

8.3 Basic MQTT Setup on EZLogix

The EZLogix PLC MQTT Publish instructions is looked at in *Section 3.3.16*. But before the instruction can be used the MQTT Broker information needs to be configured. To do this please go to **Setup > MQTT Setup....** The needed information for this setup is:

Information Type	Description	Example
Domain Name	This is the broker URL. Used to find your broker that you have configured.	m12.cloudmqtt.com
Port Number	Port number that your broker uses.	16581
Client ID	Individual connection ID. Needs to be different for every client otherwise will encounter problems. Can be random.	ee097f5c-fa36-4929-9414-fad17b3df3bd
User Name	Your configured username for EZLogix connection to broker. Should be different for every client.	
Password	Your configured password for EZLogix connection to broker. Should be different for every client.	

Instruction to setup MQTT:

10. Go to **Setup > MQTT Setup....** You will see the following dialog box appear.

11. Use the Domain Name Lookup with the Domain Name from the broker to find the Broker IP Address.

12. Enter the port number from the broker.

13. Select your keep alive interval if wanted. See *section 8.6* for more information.

14. Enter a unique client ID or generate one using the Generate Unique Id button.

15. Enter the user name and password for your broker.

8.4 Broker Setup

The EZLogix PLC can work with any third party broker. It has been tested and used extensively with the CloudMQTT broker. This section will go through some important information about setup of your broker.

CloudMQTT has a free plan for testing purposes. Please see below for setup instructions.

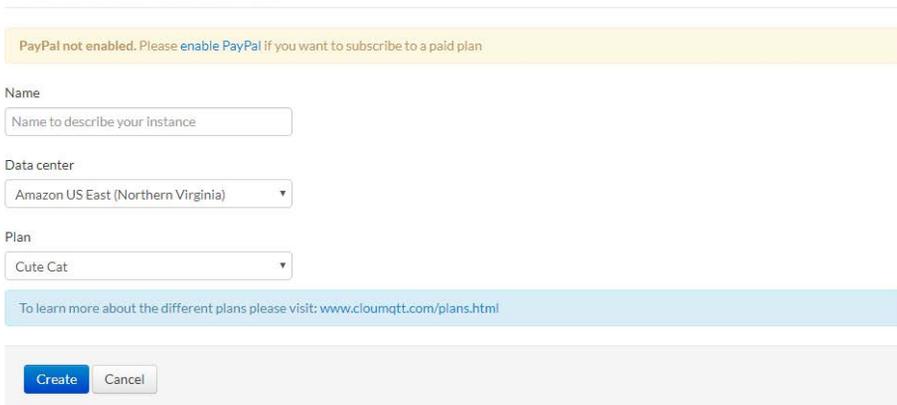
Broker Setup Basics

1. For any broker you can go to their website and create an account. For the CloudMQTT broker you go to <https://www.cloudmqtt.com/>.



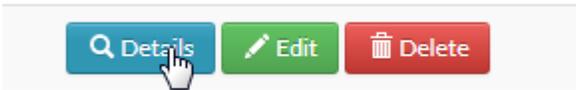
2. Then the plans section will give you information on the different plans available and their cost. The documentation provides information about how MQTT works. Support is the CloudMQTT Tech Support. Finally the Control Panel is what you use to create the MQTT connection.
3. After going to Control Panel, please create an account or login to an account.
4. In the account create a new CloudMQTT Instance.

Create new CloudMQTT Instance

A form for creating a new CloudMQTT instance. At the top, there is a yellow warning box that says 'PayPal not enabled. Please enable PayPal if you want to subscribe to a paid plan'. Below this, there are three input fields: 'Name' (with placeholder text 'Name to describe your instance'), 'Data center' (a dropdown menu currently showing 'Amazon US East (Northern Virginia)'), and 'Plan' (a dropdown menu currently showing 'Cute Cat'). Below the form fields is a light blue informational box that says 'To learn more about the different plans please visit: www.cloudmqtt.com/plans.html'. At the bottom of the form are two buttons: 'Create' (in blue) and 'Cancel' (in light gray).

5. Enter a Name, select the Data Center and then for the free plan use the Cute Cat plan.

6. Once the Instance is create click on details to find the information needed to subscribe to this broker.



7. The Instance Info is the information that is needed for both the EZLogix Designer Pro and EZ-IIoT Subscriber Utility.

Instance info

Server

User

Password

Port

8. This information provides the details for this connections where:

EZLogix	Instance Info
Domain Name	Server
Port Number	Port
Client ID	N.A.
User Name	User
Password	Password

9. You can also add more users in the Manage Users section. You just need to provide the username and password.

Manage Users

username password

10. Finally you can create ACL rules which govern what each user can access. This allows for management and distribution of topics to the correct people.

ACLs

Note:

- You have to set a acl rule for a custom user before it can access anything
- Use # for multi level wildcard ACL
- Use + for single level wildcard ACL

For API docs look at [HTTP API](#)

11. You have now configured your broker and it can be used with the EZLogix PLC and the EZ-IIoT Subscriber Utility.

8.5 EZLogix IIoT (MQTT) Example

This sections shows the creation of an IIoT (MQTT) Publish instruction from start to finish in a project. It requires that the user has created a broker and has broker information.

Used Broker Information:

Information Type	Information
Domain Name	m12.cloudmqtt.com
Port Number	16581
Client ID	Test-ID0001
User Name	TEST
Password	AVG123

1. In a open project go to **Setup > MQTT Setup...**

2. Click on Domain Name Lookup.

3. Enter the domain name and press Lookup. This will find the domain's IP address. Once found press Use Selected IP.

4. The Broker IP will now have been entered.
5. Next input the port number (16581).
6. For this example we keep the Keep Alive Interval at 0.
7. Enter the Client ID or generate an Unique one.
8. Finally add your broker username and password.

9. The final result should look something like this.

The screenshot shows the 'MQTT Setup' dialog box with the 'MQTT Topics' tab selected. The fields are as follows:

- Broker IP: 52 . 3 . 184 . 147
- Port Number: 0 (Default: 1883)
- Keep Alive Interval: 16581 Seconds
- Client Id: Client-ID0001
- User Name: TEST
- Password: AVG123

Buttons at the bottom include Export, Import, OK, Cancel, and Help.

10. Now go to the MQTT Topics. Use the Add Topic to add a topic, for example:

EZLogixPLC/TestTopic

The screenshot shows the 'MQTT Setup' dialog box with the 'MQTT Topics' tab selected. The 'Add Topic 1' dialog box is open, showing the following details:

- Topic Name (Maximum 64 char topic name): EZLogixPLC/TestTopic
- QoS: At Most Once (0) At Least Once (1)
- Retain Message:

Buttons at the bottom of the 'Add Topic 1' dialog include Add Topic 1 and Cancel.

The background 'MQTT Setup' dialog shows a table with columns: Sl.No., Topic, QoS, Retain.

11. You can also select here the QoS (Quality of Service) and whether the message should be retained.

12. You have now configured your MQTT connection. Next you need to add the IIoT (MQTT) Publish instruction.



13. In the sidebar select the IIoT (MQTT) Publish instruction and add it to your logic. Double click on the instruction to bring up the configuration dialog.

IIoT (MQTT) Publish Instruction

Instruction Details

Broker and Topic

Publish to Broker: 52.3.184.147:16581 MQTT Setup

Topic

EZLogixPLC/TestTopic

Retain Message: No, QoS: At Most Once

Publish

Publish Type: On Rising Edge of Event Tag

Event/Enable Tag

Publish Time-interval: 0 Minute

Publish Status Tag

Status value definitions:

00: Normal operation (No Errors) 02: Connect failure
64: Done 04: Publish failure

Select Tags

For string tags > 40 char, only 40 char would be included in the value.

Decimal Places for Floating Point Tags: 5

Available Tags:

Name	Address	Type
PUBLISH TAG	R1	UNSIGNED_INT_16

>>

<<

Selected Tags: (0/10)

Name	Address	Type

Delete Tag(s)

Move Tag Up

Move Tag Down

OK Cancel Help

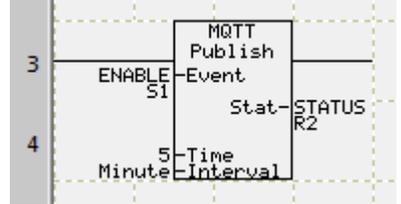
14. Under publish select the type of publishing you would like. For this example it will be At Regular Time Intervals (When Enable Tag is High).

15. Now add an Enable Tag, set the Publish Time-interval to 5 Minutes, and add an Status Tag.

16. Finally move the publish tag to the selected tag area. Final result will look like this:

Where this instruction will publish the Publish Tag to the broker every 5 minutes when the Enable (S1) tag is ON.

The published topic will be:
EZLogixPLC/TestTopic/PUBLISH TAG



Published value will include a timestamp and the current value of PUBLISH TAG (R1).

Broker and Topic
Publish to Broker: 52.3.184.147:16581 [MQTT Setup]
Topic: EZLogixPLC/TestTopic
Retain Message: No, QoS: At Most Once

Publish
Publish Type: At Regular Time Intervals (When Enable Tag is High)
Event/Enable Tag: ENABLE
Publish Time-interval: 5 Minute
Publish Status Tag: STATUS
Status value definitions:
00: Normal operation (No Errors) 02: Connect failure
64: Done 04: Publish failure

Select Tags
For string tags > 40 char, only 40 char would be included in the value.

Name	Address	Type
PUBLISH TAG	R 1	UNSIGNED_INT_16

Buttons: >>, <<, Delete Tag(s), Move Tag Up, Move Tag Down

Buttons: OK, Cancel, Help