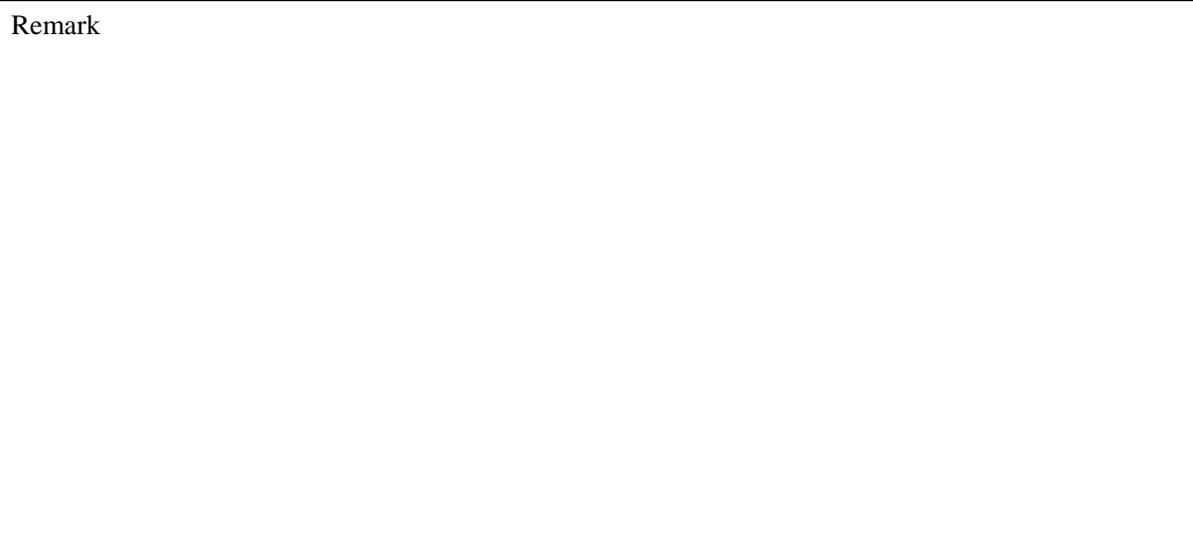# SAP Cloud IoT Platform providers

Version 1.1.0

User's Guide

July 8, 2021

Remark

Revision history

Version	Date	EVENTS
1.0.0	2019-10-31	First edition
1.1.0	2021-03-19	Supports TLS 1.2. Change to EXE format.
	2021-07-08	Adjusting the appearance of the user's guide.

Compatible device

Model	Version	Note

Table of Contents

1. Introduction

This document is a user's guide for CAO providers that send and receive data to and from the IoT Platform of SAP Cloud Platform.

The CAO provider (CaoProvSAPIoTPlatform.exe) covered in this document is called the SAPIoTPlatform provider.

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

M2Mqtt and so on are used to communicate with the SAP Cloud IoT Platform.

For more information, see:

[M2Mqtt Site Links]
URL: https://github.com/eclipse/paho.mqtt.m2mqtt

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https://github.com/eclipse/paho.mqtt.m2mqtt/blob/master/LICENSE

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2. Outline of the provider

2.1. Overview

SAPIoTPlatform providers are CAO providers that communicate with the IoT Platform of your SAP Cloud. The file format is a EXE file that is dynamically loaded by the CAO engine when the CAO engine is in use. To use the SAPIoTPlatform providers, you need to register them as shown in Table 2-1. RegistAsm.bat and UnregistAsm.bat are located in the DotNet ¥BAT folder below the folder where you installed the ORiN2SDK.Table 2-1 SAPIoTPlatform Providers

Table 2-1 SAPIoTPlatform Providers

File name	CaoProvSAPIoTPlatform.exe
ProgID	CaoProv.SAP.IoTPlatform
Registration in the registry	RegistAsm.bat CaoProvSAPIoTPlatform.exe
Deletion of Registry Registration	UnregistAsm.bat CaoProvSAPIoTPlatform.exe

2.2. Method Properties

2.2.1. CaoWorkspace::AddController method

CaoProvSAPIoTPlatform providers refer to the connection parameters for communication during AddController and connect to the IoT Platform of SAP Cloud.

Format   AddController(<bstrCtrlName:BSTR>,<bstrProvName:BSTR>,

<bstrPCName:BSTR>,<bstrOption:BSTR>))

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

Table 2-2 CaoWorkspace::AddController Optional Strings21

Option[1]	Description
AlternateID=<AlternateID>	Required.Specify the AlternateID of devices registered in the Internet of Things Service Cockpit.
Hostname=<Hostname>	Required. Specify the hostname from the Internet of Things Service Cockpit URL. URLs for the Internet of Things Service Cockpit: Https://<HOST_NAME>/<INSTANCE_ID>/iot/cockpit/
SecretKey = <Secret>	Required. Specify the secret key that you obtained when you created the device certificate in Internet of Things Service Cockpit.
Certificate = [<device-certificate-full-path>]	Mandatory.Specify the full path to the device certificate that you created in the Internet of Things Service Cockpit.
Protocol = [<protocol-number>]	Protocol used for communication. (1:MQTT, 2:HTTP, default1)
RequestTimeOut = [<timeout time (seconds)>]	MQTT request timeout (seconds). Protocols: Valid only in HTTP mode. (Default: 60)
QoS=[<QoS level>]	The QoS level. Protocols: Valid only in MQTT mode. (0: Level 0,1: Level 1,2: Level 2, Default: 0)
@EventDisable=[<Receive Answer Message when Sending>]	When reception is enabled: "False", when reception is disabled: "True". Defaults to False.

[1] Square brackets ("[]") indicate optional items.

	Valid only in MQTT.

2.2.2. CaoController::AddVariable method

AddVariable methods of CaoController classes are methods for creating variable objects for their respective providers. Only 2.3.1 variables can be used for variable names.2.3.1

Format	AddVariable(<bstrVariableName:VT_BSTR>[,<bstrOption:VT_BSTR>])

<bstrVariableName>	:	[in] Variable name
<bstrOption>	:	[in] option string

The option strings are as follows.

If options are specified, both "CapabilityAlternateID""SensorAlternateID" must be specified.

Table 2-3 CaoController::AddVariable Optional Strings22

Option	Meaning
CapabilityAlternateID	Optional. capability's AlternateId.
SensorAlternateID	Optional. sensor's AlternateId.

2.2.3. CaoVariable:get_VariableNames Property...

2.3.1

2.2.4. 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

2.2.5. CaoController::OnMessage events

CaoController classes of OnMessage events occur at the following triggers:

Table 2-4 Message types23

Message type		Trigger for the occurrence
1	Response at data transmission	Occurs when sending data to a SAP IoT Platform.

2.2.5.1. To receive IoT events

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

Number   :   Message type (1)

Value   :   Contents of the reply message

DateTime   :   Timestamped

Description   :   Received Topic

2.3. Variable List

2.3.1. CaoController classes

Table 2-5 CaoController Class User Variable List24

Variable name	Data type	Description	Attribute		Option	
			Get	Put	CapabilityAlternateID	SensorAlternateID
*	VT_BSTR	Sends JSON strings to SAP IoT Platform.	-	○	○	○