# Application Note AZURE\_2CD Example

Version 1.0.0



© 2024 WIZnet Co., Ltd. All Rights Reserved.

For more information, visit our website at http://www.wiznet.io



#### Contents

1 Introc	duction	
2 Githu	Jb Link	4
3 Appli	icable products	4
4 How t	to Test AZURE 2CD Example	4
4.1	Step 1: Prepare software	
4.2	Step 2: Prepare hardware	
4.3	Step 3: Setup AZURE 2CD Example	5
4.4	Step 4: Setup Azure IoT Explorer	7
4.5	Step 5: Build	13
4.6	Step 6: Upload and Run	14
Revisio	on history	

## Figures

FIGURE 1. ADD IOT DEVICES	. 7
FIGURE 2. CREATE A DEVICE	. 8
FIGURE 3. DEVICE SUCCESSFULLY CREATED	. 8
FIGURE 4. CHECK THE DEVICE	. 9
FIGURE 5. COPY THE KEY STRING	. 9
FIGURE 6. SET UP AZURE IOT EXPLORER	10
FIGURE 7. GETTING CONNECTION STRING	10
FIGURE 8. ADD CONNECTION STRING	11
FIGURE 9. SELECT THE DEVICE	12
FIGURE 10. START TELEMETRY	12
FIGURE 11. RECEIVING EVENTS	13
FIGURE 12. USB MASS STORAGE	14
FIGURE 13. TERA TERM	14
FIGURE 14. NETWORK INFO AND CONNECT TO AZURE IOT HUB	15
FIGURE 15. GETTING DEVICE MESSAGES FROM AZURE IOT HUB	16
FIGURE 16. SEND CLOUD-TO-DEVICE MESSAGE	17
FIGURE 17. CHECK THE SEND MESSAGE	17



FIGURE 18. RECEIVED THE C2D MESSAGE	. 18
FIGURE 19. SEND CLOUD-TO-DEVICE MESSAGE 2	. 18
FIGURE 20. RECEIVED THE C2D MESSAGE 2	. 19
FIGURE 21. SEND CLOUD-TO-DEVICE MESSAGE 3	. 19
FIGURE 22. RECEIVED THE C2D MESSAGE 3	. 20

#### Tables

ABLE 1. REVISION HISTORY	21



#### 1 Introduction

This Application Note covers the implementation of AZURE 2CD on WIZnet's TOE Chip.

#### 2 Github Link

https://github.com/WIZnet-ioNIC/WIZnet-PICO-AZURE-C.git

#### 3 Applicable products

Raspberry Pi Pico & WIZnet Ethernet HAT W5100S-EVB-Pico W5500-EVB-Pico W55RP20-EVB-Pico W5100S-EVB-Pico2 W5500-EVB-Pico2

## 4 How to Test AZURE 2CD Example

#### 4.1 Step 1: Prepare software

The following serial terminal program is required for AZURE 2CD example test, download and install from below links.

• <u>Tera Term</u>

#### 4.2 Step 2: Prepare hardware

If you are using W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2, you can skip '1. Combine...'

- 1. Combine WIZnet Ethernet HAT with Raspberry Pi Pico.
- Connect ethernet cable to WIZnet Ethernet HAT, W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2 ethernet port.
- Connect Raspberry Pi Pico, W5100S-EVB-Pico or W5500-EVB-Pico to desktop or laptop using 5 pin micro USB cable. W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2 require a USB Type-C cable.



#### 4.3 Step 3: Setup AZURE 2CD Example

To test the AZURE 2CD example, minor settings shall be done in code.

1. Setup SPI port and pin in 'w5x00\_spi.h' in 'WIZnet-PICO-AZURE-C/port/ioLibrary\_Driver/' directory.

Setup the SPI interface you use.

 If you use the W5100S-EVB-Pico, W5500-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2.

```
/* SPI */
#define SPI_PORT spi0
#define PIN_SCK 18
#define PIN_MOSI 19
#define PIN_MISO 16
#define PIN_CS 17
#define PIN_RST 20
```

If you want to test with the AZURE 2CD example using SPI DMA, uncomment

USE\_SPI\_DMA.

```
/* Use SPI DMA */
//#define USE_SPI_DMA // if you want to use SPI DMA, uncomment.
```

If you use the W55RP20-EVB-Pico,

```
/* SPI */
#define USE_SPI_PIO
#define PIN_SCK 21
#define PIN_MOSI 23
#define PIN_MISO 22
#define PIN_CS 20
#define PIN_RST 25
```

2. In 'WIZnet-PICO-AZURE-C/examples/main.c', uncomment APP\_2CD to choose the sample application.

```
(...)
// The application you wish to use should be uncommented
//
//#define APP_TELEMETRY
#define APP_C2D
//#define APP_CLI_X509
//#define APP_PROV_X509
```



- 3. Setup network configuration such as IP in ' main.c', which is the AZURE 2CD example in 'WIZnet-PICO-AZURE-C/examples/' directory.
- Setup IP, other network settings to suit your network environment.

```
// The application you wish to use DHCP mode should be uncommented
#define _DHCP
static wiz_NetInfo g_net_info =
    {
        .mac = {0x00, 0x08, 0xDC, 0x12, 0x34, 0x56}, // MAC address
        .ip = {192, 168, 11, 2},
                                                     // IP address
        .sn = {255, 255, 255, 0},
                                                     // Subnet Mask
                                                     // Gateway
        .gw = {192, 168, 11, 1},
        .dns = {8, 8, 8, 8},
                                                     // DNS server
#ifdef _DHCP
        .dhcp = NETINFO_DHCP // DHCP enable/disable
#else
        // this example uses static IP
        .dhcp = NETINFO_STATIC
#endif
};
```

4. Edit the 'WIZnet-PICO-AZURE-C/exmaples/sample\_certs.c' entering the proper

connection string and key value from the Azure Portal:

```
/* Paste in the your iothub connection string */
const char pico_az_connectionString[] = "[device connection string]";
```



#### Step 4: Setup Azure IoT Explorer 4.4

In Azure portal, you need to create a device and get the connection string informations as below:

Nore 2 twarelabhub IoT devices x x     IoT Hub        Iot Hub           Iot Hub <th>≡ Microsoft Azure 🔎 Se</th> <th>earch resources, services, and docs (G+/)</th> <th></th> <th></th> <th>D G</th> <th>Q</th> <th>٢</th> <th>0</th> <th>R<sup>bj@</sup></th> <th>twarelab.com</th>	≡ Microsoft Azure 🔎 Se	earch resources, services, and docs (G+/)			D G	Q	٢	0	R <sup>bj@</sup>	twarelab.com
twarelabhub IoT devices * ···   ioT Hub              <	Home > twarelabhub									
	twarelabhub   IoT	devices 🖈 …								×
<ul> <li>bidentity</li> <li>Pricing and scale</li> <li>Pricing and scale</li> <li>Pricing and scale</li> <li>Pricing and scale</li> <li>Certificates</li> <li>Built-in endpoints</li> <li>Failover</li> <li>Properties</li> <li>Locks</li> <li>Locks</li> <li>Device ID</li> <li>Status</li> <li>Last Status Update</li> <li>Automatic Device Management</li> <li>Stoff device-01</li> <li>Enabled</li> <li>Fabled</li> <li>Custom-hsm-device-01</li> <li>Enabled</li> <li>Custom-hsm-device-01</li> <li>Enabled</li> <li>Custom-hsm-device-01</li> <li>Enabled</li> <li>SetSigned</li> <li>SetSigned</li> <li>SetSigned</li> </ul>	Search (Ctrl+/)      Spareg access policies	View, create, delete, and update devices i	n your IoT Hub.							
Image: Printing and scale   Image: Pri	% Identity	Device name								
Activating   Certificates   Built-in endpoints   Failover   Properties   Locks   Explorers   Query explorer   Ior devices   Lot device configuration   Notificates   Softestdevice   Enabled	O Pricing and scale	Find devices								Find using a query
Certificates   Built-in endpoints   Failover   Properties   Locks   Explorers   Query explorer   Io T devices   Naturation Device Management   Signed   Not device configuration   Powice updates	↔ Networking	2	lata							
• Built-in endpoints   • Failover   • Failover   • Failover   • Properties   • Locks   device-007   • Buabled   • r-0   • guery explorer   • Outery explorer   • Iot f device   • Iot f device configuration   • Device updates     Messaging   • File upload     • Status     • Last Status Update     • Last Status Update     • Locks     • device-007   • Enabled   •   • Query explorer   • Iot f device   • Iot Edge   • Iot Edge   • Iot Edge   • File upload     • Status     • Last Status Update     • Automatic Device Management     • Soft   • Iot Edge   • Iot Edge     • Iot Edge     • Iot europerites     • Iot device configuration     • Device updates     • Status     • Interplored     • Notation     • Status     • Iot device configuration     • Device updates     • Message roution     • Message roution     • Device updates     • Device updates     • Iot device ontig     • Device updates	🔎 Certificates		iete							
See Properties   Locks   Explorers   Query explorer   Ouery explorer   Inot devices   Automatic Device Management   Inot device configuration   Inot device configuration   Inot device pudates	<ul> <li>Built-in endpoints</li> <li>Failever</li> </ul>	Device ID	Status	La	ist Status L	Ipdate			Authenticat	tion Cloud
▲ Locks   Explorers   ■ Query explorer   ■ Od evice: 007   Enabled     Sas   0   twarelab_w01   Enabled     Sas   0   twarelab_w01   Enabled     Sas   0   x509testdevice   Enabled     SelfSigned   0   x509testdevice-01   Enabled     SelfSigned   0   SelfSigned   0   SelfSigned   0   SelfSigned   Nessaging   File upload	Properties	twarelab_esptest01	Enabled						Sas	0
Explorers   Query explorer   I of devices   I of devices   Automatic Device Management   Soft device configuration   I of device configuration   I of device pudates	🔒 Locks	device-007	Enabled						Sas	0
Query explore   I lot devices     Automatic Device Management   Automatic Device Management   Automatic Device Management   Automatic Device Management   I of Edge   I of Edge   Custom-hsm-device-01   Enabled     SelfSigned   0     x509testdevice   Enabled     SelfSigned   0     x509testdevice   Enabled     SelfSigned   0     Kessaging   File upload	Explorers	m2040 W51005 1	Enabled						Sac	0
I oT devices     Enabled      Sas     0       Automatic Device Management     x509testdevice     Enabled      SelfSigned     0       I oT Edge     custom-hsm-device-01     Enabled      SelfSigned     0       I oT device configuration     perice updates      SelfSigned     0       Messaging     File upload      Version eruting	Query explorer	12040_001003_1							383	
Automatic Device Management       x509testdevice       Enabled        Selfsigned       0	IoT devices	twarelab_w01	Enabled						Sas	0
In T Edge     custom-hsm-device-01     Enabled      SelfSigned     0       If I or Jevice configuration     Image: Custom - hsm-device-01     Enabled     Image: Custom - hsm-device-01     Image: Custo	Automatic Device Management	x509testdevice	Enabled						SelfSigned	0
	🔮 IoT Edge	custom-hsm-device-01	Enabled						SelfSigned	0
Messaging   Message routing	<ul> <li>IoT device configuration</li> <li>Device updates</li> </ul>									
File upload  Konstance routing	Messaging									
K Message multing	🕒 File upload									
	🔀 Message routing									

Figure 1. Add IoT devices



#### This example uses symmetric key

■ Microsoft Azure	$\sum$	Ŗ	Q	٢	?	~	bj@twarela Wi	ab.com
Home > twarelabhub >								
🕂 Create a device 🖤								×
Find Certified for Azure IoT devices in the Device Catalog								ď
W5100S_EVB_PICO_1								$\checkmark$
Authentication ty 2								
Symmetric key 74509 Self-Signed X.509 CA Signed								
Auto-generate keys								
Connect this device to an IoT hub ①								
Enable 1sisable								
Parent device ①								
Set a parent device								
5								
Save								
•								÷
Figure 2. Create a device								
			•					
Microsoft Azure     P Search resources, services, and docs (G+/)		Ģ	Ψ	¢	?	ন্দি	bj@twarela WL	ZNET.IO
Home > twarelabhub		0	Create	a devi	ice			×
twarelabhub   IoT devices 🖈 …		Devi	ice W5	100S_E	VB_PI	CO_1 succ	essfully crea	ited.
Search (Ctrl+/)     View, create, delete, and update devices in your IoT Hub.								
Y Shared access policies								
% Identity enter device ID								
Pricing and scale     Find devices							> Find usi	ing a query
Add Device C Refresh Delete								
Certificates								
Builden elopoints     Device ID Status	Last Stat	tus Upda	ate			Authen	tication	Cloud
중 Properties twarelab_esptest01 Enabled						Sas		0
A Locks						Sac		0
Explorers						292		0
p2040_W5100S_1 Enabled						Sas		0
IoT devices     twarelab_w01     Enabled						Sas		0
Automatic Device Management x509testdevice Enabled						SelfSigr	ned	0
A IoT Edge custom-hsm-device-01 Enabled						SelfSigi	ned	0
R IoT device configuration						2		
🤣 Device updates								
Messaging								
🕒 File upload								
🔀 Message routing					. 1			_





	${\cal P}$ Search resources, services, and docs (G+/)	DI E E 🗘 🎯 Ø R bj@twarelab.com 🐣 Wiznetio					
Home > twarelabhub							
twarelabhub	IoT devices 🖈 …	×					
Search (Ctrl+/)     snared access policies	View, create, delete, and update devices in your IoT Hub.     Device name						
<ul> <li>Pricing and scale</li> <li>Networking</li> <li>Certificates</li> </ul>	rind device ID     Find devices     Add Device     C Refresh     Delete	Find using a query					
<ul> <li>Built-in endpoints</li> <li>Failover</li> </ul>	Device ID Status	Last Status Update Authentication Cloud					
😤 Properties	twarelab_esptest01 Enabled	Sas 0					
🔒 Locks	device-007 Enabled	Sas 0					
Explorers	rp2040_W5100S_1 Enabled	Sas 0					
Query explorer IoT devices	W5100S_EVB_PICO_1	Sas 0					
Automatic Device Managemen	t twarelab_w01 Enabled	Sas 0					
🔮 IoT Edge	x509testdevice Enabled	SelfSigned 0					
<ul> <li>IoT device configuration</li> <li>Device updates</li> </ul>	custom-hsm-device-01 Enabled	SelfSigned 0					
Messaging							
🕒 File upload							
🔀 Message routing	1						
	Figure 4. Check the c	device					

You copy the key string, "Primary Connection String" and paste the string into your code as described in next section.

Home > twarelabhub > W5100S_EVB_PICO_1	
W5100S_EVB_PICO_1 <ul> <li></li></ul>	
🗟 Save 🖾 Message to Device 🗡 Direct Method 🕂 Add Module Identity 🗮 Device twin 🔍 Manage keys 🗸 🖒 Refresh	<
Device ID 🕕	Î
W5100S_EVB_PICO_1	
Primary Key 🕦	
•	
Secondary Key 🕕	
Primary Connection String 0	
HostName=twarelabhub.azure-devices.net;DeviceId=W5100S_EVB_PICO_1;SharedAccessKey=11Yabvml	
Secondary Connection String 🕦	
•	
Enable connection to IoT Hub 🕦	
Enable	
◯ Disable	
Parent device 🕥	
No parent device	
Module Identities Configurations	
· · · · · · · · · · · · · · · · · · ·	-





To see the message from your IoT Device, you need to make a "Azure IoT Explorer" setting as below:



Figure 6. Set up Azure IoT Explorer

1. In Azure portal, you can get the "Connection String" as follows:



Figure 7. Getting connection string





Figure 8. Add connection string



3. Find the device and click name.

Azure IoT Explorer (preview)							
Home > twarelabhub > Devic	ces <sup>1</sup>						
🛨 New 🖒 Refresh 🛍 Delete							
Query by device ID	$\rho \rightarrow ( \forall Ad$	ld query parameter					
Device ID	Status	Connection st	Authenticatio	Last status up	loT Plug and	Edge device	
twarelab_esptest01	Enabled	Disconnected	Sas				
device-007	Enabled	Disconnected	Sas				
rp2040_W5100S_1	Enabled	Disconnected	Sas				
W5100S_EVB_PICO_1	Enabled	Disconnected	Sas				
twarelab_w01	Enabled	Disconnected	Sas				
x509testdevice	Enabled	Disconnected	SelfSigned				
custom-hsm-device-01	Enabled	Disconnected	SelfSigned				

Figure 9. Select the device

4. Go to "Telemetry" menu, and click "Start".



Figure 10. Start Telemetry



5. Wait for incoming message from your IoT device.

Eile Edit View Window Help           Azure IoT Explorer (preview)         Notifications         Settings								
<u>Home</u> > twarelabhub > <u>Devices</u> > W5100S_EVB_PICO_1 > Telemetry								
=	Stop Show system properties 📋 Clear events {} Simulate a device							
Device identity								
🔁 Device twin	Telemetry 🛈							
🖵 Telemetry	Consumer group ① \$Default							
✓ Direct method	Specify enqueue time 0							
🖂 Cloud-to-device mess	Use built-in event hub							
🛠 Module identities	Yes							
$\mathcal{S}^{\mathcal{T}}$ IoT Plug and Play com	Receiving events							



#### 4.5 Step 5: Build

- 1. After completing the AZURE 2CD example configuration, click 'build' in the status bar at the bottom of Visual Studio Code or press the 'F7' button on the keyboard to build.
- 2. When the build is completed, 'main.uf2' is generated in 'WIZnet-PICO-AZURE-C/build/examples/' directory.



#### 4.6 Step 6: Upload and Run

 While pressing the BOOTSEL button of Raspberry Pi Pico, W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2 power on the board, the USB mass storage 'RPI-RP2' is automatically mounted.

Image: Second secon	View				- 1	- ×
Properties Open Rename Location	Access Map network Add a network	k Open Settings Manage System				
← → · ↑ , , , , , , , , , , , , , , , , , ,	This PC		~	ō	🔎 Search This PC	
3D Objects	Desk	top Doc	uments			^
Downloads	Musi	c Pict	ures			- 1
Videos						
<ul> <li>Devices and drives</li> </ul>	(4)					
Local Disk (C:)	Data	(D:) 시스	:템예약 (E:)			
105 GB free of 2	231 GB 811 G	iB free of 931 GB 84.9	MB free of 99.9 M	в		
RPI-RP2 (F:)						
127 MB free of	127 MB					
11 items						833 📰

Figure 12. USB mass storage

- 2. Drag and drop ' main.uf2' onto the USB mass storage device 'RPI-RP2'.
- 3. Connect to the serial COM port of Raspberry Pi Pico, W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2 with Tera Term.

💆 Tera Term - [disconnected] VT	- 🗆 ×
File Edit Setup Control Window Help	
Tera Term: Serial port setup and connection	× ^
Port: COM9 ~ New open	
Speed: 115200 V	
Data: 8 bit V Cancel	
Parity: none 🗸	
Stop bits: 1 bit V Help	
Flow control: none ~	
Transmit delay	
	×

Figure 13. Tera Term

4. Reset your board.



 If the Azure 2CD example works normally on Raspberry Pi Pico, W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2, you can see the network information of Raspberry Pi Pico, W5100S-EVB-Pico, W5500-EVB-Pico, W55RP20-EVB-Pico, W5100S-EVB-Pico2 or W5500-EVB-Pico2, connecting to the Azure IoT Hub and sending the messages.

🗵 COM10 - Tera Term VT	_		×
Eile Edit Setup Control Window Help			
=== socketio_dowork data recved 0 ===			^
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 0, nb_want: 5			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1932: ssl->f_recv(_timeout)() returned 5 (-0xfffffffb)			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1952: <= fetch input			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:3452: input record: msgtype = 23, version = [3:3], msglen = 29			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1749: ⇒ fetch input			
D:/twarelab/pico-examples/pico-azure-iot-sdw-c/mbedtLs-3.0.0/Library/ssl_msg.c:1904: in_Left: 5, nb_want: 34			
D:/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/Library/ssl_msg.c:1929: tn_left: 5, nb_want: 34			
U:/twarelab/pico-examples/pico-azure-tot-sok-c/moedtls-3.0.0/libnamu/csl_msg.c:1932: ssl-sF_recV(_tuneout)() returned z9 (-0xtttttte3)			
U/(twarelab)picco-examples/picco-azure-tot-sok-c/mbedtis-3.0.0/(ib)ramy/ssc_msg.c:1952: <= Tetch input			
0./ (valetab) ptco-examptes/ ptco-acute+ tot-suk+c/medicts-5.0.0/ (tot) all ytssc_msg.c.1211> vecippt bol D./ (targata)/nico-acute= not-suk+c/medicts-5.0.0/ (tot) all ytssc_msg.c.1211> vecippt bol			
o./ come to prove samples of inclusion concerned to solve the action of the any solve solve to the solve to the			
b. / tware tab/rice.examples/pice-azure-int-sdt-c/macetts-s.o.o/contary/ss_ms/ss2=sort-s-a-read-read-read-			
- 23:37:26 SUBACK   PACKET ID: 2   RETURN CODE: 1			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl msg.c:5205; => read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:3700: ⇒ read record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1749: => fetch input			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1904: in_left: 0, nb_want: 5			
=== socketio_dowork data recved 0 ===			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 0, nb_want: 5			
=== socketio_dowork data recved 0 ===			
pending message 3 to 101Hub			
message: { temperature : 28.803, nontorty :/4.203, scate : Cetstus }			
D:/ val etab/ptco-examptes/ptco-azure-tot-suk-c/mbedite-s.k.v/tib/pts/tises/s205:=> read			
u./ uaietau/ptco-examptes/ptco-acute-tot-suk-c/meetics-s.e.o/(tot) allyssc_msed			
u. / waie tau picorexamples / nicorexamples /			
so character of the construction of the constr			
- United about the second			
== socketio dowork data recved 0 ===			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5486: ⇒ write			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2543: => write record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0529: => encrypt buf			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0766: before encrypt: msglen = 212, including 0 bytes of padding			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0951: <= encrypt buf			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2628: output record: msgtype = 23, version = [3:3], msglen = 236			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1965: => flush output			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1983: message length: 241, out_left: 241			
U:/twaretab/ptco-examples/ptco-azure-iot-sdk-c/mbedtls-3.0.0/ltbrary/ssl_msg.c:1990: ssl-sf_send() returned 241 (-0xtfffff0f)			
U:/twaretab/ptco-examples/ptco-azure-tot-sdk-c/mbedtls-3.0.0/ltbfary/s5Lmsg.c:2018: <= ftush output			
b. ruanetappeterevantes precedente - tot-sole-competitions. et al. (manufacture) and the sole an			
u, ruanetau price-examples price-ezine et ut-sun-ternologites s.v. of tuni any sst_msg.(:::s:u) = wille - 23:37:20 IRBITSH ITS NIRO False   BETATN: 0   ONS: DEITURE AT LEAST NOVE   TODYC NAME: Andres //5100S.EVB.DTO. 1/moresonet/ovents/display.mores	00-Holld	BD204	
-> 25.57.52 POBLISH 1 15_00. Patie 1 Meridina, 0 1 003. Deliver Angle Astronomic devices/W51005_EVE_PIC0_1/Messages/events/display_Messa	ge-ne cu	0_INF204	o mo v

Figure 14. Network Info and connect to Azure IoT Hub



Azure IoT Explorer (preview	) Notificat	ions	🔅 Settings
<u>Home</u> > twarelabhub >	<u>Devices</u> > W5100S_EVB_PICO_1 > Telemetry		
=	■ Stop □ Show system properties । Clear events {} Simulate a device		
Device identity Device twin	Telemetry 🛈		
🖵 Telemetry	Consumer group   SDefault		
✓ Direct method	Specify enqueue time 0		
Cloud-to-device message	Use built-in event hub		
St Module identities	Ves		
<sup>g</sup> <sup>g</sup> IoT Plug and Play compo	Fri Oct 15 2021 08:37:33 GMT+0900 (대한민국 표준시): {     "body": {     "temperature": 28,863,     "humidity": 74,205,     "scale": "Celsius"     },     "enqueuedTime": "Fri Oct 15 2021 08:37:33 GMT+0900     "properties": {     "display_message": "Hello_RP2040_W5100S"     }  Fri Oct 15 2021 08:37:32 GMT+0900 (대한민국 표준시): {		Î
	"body": {		•

Figure 15. Getting device messages from Azure IoT Hub



6. you can send C2D messages to your device with "Azure IoT Explorer" program as follows:

Azure IoT Explorer (preview)	)	Dotifications	🔅 Settings
Home > twarelabhub >	Devices > W5100S_EVB_PICO_1 > Cloud-to-device message		
	4		
≡	Send message to device		
Device identity	Claud to during many a		
🔁 Device twin	Cloud-to-device message		
C Telemetry	Message body O		
✓ Direct method	Hello W5100S-EVB-PICO Board! #1 Message		
Cloud-to-device message	3		11
🛠 Module identities	Add timestamp to message body		
🔊 IoT Plug and Play compo	∧ Properties ○		
	$\oplus$ Add custom property $\bullet$ Add system property $\checkmark$ $\widehat{\parallel}$ Delete		
	Key Value		



Azure IoT Explorer (previ	🗘 Notifications 🛛 🔅 Settings		
<u>Home</u> > twarelabhub	> <u>Devices</u> > W5100S_EVB_PICO_1 > Cloud-to-devic	<ul> <li>Successfully send message</li> <li>2021.</li> <li>10.</li> </ul>	
≡	Send message to device	15. 오전 8:43:46 - Hello W5100S-	
<ul> <li>Device identity</li> <li>Device twin</li> </ul>	Cloud-to-device message ① Message body ①	EVB-PICO Board! #1 Message' to device 'W5100S_EVB_PICO_1'. 8:43:47 AM	
↓ Telemetry ✓ Direct method	Hello W5100S-EVB-PICO Board! #1 Message		
Cloud-to-device mes			
🛠 Module identities	Add timestamp to message body		
& <sup>g</sup> IoT Plug and Play com	<ul> <li>∧ Properties ①</li> <li>⊕ Add custom property</li> <li>⊕ Add system property ∨</li> </ul>	🗊 Delete	
	Key Value		

Figure 17. Check the send message



7. Then, you can see the received C2D message through your "Serial Terminal" window as

#### below:

COM10 - Tera Term VT	-		×
File Edit Setup Control Window Help			
== socketio dowork data recved 128 ===			^
== socketio dowork data recved 4 ===			
=== socketio_dowork data recved 0 ===			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:3700: => read record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1749: => fetch input			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1904: in_left: 0, nb_want: 5			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 0, nb_want: 5			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1932: ssl->f_recv(_timeout)() returned 5 (-0xfffffffb)			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1952: <= fetch input			
D:/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/ltbrary/ssl_msg.c:3452: tnput record: msgtype = 23, version = [3:3], msglen = 255			
U;/twarelab/pico-examples/pico-azure-tot-sqk-c/mbedtL5-3.0.0/titoFary/ssL_msg.c:1/49: => fetch input			
D//twalelab/picco-examples/picc-azure-tot-sok-c/mbedits-s.0.0/tib/ary/sc_imsg.c:1904: ut_tert: 5, nD_want: 200			
$D_{1}$ (was clab/pice-example spice-spice-pice-out-c/modelics-s.o.) (condity ssc_msg.c.1922). (i_cetc. s, m_waint. 200 D) (burst-byhoice out-spice-out-spice-out-spice-out-conditional spice-spice-out-condition)) (imported)) (in the spice-out-spice-			
D. / than't car / the control of the			
b. functed ab/nicn-examples/nicn-azure-int-sdk-c/mbedtls:3.0 0/library/ss] msn c-1211: => decruit buf			
<pre>b.fuarelab/ico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl mso.c:1715: &lt;= decrypt buf</pre>			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl mso.c:3774: <= read record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: <= read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: <= read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: <= read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3 0 0/library/ssl_msg_c:5399' <= read			
4- 23:43:47 PUBLISH   IS_DUP: talse   RETAIN: 0   QOS: DELIVER_AT_LEAST_ONCE   TOPIC_NAME: devices/M51005_EVB_PICO_1/messages/devicebound/%24.mid=:	.ed0895	5-4†8e-	4352
-b/63-c6184ea8/3bC8%24.t0=%2Fdevtces%2FWS100S_EVB_PICO_1%2Fmessages%2Fdevtcebound   PACKEI_ID: 2   PAYLOAD_LEN: /0			
Kecetved Binary message			
ressage ID: 1e008953-4186-4532-0703-c0184e80/30C			
United Control - Consider the Control - Construction - Control - Construction - Const			
D. (twarelab/rico-examples/or co-azure-iot-sdk-c/mbedtls-3 0 0/1 brary/s3 1 ss c-2543 => write record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl msg.c:0529: => encrypt buf			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl msg.c:0766: before encrypt: msglen = 4, including 0 bytes of padding			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0951: <= encrypt buf			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2628: output record: msgtype = 23, version = [3:3], msglen = 28			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1965: => flush output			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1983: message length: 33, out_left: 33			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1990: ssl->f_send() returned 33 (-0xfffffdf)			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2018: <= flush output			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2684: <= write record			
D;/twarelab/plco-examples/plco-azure-lot-sdk-c/mbedtls-3.0.0/llbrary/ssl_msg.c:5510: «= write			
			V

Figure 18. received the C2D message

Azure IoT Explorer (previ	ew)	🗘 Notifications 🛛 🍪 Settings
<u>Home</u> > twarelabhub	> <u>Devices</u> > W5100S_EVB_PICO_1 > Cloud-to-device	Successfully send message × '2021. 10.
≡	☑ Send message to device	15. 오전 8:48:32 - Hello W5100S-
<ul> <li>Device identity</li> <li>Device twin</li> </ul>	Cloud-to-device message 🕕	EVB-PICO Board! #2 Message' to device 'W5100S_EVB_PICO_1'. 8:48:33 AM
C Telemetry	Message body ①	
✓ Direct method		
Cloud-to-device mes		li li
🛠 Module identities	Add timestamp to message body	
	<ul> <li>∧ Properties ①</li> <li>⊕ Add custom property</li> <li>⊕ Add system property ∨</li> </ul>	🗊 Delete
	Key Value	

Figure 19. Send Cloud-to-device message 2



COM10 - Tera Term VT	-		×
Elle Edit Setup Control Window Help			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:3700: => read record			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1749: => fetch input			
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1904: in_left: 0, nb_want: 5			
=== socketio_dowork data recved 128 ===			
=== socketio_dowork data recved 128 ===			
=== socketio_dowork data recved 4 ===			
=== socketio_dowork data recved 0 ===			
):/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 0, nb_want: 5			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1932: ssl-sf_recv(_timeout)() returned 5 (-0xfffffffb)			
:/twarelab/plco-examples/plco-azure-lot-sdk-c/mbedtls-3.0.0/llbrary/ssl_msg.c:1952: <= fetch input			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/lthary/ssl_msg.c:3452: input record: msgtype = 23, version = [3:3], msglen = 255			
$r_{i}$ (waterap/pico-examples/pico-azure-tot-sok-c/mbedtis-3.0.9) (totaty)ss_msg.c:1/49; $\Rightarrow$ fetch uppu			
r/waretau/picco-examples/picco-azure-tot-suk-c/mbedits-3.0.0/tit/aiy/ss_msgl.c:1904; ut_eft: 5, nD_want: 200			
), (wale lay pice-examples pice-azure tot solver (mbedits - 3.0.0) (in a yyssignes), tigett, 3, no wait, 200			
. (waie to / prove samples / prove some to the set / / model is - 0.0 ( to many ssigns) is - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -			
- ( ware cap precessing estimates and end end estimates - ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )			
- / that is a factor of the second seco			
-//warelab/pice-examples/pice-examples/pice-int-sdk-c/mbedtls-3.0 0/library/ssl msg c:3774 = cead record			
://twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl msg.c:5399: <= read			
):/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/ltbrary/ssl msg.c:5205: => read			
):/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: 🖛 read			
):/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: ⇒ read			
):/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: <= read			
):/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5399: <= read			
- 23:48:32 PUBLISH   IS_DUP: false   RETAIN: 0   QOS: DELIVER_AT_LEAST_ONCE   TOPIC_NAME: devices/W5100S_EVB_PIC0_1/messages/devicebound/%24.mid	=1ac365d9	-b2dd-4	474a
84a3-1f2ea904b8358%24.to=%2Fdevices%2FW5100S_EVB_PICO_1%2Fmessages%2Fdevicebound   PACKET_ID: 3   PAYLOAD_LEN: 70			
eceived Binary message			
essage ID: 1ac365d9-b2dd-474a-84a3-1f2ea904b835			
Correlation ID: <unavailable></unavailable>			
Data: <<<2021. 10. 15. ¥ 2 8:48:32 Hello MS1005-EVB-PICO Board! #2 Message> > & SiZe=70			
:/twaretab/ptco-examples/ptco-azure-tot-sub-chattle_2.co/totaryysst_msgtct.9480: => write			
:/ (waretab/picco-examples/picco-azure-tot-sok-c/modetts-s.o. #) (tot) at y/sst_msg.c:2243: ⇒ will the fector of the solution			
)) (waleta)/picco-examples/picc-azure-int-edu-c/mbedites-3.0.0) (bin al y/sst_msg.c.0022) → eliciy(c.bu) )/(bineglab/picco-examples/picco-azure-int-edu-c/mbedite_3.0.0) (binegu/citage.c.0026) hefter agregative medica			
. (ware tab/picco-examples/picco-azure-int-educ/modulis-3.0.0/library/scl msg.c.v/ou. before tailing to the second se			
//warelab/pice-examples/pice-examples/pice-examples/pice-int-site-examples/pice-example			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbettb s-3.0.8/library/ssl ms_c:1965: => flush output			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl mso.c:1983: message length: 33. out left: 33			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl msg.c:1990: ssl->f send() returned 33 (-0xffffffdf)			
:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2018: <= flush output			
p:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2684: <= write record			
)/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5510: <= write			
-> 23:48:33 PUBACK   PACKET ID: 3			

Figure 20. Received the C2D message 2

Azure IoT Explorer (previ	ew)	🖒 Notifications 🛛 🍈 Settings
Home > twarelabhub	> <u>Devices</u> > W5100S_EVB_PICO_1 > Cloud-to-device	Successfully send message × '2021. 10.
=	☑ Send message to device	
<ul> <li>Device identity</li> <li>Device twin</li> </ul>	Cloud-to-device message 🕕	EVB-PICO Board! #3 Message' to device 'W5100S_EVB_PICO_1'. 8:50:15 AM
C Telemetry	Message body  Hello W5100S-EVB-PICO Board! #3 Message	
✓ Direct method		
Cloud-to-device mes		
🛠 Module identities	Add timestamp to message body	
$\mathcal{S}^{\mathcal{T}}$ loT Plug and Play com	<ul> <li>∧ Properties ①</li> <li>⊕ Add custom property</li> <li>⊕ Add system property ∨</li> </ul>	🗊 Delete
	Key Value	

Figure 21. Send Cloud-to-device message 3



📕 COM10 - Tera Term VT – 🛛 🕹 🕹
File Edit Setup Control Window Help
//twarelab/nico.examples/nico.azure-int-sdk-c/mbedtls-3.0.0/library/ssl_msq.c-1740+ => fetch input
-/function/production/production-argume-int-side-c/mbedtls-3.0.0/library/sslmss_c-1994 in left: 0. nb want: 5
== socketto dowork data recved 128 ===
=== socketto dowork data recyed 128 ===
=== socketio_dowork data recved 4 ===
=== socketio_dowork data recved 0 ===
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 0, nb_want: 5
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1932: ssl->f_recv(_timeout)() returned 5 (-0xfffffffb)
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1952: <= fetch input
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:3452: input record: msgtype = 23, version = [3:3], msglen = 255
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1749: => fetch input
0:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1904: in_left: 5, nb_want: 260
0:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1929: in_left: 5, nb_want: 260
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1932: ssl->f_recv(_timeout)() returned 255 (-0xffffff01)
D:/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/ltbrary/ssl_msg.c:1952: <= fetch tnput
D:/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/titprary/ssl_msg.c:1211: => decrypt but
U:/twarelab/pico-examples/pico-azure-tot-sak-c/mpertis-3.0.0/Utbrarg/ssl_msg.c:i/1): <= decrypt Dur
U: (tware Lab/pico-examples/pico-azure-tot-sok-c/mbedtLs-3.0.0/(t)trary/ssL_msg.c:3//4: <= read record
D://warelab/pico-examples/pico-azure-tot-sok-c/mpetits-s.d. 0/tithany/st_tmsg.c:S3991 <= read
0./twarelab/picco-examples/picc-azure tot-suk-//ndeutes-s.0.0/tute allyssc_msgits.1.3203> Tead
0. (tware tab/ptco-examples/ptco
0./ twane tab/pico-examples/pico
0. / tware tab/nico.examples/nico.azure_int.sdts/ndectes-30.0/ con any soci_tast_20005>> read
o//twarela//rico-examples//rico-azure-iot-sdk-c/mbedtls-3 0 0/1/irary/ssl mso c-5399 ≪ read
- 23:50:15 PUBLISH   IS DUP: A SUB- A SUB
-9F4a-c77192948e768824. to=%2F46vtces%2F4/51005 EV8 PICO 1%2Freessages%2Fdevtcebound   PACKET ID: 4 PAYLOAD LEN: 70
Received Binary message
Message ID: 61bcbd12-cfbc-4d91-9f4a-c77192948e76
Correlation ID: <unavailable></unavailable>
Data: <<<2021. 10. 15. 오전 8:50:15 Hello W5100S-EVB-PICO Board! #3 Message> & Size=70
D:/twarelab/pico-examples/pico-azure-t <del>bu-suk-cynocatus-s.u.o/econary/sse_nsg.c.s</del> 486: => write
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2543: => write record
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0529: => encrypt buf
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0766: before encrypt: msglen = 4, including 0 bytes of padding
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:0951: <= encrypt buf
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2628: output record: msgtype = 23, version = [3:3], msglen = 28
0:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1965: => flush output
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:1983: message length: 33, out_left: 33
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtLs-3.0.0/library/ssl_msg.c:1990: ssl->t_send() returned 33 (-0xttttttdf)
D:/twarelab/ptco-examples/ptco-azure-tot-sdk-c/mpedtLs-3.0.0/(tbray/sci_msg.c:2018: <= flush output
D:/twarelab/pico-examples/pico-azure-tot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:2084: <= write record
D: y twate tady pitco-examples pitco-azure-tot-sok-c/MDeotts-3.0.0/ (tbrary/sst_msg.c:ssi0: <= write
-> 23.30.10 PORTACK [ PACKE_10. 4
D:/twarelab/pico-examples/pico-azure-iot-sdk-c/mbedtls-3.0.0/library/ssl_msg.c:5205: => read

Figure 22. Received the C2D message 3



#### **Revision history**

Version	Date	Descriptions
Ver. 1.0.0	Dec, 2024	Initial release.

Table 1. Revision history

## **Copyright Notice**

Copyright 2024 WIZnet Co., Ltd. All Rights Reserved.

Technical Support: https://forum.wiznet.io/

Sales & Distribution: <a href="mailto:sales@wiznet.io">sales@wiznet.io</a>

For more information, visit our website at <a href="https://www.wiznet.io/">https://www.wiznet.io/</a>