MQTT Simple Sample:

The MQTT simple sample is one of the Nordic specific examples. To open and test this sample using Segger Studio follow the directions.

1- Open SEGGER Embedded Studio.



Segger Embedded Studio Dashboard

nRF CMSIS-DSP Samples Solution

2- Go to File > Open nRF connect SDK project.

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3- Set CMakeLists.txt, Board Directory, Board Name and Build Directory.

```
SEGGER Embedded Studio
```

SEGGER Embedded Studio	
nRF Connect Options	
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Board Directory	
C:/ncs/zephyr/boards/arm/nrf9160_pca10090	
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nRF Connect Options

ОК

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mqtt_simple - SEGGER Embedded Studio for ARM (Nordic Edition) V4.18 (64-bit) - Licensed to Ali Soufi - Co-Ax Technology File Edit View Search Navigate Project Build Debug Target Tools Window Help

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MQTT Simple Sample

4- To set the broker, broker port, client id, subscribe topic and publish topic go to
 Project>>Configure nRF Connect SDK Project



Configure nRF Connect SDK Project

5- Choose menuconfig

SEGGER Embedded Studio				×
Configure nRF Connect SDK Project			Filter	
Select the target to configure:				
menuconfig				
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☑ Show Names □ Show Symbols □ Show All	Load	Save As	Configure	Cancel
menuconfig				

6- Change the broker hostname to the broker you need to connect. For testing issues, you can choose any public broker as mosquitto, eclipse or Hivemq, then choose **configure**.

SEGGER Embedded Studio				×
Configure nRF Connect SDK Project			Filter	
 MQTT simple sample MQTT publish topic <mqtt_pub_topic> my/publish/topic</mqtt_pub_topic> MQTT subscribe topic <mqtt_sub_topic> my/subscribe/topic</mqtt_sub_topic> MQTT Client ID <mqtt_client_id> my-client-id</mqtt_client_id> MQTT broker hostname <mqtt_broker_hostname> mqtt.eclipse.org</mqtt_broker_hostname> MQTT broker port <mqtt_broker_port> 1883</mqtt_broker_port> MQTT message buffer size <mqtt_message_buffer_size> 128</mqtt_message_buffer_size> MQTT payload buffer size <mqtt_payload_buffer_size> 128</mqtt_payload_buffer_size> Zephyr Kernel 				
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menuconfig

7- Plug the nRF9160 DK to your computer and go to **Build > Build Solution**.



8- Go to **Target** > **Connect J-Link**, when its connected go back to **Target** and choose **Erase All** (Be sure to erase the board every time you change your code).

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9- Click on the green arrow to program.

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Start Programming

- 10- Run the program and use Tera Term for testing and monitoring.
- 11- In order to test publishing and subscribing with other client you can use any MQTT App, in this example we used **MQTT Box**.

This product is install	ed.	Launch
	WORTEBOX workswithweb • Developer tools > Utilities ★★★★★ 4 Integer Share Developers helper program to create, develop and test MQTT connectivity protocol. MQTTBox enables you to create MQTT clients to publish or subscribe to More WORTED VERVONE Digital Purchases	Free Get Add to cart ♥ Wish list + Offers in-app purchases
	MQTT Box App	

12- Pick a client name, change the protocol to mqtt/tcp and change the host broker to the broker you are using, then go to **save**.

MQTTBox			– 0 ×
MQTTBox Edit Help			O Client Settings Help
MQTT Client Name Test3 Protocol mqtt /tcp v	MOTT Client Id 28064780-0520-489b-a977-22133700a19 C Host mgtt eclipse org	Append timestamp to MQTT client id? ☞ Yes Clean Session? ☞ Yes	Broker is MQTT v3.1.1 compliant? @ Yes Auto connect on app launch? @ Yes
Username Username	Password Password	Reschedule Pings? @ Yes	Queue outgoing QoS zero messages?
Reconnect Period (milliseconds)	Connect Timeout (milliseconds) 30000	KeepAlive (seconds)	
Will - Topic Will - Topic	Will - QoS 0 - Almost Once *	Will - Retain	Will - Payload
	Save	Delete	

MQTT Box App Settings

13- Use your subscribe and publish topics to test publishing and subscribing.

Topic to publish	X Topic to subscribe	
my/subscribe/topic	my/publish/topic	
QoS	QoS	
0 - Almost Once	v 0 - Almost Once	
Retain 🗆	Subscribe	
Payload Type		
Strings / JSON / XML / Characters	Ŧ	
e.g: {'hello':'world'}		
Payload		
	- te	
Publish		

MQTT Client Settings

Be sure to use your publishing topic to publish your message on the other side(client) and your subscribing topic to receive a message from the other side(client). Figures 5.47 and 5.48 show the messages that both clients get in case of publishing or subscribing.

To Publish a message in this example you need to modify the example code by adding a publish function. We used this function to publish our test message

```
data_publish(&client, MQTT_QOS_1_AT_LEAST_ONCE, "test", strlen("test"));
```

```
void mqtt_evt_handler(struct mqtt_client *const c,
                      const struct mqtt_evt *evt)
{
        int err;
        switch (evt->type) {
        case MQTT EVT CONNACK:
                if (evt->result != 0) {
                        printk("MQTT connect failed %d\n", evt->result);
                        break;
                }
                connected = true;
                printk("[%s:%d] MQTT client connected!\n", __func__, __LINE__);
                subscribe();
{
                data_publish(&client, MQTT_QOS_1_AT_LEAST_ONCE, "test", strlen("test"));
        }
                break;
```

If you don't edit the code it will connect, and you will be able to receive messages but without publishing.

Topic to publish	×	₩ my/publish/lopic
my/subscribe/topic		teet
QoS		lest
0 - Almost Once	•	<pre>qos : 0, retain : false, cmd : publish, dup : false, topic : my/p ublish/topic. messageld : _length : 22_Raw payload : 11610</pre>
Retain		1115116
Payload Type		
Strings / JSON / XML / Characters	•	
e.g: {'hello':'world'}		
Payload		
Test1		
Publish		
Test1		
topic:my/subscribe/topic, qos:0, retain:false		

MQTT Client Settings

File Edit Setup Control Window Help 19 NRF_EGU1 Non-Secure OK 20 NRF_EGU2 Non-Secure OK 21 NRF_GPIOTE1 Non-Secure OK SPM: NS image at 0xc000 SPM: NS mage at 0xc000 SPM: NS meset vector at 0xe309 SPM: Ns reset vector at 0xe309 SPM: Ns reset vector at 0xe309 SPM: prepare to jump to Non-Secure image. ****** Booting Zephyr OS v1.14.99-ncs2 ***** The MQIT simple sample started LTE Link Connecting LTE Link Connected? IPv4 Address found 198.41.30.241 Imgtt_evt_handler:1661 MQIT client connected? Subscribing to: my/subscribe/topic len 18 Publishing: test to topic: my/publish/topic len: 16 Imgtt_evt_handler:2213 SUBACK packet id: 1234 Imgt_evt_handler:1861 MQIT PUBLISH result=0 len=5 Received: Test1 Publishing: Test1 to topic: my/publish/topic len: 16 Imgtt_evt_handler:2113 PUBACK packet id: 57421 Yata	🚾 COM11 - Tera Term VT	_	\times
19 NRF_EGU1 Non-Secure OK 20 NRF_EGU2 Non-Secure OK 21 NRF_GPIOTE1 Non-Secure OK SPM: NS image at ØxcØØØ SPM: NS mSP at Øx20024558 SPM: NS reset vector at Øxe309 SPM: prepare to jump to Non-Secure image. ****** Booting Zephyr OS v1.14.99-ncs2 ***** The MQTT simple sample started LTE Link Connecting LTE Link Connected! IPv4 Address found 198.41.30.241 Inqt_evt_handler:1661 MQTT client connected! Subscribing to: my/subscribe/topic len 18 Publishing: test to topic: my/publish/topic len: 16 Imqt_evt_handler:1861 MQTT PUBLISH result=0 len=5 Received: Test1 Publishing: Test1 to topic: my/publish/topic len: 16 Imqtt_evt_handler:2111 PUBACK packet id: 57421	File Edit Setup Control Window Help		
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	 <pre>SPM: NS image at 0xc000 SPM: NS MSP at 0x20024558 SPM: NS reset vector at 0xe309 SPM: prepare to jump to Non-Secure image. ***** Booting Zephyr OS v1.14.99-ncs2 ***** The MQTT simple sample started LTE Link Connected! LTE Link Connected! IPv4 Address found 198.41.30.241 Imgtt_evt_handler:1661 MQTT client connected! Subscribing to: my/subscribe/topic len 18 Publishing: test to topic: my/publish/topic len: 16 Imgtt_evt_handler:2211 SUBACK packet id: 1234 Imgtt_evt_handler:1861 MQTT PUBLISH result=0 len=5 Received: Test1 Publishing: Test1 to topic: my/publish/topic len: 16 Imgtt_evt_handler:2111 PUBACK packet id: 57421</pre>		

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Tera Term