Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.5.1) on 2023-07-07 13:39:13.717 +0200.*

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

The tool has succesfully performed *40 tests*.

Product details

Product Name	OpenCity TALQ secure
Company	Amplex
Type	GATEWAY
Notes	
Generated on	2023-07-07 13:39:13.717 +0200
Supported profiles	• Lighting
API version certified:	2.5.1
Certification performed by app version:	2.5.1

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
✔	assetId	Customer identifier of the asset. If multiple devices have the same assetId it means they belong to the same asset.
✔	serial	Serial number of the device.
✔	hwType	Hardware type of the device.
✔	swVersion	Software version installed on the device.
✔	deviceReset	The physical device containing the logical device was reset.
✔	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.]

Events

#	Event type	Description
✔	deviceReset	The physical device containing the logical device was reset

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
✔	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.

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.

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.
✔	lightStateChange	Light state has changed.

Events

#	Event type	Description
✔	lightStateChange	Light state has changed

Electrical Meter

The electrical meter function supports electrical metering capabilities including measurements of voltage, current, power, energy, and power factor. This function may be associated with Luminaire Controllers, Cabinet Controllers or electrical meters installed in switch boxes. ODNs may implement both single phase and three phase meters. Typically meters within a control device will be single phase and stand-alone meters. A street side cabinet may have single phase or three phase meters.

Attributes

#	Attribute	Description

✔ totalPower	Sum of the active power consumed on phase 1, 2 and 3, or just the power for a single phase meter.
✔ totalVA	Sum of the apparent power consumed on phase 1, 2 and 3, or just the apparent power for a single phase meter.
✔ maxDemandPower	Maximum peak power consumption.
✔ totalActiveEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✔ totalReactiveEnergy	Total cumulative kVArh measured by the meter since installation date (or counter reset).
✔ totalApparentEnergy	Total cumulative kVAh measured by the meter since installation date (or counter reset).
✔ frequency	Frequency on the line.
✔ totalPowerFactor	Total active power divided by total apparent power.
✔ phase1PowerFactor	Power factor on phase 1.
✔ phase2PowerFactor	Power factor on phase 2.
✔ phase3PowerFactor	Power factor on phase 3.
✔ phase1Voltage	RMS Voltage between phase 1 and neutral.
✔ phase2Voltage	RMS Voltage between phase 2 and neutral.
✔ phase3Voltage	RMS Voltage between phase 3 and neutral.
✔ voltagePhase1Phase2	RMS Voltage between phase 1 and phase 2.
✔ voltagePhase2Phase3	RMS Voltage between phase 2 and phase 3.
✔ voltagePhase3Phase1	RMS Voltage between phase 3 and phase 1.
✔ totalCurrent	Sum of the RMS currents on phase 1, 2 and 3.
✔ neutralCurrent	RMS current on neutral.
✔ phase1Current	RMS current on phase 1.
✔ phase2Current	RMS current on phase 2.
✔ phase3Current	RMS current on phase 3.
✔ phase1ActivePower	Active Power on phase 1.
✔ phase2ActivePower	Active Power on phase 2.
✔ phase3ActivePower	Active Power on phase 3.
✔ phase1ApparentPower	Apparent Power on phase 1.
✔ phase2ApparentPower	Apparent Power on phase 2.

✔	phase3ApparentPower	Apparent Power on phase 3.
✔	phase1ReactivePower	Reactive Power on phase 1.
✔	phase2ReactivePower	Reactive Power on phase 2.
✔	phase3ReactivePower	Reactive Power on phase 3.
✔	phase1CurrentTHD	Total Harmonic Distortion on current for phase 1.
✔	phase2CurrentTHD	Total Harmonic Distortion on current for phase 2.
✔	phase3CurrentTHD	Total Harmonic Distortion on current for phase 3.
✔	phase1VoltageTHD	Total Harmonic Distortion on voltage for phase 1.
✔	phase2VoltageTHD	Total Harmonic Distortion on voltage for phase 2.
✔	phase3VoltageTHD	Total Harmonic Distortion on voltage for phase 3.
✔	applicationType	Application Type of the electrical meter depending on the use case. E.g.: Lamp Electrical Meter, Segment Electrical Meter

Events

#	Event type	Description

Photocell

A Photocell function models the capabilities of a photocell that can be used for lighting control. This function shall be supported by the CMS and optionally by the ODNs (Gateway).

Attributes

#	Attribute	Description
✔	photocellOutput	Output state of the photocell. Possible values are ON (means the illuminance level has fallen below the onLevel) and OFF (means the illuminance level has risen above the offLevel).
✔	photocellOutputOn	The photocell output has changed to ON.
✔	applicationType	Application Type of the photocell depending on the use case. E.g.: Presence detector

Events

#	Event type	Description
✔	photocellOutputOn	The photocell output has changed to ON

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
✔	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

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	• AbsoluteActivePeriod • AstroClockActivePeriod • AstroAndSensorActivePeriod* • ccDate* • ccDay*	Control Program and calendar options supported are defined by announcing support for the given modes
✔	maximumCalendars		Maximum number of calendars supported
✔	maximumPrograms		Maximum number of control programs supported

✔	maxSwitchPointsPerProgram		Maximum number of switching points per control program
✔	maxActivePeriodsPerProgram		Maximum number of active periods per control program
✔	dayOffset	• 1 • 2	Offset of start of day
✔	ccDateSupport		Indicates the ccDate options supported
✔	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	• VendorRecordingMode • EventRecordingMode • 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
✔	maximumNumberOfGroups		Maximum number of groups per Gateway
✔	maximumGroupSize		Maximum number of group members per group

Test Service

This service provides a mechanism to reduce the human intervention during the certification tests, enabling the certification tests to maximise automation

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 (*).

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