



Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.2.0-update.9)* on 2020-11-09 20:12:24.135 +0800.

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

The tool has successfully performed 49 tests.

Product details

Product Name AGIL IoT Platform

Company ST Engineering Electronics

Type GATEWAY

Notes

Generated on 2020-11-09 20:12:24.135 +0800

Supported profiles • LIGHTING

Certification performed by app version: 2.2.0-update.9

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.
✓	hwVersion	Hardware revision 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.
✓	location	Latitude, Longitude and Altitude.
✓	maintenanceMode	Device is undergoing maintenance, where maintenance may include hardware or software related maintenance actions.
✓	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

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
✓	logicalAddress	Logical address for communication within the ODN scope (IP address, Short 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.

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.

- ✓ **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
✓	lampTypeId	TALQ Address of an existing 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.
✓	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.
- ✓ invalidLampType Indicates that the lamp type referred cannot be applied.

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

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.
✓	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.
✓	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).

- ✓ highTemperature Indicates temperature is above the high threshold.
- ✓ controlGearCommFailure Indicates failure of the control gear.

Events

#	Event type	Description
✓	lampFailure	The lamp is not operating as it is supposed to
✓	highTemperature	Indicates temperature is above the high threshold
✓	controlGearCommFailure	Indicates failure of the control gear

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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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
✓	temperature	Output temperature.

Events

#	Event type	Description
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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
✓	humidity	Output humidity.

Events

#	Event type	Description
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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
✓	pm2-5	Output pm2-5.
✓	pm10	Output pm10.

Events

#	Event type	Description
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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.
✓	batteryLevel	Battery level.

Events

#	Event type	Description
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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
✓	fillingHeight	Filling container height (m).
✓	containerFull	Indicates the container filling height is above levelHighThreshold.

Events

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

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

Events

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

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 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
✓	maxProgramsPerCalendar		Maximum number of control programs per calendar
✓	dayOffset	<ul style="list-style-type: none"> 0 	Offset of start of day
✓	ccDateSupport		Indicates the ccDate 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 • PeriodicRecordingMode • VendorRecordingMode* • ImmediateReportingMode • ScheduledReportingMode 	Recording and Reporting modes supported
✓	maximumDataLogs		Maximum number of data loggers supported
✓	samplingAccuracy		Maximum deviation of sampling moment in seconds
✓	minCollectionTime		Base time between sampling and being able to report attributes specified in a data logger

✓ minCollectionTimePerAttribute	Additional time per attribute instance between sampling and being able to report the attribute
✓ 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
✓	maximumNumberOfGroups		Maximum number of groups per Gateway
✓	maximumGroupSize		Maximum number of group members per group

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
✓	daliLedLinear	If set to true indicates the dimming curve is linear for DALI control type

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
✓	attributes	A sequence of attribute values logged together with the event

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
✓	address	Group address
✓	members	TALQ Addresses of members of the group
✓	purpose	Main purpose 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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