



Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.1.1-update.4)* on 2019-12-18 18:44:52.845 +0000.

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

The tool has successfully performed 36 tests.

Product details

Product Name SLV TALQ Gateway

Company Itron

Type GATEWAY

Notes

Generated on 2019-12-18 18:44:52.845 +0000

Certification performed by app version: 2.1.1-update.4

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.
✓	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.
✓	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].
✓	currentTime	Current time of the device defined as local time with time zone designator.

Events

#	Event type	Description
✓	deviceReset	The physical device containing the logical device was reset
✓	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
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- ✓ **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.
✓	crUrn	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
✓	cloEnabled	Determines whether a Constant Light Output (CLO) correction factor is used. CLO is used to compensate for lumen output degradation over the life time of the lamp. If CLO is enabled, lamps are dimmed part of the lampType.
✓	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
✓	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
✓	switchOnCounter	Cumulative number of ON/OFF cycles since installation of the lamp. The wrap around value is $2e32 - 1$.
✓	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.
✓	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.
✓	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 $2e32 - 1$.

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
✓	lampFailure	The lamp is not operating as it is supposed to

✓ highTemperature	Indicates temperature is above the high threshold
✓ relayFailure	Set in case of internal relay is failing
✓ 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
✓ lampUnexpectedOn	Indicates lamp is unexpectedly on

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.
✓	totalActiveEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✓	frequency	Frequency on the line.
✓	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.
✓	phase1Voltage	RMS Voltage between phase 1 and neutral.
✓	phase2Voltage	RMS Voltage between phase 2 and neutral.
✓	phase3Voltage	RMS Voltage between phase 3 and neutral.
✓	totalCurrent	Sum of the RMS currents on phase 1, 2 and 3.
✓	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.
- ✓ phase1ActiveEnergy Cumulative active energy on phase 1.
- ✓ phase2ActiveEnergy Cumulative active energy on phase 2.
- ✓ phase3ActiveEnergy Cumulative active energy on phase 3.

Events

#	Event type	Description
✓	phase1VoltageTooHigh	Indicates phase 1 supply voltage is above the phase1SupplyVoltageHighThreshold
✓	phase1VoltageTooLow	Indicates phase 1 supply voltage is below the phase1SupplyVoltageLowThreshold
✓	phase1ActivePowerTooHigh	Indicates the phase 1 active power is above the phase1ActivePowerHighThreshold
✓	phase1ActivePowerTooLow	Indicates the phase 1 active power is below the phase1ActivePowerLowThreshold
✓	phase2VoltageTooHigh	Indicates phase 2 supply voltage is above the phase2SupplyVoltageHighThreshold
✓	phase2VoltageTooLow	Indicates phase 2 supply voltage is below the phase2SupplyVoltageLowThreshold
✓	phase2ActivePowerTooHigh	Indicates the phase 2 active power is above the phase2ActivePowerHighThreshold
✓	phase2ActivePowerTooLow	Indicates the phase 2 active power is below the phase2ActivePowerLowThreshold
✓	phase3VoltageTooHigh	Indicates phase 3 supply voltage is above the phase3SupplyVoltageHighThreshold
✓	phase3VoltageTooLow	Indicates phase 3 supply voltage is below the phase3SupplyVoltageLowThreshold
✓	phase3ActivePowerTooHigh	Indicates the phase 3 active power is above the phase3ActivePowerHighThreshold
✓	phase3ActivePowerTooLow	Indicates the phase 1 active power is below the phase2ActivePowerLowThreshold

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
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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
✓	lightLevel	Illuminance level.

Events

#	Event type	Description
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Services

Configuration Service

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

Options

#	Option	Value	Description
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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* FixedControlEffect* ccDate* ccDay* 	Control Program and calendar options supported are defined by announcing support for the given modes
✓	maxProgramsPerCalendar		Maximum number of control programs per calendar

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 ScheduledReportingMode 	Recording and Reporting modes supported
✓	samplingPeriodSupported		Indicates whether the ODN supports periodic sampling for a data logger in periodic 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
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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

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

Event log data

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

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
✓	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.

Group

Properties

#	Property	Description
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✓	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 ().

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 TALQ Consortium

