

Modbus-Stick Data Mirror Mode

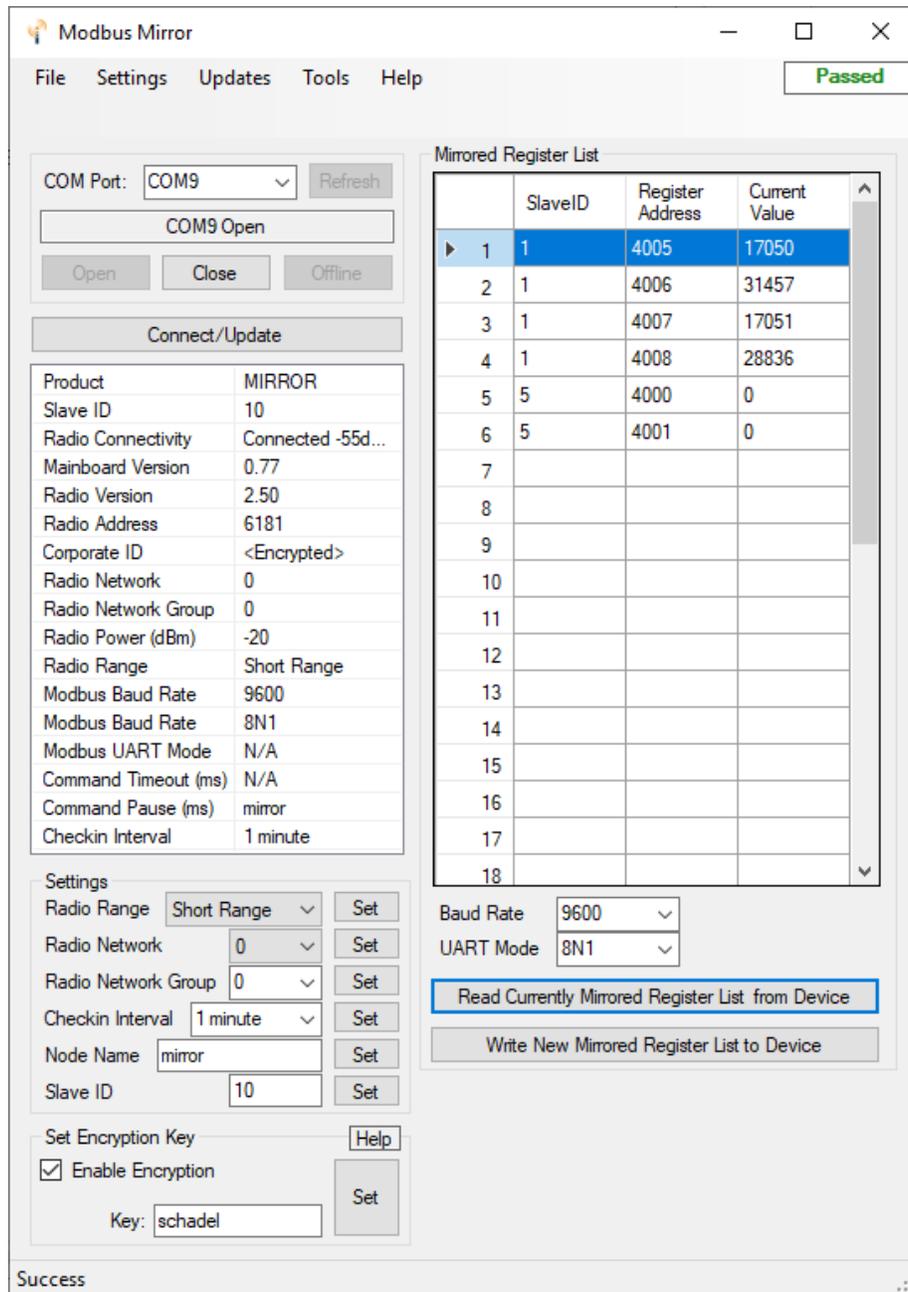
At the center of each SignalFire network is a single SignalFire Gateway where all data from the remote nodes is collected. The data is then available via a local Modbus connection. A limitation of this topology is that a network can only have one Gateway, and thus a node is only available at one location. There may be instances in which the data needs to be available via Modbus at multiple locations. The Modbus Stick's Mirror Mode can accomplish this by pulling data wirelessly from a Gateway

MIRROR MODE OPERATION

In Mirror Mode, the Modbus Stick wirelessly pulls a limited amount of data from the primary location (Gateway) and makes it available locally at a secondary location for polling over RS485 by a Modbus master. The Modbus Stick in Mirror Mode can read up to 34 standard 16bit Modbus registers over the air. Note that a 32-bit register counts as two 16-bit registers.

CONFIGURATION

1. From the Settings menu in the Modbus-Stick ToolKit window, select "Mirror Function" and click Enable
2. Assign a unique slave ID to the Modbus Stick for the network
3. Configure the radio parameters (network, network group, encryption) to match the Gateway from which to mirror the data
4. Set the Checkin Interval to control how often the Modbus Stick will wirelessly poll the mirrored registers. This will affect the Gateway's packets/minute count.
5. Set the baud rate and UART mode to match that of the Modbus master that will be polling the mirror stick
6. Configure the registers to mirror in the Mirrored Register table and click the "Write New Mirror Register List to Device" button



The screenshot shows the Modbus Mirror application window. At the top right, a green box displays the status "Passed". The interface is divided into several sections:

- COM Port:** Set to COM9. Buttons include "Refresh", "COM9 Open", "Open", "Close", and "Offline".
- Connect/Update:** A button to refresh the data.
- Product Information:** A table listing device details.

Product	MIRROR
Slave ID	10
Radio Connectivity	Connected -55d...
Mainboard Version	0.77
Radio Version	2.50
Radio Address	6181
Corporate ID	<Encrypted>
Radio Network	0
Radio Network Group	0
Radio Power (dBm)	-20
Radio Range	Short Range
Modbus Baud Rate	9600
Modbus Baud Rate	8N1
Modbus UART Mode	N/A
Command Timeout (ms)	N/A
Command Pause (ms)	mirror
Checkin Interval	1 minute
- Settings:** A section with various dropdown menus and "Set" buttons for Radio Range (Short Range), Radio Network (0), Radio Network Group (0), Checkin Interval (1 minute), Node Name (mirror), Slave ID (10), and Enable Encryption (checked). A "Set Encryption Key" section shows a key of "schadel".
- Mirrored Register List:** A table showing data from multiple slaves.

	SlaveID	Register Address	Current Value
▶ 1	1	4005	17050
2	1	4006	31457
3	1	4007	17051
4	1	4008	28836
5	5	4000	0
6	5	4001	0
7			
8			
9			
10			
11			
12			
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17			
18			
- Actions:** Buttons for "Read Currently Mirrored Register List from Device" and "Write New Mirrored Register List to Device".
- Status:** A "Success" message is displayed at the bottom left.

POLLING THE MIRRORRED DATA

The mirror data is polled from the Mirror stick exactly as if it were being polled directly from the Gateway. That is the same Slave ID and register addresses are polled. In the example configuration screenshot, register addresses 4005-4007 will be requested from Slave ID 1, while register addresses 4000-4001 will be requested from Slave ID 5, all using function code 3.