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1 Introduction

This document provides instructions on how to install and use the One Sight Solutions ossEasyMQTT Niagara module.

2 Requirements

It is assumed that the user is trained in the use of Niagara 4 and is familiar with the use of MQTT.

The ossEasyMQTT software is only compatible with Niagara versions 4.7 or later.

You must read the [End User License Agreement](#) at the end of this document before using this software.

3 Installation

3.1 Niagara Software Module Installation

Before the ossEasyMQTT software can be used, the Niagara software modules must be installed on the user's PC and the target host.

The two software module files supplied by One Sight Solutions must be installed on the host using the Niagara platform software manager:

- ossEasyMqtt-rt.jar
- ossEasyMqtt-wb.jar

These software files must also be installed in the appropriate Niagara modules directory of any PC on which you intend to access the ossEasyMQTT software.

3.2 Niagara Software Licensing

The host running the ossEasyMQTT software must be licensed by One Sight Solutions before it will operate correctly.

The following information is required to generate the ossEasyMQTT license:

- Niagara host identifier (e.g. Qnx-TITAN-0000-XXXX-XXXX).
- Niagara host serial number.

Please send this information to [One Sight Solutions: sales@onesight.solutions](mailto:sales@onesight.solutions)

It is recommended that the license is installed on the Niagara host using the platform license manager import capability to download the license directly from the Niagara license server over the internet. If it is not possible for the host to download the license from the internet then One Sight Solutions can supply the necessary license files which can be installed manually.

Ensure that the One Sight Solutions certificate is also installed, so the Niagara platform license manager should show both of the following files:

- OneSightSolutions.license
- OneSightSolutions.certificate

The host should reboot during the license installation process.

3.3 Platform DNS Configuration

For the ossEasyMQTT software to make network connections using named web sites it requires that the host has a valid DNS server assigned. This is not required if only IP addresses are being used.

This might be an internal DNS server or an external one such as Google (8.8.8.8).

To ensure that your platform has a DNS server set up go to 'Platform->TCP/IP Configuration' and look for the correct interface (i.e. the network connection you are using) and ensure the DNS servers property has a valid value, see Figure 1.

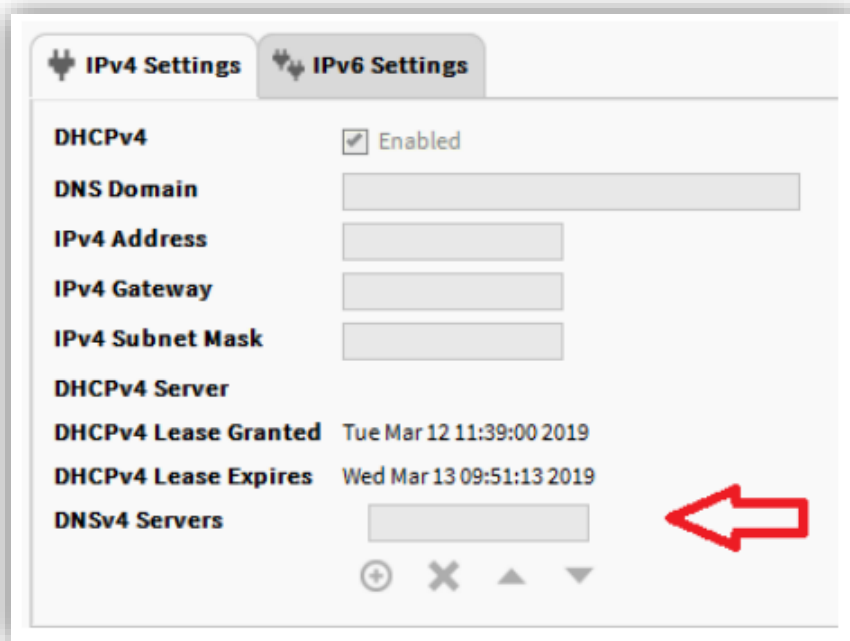


Figure 1: Platform DNS Configuration

Please contact your network system administrator if you are unsure if this is configured correctly.

4 Getting Started with the OSS Easy MQTT Component

The following is an introduction to using the ossEasyMQTT client.

4.1 Set up a MQTT broker connection

First open the 'ossEasyMQTT' palette.

Drag the OssMqttService component from the palette into the Niagara station services folder.

Then drag a MqttBroker component from the palette into this OssMqttService container.

Go to the property sheet of this new MqttBroker component and expand the Connection section so you can see the connection properties, as shown in **Figure 2**.

The screenshot shows the 'Property Sheet' for the 'MqttBroker (Oss Mqtt Broker)' component. The 'Connection' section is expanded, revealing various configuration options. The 'Enabled' property is set to 'true'. The 'Status' is '{ok}'. The 'Alarm' section shows 'Broker Alarm' and 'Current State' is 'Idle'. The 'Connected' property is 'false'. The 'Last Connect Time' and 'Last Disconnect Time' are both 'null'. The 'Description' field is empty. The 'Connection' section is titled 'Broker Connection Config' and includes fields for 'Broker Host', 'Broker Port' (8883), 'Security' (Login Over SSL), 'Login' (Username and Password fields), 'Client Identifier' (oss49326702760148), 'Clean Session' (false), 'Connect Timeout' (30 s), 'Keep Alive Interval' (60 s), 'Connect At Startup' (true), and 'Enable L W T' (false). The 'Statistics' section is titled 'Broker Statistics'.

Property	Value
Enabled	true
Status	{ok}
Fault Cause	
Alarm	Broker Alarm
Current State	Idle
Connected	false
Last Connect Time	null
Last Disconnect Time	null
Description	
Connection	Broker Connection Config
Broker Host	
Broker Port	8883
Security	Login Over SSL
Login	Username: , Password:
Client Identifier	oss49326702760148
Clean Session	false
Connect Timeout	30 s
Keep Alive Interval	60 s
Connect At Startup	true
Enable L W T	false
Statistics	Broker Statistics

Figure 2: MQTT Connection Properties

Enter the address the of the MQTT broker host.

Remember that you will need to set up the DNS server if you are **not** using numeric IP addresses (as described in section 3.3).

Make sure you have the correct broker port value as it may change according to the credential option you choose.

The credential options are:

- Anonymous
- Anonymous Over SSL
- Login
- Login Over SSL
- Certificate

Select the appropriate option for your MQTT broker and click refresh to ensure the available properties are updated.

Enter the required credentials for the chosen option (e.g. username and password).

Run the 'Connect' action on the MqttBroker component and wait for the software to connect to the MQTT broker server.

4.2 Set up a MQTT subscriber

Drag a `MqttSubscriber` component from the palette into the `MqttBroker` container.

Enter the MQTT topic for the data you want to access into the subscriber topic property.

Run the 'Subscribe' action on the MqttSubscriber component.

Any data that is published to that topic on the broker will now appear in the 'Message Out' property.

Property Sheet	
<div> <div> <div></div> <div>MqttBroker (Oss Mqtt Broker)</div> </div> </div>	
Enabled	true
Status	{ok}
Fault Cause	
Alarm	Broker Alarm
Current State	Connected
Connected	true
Last Connect Time	18-Feb-2021 11:56:07 AM GMT
Last Disconnect Time	null
Description	
Connection	Broker Connection Config
Enable L W T	false
Statistics	Broker Statistics
MqttSubscriber	Oss Mqtt Subscriber
Enabled	true
Status	{ok}
Fault Cause	
Description	
Topic	osslora/application/1/device/0018b200000211cb/rx
Subscription Qos	At Most Once
Subscribed	true
Message Out	<pre>{ "applicationID": "1", "applicationName": "EnviroMonitoring", "deviceName": "18b200000211cb", "topic": "osslora/application/1/device/0018b200000211cb/rx", "payload": "18b200000211cb" }</pre>
Message Size	615
Received Qos	At Most Once
Retained	false
Last Update	18-Feb-2021 11:57:20 AM GMT
Statistics	Subscribe Statistics

Figure 3: MQTT Subscriber

4.3 Set up a MQTT publisher

Drag a MqttPublisher component from the palette into the MqttBroker container.

Enter the MQTT topic for the data you want to publish to into the publisher topic property.

Data entered into the 'Message In' property will now be sent to the specified topic on the broker.

By default data will be published whenever the 'Message In' property changes.

But publishes can be sent manually by setting the 'Publish On Change' property to false and using the MqttPublisher 'Publish' action.

The screenshot shows the 'Property Sheet' for two components: MqttBroker (Oss Mqtt Broker) and MqttPublisher (Oss Mqtt Publisher).

MqttBroker (Oss Mqtt Broker) Properties:

- Enabled: ☒ true
- Status: {ok}
- Fault Cause:
- Alarm: Broker Alarm
 - Current State: Connected
 - Connected: ☒ true
 - Last Connect Time: 18-Feb-2021 11:56:07 AM GMT
 - Last Disconnect Time: null
 - Description:
- Connection: Broker Connection Config
 - Enable L W T: ☐ false
- Statistics: Broker Statistics

MqttPublisher (Oss Mqtt Publisher) Properties:

- Enabled: ☒ true
- Status: {ok}
- Fault Cause:
- Description:
- Topic: test/meter1
- Qos: At Most Once
- Message In: 123456
- Retained: ☐ false
- Last Published: 18-Feb-2021 12:15:57 PM GMT
- Message Size: 6
- Publish On Change: ☒ true
- Ignore Empty Messages: ☐ false
- Statistics: Publish Statistics

Figure 4: MQTT Publisher

5 Appendix

5.1 End User License Agreement

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