Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.4.1-update.13) on 2023-02-03 16:44:19.429 +0000.*

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

The tool has succesfully performed *53 tests*.

Product details

Product Name	TALQ-CMS
Company	Itron
Type	CMS
URL	http://localhost:9443/talqcms/talq/v2_4_1
Notes	
Generated on	2023-02-03 16:44:19.429 +0000
Supported profiles	• Lighting
API version certified:	2.4.1
Certification performed by app version:	2.4.1-update.13

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.
✔	location	Latitude, Longitude and Altitude. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new LocationSensorFunction.location instead.]
✔	timeZone	Time zone of the device. Time zone may be expressed in two formats. <timezone> where <timezone> 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]. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TimeFunction.timeZone instead.]
✔	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
✔	batteryMode	Device operating in battery mode
✔	installationMode	Device is being installed
✔	maintenanceMode	Device is undergoing maintenance
✔	cabinetDoorOpen	Cabinet door is open. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new SegmentMonitor.cabinetDoorOpen instead.]
✔	batteryShutdown	Indicates the device has shut down due to battery discharge
✔	locationUpdated	Indicates the location of a device has changed.

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.
✔	parentAddress	TALQ Address of the parent device, e.g. gateway. It shall point to a specific communication function.

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
✔	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.

Events

#	Event type	Description
✔	lightStateChange	Light state has changed
✔	invalidCalendar	The lamp actuator function has been allocated a calendar that it cannot implement
✔	invalidProgram	The lamp actuator function has been allocated a control program that it cannot implement
✔	targetLightCommandChange	The targetLightCommand operational attribute has changed
✔	programChange	The control program applicable to the lamp actuator 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
✔	numberOfLamps	Number of lamps being monitored by the lamp monitor function.
✔	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.
✔	reactivePower	Reactive power.
✔	apparentPower	Apparent Power.
✔	powerFactor	Active power/Apparent power.
✔	powerFactorSense	Phase sense of power factor.
✔	activeEnergy	Cumulative active energy (since installation or counter reset).
✔	supplyLossCount	Incrementing count of supply losses. The wrap around value is 2e32 - 1.
✔	supplyLoss	Indicates loss of mains power.

Events

#	Event type	Description
✔	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.
✔	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
✔	controlGearCommFailure	Indicates failure of the control gear
✔	cyclingFailure	Indicates the lamp is constantly switching ON and OFF in an unexpected manner
✔	supplyLoss	Indicates loss of mains power
✔	contactorError	Indicates error in contactor
✔	lampUnexpectedOn	Indicates lamp is unexpectedly on
✔	leakageDetected	Indicates that an earth leakage fault has been detected

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
✔	phase3PowerfactorLowThreshold	Phase 3 power factor below which the phase3PowerfactorTooLow event is triggered.
✔	phase1VoltageHighThreshold	RMS voltage above which the phase1VoltageTooHigh event is triggered.
✔	phase2VoltageLowThreshold	RMS voltage below which the phase2VoltageTooLow event is triggered.
✔	phase3VoltageHighThreshold	RMS voltage above which the phase3VoltageTooHigh event is triggered.
✔	phase3VoltageLowThreshold	RMS voltage below which the phase3VoltageTooLow event is triggered.

✔ neutralCurrentHighThreshold	RMS current above which the neutralCurrentTooHigh event is triggered.
✔ phase1CurrentHighThreshold	RMS current above which the phase1CurrentTooHigh event is triggered.
✔ phase1CurrentLowThreshold	RMS current below which the phase1CurrentTooLow event is triggered.
✔ phase2CurrentHighThreshold	RMS current above which the phase2CurrentTooHigh event is triggered.
✔ phase2CurrentLowThreshold	RMS current below which the phase2CurrentTooLow event is triggered.
✔ phase3CurrentHighThreshold	RMS current above which the phase3CurrentTooHigh event is triggered.
✔ phase3CurrentLowThreshold	RMS current below which the phase3CurrentTooLow event is triggered.
✔ phase1ActivePowerHighThreshold	Power above which the phase1ActivePowerTooHigh event is triggered.
✔ phase1ActivePowerLowThreshold	Power below which the phase1ActivePowerTooLow event is triggered.
✔ phase2ActivePowerHighThreshold	Power above which the phase2ActivePowerTooHigh event is triggered.
✔ phase2ActivePowerLowThreshold	Power below which the phase2ActivePowerTooLow event is triggered.
✔ phase3ActivePowerHighThreshold	Power above which the phase3ActivePowerTooHigh event is triggered.
✔ phase3ActivePowerLowThreshold	Power below which the phase3ActivePowerTooLow event is triggered.
✔ totalPower	Sum of the active power consumed on phase 1, 2 and 3, or just the power for a single phase meter.
✔ totalActiveEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✔ totalPowerFactor	Total active power divided by total apparent power.
✔ supplyVoltage	Average between Phase1 RMS Voltage, Phase2 RMS Voltage and Phase3 RMS Voltage, or in the case of a single phase meter just the RMS supply voltage.
✔ totalCurrent	Sum of the RMS currents on phase 1, 2 and 3.
✔ averageCurrent	Average RMS current on phase 1, 2 and 3.
✔ phase1PowerfactorTooLow	Indicates the phase 1 power factor is below the phase1PowerfactorLowThreshold.
✔ phase2PowerfactorTooLow	Indicates the phase 2 power factor is below the phase2PowerfactorLowThreshold

✔	phase1VoltageTooHigh	Indicates phase 1 supply voltage is above the phase1VoltageHighThreshold.
✔	phase1VoltageTooLow	Indicates phase 1 supply voltage is below the phase1VoltageLowThreshold.
✔	phase2VoltageTooHigh	Indicates phase 2 supply voltage is above the phase2VoltageHighThreshold.
✔	phase2VoltageTooLow	Indicates phase 2 supply voltage is below the phase2VoltageLowThreshold.
✔	phase3VoltageTooHigh	Indicates phase 3 supply voltage is above the phase3VoltageHighThreshold.
✔	phase3VoltageTooLow	Indicates phase 3 supply voltage is below the phase3VoltageLowThreshold.
✔	phase1ActivePowerTooHigh	Indicates the phase 1 active power is above the phase1ActivePowerHighThreshold.
✔	phase1ActivePowerTooLow	Indicates the phase 1 active power is below the phase1ActivePowerLowThreshold.
✔	phase2ActivePowerTooHigh	Indicates the phase 2 active power is above the phase2ActivePowerHighThreshold.
✔	phase2ActivePowerTooLow	Indicates the phase 2 active power is below the phase2ActivePowerLowThreshold.
✔	phase3ActivePowerTooHigh	Indicates the phase 3 active power is above the phase3ActivePowerHighThreshold.
✔	phase3ActivePowerTooLow	Indicates the phase 3 active power is below the phase3ActivePowerLowThreshold.
✔	supplyLoss	Indicates loss of supply (power).

Events

#	Event type	Description
✔	neutralCurrentTooHigh	Indicates the neutral current is above the neutralCurrentHighThreshold
✔	phase1VoltageTooHigh	Indicates phase 1 supply voltage is above the phase1VoltageHighThreshold
✔	phase1VoltageTooLow	Indicates phase 1 supply voltage is below the phase1VoltageLowThreshold
✔	phase1CurrentTooHigh	Indicates the phase 1 current is above the phase1CurrentHighThreshold
✔	phase1CurrentTooLow	Indicates the phase 1 current is below the phase1CurrentLowThreshold
✔	phase1ActivePowerTooHigh	Indicates the phase 1 active power is above the phase1ActivePowerHighThreshold

✔	phase1ActivePowerTooLow	Indicates the phase 1 active power is below the phase1ActivePowerLowThreshold
✔	phase2PowerfactorTooLow	Indicates the phase 2 power factor is below the phase2PowerfactorLowThreshold
✔	phase2VoltageTooHigh	Indicates phase 2 supply voltage is above the phase2VoltageHighThreshold
✔	phase2VoltageTooLow	Indicates phase 2 supply voltage is below the phase2VoltageLowThreshold
✔	phase2CurrentTooHigh	Indicates the phase 2 current is above the phase2CurrentHighThreshold
✔	phase2CurrentTooLow	Indicates the phase 2 current is below the phase2CurrentLowThreshold
✔	phase2ActivePowerTooHigh	Indicates the phase 2 active power is above the phase2ActivePowerHighThreshold
✔	phase2ActivePowerTooLow	Indicates the phase 2 active power is below the phase2ActivePowerLowThreshold
✔	phase3PowerfactorTooLow	Indicates the phase 3 power factor is below the phase3PowerfactorLowThreshold
✔	phase3VoltageTooHigh	Indicates phase 3 supply voltage is above the phase3VoltageHighThreshold
✔	phase3VoltageTooLow	Indicates phase 3 supply voltage is below the phase3VoltageLowThreshold
✔	phase3CurrentTooHigh	Indicates the phase 3 current is above the phase3CurrentHighThreshold
✔	phase3CurrentTooLow	Indicates the phase 3 current is below the phase3CurrentLowThreshold
✔	phase3ActivePowerTooHigh	Indicates the phase 3 active power is above the phase3ActivePowerHighThreshold
✔	phase3ActivePowerTooLow	Indicates the phase 1 active power is below the phase2ActivePowerLowThreshold
✔	supplyLoss	Indicates loss of supply (power).

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
✔	onLevel	Illuminance level at which the photocell switches to on state.
✔	offLevel	Illuminance level at which the photocell switches to off state.

✔	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).

Events

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

Light Sensor

A Light Sensor function models the output of light sensor. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	levelHighThreshold	Light level above which a levelTooHigh event is triggered.
✔	levelLowThreshold	Light level below which a levelTooLow event is triggered.
✔	lightLevel	Illuminance level.

Events

#	Event type	Description
✔	levelTooHigh	Indicates the light level is above the levelHighThreshold
✔	levelTooLow	Indicates the light level is below the levelLowThreshold

Binary Sensor

A Binary Sensor function can be used to model any sensor that provides a digital, binary output. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	level	Sensor Output level.

Events

#	Event type	Description
✔	sensorOutputOn	Indicates the sensor output changed to ON

Generic Sensor

A Generic Sensor function can be used to model any sensor that provides an analog or multilevel output. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	levelHighThreshold	Threshold above which a levelTooHigh event is triggered.
✔	levelLowThreshold	Threshold below which a levelTooLow event is triggered.
✔	level	Sensor Output level.

Events

#	Event type	Description
✔	levelTooHigh	Indicates the sensor output level is above the levelHighThreshold
✔	levelTooLow	Indicates the sensor output level is below the levelLowThreshold

Generic Actuator

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

Attributes

#	Attribute	Description
✔	defaultState	Sets the default state output for the generic actuator. This shall be applicable if no other command is active.
✔	actualState	This attribute should reflect the physical state of the source as much as possible. It may be calculated or measured, depending on the specific ODN implementation, which is outside the scope of this specification.
✔	targetCommand	Latest command for the generic actuator.
✔	feedbackCommand	This attribute reflects the command in effect and it might deviate from the actualState due to propagation time or due to internal ODN specific mechanisms to handle the priority of the requests.
✔	calendarID	TALQ Address of the calendar controlling this generic 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.

Events

#	Event type	Description
✔	stateChange	The state has changed.
✔	invalidCalendar	This event is generated when a calendar has been allocated and can not be implemented it.

✔	invalidProgram	This event is generated when a control program has been allocated and can not be implemented it.
✔	programChange	This event is generated when the control program applicable to the actuator has changed.
✔	calendarChange	This event is generated when the calendar applicable to the actuator has changed.
✔	targetCommandChange	This event is generated when the targetCommand has changed.

Temperature Sensor

The Temperature Sensor function allows a CMS to monitor the temperature in a device and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	temperatureHighThreshold	Threshold above which a temperatureTooHigh event is triggered.
✔	temperatureLowThreshold	Threshold below which a temperatureTooLow event is triggered.
✔	fireDetectionThreshold	Threshold above which a fireDetected event is triggered.
✔	temperature	Output temperature.

Events

#	Event type	Description
✔	temperatureTooHigh	Indicates the output temperature is above the temperatureHighThreshold.
✔	temperatureTooLow	Indicates the output temperature is below the temperatureLowThreshold.
✔	fireDetected	Indicates the output temperature is above the fireDetectionThreshold.

Humidity Sensor

The Humidity Sensor function allows a CMS to monitor the humidity in a device and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	humidityLowThreshold	talq.feature.attribute.HumiditySensorFunction.humidityLowThreshold.desc
✔	humidityHighThreshold	Threshold above which a humidityTooHigh event is triggered.
✔	humidity	Output humidity.

Events

#	Event type	Description
✔	humidityTooHigh	Indicates the output humidity is above the humidityHighThreshold.

Particulate Matter Sensor

The Particulate Matter Sensor function allows a CMS to monitor the PM10, PM2.5 and PM1 in a device and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	pm1HighThreshold	Threshold (micrograms/m3) above which a pm1TooHigh event is triggered.
✔	pm2-5HighThreshold	Threshold (micrograms/m3) above which a pm2-5TooHigh event is triggered.
✔	pm10HighThreshold	Threshold (micrograms/m3) above which a pm10TooHigh event is triggered.
✔	pm1	Level of pm1 measured by the sensor. (micrograms/m3)
✔	pm2-5	Level of pm2-5 measured by the sensor. (micrograms/m3)
✔	pm10	Level of pm10 measured by the sensor. (micrograms/m3)
✔	applicationType	Application Type of the particulate matter sensor depending on the use case. E.g.: 'Air Quality Sensor'
✔	pm1-24hAverage	Average level of pm1 measured by the sensor during the last 24h. (micrograms/m3)
✔	pm2-5-24hAverage	Average level of pm2.5 measured by the sensor during the last 24h. (micrograms/m3)
✔	pm10-24hAverage	Average level of pm10 measured by the sensor during the last 24h. (micrograms/m3)

Events

#	Event type	Description
✔	pm1TooHigh	Indicates the output pm1 is above the pm1HighThreshold.
✔	pm2-5TooHigh	Indicates the output pm2-5 is above the pm2-5HighThreshold.
✔	pm10TooHigh	Indicates the output pm10 is above the pm10HighThreshold.

Presence Sensor

The Presence Sensor function allows a CMS to detect presence. This function may be used in Parking Place detectors as well as in dynamic outdoor lighting scenario.

Attributes

#	Attribute	Description
✔	presenceStatus	Presence status.

Events

#	Event type	Description
✔	presenceStatusChanged	Indicates the presence status changed.

Movement Sensor

The Movement Sensor function allows a CMS to detect movement. This function may be used in a Waste Container sensor to detect that container gets emptied or is not in the proper position, as well as in asset tracking applications.[DEPRECATED: This function has been deprecated and it will be removed in the next MAJOR release. Please use the new LocationSensorFunction instead.]

Attributes

#	Attribute	Description
✔	movementThreshold	Threshold above which a movementDetected event is triggered.
✔	movementDetected	Indicates the movement is above the movementThreshold.

Events

#	Event type	Description
✔	movementDetected	Indicates the movement is above the movementThreshold.
✔	notInProperPosition	Indicates the sensor is not in proper position.

Battery Level Sensor

The Battery Level Sensor function allows to measure the charge of the battery, monitor the battery and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	powerSource	The power source of battery.
✔	batteryLevelLowThreshold	Threshold below which a batteryLevelTooLow event is triggered.
✔	batteryLevel	Battery level.

Events

#	Event type	Description
✔	batteryLevelTooLow	talq.feature.event.BatteryLevelSensorFunction.batteryLevelTooLow.desc

Filling Level Sensor

The Filling Level Sensor function allows to measure how full a container is and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	levelHighThreshold	Threshold (m) above which a fillingHeight event is triggered.
✔	containerHeight	Container height (m).
✔	containerVolume	Container volume (m^3).
✔	fillingHeight	Filling container height (m).
✔	fillingPercentage	Filling percentage.
✔	contentsType	Indicates de type of contents in the container. Some technologies, such as ultrasonic sensors, need this information in order to measeure accuratelly. Possible values are: mixed waste, organic, paper, plastics, glass, liquid, clothing, electronics, metal or other. If other is selected, then contentsOtherType shall be used.
✔	contentsOtherType	Type of contents if it is not included in the Enum list of contents for contentsType.

Events

#	Event type	Description
✔	containerFull	Indicates the container filling height is above levelHighThreshold.

Traffic Counter*

The Traffic Counter Function is used to provide statistics on the number of vehicles passing on the road. It allows to have the number of pedestrians, bicycles, cars or trucks for a certain period of time that is configurable by the CMS. It also allows to count the number of vehicles using diesel or petrol.

Attributes

#	Attribute	Description
✔	roadUserNumber	Number of road users of the specified type detected over the sampling period.
✔	accumulatedRoadUserNumber	measurement Number of road users of the specified type detected since accumulatedSince.
✔	roadUser	Type of road user (pedestrian, bicycle, motorcycle, car, truck, diesel vehicle, petrol vehicle, electric vehicle, scooter, others).

✔	accumulatedSince	Indicates the date and time at which accumulatedRoadUserNumber is reset to zero. The Gateway may change this value with the actual one depending on implementation.
✔	heavyTrafficDetectedThreshold	Threshold above which heavyTrafficDetected is triggered.
✔	trafficSamplingPeriod	Used by heavyTrafficDetected and roadUserNumber. In seconds.

Events

#	Event type	Description
✔	heavyTrafficDetected	Triggered if the traffic measured over the sampling period is above heavyTrafficDetectedThreshold.

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.

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* • FixedControlEffect* • ccDate* • ccDay*	Control Program and calendar options supported are defined by announcing support for the given modes

✔	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	• EventRecordingMode • VendorRecordingMode • ImmediateReportingMode • ScheduledReportingMode	Recording and Reporting modes supported

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

Test Service

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

Objects

Lamp type

The lamp type consists of a set of attributes that together characterize a given lamp and control gear combination. When modelling a Lighting ODN with many luminaires, there are attributes' values that are the same for many lamps, e.g.: the expected consumed power of the lamp and control gear (wattage) would be the same for many lamp monitors. The concept of LampType is created to avoid including the same attributes' values in every lamp monitor and actuator of the same type, for this reason a reference to a lamp type is included in the lamp actuator and lamp monitor functions, as these attributes are required for proper operation of these functions. Thus, the definition of lamp types enables the CMS to efficiently set attributes in many lamp actuators/monitors by just setting the address of the 'lampType' attribute in each function. Lamp types can be created by both CMS and TALQ Gateway as separate entities. The TALQ Gateway shall announce any lamp type it has to the CMS as part of the initial configuration. In addition to the initial configuration, the TALQ Gateway shall also announce the lamp type whenever it changes. The CMS may also send lamp types to the TALQ Gateway.

Properties

#	Property	Description
✔	name	Descriptive name of the lamp type
✔	address	TALQ Address of the lamp type
✔	controlType	Type of control/dimming interface between the lamp actuator function and the control gear or within the control gear in case lamp actuator is embedded in the control gear
✔	daliLedLinear	If set to true indicates the dimming curve is linear for DALI control type

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
✔	startEndFlag	If the event denotes either the start or end of a ‘special’ period, this flag shall be included

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
✔	reason	Indicates the command was triggered by override, sensor or control program
✔	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.
✔	refAddress	Reference to the source of the command, e.g. sensor or control program
✔	start	Time when the control action resulting from command shall start. This attribute is used only with override commands to set a time to start an override action. If not specified, the override command starts immediately.
✔	expiration	Time when the control action resulting from command shall be terminated. This attribute is used only with override commands to set a time to stop an override action. After the expiration of an override command, the system should go back to the state defined by the active control program. If not specified, there is no expiration for the override command.
✔	rampToLevelTime*	The time (in seconds) taken for the value to ramp to the specified level. The change will be finished rampToLevelTime seconds after: the scheduled time if the change comes from a control program; the reception of the request, or the command.start time attribute, if the change comes from an override command, or; the sensor event is raised if the control is sensor-based. If actions related to one command remain to be completed when a subsequent command is received, the subsequent command shall take precedence.
✔	rampFromLevelTime*	The time (in seconds) taken for the value to ramp to the specified level. The change will be finished rampFromLevelTime seconds after: the scheduled time if the change comes from a control program; the reception of the request if the change comes from an override command; expiry of the related command, or; the sensor event is lowered and the hold time subsequently expires if the control is sensor-based. If actions related to one command remain to be completed when a subsequent command is received, the subsequent command shall take precedence.

Group

A group is set of entities that can be addressed by the same group address. Devices and functions within devices can be assigned to a group. A group may also include other groups as members.

Properties

#	Property	Description
✔	address	Group address
✔	members	TALQ Addresses of members of the group

*: 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 (v2.4.1-update.13) on 2023-02-03 16:44:19.429 +0000.