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INTERNATIONAL STANDARD

**Information technology – UPnP Device Architecture –
Part 6-13: Heating, Ventilation and Air Conditioning Device Control Protocol –
House Status Service**



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INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 6-13: Heating, Ventilation and Air Conditioning Device Control Protocol – House Status Service

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The list of all currently available parts of the ISO/IEC 29341 series, under the general title *Universal plug and play (UPnP) architecture*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

ORIGINAL UPnP DOCUMENTS (informative)

Reference may be made in this document to original UPnP documents. These references are retained in order to maintain consistency between the specifications as published by ISO/IEC and by UPnP Implementers Corporation. The following table indicates the original UPnP document titles and the corresponding part of ISO/IEC 29341:

| UPnP Document Title | ISO/IEC 29341 Part |
|---|---------------------|
| UPnP Device Architecture 1.0 | ISO/IEC 29341-1 |
| UPnP Basic:1 Device | ISO/IEC 29341-2 |
| UPnP AV Architecture:1 | ISO/IEC 29341-3-1 |
| UPnP MediaRenderer:1 Device | ISO/IEC 29341-3-2 |
| UPnP MediaServer:1 Device | ISO/IEC 29341-3-3 |
| UPnP AVTransport:1 Service | ISO/IEC 29341-3-10 |
| UPnP ConnectionManager:1 Service | ISO/IEC 29341-3-11 |
| UPnP ContentDirectory:1 Service | ISO/IEC 29341-3-12 |
| UPnP RenderingControl:1 Service | ISO/IEC 29341-3-13 |
| UPnP MediaRenderer:2 Device | ISO/IEC 29341-4-2 |
| UPnP MediaServer:2 Device | ISO/IEC 29341-4-3 |
| UPnP AV Datastructure Template:1 | ISO/IEC 29341-4-4 |
| UPnP AVTransport:2 Service | ISO/IEC 29341-4-10 |
| UPnP ConnectionManager:2 Service | ISO/IEC 29341-4-11 |
| UPnP ContentDirectory:2 Service | ISO/IEC 29341-4-12 |
| UPnP RenderingControl:2 Service | ISO/IEC 29341-4-13 |
| UPnP ScheduledRecording:1 | ISO/IEC 29341-4-14 |
| UPnP DigitalSecurityCamera:1 Device | ISO/IEC 29341-5-1 |
| UPnP DigitalSecurityCameraMotionImage:1 Service | ISO/IEC 29341-5-10 |
| UPnP DigitalSecurityCameraSettings:1 Service | ISO/IEC 29341-5-11 |
| UPnP DigitalSecurityCameraStillImage:1 Service | ISO/IEC 29341-5-12 |
| UPnP HVAC_System:1 Device | ISO/IEC 29341-6-1 |
| UPnP HVAC_ZoneThermostat:1 Device | ISO/IEC 29341-6-2 |
| UPnP ControlValve:1 Service | ISO/IEC 29341-6-10 |
| UPnP HVAC_FanOperatingMode:1 Service | ISO/IEC 29341-6-11 |
| UPnP FanSpeed:1 Service | ISO/IEC 29341-6-12 |
| UPnP HouseStatus:1 Service | ISO/IEC 29341-6-13 |
| UPnP HVAC_SetpointSchedule:1 Service | ISO/IEC 29341-6-14 |
| UPnP TemperatureSensor:1 Service | ISO/IEC 29341-6-15 |
| UPnP TemperatureSetpoint:1 Service | ISO/IEC 29341-6-16 |
| UPnP HVAC_UserOperatingMode:1 Service | ISO/IEC 29341-6-17 |
| UPnP BinaryLight:1 Device | ISO/IEC 29341-7-1 |
| UPnP DimmableLight:1 Device | ISO/IEC 29341-7-2 |
| UPnP Dimming:1 Service | ISO/IEC 29341-7-10 |
| UPnP SwitchPower:1 Service | ISO/IEC 29341-7-11 |
| UPnP InternetGatewayDevice:1 Device | ISO/IEC 29341-8-1 |
| UPnP LANDevice:1 Device | ISO/IEC 29341-8-2 |
| UPnP WANDevice:1 Device | ISO/IEC 29341-8-3 |
| UPnP WANConnectionDevice:1 Device | ISO/IEC 29341-8-4 |
| UPnP WLANAccessPointDevice:1 Device | ISO/IEC 29341-8-5 |
| UPnP LANHostConfigManagement:1 Service | ISO/IEC 29341-8-10 |
| UPnP Layer3Forwarding:1 Service | ISO/IEC 29341-8-11 |
| UPnP LinkAuthentication:1 Service | ISO/IEC 29341-8-12 |
| UPnP RadiusClient:1 Service | ISO/IEC 29341-8-13 |
| UPnP WANCableLinkConfig:1 Service | ISO/IEC 29341-8-14 |
| UPnP WANCommonInterfaceConfig:1 Service | ISO/IEC 29341-8-15 |
| UPnP WANDSLLinkConfig:1 Service | ISO/IEC 29341-8-16 |
| UPnP WANEthernetLinkConfig:1 Service | ISO/IEC 29341-8-17 |
| UPnP WANIPConnection:1 Service | ISO/IEC 29341-8-18 |
| UPnP WANPOTSLinkConfig:1 Service | ISO/IEC 29341-8-19 |
| UPnP WANPPPConnection:1 Service | ISO/IEC 29341-8-20 |
| UPnP WLANConfiguration:1 Service | ISO/IEC 29341-8-21 |
| UPnP Printer:1 Device | ISO/IEC 29341-9-1 |
| UPnP Scanner:1.0 Device | ISO/IEC 29341-9-2 |
| UPnP ExternalActivity:1 Service | ISO/IEC 29341-9-10 |
| UPnP Feeder:1.0 Service | ISO/IEC 29341-9-11 |
| UPnP PrintBasic:1 Service | ISO/IEC 29341-9-12 |
| UPnP Scan:1 Service | ISO/IEC 29341-9-13 |
| UPnP QoS Architecture:1.0 | ISO/IEC 29341-10-1 |
| UPnP QoSDevice:1 Service | ISO/IEC 29341-10-10 |
| UPnP QoSManager:1 Service | ISO/IEC 29341-10-11 |
| UPnP QoSPolicyHolder:1 Service | ISO/IEC 29341-10-12 |
| UPnP QoS Architecture:2 | ISO/IEC 29341-11-1 |
| UPnP QOS v2 Schema Files | ISO/IEC 29341-11-2 |

| UPnP Document Title | ISO/IEC 29341 Part |
|------------------------------------|---------------------------|
| UPnP QosDevice:2 Service | ISO/IEC 29341-11-10 |
| UPnP QosManager:2 Service | ISO/IEC 29341-11-11 |
| UPnP QosPolicyHolder:2 Service | ISO/IEC 29341-11-12 |
| UPnP RemoteUIClientDevice:1 Device | ISO/IEC 29341-12-1 |
| UPnP RemoteUIServerDevice:1 Device | ISO/IEC 29341-12-2 |
| UPnP RemoteUIClient:1 Service | ISO/IEC 29341-12-10 |
| UPnP RemoteUIServer:1 Service | ISO/IEC 29341-12-11 |
| UPnP DeviceSecurity:1 Service | ISO/IEC 29341-13-10 |
| UPnP SecurityConsole:1 Service | ISO/IEC 29341-13-11 |

1. Overview and Scope

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

This service-type provides an indication about house occupancy status and operational mode. It is commonly used as a mechanism for influencing the state of Devices and/or Control Points depending upon whether people are in the house. Typical applications are: e.g. switching on or off lights, air-conditioning etc.

Occupancy status can be derived i) directly from an occupant via a user interface, or ii) indirectly by algorithms such as a calendar program, or iii) indirectly by heuristics that determine the status from subsystem or device activity. That is to say: this service type would be implemented in two types of occupancy "detector" devices:

- A physical switch (e.g. a home/away push button on a device).
- A "virtual" switch that uses some kind of algorithm or heuristics to work out if the house is occupied (e.g. a calendar or a predictive algorithm).

In case a) the physical detection device would incorporate this occupancy service, but in case b) the MMI of the device that contains the algorithm would incorporate this occupancy service.

This service is a “source” of UPnP event messages. Control Points that are interested to be updated about the occupancy state of the house should subscribe to receive events from this service type. (However, Control Points are also permitted to “poll” the service from time to time in order to enquire about the current occupancy state).

This service template does not address:

- Presence detection for security alarm purposes.
- Actual number of persons in the building (or building part) e.g. for demand controlled ventilation in (say) a conference room.

2. Service Modeling Definitions

2.1. Service Type

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

urn:schemas-upnp-org:service:HouseStatus:1

2.2. State Variables

Table 1: State Variables

| Variable Name | Req. or Opt. ¹ | Data Type | Allowed Value ² | Default Value ² | Eng. Units |
|--|---------------------------|------------|-------------------------------------|----------------------------|------------|
| OccupancyState | R | string | Occupied, Unoccupied, Indeterminate | Occupied | none |
| ActivityLevel | O | string | See table 2 | See table 3 | none |
| DormancyLevel | O | string | See table 4 | See table 5 | none |
| <i>Non-standard state variables implemented by an UPnP vendor go here.</i> | <i>X</i> | <i>TBD</i> | <i>TBD</i> | <i>TBD</i> | <i>TBD</i> |

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. OccupancyState

This is a read only variable that represents the occupancy status of the house, whereby:

- **Occupied** = People in the house
- **Unoccupied** = No people in the house
- **Indeterminate** = The service is unable to determine if the house is occupied or not.

2.2.2. ActivityLevel

This is an optional read only variable that acts as a qualifier to provide an extra level of detail concerning the occupancy status of the house. It indicates the level of activity of the occupants. Whereby:

- **Regular** = Indicates that the house is in a neutral/normal state of occupancy. Note: ActivityLevel is optional, so in case of a service where ActivityLevel is NOT implemented, a Control Point should assume that the activity level is regular.
- **Asleep** = Means that although the house is occupied, the occupants are asleep – meaning that the degree of activity is lower than “Regular”. (example: this could be used to adjust the temperature or switch off lights).
- **HighActivity** = Means that the house is occupied with a degree of activity that is higher than “Regular” – e.g. for a party. (example: this could be used to increase the speed of a ventilation fan).

Table 2: AllowedValueList for ActivityLevel

| Value | Req. or Opt. |
|-----------------------|--------------|
| Regular | R |
| Asleep | R |
| HighActivity | R |
| <i>Vendor-defined</i> | O |

¹ R = Required, O = Optional

Table 3: DefaultValue for ActivityLevel

| Value | Req. or Opt. |
|---------|--------------|
| Regular | R |

¹ R = Required, O = Optional

2.2.3. DormancyLevel

This is an optional read only variable that acts as a qualifier to provide an extra level of detail concerning the un-occupied status of the house. It indicates the expected duration of the absence. Whereby:

- **Vacation** = Means that the duration of the unoccupied period is expected to be, (but not guaranteed to be), longer than 1 day.
- **Regular** = Indicates that the house is in a neutral/normal state of un-occupancy. Note: DormancyLevel is optional, so in case of a service where DormancyLevel is NOT implemented, a Control Point should assume that the level is regular.
- **PetsAtHome** = The house is not occupied by humans, but there may be pets moving around inside the house. (i.e. the security motion detectors inside the house should not be armed).

Table 4: AllowedValueList for DormancyLevel

| Value | Req. or Opt. |
|-----------------------|--------------|
| Vacation | R |
| Regular | R |
| PetsAtHome | R |
| <i>Vendor-defined</i> | O |

¹ R = Required, O = Optional

Table 5: DefaultValue for DormancyLevel

| Value | Req. or Opt. |
|---------|--------------|
| Regular | R |

¹ R = Required, O = Optional

2.2.4. Relationships Between State Variables

None.

2.3. Eventing and Moderation

For the HouseStatus service, an example event subscription would be as follows:

- a) A thermostat (say) implements the HouseStatus service in the physical form of a home / away button on the front.
- b) The Lights, Answering machine, Oven, Lawn Sprinkler (or whatever) do an M-SEARCH for an HouseStatus service, and when they find one, they subscribe to receive events from that service using SUBSCRIBE. (In principle, the thermostat could also use a subscription to its own HouseStatus service too, but in practice since it is in the same device, it would probably use an internal signal instead).
- c) When the homeowner presses the home / away button on the thermostat, the service publishes (sources) the corresponding OccupancyState change event NOTIFY message.
- d) The Lights, Answering machine, Oven, Lawn Sprinkler (or whatever) and thermostat all receive (sink) this notification and switch over into their "Occupied" respectively "Unoccupied" mode accordingly.

Table 6: Event Moderation

| Variable Name | Evented | Moderated Event? | Max Event Rate ¹ | Logical Combination | Min Delta per Event ² |
|--|------------|------------------|-----------------------------|---------------------|----------------------------------|
| OccupancyState | Yes | Yes | 30 | no | See note 3 |
| ActivityLevel | Yes | Yes | 30 | no | See note 3 |
| DormancyLevel | Yes | Yes | 30 | no | See note 3 |
| <i>Non-standard state variables implemented by an UPnP vendor go here.</i> | <i>TBD</i> | <i>TBD</i> | <i>TBD</i> | <i>TBD</i> | <i>TBD</i> |

¹ Determined by N, where Rate = (Event)/(N secs).

² (N) * (allowedValueRange Step).

Note 3: Never send events if the value of the state variable has not changed! This is important for avoiding race conditions. See section 2.6

2.3.1. Event Model

2.3.1.1. Delayed Response

Depending on the physical implementation of the containing device, a state change of HouseStatus may be triggered in a number of ways: e.g. “going out” button on the front of a security panel, “standby” button on a room thermostat etc. Especially, in the case of human operated buttons, etc. it is obvious that the person will still remain in the building for a certain period even AFTER the button has been set to Unoccupied mode. Therefore any Control Point that subscribes to HouseStatus events must make allowances for this.

Example: After receiving an OccupancyState=Unoccupied event, a lighting circuit should perhaps wait for a certain period of time before turning off the lights. However, in the case of receiving an OccupancyState=Occupied event, it should probably turn on the lights immediately.

2.4. Actions

Table 7: Actions

| Name | Req. or Opt. ¹ |
|--|---------------------------|
| GetOccupancyState | R |
| GetActivityLevel | O |
| GetDormancyLevel | O |
| SetOccupancyState | R |
| SetActivityLevel | O |
| SetDormancyLevel | O |
| <i>Non-standard actions implemented by an UPnP vendor go here.</i> | <i>X</i> |

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

2.4.1. GetOccupancyState

Reads the current value of OccupancyState

2.4.1.1. Arguments

Table 8: Arguments for GetOccupancyState

| Argument | Direction | relatedStateVariable |
|-----------------------|------------------|----------------------|
| CurrentOccupancyState | OUT ^R | OccupancyState |

^R = Return Value (RETVAL)

2.4.1.2. Effect on State

None.

2.4.1.3. Errors

| errorCode | errorDescription | Description |
|----------------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| <i>800-899</i> | <i>TBD</i> | <i>(Specified by UPnP vendor.)</i> |

2.4.2. GetActivityLevel

Reads the current value of ActivityLevel

2.4.2.1. Arguments

Table 9: Arguments for GetActivityLevel

| Argument | Direction | relatedStateVariable |
|----------------------|------------------|----------------------|
| CurrentActivityLevel | OUT ^R | ActivityLevel |

^R = Return Value (RETVAL)

2.4.2.2. Effect on State

None.

2.4.2.3. Errors

| errorCode | errorDescription | Description |
|-----------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.4.3. GetDormancyLevel

Reads the current value of DormancyLevel

2.4.3.1. Arguments

Table 10: Arguments for GetDormancyLevel

| Argument | Direction | relatedStateVariable |
|----------------------|------------------|----------------------|
| CurrentDormancyLevel | OUT ^R | DormancyLevel |

^R = Return Value (RETVAL)

2.4.3.2. Effect on State

None.

2.4.3.3. Errors

| errorCode | errorDescription | Description |
|-----------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.4.4. SetOccupancyState

Changes the value of OccupancyState.

2.4.4.1. Arguments

Table 11: Arguments for SetOccupancyState

| Argument | Direction | relatedStateVariable |
|-------------------|-----------|----------------------|
| NewOccupancyState | IN | OccupancyState |

^R = Return Value (RETVAL)

2.4.4.2. Effect on State

Changes the value of OccupancyState.

2.4.4.3. Errors

| errorCode | errorDescription | Description |
|-----------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.4.5. SetActivityLevel

Changes the value of ActivityLevel

2.4.5.1. Arguments

Table 12: Arguments for SetActivityLevel

| Argument | Direction | relatedStateVariable |
|------------------|-----------|----------------------|
| NewActivityLevel | IN | ActivityLevel |

^R = Return Value (RETVAL)

2.4.5.2. Effect on State

Changes the value of ActivityLevel

2.4.5.3. Errors

| errorCode | errorDescription | Description |
|-----------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.4.6. SetDormancyLevel

Changes the value of DormancyLevel.

2.4.6.1. Arguments

Table 13: Arguments for SetDormancyLevel

| Argument | Direction | relatedStateVariable |
|------------------|-----------|----------------------|
| NewDormancyLevel | IN | DormancyLevel |

^R = Return Value (RETVAL)

2.4.6.2. Effect on State

Changes the value of DormancyLevel.

2.4.6.3. Errors

| errorCode | errorDescription | Description |
|-----------|------------------|--|
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.4.7. 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).

2.4.8. 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 should be returned.

Table 14: Common Error Codes

| ErrorCode | errorDescription | Description |
|-----------|------------------|--|
| 401 | Invalid Action | See UPnP Device Architecture section on Control. |
| 402 | Invalid Args | See UPnP Device Architecture section on Control. |
| 404 | Invalid Var | See UPnP Device Architecture section on Control. |
| 501 | Action Failed | See UPnP Device Architecture section on Control. |
| 600-699 | TBD | Common action errors. Defined by UPnP Forum Technical Committee. |
| 701-799 | | Common action errors defined by the UPnP Forum working committees. |
| 800-899 | TBD | (Specified by UPnP vendor.) |

2.5. Theory of Operation

This service-type provides an indication about house occupancy status and operational mode. It is commonly used as a mechanism for influencing the state of Control Points depending upon whether people are in the house. For example, when the house is unoccupied, the environmental system may use a different heating or cooling goal, or the lighting system may turn unneeded lights off.

Typically such a Control Point may SUBSCRIBE to receive occupied / unoccupied events from the OccupancyState variable; whenever it receives the respective event notifications, it will adjust its state accordingly. Alternatively a Control Point may poll this service using the GetOccupancyState function.

It is the responsibility of each device vendor to select a behavior --a strategy-- that is appropriate for best supporting the user's desire for a given state reported by the HouseStatus service. This mechanism should provide a simple, coordinated way for users to operate their homes.

| Occupancy State | Activity Level | Dormancy Level | Remarks |
|-----------------|----------------|----------------|---|
| Occupied | Regular | | There are people in the house. There is a "normal" (i.e. regular) amount of occupant activity. |
| | Asleep | | There are people in the house. There is a below "normal" amount of occupant activity – e.g. the occupants are sleeping. |
| | HighActivity | | There are people in the house. There is an above "normal" amount of occupant activity – e.g. the occupants are partying. |
| Unoccupied | | Regular | There are no people in the house (i.e. the house is "dormant"). The level of dormancy is "normal" – e.g. the occupants are out at work, and they are expected to return in the evening. |
| | | Vacation | There are no people in the house. The level of dormancy is above "normal" – e.g. the occupants are away on vacation (say > 48 hours absence). |
| | | PetsAtHome | There are no people in the house. The level of dormancy is below "normal" – e.g. the occupants are out at work, but they left their pet animal(s) at home; the pet(s) may be moving about the home. |
| Indeterminate | | | The service is currently unable to ascertain the state of the house, |

2.6. Synchronization of Multiple Instances

It is conceivable that a home might contain more than one instance of the HouseStatus service (e.g. a home / away button on the thermostat, and another one on the security panel). This could lead to potentially confusing situations where one device might indicate an occupied status and another might indicate an unoccupied status. In order to resolve this issue, vendors MUST to do the following:

- i) Each device that implements the HouseStatus service, MUST also implement a Control Point.
- ii) On initialization, (and from time to time thereafter), this Control Point must search for all other instances of HouseStatus.

- iii) This Control Point must subscribe to receive event notifications from all such other instances of HouseStatus that it finds.
- iv) Whenever this Control Point receives an occupancy state change notification from another instance of the HouseStatus service, the service must update the value of its OccupancyState, ActivityLevel or DormancyLevel variables to the same value(s) as that received in the notification message.
- v) If (and only if) the value of its own OccupancyState, ActivityLevel or DormancyLevel variables change, the service shall in turn notify all other Control points that have subscribed to it. NB the HouseStatus service should NEVER send state change notifications if the value of its OccupancyState, ActivityLevel or DormancyLevel variables have not changed – since otherwise race conditions could develop with two or more instances of the HouseStatus service notifying each other in a circular fashion.

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>GetOccupancyState</name>
      <argumentList>
        <argument>
          <name>CurrentOccupancyState</name>
          <direction>out</direction>
          <retval />
          <relatedStateVariable>OccupancyState</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
    <action>
      <name>GetActivityLevel</name>
      <argumentList>
        <argument>
          <name>CurrentActivityLevel</name>
          <direction>out</direction>
          <retval />
          <relatedStateVariable>ActivityLevel</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
    <action>
      <name>GetDormancyLevel</name>
      <argumentList>
        <argument>
          <name>CurrentDormancyLevel</name>
          <direction>out</direction>
          <retval />
          <relatedStateVariable>DormancyLevel</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
    <action>
      <name>SetOccupancyState</name>
      <argumentList>
        <argument>
          <name>NewOccupancyState</name>
          <direction>in</direction>
          <relatedStateVariable>OccupancyState</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
    <action>
      <name>SetActivityLevel</name>
      <argumentList>
        <argument>
          <name>NewActivityLevel</name>
          <direction>in</direction>
          <relatedStateVariable>ActivityLevel</relatedStateVariable>
        </argument>
      </argumentList>
    </action>
  </actionList>
</scpd>

```

```

</action>
<action>
  <name>SetDormancyLevel</name>
  <argumentList>
    <argument>
      <name>NewDormancyLevel</name>
      <direction>in</direction>
      <relatedStateVariable>DormancyLevel</relatedStateVariable>
    </argument>
  </argumentList>
</action>
Declarations for other actions added by UPnP vendor (if any) go here
</actionList>
<serviceStateTable>
  <stateVariable sendEvents="yes">
    <name>OccupancyState</name>
    <dataType>string</dataType>
    <defaultValue>Occupied</defaultValue>
    <allowedValueList>
      <allowedValue>Occupied</allowedValue>
      <allowedValue>Unoccupied</allowedValue>
      <allowedValue>Indeterminate</allowedValue>
    </allowedValueList>
  </stateVariable>
  <stateVariable sendEvents="yes">
    <name>ActivityLevel</name>
    <dataType>string</dataType>
    <defaultValue>Regular</defaultValue>
    <allowedValueList>
      <allowedValue>Regular</allowedValue>
      <allowedValue>Asleep</allowedValue>
      <allowedValue>HighActivity</allowedValue>
    </allowedValueList>
  </stateVariable>
  <stateVariable sendEvents="yes">
    <name>DormancyLevel</name>
    <dataType>string</dataType>
    <defaultValue>Regular</defaultValue>
    <allowedValueList>
      <allowedValue>Regular</allowedValue>
      <allowedValue>Vacation</allowedValue>
      <allowedValue>PetsAtHome</allowedValue>
    </allowedValueList>
  </stateVariable>
Declarations for other state variables added by UPnP vendor (if any)
go here
</serviceStateTable>
</scpd>

```

4. Test

Testing of the UPnP functions Addressing, Discovery, Description, Control (Syntax) and Eventing are performed by the UPnP Test Tool v1.1 based on the following documents:

- UPnP Device Architecture v1.0
- The Service Definitions in chapter 2 of this document
- The XML Service Description in chapter 3 of this document
- The UPnP Test Tool service template test file: *HouseStatus1.xml*
- The UPnP Test Tool service template test file: *HouseStatus1.SyntaxTests.xml*

The test suite does not include tests for Control Semantics, since it is felt that such tests would not provide a higher level of interoperability.

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