Sensor:1 Service Template Version 1.01

For UPnP™ Version 1.0
Status: *Preliminary Design (TPD)*
Date: *July 17. 2007*

Authors	Company
Grzegorz Lehmann	DAI-Labor

Contents

List of Tables

1. Overview and Scope

This service definition is compliant with the UPnP Device Architecture version 1.0.

This service-type enables the following functions:

- reading a value of a sensor which might be a current sensor, temperature sensor, etc.

1.1. Change Log

[17 Jul 2007] Created v1.0

2. Service Modeling Definitions

2.1. ServiceType

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

urn:schemas-upnp-org:service: Sensor:1.

2.2. State Variables

Table 2-1: State Variables

Variable Name	Req. or Opt.[1]	Data Type	Allowed Value [2]	Default Value [2]	Eng. Units
Value	R	int		0	
Unit	R	string			
Non-standard state variables implemented by an UPnP vendor go here.	*X*	*TBD*	*TBD*	*TBD*	*TBD*

[1] R = Required, O = Optional, X = Non-standard.

[2] Values listed in this column are required. To specify standard optional values or to delegate assignment of values to the vendor, you must reference a specific instance of an appropriate table below.

2.2.1. Value

Denotes the current value of the sensor in units described with Unit.

2.2.2. Unit

Denotes the unit of the values the sensor delivers, for example Watt, °C or Volt. This state variable must remain constant.

2.3. Eventing and Moderation

Table 2-11: Event Moderation

Variable Name	Evented	Moderated Event	Max Event Rate[1]	Logical Combination	Min Delta per Event[2]
Value	YES	YES	0.5 seconds		
Unit	NO	NO			
Non-standard state variables implemented by an UPnP vendor go here.	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*

[1] Determined by N, where Rate = (Event)/(N secs).
[2] (N) * (allowedValueRange Step).

2.4. Actions

Immediately following this table is detailed information about these actions, including short descriptions of the actions, the effects of the actions on state variables, and error codes defined by the actions.

Table 2-11: Actions

Name	Req. or Opt. [1]
GetValue	R
GetUnit	R
Non-standard actions implemented by an UPnP vendor go here.	*X*

[1] R = Required, O = Optional, X = Non-standard.

2.4.1. GetValue

This action requests the Sensor Service instance to return the value of Value.

2.4.1.1. Arguments

Table 2-11: Arguments for GetValue

Argument	Direction	relatedStateVariable
Value	OUT	Value

2.4.1.2. Dependency on State

None.

2.4.1.3. Effect on State

None.

2.4.1.4. Errors

Table 2-11: Error Codes for GetValue

errorCode	errorDescription	Description
401	Invalid Action	See UPnP Device Architecture section on Control.
501	Action Failed	See UPnP Device Architecture section on Control.
600-699	TBD	See UPnP Device Architecture section on Control.

2.4.2. GetUnit

This action requests the Sensor Service instance to return the value of Unit.

2.4.2.1. Arguments

Table 2-11: Agruments for GetUnit

Argument	Direction	relatedStateVariable
Unit	OUT	Unit

2.4.2.2. Dependency on State

None.

2.4.2.3. Effect on State

None.

2.4.2.4. Errors

Table 2-11: Error Codes for *GetUnit*

errorCode	errorDescription	Description
401	Invalid Action	See UPnP Device Architecture section on Control.
501	Action Failed	See UPnP Device Architecture section on Control.
600-699	TBD	See UPnP Device Architecture section on Control.

2.4.3. Non-Standard Actions Implemented by a UPnP Vendor

To facilitate certification, non-standard actions implemented by UPnP vendors should be included in this service template. The UPnP Device Architecture lists naming requirements for non-standard actions (see the section on Description).

2.4.4. Relationships Between Actions

The GetUnit action delivers the Unit in which the Sensor service instance provides the sensor values delivered in the GetValue action.

2.4.5. Common Error Codes

The following table lists error codes common to actions for this service type. If an action results in multiple errors, the most specific error must be returned.

Table 2-11: Common Error Codes

errorCode	errorDescription	Description
401	Invalid Action	See UPnP Device Architecture section on Control.
501	Action Failed	See UPnP Device Architecture section on Control.
600-699	TBD	See UPnP Device Architecture section on Control.

2.5. Theory of Operation

Instances of Sensor Services are embedded into devices to provide a standard means of reading sensor values. The service provides an evented Value variable which holds the current value of the sensor.

3. XML Service Description

```
<?xml version="1.0"?>
<scpd xmlns="urn:schemas-upnp-org:service-1-0">
  <specVersion>
    <major>1</major>
    <minor>0</minor>
  </specVersion>
  <actionList>
    <action>
    <name>GetValue</name>
      <argumentList>
        <argument>
          <name>Value</name>
          <direction>out</direction>
          <retval />
          <relatedStateVariable>Value</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
    <name>GetUnit</name>
      <argumentList>
        <argument>
          <name>Unit</name>
          <direction>out</direction>
          <retval />
          <relatedStateVariable>Unit</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
  </actionList>
  <serviceStateTable>
    <stateVariable sendEvents="yes">
      <name>Value</name>
      <dataType>int</dataType>
      <defaultValue>0</defaultValue>
    </stateVariable>
    <stateVariable sendEvents="no">
      <name>Unit</name>
      <dataType>string</dataType>
      <defaultValue></defaultValue>
    </stateVariable>
  </serviceStateTable>
</scpd>
```

4. Test

No semantic tests have been specified for this service.