

Internet of Things (IoT) – JNIOR MQTT Topic Format

For Use with the JNIOR Series 4

Last updated: September 26, 2018

The following information describes the MQTT Topic format for use with the JNIOR Series 4 and its MQTT communication protocol application.

If you have any questions or want to use the JNIOR and MQTT protocol with additional information available in the JNIOR or with custom information or with a specific broker, please contact INTEG via e-mail at jniorsales@integpg.com or via phone at 724-933-9350 extension 20. INTEG can adapt the MQTT application running on the JNIOR to meet your specific needs.

Overview

The INTEG JNIOR automation controller is capable of being an edge device for the Internet of Things (IoT) applications using the MQTT protocol. The JNIOR can both publish and subscribe to topics using an MQTT broker.

The JNIOR implements the complete MQTT protocol including CONNECT, CONNACK, PUBLISH, PUBACK, SUBSCRIBE, SUBACK and UNSUBSCRIBE. The JNIOR can also provide all three Quality of Service levels.

The JNIOR topics are structured as follows for subscriptions and publications.

SUBSCRIPTIONS

NOTES:

- *Serial_number* is replaced with the JNIOR serial number. This makes the data unique per JNIOR.
- The number of digital inputs and outputs is a function of the JNIOR Model being used and any relay output expansion modules attached to the JNIOR.

					DATA
<i>jnior/serial_number</i>	/hostname				Hostname for JNIOR
<i>jnior/serial_number</i>	/digital	/inputs	/1		Any input number 1 - 12
				/state /counter /usagemeter	-true or false -increments each time input goes OFF to ON -number of hours input has been ON
<i>jnior/serial_number</i>	/digital	/outputs	/1		Any output number 1 - 16
				/state /usagemeter	-true or false -number of hours input has been ON
<i>jnior/serial_number</i>	/4-20	/inputs	/1		Any input number 1 - 8
				/raw /scaled	-raw 0 – 65,535 -scaled value
	/4-20	/outputs	/1		Any output number 1 - 4
				/raw /scaled	-raw 0 – 65,535 -scaled value
<i>jnior/serial_number</i>	/tenvolt	/inputs	/1		Any input number 1 - 8
				/raw /scaled	-raw 0 – 65,535 -scaled value
	/tenvolt	/outputs	/1		Any output number 1 - 4
				/raw /scaled	-raw 0 – 65,535 -scaled value
<i>jnior/serial_number</i>	/temperature	/temperature	/1		Any number 1 - 10
				/tempf /tempc	-degrees Fahrenheit -degrees Celsius
<i>jnior/serial_number</i>	/humidity	/humidity	/1		Any number 1 - 4
				/percent	-percent humidity
<i>jnior/serial_number</i>	/led	/outputs	/1		Any number 1 - 12
				/setting /transition	-percent output 0 – 100 -duration to change value

PUBLICATIONS

DIGITAL INPUTS

You cannot currently publish to the JNIOR digital inputs, but if needed, functionality can be added to:

- turn the digital input ‘logically’ ON or OFF by setting the inversion key for an input
- change the value of the usage meter
- change the value of the counter

					DATA
<i>jnior/serial_number</i>	/digital	/outputs	/1		Any output number 1 - 16
				/set-state	true or false -Turns output ON or OFF
					true_duration -Pulses output ON for duration
					false_duration -Pulses output OFF for duration
<i>jnior/serial_number</i>	/4-20	/outputs	/1		Any output number 1 - 4
				/set-value	-0 – 100.00%
<i>jnior/serial_number</i>	/tenvolt	/outputs	/1		Any output number 1 - 4
				/set-value	-0-100.00%
<i>jnior/serial_number</i>	/led	/outputs	/1		Any number 1 - 12
				/set-value	-0 – 100.00%
				/set-transition	-duration time in ms

Example

The following is an example using the JNIOR with an MQTT broker and MQTT client.

JNIOR

The JNIOR being used is a public JNIOR with the link to the JNIOR web page as follows:

<http://home.integpg.com:8080/>

Broker

The MQTT application running on the above JNIOR is connected to the MQTT broker provided by SpimeSenseLabs and their Master of Things IoT Application Enablement Platform. The link to the broker is as follows:

mqttserver.masterofthings.com on the standard MQTT port 1883

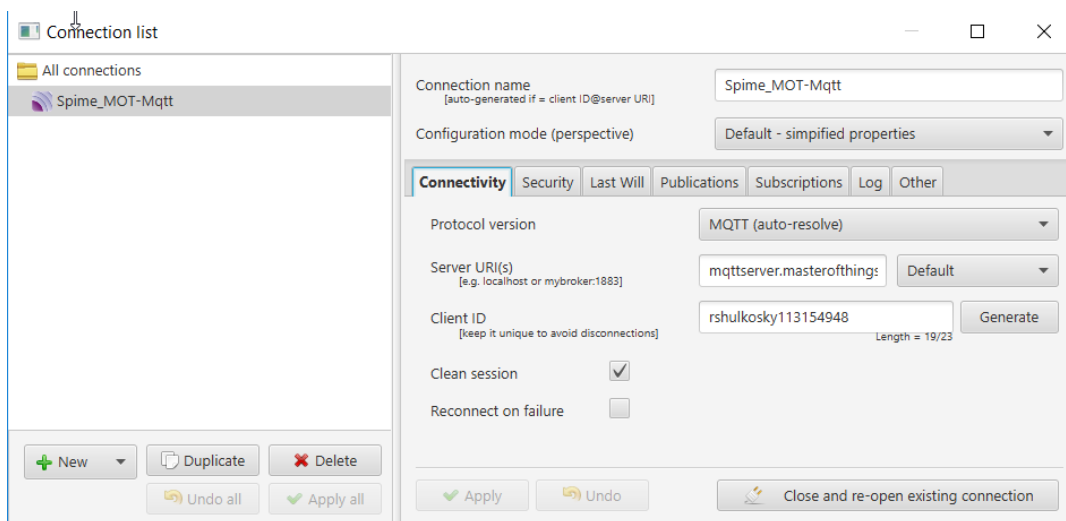
Client

In order to control and monitor the JNIOR via the MoT MQTT broker, a free MQTT client from GitHub, mqtt-spy v1.0.0., was downloaded and used. The website and download links are as follows:

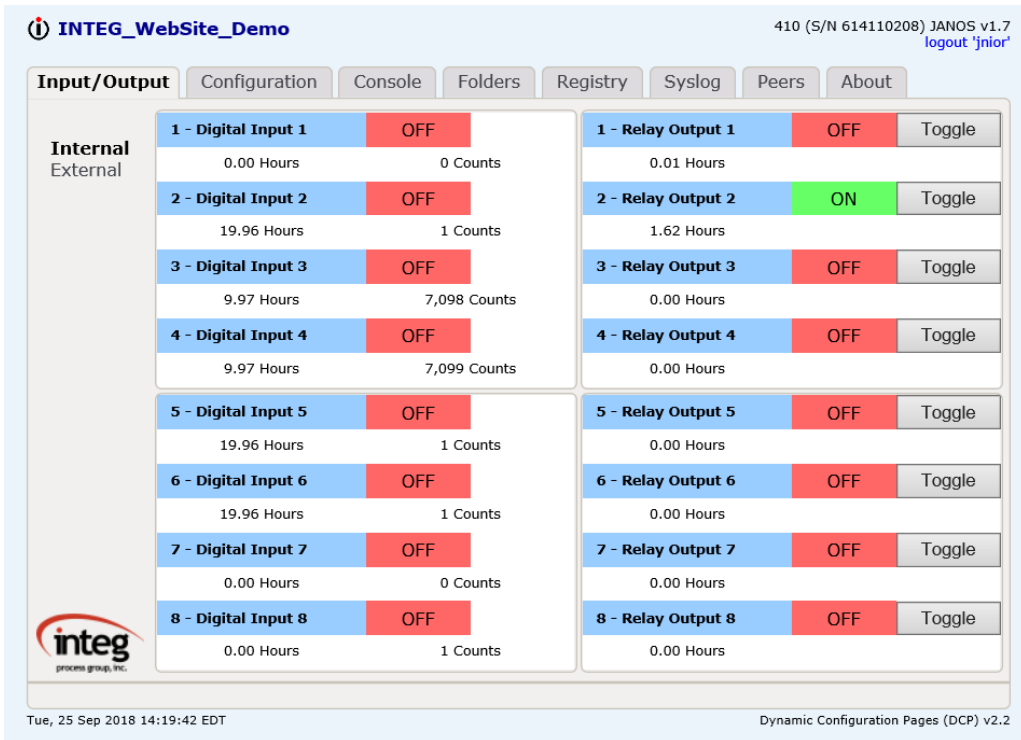
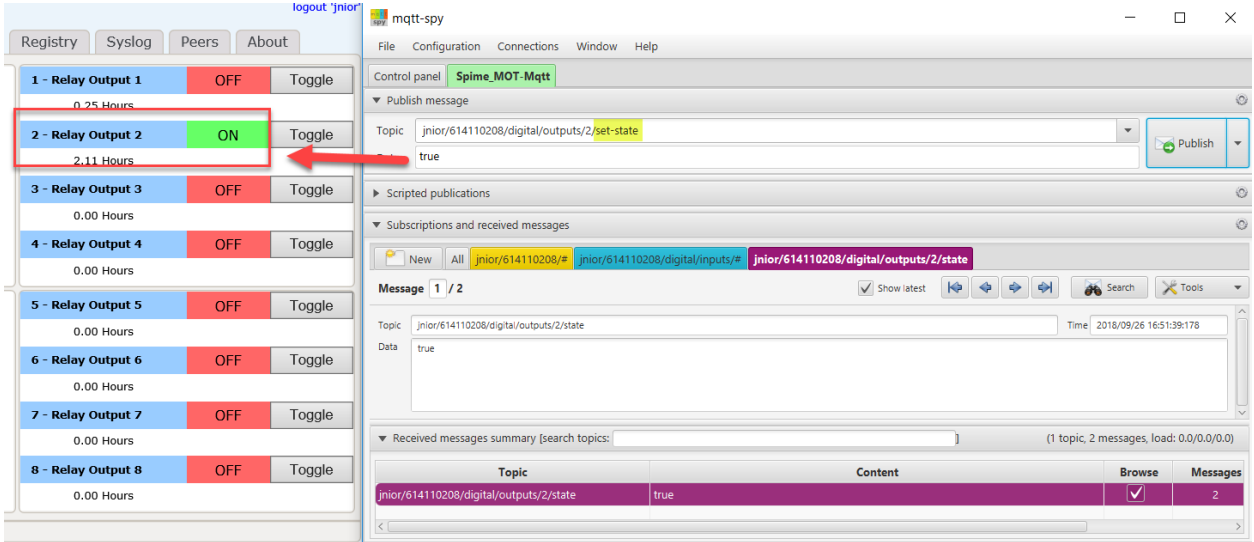
<https://github.com/eclipse/paho.mqtt-spy/releases>

<https://github.com/eclipse/paho.mqtt-spy/releases/download/1.0.0/mqtt-spy-1.0.0.jar>

Below is a picture of the client configured to work with the Spime Mot MQTT broker.



Below are pictures of the mqtt-spy client showing that you can 'publish' the topic to turn JNIOR relay number 2 ON and also 'subscribe' to the topic for the status of relay number 2. When you publish to turn relay 2 ON, the relay will turn ON in the JNIOR web page.



If you elect to subscribe to all of the JNIOR topics and the I/O is changing, then you can see all the data that is changing.

