
Brightness_Lumens	u	Positive integers	No	Lamp current brightness in lumens

4.2.2 Methods

None

4.2.3 Signals

None

4.3 Interface name

Interface Name	Version	Secured	Object path
org.allseen.LSF.LampDetails	1	No	/org/allseen/LSF/Lamp

4.3.1 Properties

Property Name	Signature	List of Values	Writable	Description
Version	u	Positive integers	No	Interface version number
Make	u	Positive integers	No	Lamp make
Model	u	Positive integers	No	Lamp model
Type	u	Positive integers	No	Type
LampType	u	Positive integers	No	Lamp type
LampBaseType	u	Positive integers	No	Lamp base type
LampBeamAngle	u	Positive integers	No	Lamp beam angle
Dimmable	b	True or False	No	Can lamp be dimmed
Color	b	True or False	No	Color
VariableColorTemp	b	True or False	No	Color temp
HasEffects	b	True or False	No	Has effects
MinVoltage	u	Positive integers	No	Minimum voltage
MaxVoltage	u	Positive integers	No	Maximum voltage

Wattage	u	Positive integers	No	Wattage
IncandescentEquivalent	u	Positive integers	No	Incandescent equivalent
MaxLumens	u	Positive integers	No	Maximum lumens
MinTemperature	u	Positive integers	No	Minimum temperature
MaxTemperature	u	Positive integers	No	Maximum temperature
ColorRenderingIndex	u	Positive integers	No	Color rendering index
LampID	s	String	No	Lamp ID

4.3.2 Methods

None

4.3.3 Signals

None

4.4 Interface name

Interface Name	Version	Secured	Object path
org.allseen.LSF.LampState	1	No	/org/allseen/LSF/Lamp

4.4.1 Properties

Property Name	Signature	List of Values	Writable	Description
Version	u	Positive integers	No	Interface version number
OnOff	b	True or False	Yes	On or off state of lamp
Hue	u	Positive integers	Yes	Hue of lamp

Saturation	u	Positive integers	Yes	Saturation of lamp
ColorTemp	u	Positive integers	Yes	Color temp of lamp
Brightness	u	Positive integers	Yes	Current brightness of lamp

4.4.2 Methods

The following method(s) provide control of the lamp state.

4.4.2.1 TransitionLampState

Inputs

Parameter Name	Signature	List of Values	Description
Timestamp	t	Positive integers	Timestamp (in ms) of when to start the transition
NewState	a{sv}	Array of variants	New state of the lamp to transition to
TransitionPeriod	u	Positive integers	Time period (in ms) to transition over to new state

Outputs

Parameter Name	Signature	List of Values	Description
LampResponseCode	u	Positive integers	The result code of the operation.

Description

Change the state of the lamp to the specified OnOff, Brightness, Hue, Saturation, and ColorTemp at the specified time.

4.4.2.2 ApplyPulseEffect

Inputs

Parameter Name	Signature	List of Values	Description
FromState	a{sv}	Array of variants	Current state of the lamp to transition from
ToState	a{sv}	Array of variants	New state of the lamp to transition to
period	u	Positive integers	Time period (in ms) to transition over to new state
duration	u	Positive integers	Time period (in ms) to remain in new state
numPulses	u	Positive integers	Number of pulses
timestamp	t	Positive integers	Timestamp (in ms) of when to start the pulses

Outputs

Parameter Name	Signature	List of Values	Description
LampResponseCode	u	Positive integers	The result code of the operation.

Description

Change the state of the lamp at the specified time, between the specified OnOff, Brightness, Hue, Saturation, and ColorTemp values. Pulse for the specified number of times, at the specified duration.

4.4.3 Signals

4.4.3.1 LampStateChanged

Parameter Name	Parameter Signature
LampID	s

Description

A way to notify a listener (e.g. lamp controller) that the lamp state has changed.

5 AllJoyn IntrospectionXML

The following XML defines the lamp service interfaces.

```
<node name="/org/allseen/LSF/Lamp" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="https://allseenalliance.org/schemas/introspect.xsd">
<interface name="org.freedesktop.DBus.Properties">
  <method name="Get">
    <arg type="s" direction="in"/>
    <arg type="s" direction="in"/>
    <arg type="v" direction="out"/>
  </method>
  <method name="Set">
    <arg type="s" direction="in"/>
    <arg type="s" direction="in"/>
    <arg type="v" direction="in"/>
  </method>
  <method name="GetAll">
    <arg type="s" direction="in"/>
    <arg type="a{sv}" direction="out"/>
  </method>
</interface>

<interface name="org.allseen.LSF.LampService">
  <property name="Version" type="u" access="read"/>
  <property name="LampServiceVersion" type="u" access="read"/>
  <method name="ClearLampFault">
    <arg name="LampFaultCode" type="u" direction="in"/>
    <arg name="LampResponseCode" type="u" direction="out"/>
    <arg name="LampFaultCode" type="u" direction="out"/>
  </method>
  <property name="LampFaults" type="au" access="read"/>
</interface>

<interface name="org.allseen.LSF.LampParameters">
  <property name="Version" type="u" access="read"/>
  <property name="Energy_Usage_Milliwatts" type="u" access="read"/>
  <property name="Brightness_Lumens" type="u" access="read"/>
</interface>

<interface name="org.allseen.LSF.LampDetails">
  <property name="Version" type="u" access="read"/>
  <property name="Make" type="u" access="read"/>
  <property name="Model" type="u" access="read"/>
  <property name="Type" type="u" access="read"/>
  <property name="LampType" type="u" access="read"/>
  <property name="LampBaseType" type="u" access="read"/>
  <property name="LampBeamAngle" type="u" access="read"/>
  <property name="Dimmable" type="b" access="read"/>
```

```
  <property name="Color" type="b" access="read"/>
  <property name="VariableColorTemp" type="b" access="read"/>
  <property name="HasEffects" type="b" access="read"/>
  <property name="MinVoltage" type="u" access="read"/>
  <property name="MaxVoltage" type="u" access="read"/>
  <property name="Wattage" type="u" access="read"/>
  <property name="IncandescentEquivalent" type="u" access="read"/>
  <property name="MaxLumens" type="u" access="read"/>
  <property name="MinTemperature" type="u" access="read"/>
  <property name="MaxTemperature" type="u" access="read"/>
  <property name="ColorRenderingIndex" type="u" access="read"/>
  <property name="LampID" type="s" access="read"/>
</interface>

<interface name="org.allseen.LSF.LampState">
  <property name="Version" type="u" access="read"/>
  <method name="TransitionLampState">
    <arg name="Timestamp" type="t" direction="in"/>
    <arg name="NewState" type="a{sv}" direction="in"/>
    <arg name="TransitionPeriod" type="u" direction="in"/>
    <arg name="LampResponseCode" type="u" direction="out"/>
  </method>
  <method name="ApplyPulseEffect">
    <arg name="FromState" type="a{sv}" direction="in"/>
    <arg name="ToState" type="a{sv}" direction="in"/>
    <arg name="period" type="u" direction="in"/>
    <arg name="duration" type="u" direction="in"/>
    <arg name="numPulses" type="u" direction="in"/>
    <arg name="timestamp" type="t" direction="in"/>
    <arg name="LampResponseCode" type="u" direction="out"/>
  </method>
  <signal name="LampStateChanged">
    <arg name="LampID" type="s"/>
  </signal>
  <property name="OnOff" type="b" access="readwrite"/>
  <property name="Hue" type="u" access="readwrite"/>
  <property name="Saturation" type="u" access="readwrite"/>
  <property name="ColorTemp" type="u" access="readwrite"/>
  <property name="Brightness" type="u" access="readwrite"/>
</interface>
</node>
```