

*Control Solutions' Babel Buster® MQ-61 IoT Gateway* turns any Modbus device into a Thing on the Internet of Things. Gain instant access to a wide range of machine learning and AI capabilities, a wide range of data storage and analytics, and a variety of event handling and notification capabilities. All of this is made possible by the MQ-61 IoT Gateway and the many features of Amazon Web Services.

The Babel Buster MQ-61 will poll one or more Modbus RTU and/or Modbus TCP devices, collecting data from the list of registers you provide. Based on rules you create, the MQ-61 will decide if and when to publish that data to the AWS server. You can also configure the MQ-61 to subscribe to data coming from the AWS server, which you can then write out to Modbus devices to manage setpoints and the like. AWS IoT is based on the MQTT protocol. Sending data to the AWS server and receiving data from the AWS server is all done in MQTT protocol using JSON to represent the data.

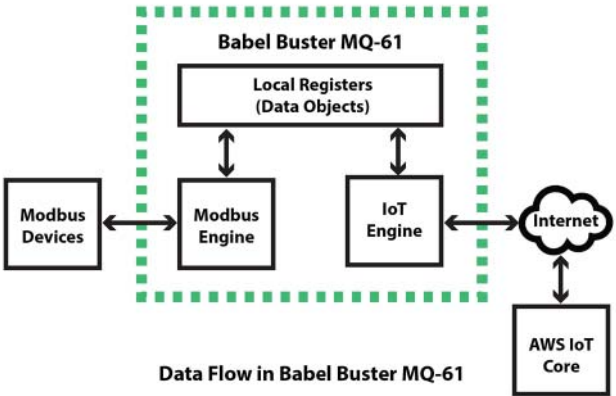
The MQTT “publish” action, in controls terms, is most closely associated with sensors. Your hardware has collected sensor data, and you want to send that sensor data to a server or to other control devices. To send that data, you “publish” it.

The MQTT “subscribe” action, in controls terms, is most closely associated with actuators. The “subscribe” action would also be associated with control setpoints. You can never force data into a device via MQTT. The device, in our case the MQ-61, must subscribe to the source of data effectively asking to be informed of changes. Once you have subscribed to an MQTT source of data, then when received, you can use that data to control actuators or update setpoints.

The MQ-61 IoT Gateway is capable of more than just transferring data between Modbus devices and the AWS servers. It includes Script Basic built in to provide easy-to-use local programming for data analysis and local decision making. This capability is referred to as Edge Computing in IoT terminology.

One of the many things you can do with data that has been published to the AWS server by the Babel Buster MQ-61 is analyze and visualize the data. The graph illustrated above represents data published by an MQ-61, and the steps taken to get this graph are outlined in the user guide.

The data flow in the MQ-61 is illustrated below. Data is collected from Modbus devices by the Modbus engine which stores that data in local registers or data objects. The Modbus data is automatically updated on a continual basis. Meanwhile, the IoT engine is looking at its set of publish and subscribe rules to decide when to publish data from the local registers to the AWS server. These rules are also created by the user and data will be published according to the criteria set up by the user.



The MQ-61 can be Modbus RTU master or slave (user selectable), and Modbus TCP client and server (concurrently). Maps created via templates in the MQ-61’s web UI will read and write other Modbus devices, copying their data to local registers when read, or sending data from local registers to those devices when written. Holding registers can be integer, unsigned integer, or IEEE 754 floating point, single or double precision. The MQ-61 also supports character strings as a series of registers having two ASCII characters per register.

# Babel Buster IoT

MODEL MQ-61  
IOT GATEWAY

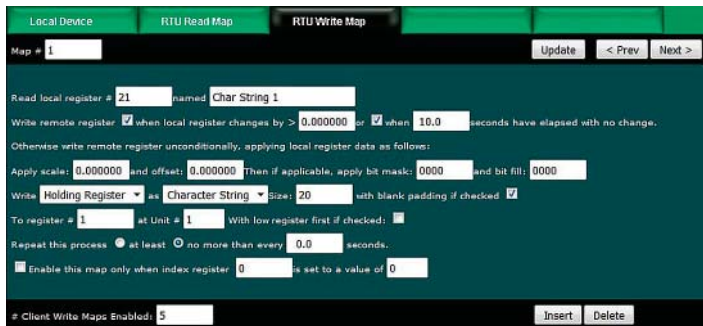


CONTROL SOLUTIONS MINNESOTA

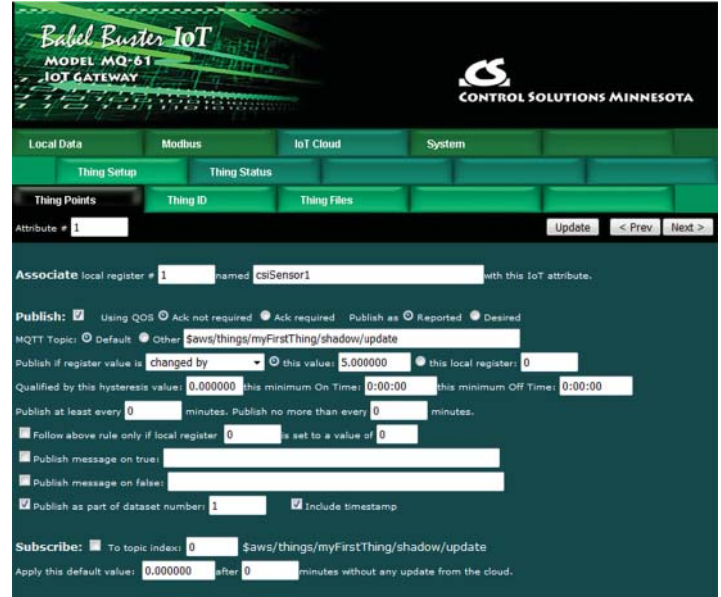
## FEATURES

- MQTT Client supporting AWS IoT Core
- Simple template based setup of MQTT Publish and Subscribe
- Modbus RTU RS-485 Master or Slave
- Modbus TCP Client and Server
- Modbus TCP over Ethernet 10/100BaseT
- Up to 2000 local registers
- 16, 32, 64-bit integer, 32 or 64-bit IEEE 754 floating point, Mod10
- ASCII character string support (UTF-8)
- Supports Modbus "coils", input registers, holding registers
- Modbus register mapping configured via web interface
- Modbus (master) polling interval configurable per point
- Configure via web pages, HTTP and/or HTTPS
- Flash file system for XML configuration files, SSL certificates
- Online help, Quick Help section at bottom of every web page
- Password protection for web log-on and ftp
- Field upgradeable firmware upload via ftp
- DHCP or static IP address, IPv4 and IPv6 support
- Hardened EIA-485 transceiver for Modbus RTU
- Powered by 10-30VDC or 12-24VAC 50/60 Hz
- Power Consumption: 0.1A @ 24VDC
- Panel mount, 70mm H x 131mm W x 38mm D
- Pluggable screw terminal block for power & RTU network
- Operating temperature -40°C to +85°C; Humidity 5% to 90%
- FCC Class A, CE Mark

The MQ-61 allows the serial port to be used for a proprietary serial protocol instead of Modbus RTU. When used for interpreting a proprietary protocol, a Script Basic program would be written to send and receive via the serial port as applicable, and interact with the local Modbus registers under user program control.



Interface to a Modbus RTU alphanumeric display device has never been easier. The MQ-61 recognizes a series of Modbus holding registers as a single character string. The built-in Script Basic includes richly featured character string manipulation and recognizes the series of registers as a single character string.



The MQTT publish and subscribe "rules" are created with an easy to use template in conjunction with setup on the AWS side. A diagnostic page is also provided where you may view the most recently published data, and publish arbitrary JSON formatted data for testing purposes.

Configuration of the gateway is done via the secure web pages served by the internal web server. You simply fill in templates. The entire configuration is saved in the internal Flash file system in XML format. This file may be exported to replicate additional copies of the configured device, or for backup.



Visit our web site for

- Full details
- User Guides & Software Downloads
- Pricing & On-line Ordering

[www.csimmn.com](http://www.csimmn.com)



CONTROL SOLUTIONS MINNESOTA

PO BOX 10789

ST. PAUL, MN 55110-0789

VOICE (651) 426-4410 • FAX (651) 426-4418

TOLL FREE 1-800-872-8613

© 2020 Control Solutions, Inc. Babel Buster® is a registered trademark of Control Solutions, Inc. Modbus® is a registered trademark of Modbus Organization.