Alibaba Cloud IoT Platform providers

Version 1.0.0

User's Guide

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[Remark]

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1.0.0	2019-06-11	First edition

[Hardware]

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Contents

1. Introduction

This document is a user's guide for CAO providers sending textual data to and receiving textual data from Alibaba Cloud IoT Platform.

The CAO provider (CaoProvAlibabaIoTPlatform. dll) covered in this document is called the AlibabaIoTPlatform provider.

Chapter2 provides an overview of the AlibabaIoTPlatform providers and detailed descriptions of the variables.2

It uses Alibaba Link Kit C-SDK v2. 3.0 to communicate with the Alibaba Cloud IoT Platform. See the following site:

Alibaba Link Kit C-SDK v2. 3.0 Sites Links

・Alibaba Link Kit C-SDK v2.3.0

https://github.com/aliyun/iotkit-embedded/tree/v2.3.0

Alibaba Link Kit C-SDK v2. 3.0 Copyrights and Licenses

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https://github.com/aliyun/iotkit-embedded/blob/v2.3.0/LICENSE

2. Provider Overview

2.1. Overview

AlibabaIoTPlatform providers are CAO providers that communicate with the Alibaba Cloud IoT Platform in both directions. The file format is a DLL (Dynamic Link Library) file that is loaded dynamically by the CAO engine when the CAO engine is used. To use AlibabaIoTPlatform providers, you must register them using the methods listed in TABLE 2-1.Table 2-1 AlibabaIoTPlatform Providers21

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File name	CaoProvAlibabaIoTPlatform.dll
ProgID	CaoProv.Alibaba. IoTPlatform
Registry registration	Regsvr32 CaoProvAlibabaIoTPlatform.dll
Unregistering the Registry	Regsvr32 /u CaoProvAlibabaIoTPlatform.dll

2.2. Method Properties

2.2.1. CaoWorkspace::AddController method

AlibabaIoTPlatform providers connect to the Alibaba Cloud Internet of Things Platform by referring to the connection parameters for communication during AddController.

Format AddController(<bstrCtrlName:BSTR>,<bstrProvName:BSTR>,
<bstrPCName:BSTR> ,<bstrOption:BSTR>))

BstrCtrlName : [in] Controller name
BstrProvName : [in] Provider name. Fixed = "CaoProv.Alibaba. IoTPlatform"
BstrPcName : [in] Running machine name of the provider
BstrOption : [in] Option string

The following is a list of option strings:

Tables 2-2 CaoWorkspace::AddController Optional Strings22

Option[1]	Description
DeviceName=<DeviceName>	Mandatory.Device names defined on the Alibaba Cloud.
ProductKey=<ProductKey>	Required. ProductKey of the product created on the Alibaba Cloud.
DeviceSecret=<DeviceSecret>	Required. DeviceSecret of devices created on the Alibaba Cloud.
Region = <region number of the destination URL>	Required. The IoT Platform region number. (-1: Destination Manual Input, 0: China (Marine), 1: Singapore, 2: Japan (Tokyo), 3: America (Silicon Valley), 4: Germany (Frankfurt) ※HTTP and CoAP connectivity is available only in China (Marine)
CustomRegion = [<Region of destination URL>]	Valid when-1 is specified for the IoT Platform connection-destination region or Region. (e.g. iot-as-mqtt.ap-northeast-1.aliyuncs.com)
Protocol = [<protocol-number>]	Protocol used for communication. (1:MQTT, 2:HTTP, 3:CoAP, Default: 1)
QoS=[<QoS level>]	Enabled when using QoS-level MQTT.

[1] Square brackets ("[]") enclose optional characters.

	(0: Levels 0 and 1: Level 1, Default: 0)
@EventDisable=[<Receive messages from cloud>]	When reception is enabled: "False", when reception is disabled: "True". Defaults: False. Enabled when using MQTT.
KeepAlive=[< KeepAlive Interval >]	KeepAlive Intervals (valid when using msec).MQTT) (Setting range: 30000 to 12000000 msec, default: 60000)
RequestTimeout = [<timeout>]	Timeout time for the request (msec). (Defaults: MQTT:2000, HTTP:5000, CoAP:3000)
CleanSession = [<Clear info on disconnect>]	Clears the MQTT clients when disconnected. (0: No, 1: Yes, Default: 0)
PublishTopic = [<topic-name-when-sent>]	Name of the topic to specify when sending the topic (Default: update). By default, Publish to the cloud using the topic names listed below. Ex:/{ProductKey}/{DeviceName}/ user/update
SubscribeTopic = [<topic-name-to-receive>]	Topic name to receive (default: get) By default, Subscribe to the cloud using the topic names listed below. Enabled when using MQTT. Ex:/{ProductKey}/{DeviceName}/ user/get
EventPolling = [<interval between checks for messages>]	Interval for checking received messages and interval for checking KeepAlive (msec). Enabled when using MQTT. (Default: 10000)
PollingTimeout = [<timeout for checking received messages>]	Timeout time for acknowledging received messages (msec). Enabled when using MQTT. (Default: 200)
Format = [<encoding of outgoing messages>]	The encoding of the outgoing message. Enabled when using CoAP. (0:Json, 1:Cbor, Default: 0)

2.2.2. CaoController::AddVariable method

The AddVariable method of CaoController classes is a method for each of the providers to create variable objects. Only 2.3.1 variables can be used for variable names.2.3.1

Format AddVariable(<bstrVariableName:VT_BSTR>)

<bstrVariableName> : [in] Variable name

2.2.3. CaoVariable: get_VariableNames property

2.3.1

2.2.4. CaoVariable: get_Value property

Retrieves information corresponding to a variable. See 2.3.1 for the implementation status of each variable and the acquired data.2.3.1

2.2.5. CaoVariable: put_Value property

Sets the information corresponding to a variable. For details about the implementation status and setting data of each variable, see 2.3.1.2.3.1

2.2.6. CaoController::OnMessage events

CaoController classes of OnMessage events occur at the following triggers:

Table 2-3 Message types23

Message type		Trigger for occurrence
1	Alibaba IoT Platform data reception	Occurs when data is received from the Alibaba Cloud IoT Platform.

2.2.6.1. Receiving IoT Hub events

The following table shows the data formats that can be obtained by messages from the cloud.

Number : Message type (1)

Value : Contents of received messages

DateTime : Timestamped

Description : Topic name at the time of reception

2.3. Variable List

2.3.1. CaoController classes

Table List of 2-4 CaoController Class User Variables24

Variable name	Data type	Description	Attribute

			Get	Put
*	VT_BSTR	Send messages to the Alibaba Cloud IoT Platform.	-	○

2.4. List of error code

AlibabaIoTPlatform providers define the following unique error codes:

For ORiN2 common errors, refer to the error code section in the "ORiN2SDK user's guide".

Table 2-6 Error Codes2

Error name	Error Number	Description
Device authentication error	0x80100001	Returned if the device authentication to connect to fails.
Message transmission error	0x80100002	Returned if the message transmission failed.
MQTT client-creation errors	0x80100100	Returned if the creation of MQTT clients failed.
Connection destination setting error	0x80100101	This message is returned if the connection destination setting fails.
Subscription error	0x80100102	Returned if subscription fails.
Reception processing start error	0x80100103	Returned if an incoming operation from the cloud fails to start.
HTTP client-creation errors	0x80100200	Returned if the creation of HTTP clients failed.
CoAP client-creation errors	0x80100300	Returned if the creation of CoAP clients failed.
Send message size error	0x80100301	Returned if the message to be sent is too large.
Authentication error	0x80100302	Returned if CoAP clients fail to authenticate.