



Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.5.1-update.2)* on 2023-12-12 20:45:00.380 +0800.

The Capability List is a consolidated list of TALQ features which are implemented in a product.

The tool has successfully performed 40 tests.

Product details

Product Name ConnectCity

Company Rongwen

Type GATEWAY

Notes

Generated on 2023-12-12 20:45:00.380 +0800

Supported profiles • Lighting

API version certified: 2.5.1

Certification performed by app version: 2.5.1-update.2

Capability list

Security

Enabled ✓

Functions

Basic

The Basic function describes the properties related to the physical asset to which the logical device is associated, such as identification (assetId) and location information.

Attributes

| # | Attribute | Description |
|---|---------------------|---|
| ✓ | displayName | Display name of the asset. |
| ✓ | serial | Serial number of the device. |
| ✓ | swType | Software type of device. This attribute may be useful if the same hardware supports multiple firmware versions with different functions. |
| ✓ | swVersion | Software version installed on the device. |
| ✓ | installationDate | The installation date of Physical Device. |
| ✓ | batteryMode | Device operating in battery mode. |
| ✓ | installationMode | Device is being installed. |
| ✓ | maintenanceMode | Device is undergoing maintenance, where maintenance may include hardware or software related maintenance actions. |
| ✓ | currentTime | Current time of the device defined as local time with time zone designator. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TimeFunction.currentTime instead.] |
| ✓ | commandConfirmation | Allows the CMS to reboot, factory reset or configuration reset of the device. Before rebooting or resetting the device this attribute has to be true. Default value = false |
| ✓ | reboot | Reboot the device. This operational attribute requires the commandConfirmation attribute value to be set to true. |
| ✓ | factoryReset | Reset the device to factory settings. This operational attribute requires the commandConfirmation attribute value to be set to true. |
| ✓ | operatingHours | Number of operating hours of the device. |

Events

| # | Event type | Description |
|---|------------------|---|
| ✓ | deviceReset | The physical device containing the logical device was reset |
| ✓ | softwareUpdating | Indicates software updating is in progress |
| ✓ | installationMode | Device is being installed |
| ✓ | maintenanceMode | Device is undergoing maintenance |

Communication

The Communication Function contains attributes related to the communication within the ODN, and between ODN devices and Gateways. Although communication within the ODN is outside the scope of the TALQ Smart City Protocol, this Function enables access to a minimum set of configuration and state information of the ODN communication interface in order to facilitate system management from the CMS.

Attributes

| # | Attribute | Description |
|---|----------------------|--|
| ✓ | communicationType | Type of communication technology implemented by the ODN (e.g. power line, wireless). |
| ✓ | logicalAddress | Logical address for communication within the ODN scope (IP address, Short Address, ...). |
| ✓ | altLogicalAddress | Additional logical address used for communication within the ODN, for instance, group communication address (not a TALQ group address). |
| ✓ | physicalAddress | Physical address of the device. For example, IEEE MAC address. This attribute can be used to map between logical and physical devices. The format is specific to the ODN implementation. |
| ✓ | communicationQuality | Indicator of the quality of the communication with the device. 100% means good quality. |
| ✓ | communicationFailure | This attribute is updated by the ODN when the communication function is not operating as expected. |
| ✓ | applicationType | Application Type of the communication function depending on the use case. E.g.: PL Communication Monitor |

Events

| # | Event type | Description |
|---|----------------------|---|
| ✓ | communicationFailure | This event is generated by the ODN when the communication function is not operating as expected |

Gateway

The Gateway function includes the necessary attributes to enable the communication between the CMS and the Gateway according to the TALQ Specification.

Attributes

| # | Attribute | Description |
|---|------------------|--|
| ✓ | cmsUri | Base URI for TALQ communication that allows the Gateway to access the CMS. Must be an absolute URI. Other URI's for accessing CMS can be relative to this base. |
| ✓ | cmsAddress | CMS UUID address |
| ✓ | gatewayUri | Base URI for TALQ communication that allows the CMS to access the Gateway. Must be an absolute URI. Other URI's for accessing Gateway can be relative to this base. |
| ✓ | gatewayAddress | Gateway UUID address |
| ✓ | retryPeriod | Time duration before the Gateway retransmits a message for which expected response has not been received. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new GatewayFunction.gatewayRetryPeriod instead.] |
| ✓ | crlUrn | URI where the Gateway can obtain the Certification Revocation List (CRL). |
| ✓ | vendor | Vendor identification. |
| ✓ | currentReleaseId | Release ID of currently deployed release. This is used in the data package service. |

Lamp Actuator

The Lamp Actuator function includes attributes related to lighting control and it represents the smallest unit for control purposes. In practice, however, a Lamp Actuator function can control combinations of several lamps and control gear but all in the same way, as if they are all one individual unit.

Attributes

| # | Attribute | Description |
|---|-------------------|--|
| ✓ | defaultLightState | Sets the default light output for the lamp actuator. This shall be applicable if no other command is active. This attribute shall be set to 100% as default value. |

| | |
|------------------------|---|
| ✓ targetLightCommand | Latest command for the lamp actuator. |
| ✓ feedbackLightCommand | This attribute reflects the command in effect and it might deviate from the actualLightState due to propagation time or due to internal ODN specific mechanisms to handle the priority of the requests. |
| ✓ actualLightState | This attribute should reflect the physical state of the light source as much as possible, including factors such as CLO. It may be calculated or measured, depending on the specific ODN implementation, which is outside the scope of this specification. |
| ✓ calendarID | TALQ Address of the calendar controlling this lamp actuator. If this attribute is empty, the behavior shall be determined by the ODN. If the attribute is invalid, the ODN shall trigger a generic invalid address event and the behavior shall be determined by the ODN. |
| ✓ calendarChange | The calendar applicable to the lamp actuator has changed. |
| ✓ applicationType | Application Type of the lamp actuator depending on the use case. E.g.: Lamp actuator, Cabinet actuator |

Events

| # | Event type | Description |
|---|------------------|--|
| ✓ | lightStateChange | Light state has changed |
| ✓ | calendarChange | The calendar applicable to the lamp actuator has changed |

Lamp Monitor

The Lamp Monitor function enables monitoring of lamp parameters. A Lamp Monitor function should be associated with a specific lamp/control gear combination. Multiple lamp monitor functions may be implemented by a single device.

Attributes

| # | Attribute | Description |
|---|----------------|--|
| ✓ | supplyType | Supply type of the lamp. Accepted values are: AC, DC. |
| ✓ | operatingHours | Number of hours the lamp is on. This is the value used in CLO and may be set by the CMS. |

| | |
|----------------------|--|
| ✓ temperature | Temperature of the device implementing this function. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperature instead.] |
| ✓ supplyVoltage | RMS supply volts when supplyType is AC, supply voltage (V) when supplyType is DC. |
| ✓ supplyCurrent | RMS supply current (A) when supplyType is AC, supply current (A) when supplyType is DC. |
| ✓ activePower | Active power. |
| ✓ powerFactor | Active power/Apparent power. |
| ✓ activeEnergy | Cumulative active energy (since installation or counter reset). |
| ✓ lampPowerTooHigh | Lamp power is greater than expected lamp power + lampPowerTolerance. |
| ✓ lampPowerTooLow | Lamp power is smaller than expected lamp power - lampPowerTolerance |
| ✓ lampVoltageTooHigh | Level of lamp voltage (not supply voltage) is greater than highLampVoltageThreshold. |
| ✓ lampVoltageTooLow | Level of lamp voltage (not supply voltage) is smaller than lowLampVoltageThreshold. |
| ✓ lampFailure | The lamp is not operating as it is supposed to (e.g. the lamp is broken). This event shall be used to detect a situation where the lamp (or LED module(s)) should be lit, but produce no light. This could be detected by the current flowing or power consumed. |
| ✓ currentTooHigh | Supply current is above the highCurrentThreshold defined in the lamp type. |
| ✓ currentTooLow | Supply current is below the lowCurrentThreshold defined in the lamp type. |
| ✓ powerFactorTooLow | The power factor is below powerFactorThreshold. |
| ✓ highTemperature | Indicates temperature is above the high threshold [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHigh instead.] |

| | |
|------------------------------|--|
| ✓ absoluteLampPowerTooHigh | Indicates the power is above the lampPowerHighThreshold in the lamp type |
| ✓ absoluteLampPowerTooLow | Indicates the power is below the lampPowerLowThreshold in the lamp type |
| ✓ controlGearCommFailure | Indicates failure of the control gear. |
| ✓ supplyLoss | Indicates loss of mains power. |
| ✓ supplyVoltageTooHigh | Level of supply voltage is above the highLampVoltageThreshold. |
| ✓ supplyVoltageTooLow | Level of supply voltage is below the lowSupplyVoltageThreshold. |
| ✓ highSupplyVoltageThreshold | Supply voltage above which the supplyVoltageTooHigh event is triggered. |
| ✓ lowSupplyVoltageThreshold | Supply voltage below which the supplyVoltageTooLow event is triggered. |

Events

| # | Event type | Description |
|---|--------------------------|--|
| ✓ | currentTooHigh | Supply current is above the highCurrentThreshold defined in the lamp type |
| ✓ | currentTooLow | Supply current is below the lowCurrentThreshold defined in the lamp type |
| ✓ | powerFactorTooLow | The power factor is below powerFactorThreshold |
| ✓ | lampFailure | The lamp is not operating as it is supposed to (e.g. the lamp is broken). This event shall be used to detect a situation where the lamp (or LED module(s)) should be lit, but produce no light. This could be detected by the current flowing or power consumed. |
| ✓ | highTemperature | Indicates temperature is above the high threshold |
| ✓ | relayFailure | Set in case of internal relay is failing |
| ✓ | absoluteLampPowerTooHigh | Indicates the power is above the lampPowerHighThreshold in the lamp type |
| ✓ | absoluteLampPowerTooLow | Indicates the power is below the lampPowerLowThreshold in the lamp type |
| ✓ | supplyLoss | Indicates loss of mains power |
| ✓ | lampUnexpectedOn | Indicates lamp is unexpectedly on |

- | | |
|------------------------|---|
| ✓ supplyVoltageTooHigh | Level of supply voltage is above the highLampVoltageThreshold. |
| ✓ supplyVoltageTooLow | Level of supply voltage is below the lowSupplyVoltageThreshold. |

Location Sensor*

The Location Sensor Function is used to indicate that an object has changed position attributes configurable by the CMS or based on internal setup of the vendor. For example, a specific location (latitude, longitude) of a device could be defined by the vendor. If the device is equipped with a GPS, it could send a specific event indicating that its position is different to the one defined by the CMS. We might also want to let the configuration to the vendor itself and simply define events notifying the CMS that the default configuration has changed. For example, a garbage bin could have its location defined based on a sensor placed on the floor. If the bin is not above this sensor, the vendor will trigger an event. In this last case, the CMS does not need to configure anything.

Attributes

| # | Attribute | Description |
|---|-----------------|---|
| ✓ | location | Location of the device |
| ✓ | locationChanged | Triggered when the difference between location and expectedLocation is above locationChangedThreshold |

Events

| # | Event type | Description |
|---|-----------------|---|
| ✓ | locationChanged | Triggered when the difference between location and expectedLocation is above locationChangedThreshold |

Time*

The Time function includes attributes related to generic control and it represents the smallest unit for control purposes.

Attributes

| # | Attribute | Description |
|---|-------------|--|
| ✓ | timeZone | Time zone of the device. Time zone may be expressed in two formats. where is a time zone as defined in the zone.tab of the IANA timezone database [IANA]; and stdoffset[dst[offset][,start[/time],end[/time]]] as defined by the Open Group for posix systems [POSIX]. |
| ✓ | currentTime | Current time of the device defined as local time with time zone designator. |

Events

| # | Event type | Description |
|---|------------|-------------|
|---|------------|-------------|

Services

Configuration Service

The TALQ Configuration Service enables discovery and configuration of devices and services

Options

| # | Option | Value | Description |
|---|-----------------------------|-------|---|
| ✓ | commissioningSupported* | | This ODN can support commissioning from the CMS side. |
| ✓ | devicesPaginationSupported* | | This ODN can support pagination of devices. |

Control Service

The Control service describes the mechanisms to operate the actuator functions in order to enable schedule based and override control

Options

| # | Option | Value | Description |
|---|---------------------------|--|--|
| ✓ | supportedTypes | <ul style="list-style-type: none"> AbsoluteActivePeriod AstroClockActivePeriod ccDay* | Control Program and calendar options supported are defined by announcing support for the given modes |
| ✓ | maxProgramsPerCalendar | | Maximum number of control programs per calendar |
| ✓ | maxSwitchPointsPerProgram | | Maximum number of switching points per control program |

| | |
|----------------------------|--|
| ✓ ccDaySupport | Indicates the ccDay options supported |
| ✓ programSecondsSupported* | Indicates whether the field of seconds is supported in programs. |

Events

| # | Event Type | Description |
|---|-----------------|--|
| ✓ | invalidCalendar | An invalid calendar has been provided by the CMS to the ODN |
| ✓ | invalidProgram | A control program has been provided by the CMS, which cannot be implemented by the ODN |

Data Collection Service

The TALQ Data Collection Service is a provision to configure how ODN measurements, status information and events are logged, and when or under what conditions the logged data is transferred to the CMS

Options

| # | Option | Value | Description |
|---|-------------------------|---|--|
| ✓ | supportedModes | <ul style="list-style-type: none"> EventRecordingMode VendorRecordingMode ImmediateReportingMode | Recording and Reporting modes supported |
| ✓ | attributeScopeSupported | | Indicates whether the ODN supports filtering attributes by scope (attributeScope); for a data logger in periodic or vendor recording mode. |

Events

| # | Event Type | Description |
|---|---------------------|--|
| ✓ | invalidLoggerConfig | The CMS has provided a data logger configuration that cannot be implemented by the ODN |

On Demand Data Request Service

This service provides the mechanism to access attributes in the logical devices by requesting attribute values from the ODN

Group Management Service

This service provides the mechanisms to define and manage groups

Options

| # | Option | Value | Description |
|---|------------------|-------|---|
| ✓ | maximumGroupSize | | Maximum number of group members per group |

Data Package Transfer Service*

This service provides a mechanism to transfer data packages containing ODN vendor specific information to the Gateway via the CMS

Events

| # | Event Type | Description |
|---|----------------------|---|
| ✓ | releaseMismatch | The release indicated as expected does not match the actual release of the Gateway. |
| ✓ | changeReleaseFailure | Change release failed. Operation is rolled back. |
| ✓ | packageChangeFailure | A Package change operation failed. Operation is rolled back. |
| ✓ | changingRelease | Indicates the Gateway is in the process of changing release. |
| ✓ | packageDownloaded | Indicate the Gateway has downloaded a package. |

Objects

Event log data

Event log data contains a single event, with eventType and value, in each single log entry. It also includes information about whether the log denotes the start or end of the event. Furthermore

additional information can be added with the info attribute.

Properties

| # | Property | Description |
|---|------------|---|
| ✓ | eventType | Identifier of event reported |
| ✓ | srcAddress | Address of Logical device or function within a logical device which is the source of the event or to which this event applies |

Command


A command defines a type of control action that can be applied to a function. Commands can be generated by a manual override action or by a control program.

Properties

| # | Property | Description |
|---|----------|---|
| ✓ | state | Light state to be applied to the lamp actuator |
| ✓ | cmsRefId | CMS reference, which can be used for data logging. The cmsRefId in a Command is a free text to be used by the CMS for any purpose, e.g: to differentiate contexts. It is a token that allows the CMS to match client requests to the original notification. |

: The Certification Test Tool is designed to provide a high level of confidence that complementary systems can communicate successfully. As both the protocol and the test tool evolve, all mandatory and other core tests are confirmed by comparison with real-life scenarios (plug-fest or similar). Some tests of optional and more peripheral features may not yet have been confirmed in this way; such features are identified with an asterisk ().

This Capability List is based on a certification session performed by the TALQ Certification Tool (v2.5.1-update.2) on 2023-12-12 20:45:00.380 +0800.

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