

The Mestek Communications Bridge is an OEM product called a ProtoCessor manufactured by FieldServer. The bridge comes pre-configured to correctly map the native Modbus registers to the appropriate protocol (BACnet, LonWorks, etc.). Every control network requires that each device have a unique address (IP, MAC, BACnet Node ID, etc.). The network is usually designed by a Controls contractor and thus, we have no way of knowing the device addressing scheme being used. For this reason, it may be necessary to program the device in the field. The steps required are outlined below.

This document assumes that you have a standalone (not connected to a network) computer (Desktop or Laptop) with an Ethernet network card. You will also need an Ethernet cable, and the FieldServer Toolbox application. The FieldServer Toolbox application can be downloaded from the Literature Library on the appropriate Mestek product website, (ATH, RBI, Sterling, etc.), or directly from the ProtoCessor web site ([www.protocessor.com](http://www.protocessor.com)).

The ProtoCessor is shipped with a default IP address 192.168.1.24. The subnet mask is 255.255.255.0. You need to configure your computer so that it is on the same IP network as the ProtoCessor. The required steps are outlined in the following sections for Microsoft Windows 7 and Windows 10. If you have already changed the IP Address and/or Subnet Mask of the ProtoCessor, you will need to use the appropriate values.

## Windows 7

Open the “*Windows Control Panel*” (Start->Control Panel) and click “*Network and Sharing Center*”, as shown in figure 1, to open the “*Network Connections*” window.

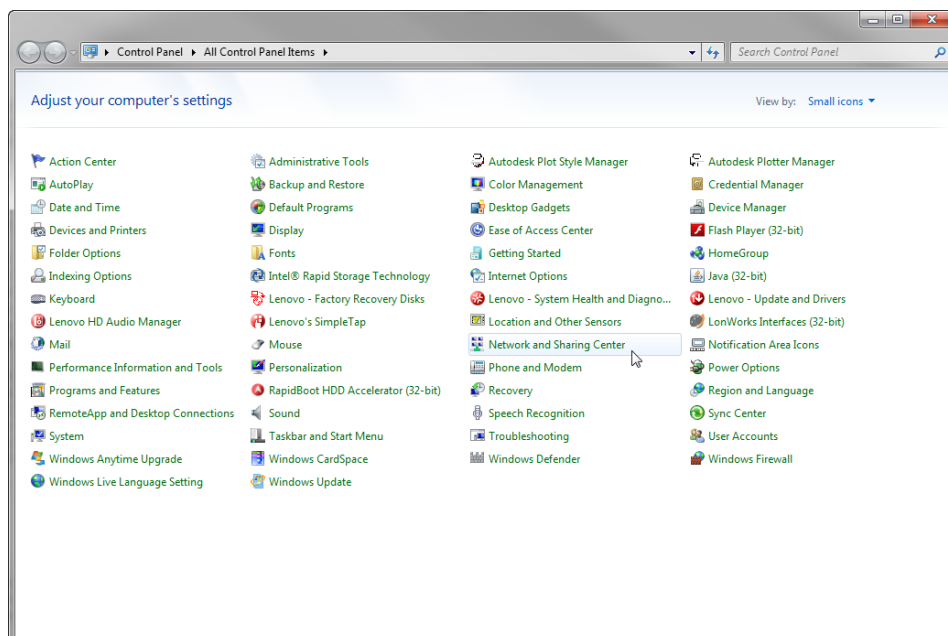


Figure 1 - Windows 7 – Control Panel

Click on “*Local Area Connection*” as shown in figure 2 to open the “*Local Area Connection Status*” dialog.

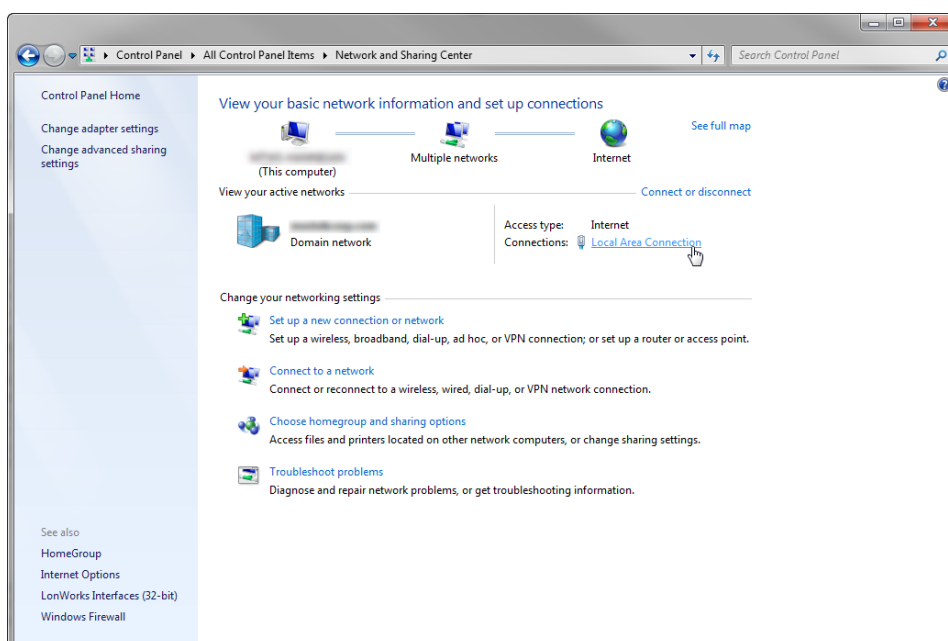


Figure 2 - Windows 7 – Network Sharing Center

Click on the “Properties” button as shown in figure 3 to open the “Local Area Connection Properties” dialog.

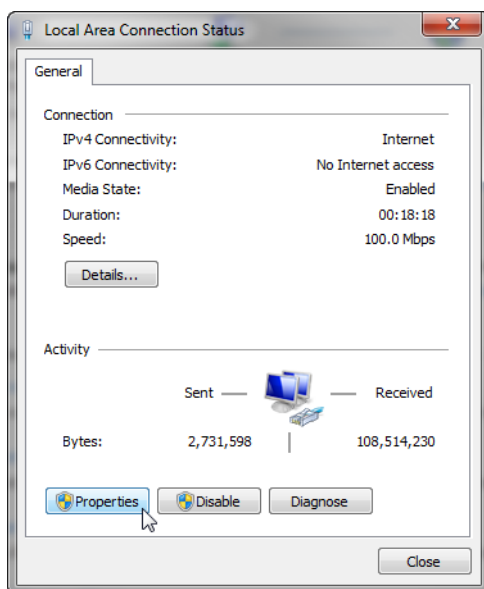


Figure 3 - Windows 7 – Local Are Connection Status

Select “Internet Protocol Version 4 (TCP/IPv4)” and click the “Properties” button as shown in figure 4 to open the “Internet Protocol Version 4 (TCP/IPv4) Properties” dialog.

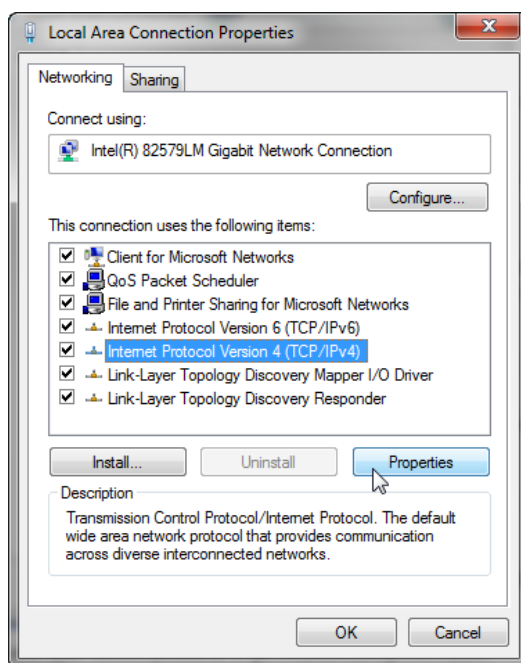


Figure 4 - Windows 7 – Local Area Connection Properties

Write down the current settings so that they can be restored when you are no longer connected to the ProtoCessor. Choose *“Use the following IP address”*, set the *“IP Address”* to 192.168.1.99, and set the *“Subnet Mask”* to 255.255.255.0 as shown in figure 5. Click the *“OK”* button to save your changes.

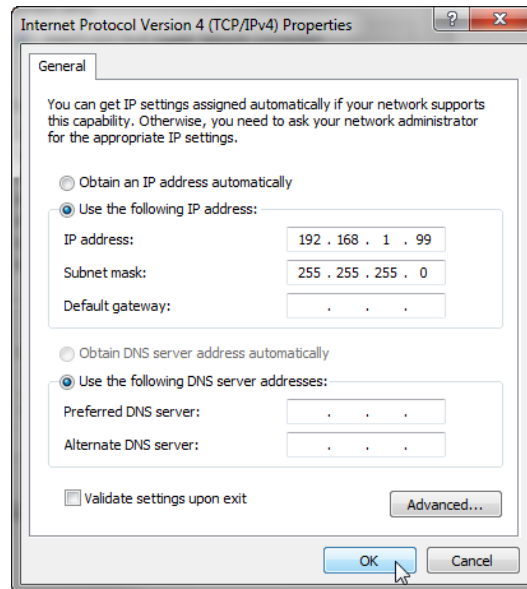
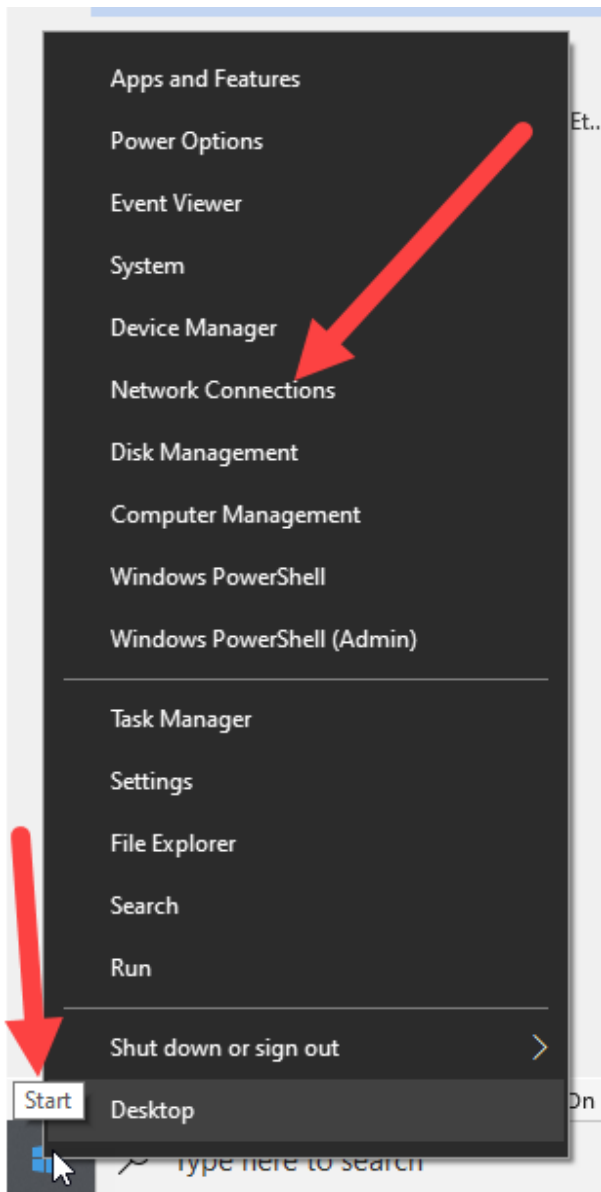


Figure 5 - Windows 7 – Internet Protocol Properties

## Windows 10



Right click on the Windows “Start” button.

Then choose “Network Connections” as shown in figure 6.

**Figure 6 - Windows 10 – Right Click Start Button and Network Connections.**

Click “*Network and Sharing Center*”, in the network status window shown in figure 7 to open the “*Network Connections*” window.

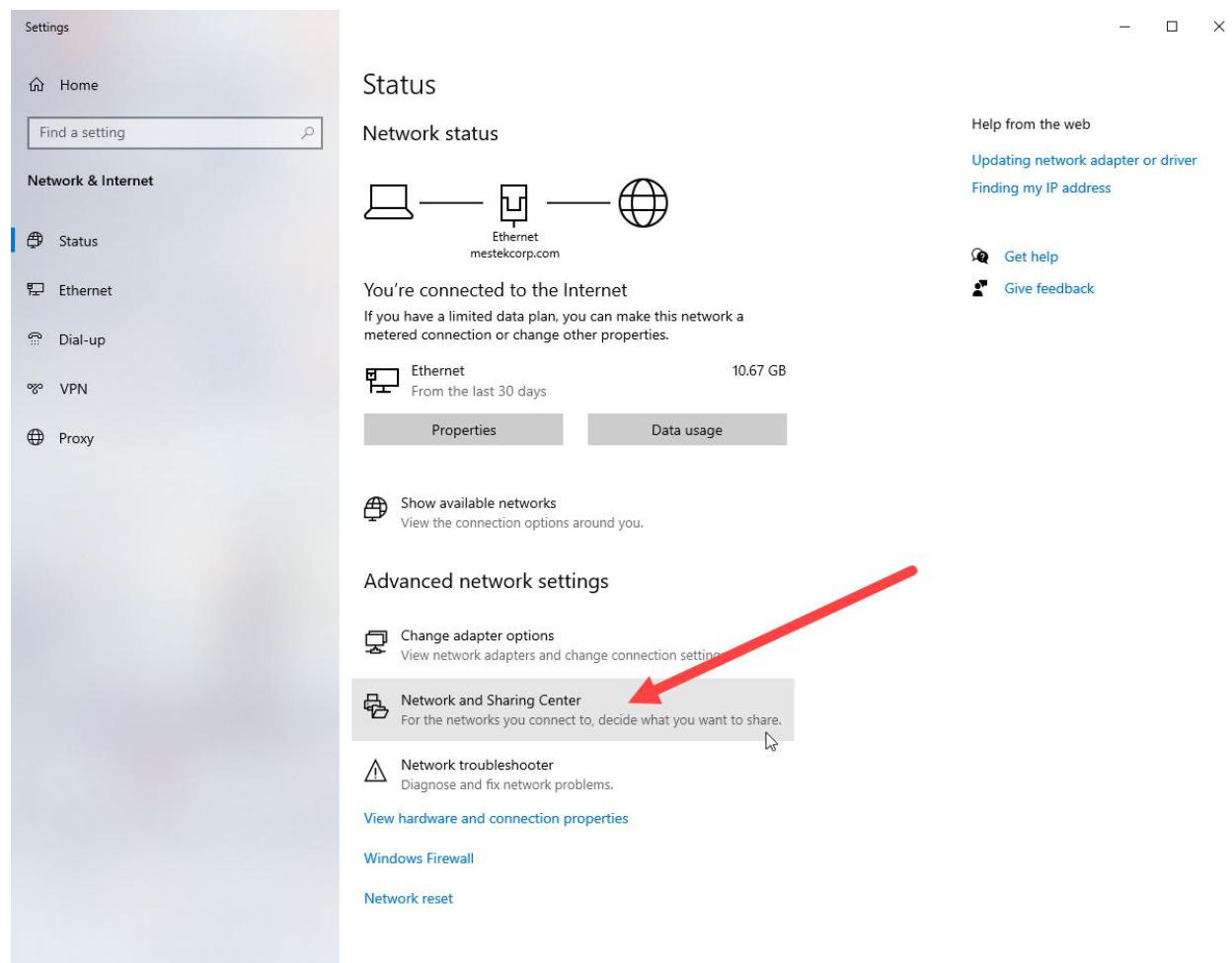


Figure 7 - Windows 10 Network Status

Select “*Ethernet*” to enter the “*Ethernet Status*” window as shown in figure 8.

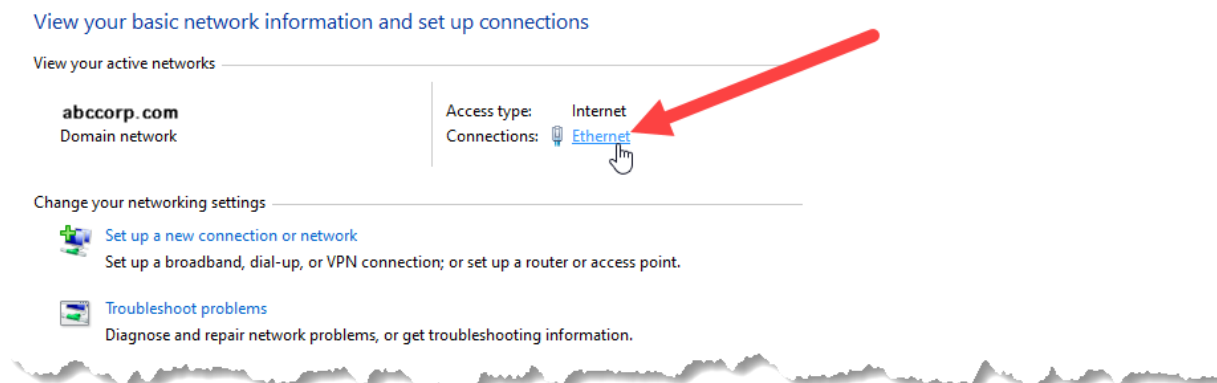


Figure 8 - Windows 10 – Network Connections

Click on the “*Properties*” button to open the “Ethernet Status” dialog shown in figure 9.

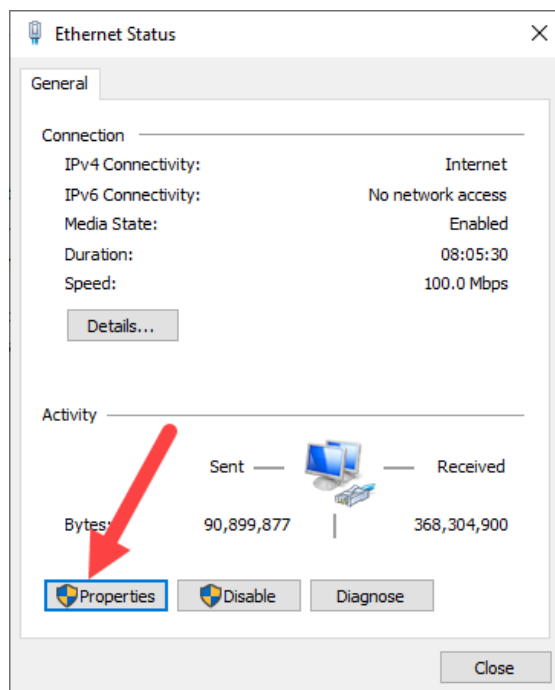


Figure 9 - Windows 10 – Local Area Connection Status

Select Internet Protocol Version 4 (TCP/IPv4) and then click on Properties as shown in figure 10 to open the “*Internet Protocol Version 4 (TCP/IPv4) Properties*” dialog.

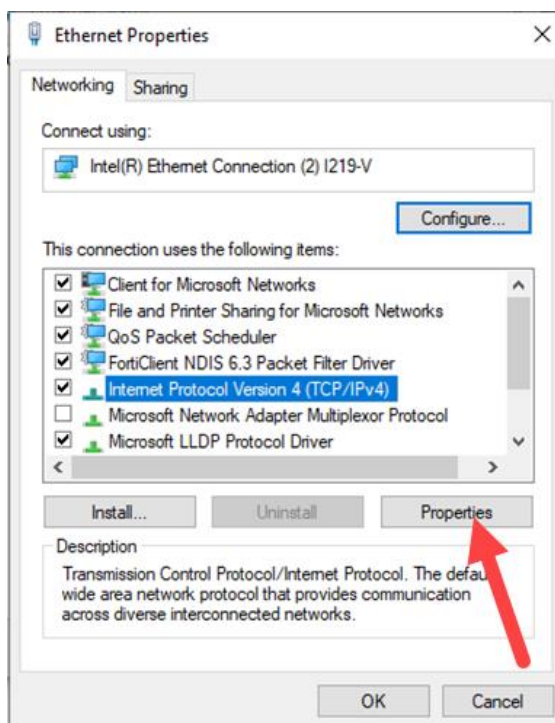
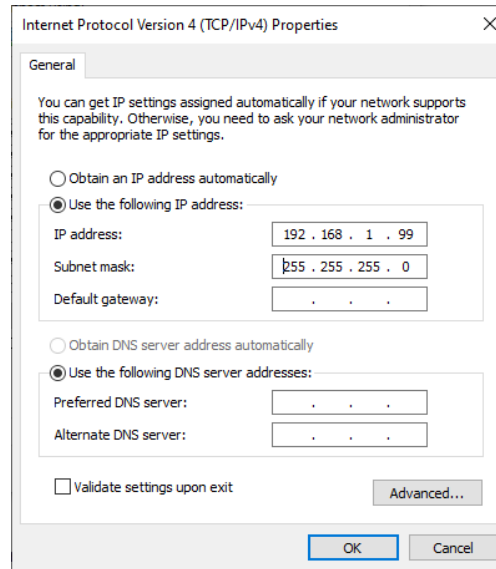


Figure 10 - Windows 10 – Local Area Connection Properties

Write down the current settings so that they can be restored when you are no longer connected to the ProtoCessor. Choose “Use the following IP address”, set the “IP Address” to 192.168.1.99, and set the “Subnet Mask” to 255.255.255.0 as shown in Figure 11. Click the “OK” button to save your changes.



**Figure 11 - Windows 10 – Internet Protocol Properties**



## Connecting to the ProtoCessor

Connect your computer directly to the ProtoCessor using an Ethernet cable, power up the ProtoCessor (apply power to the Mestek product) and run the *FieldServer Toolbox* application. The bridge should be displayed with a green connectivity indicator as shown in Figure 12. Please note that the bridge name may be different on your product. If no bridges show up, or if the bridge shows up with a yellow connectivity indicator there are several possibilities:

- 1) The Microsoft Windows (or another OEM) Firewall is preventing communications with the bridge. Disable any firewalls and try again.
- 2) The IP network settings on your computer were not correctly set. Please double check the settings outlined in the preceding sections to verify that they are set correctly.
- 3) The computer has multiple network cards and you have not configured or are not plugged into the correct port.
- 4) The IP network settings (IP Address/Subnet) on the bridge have been changed from the default settings.
- 5) The bridge is not powered or is defective. Please check for power, flashing lights, etc.

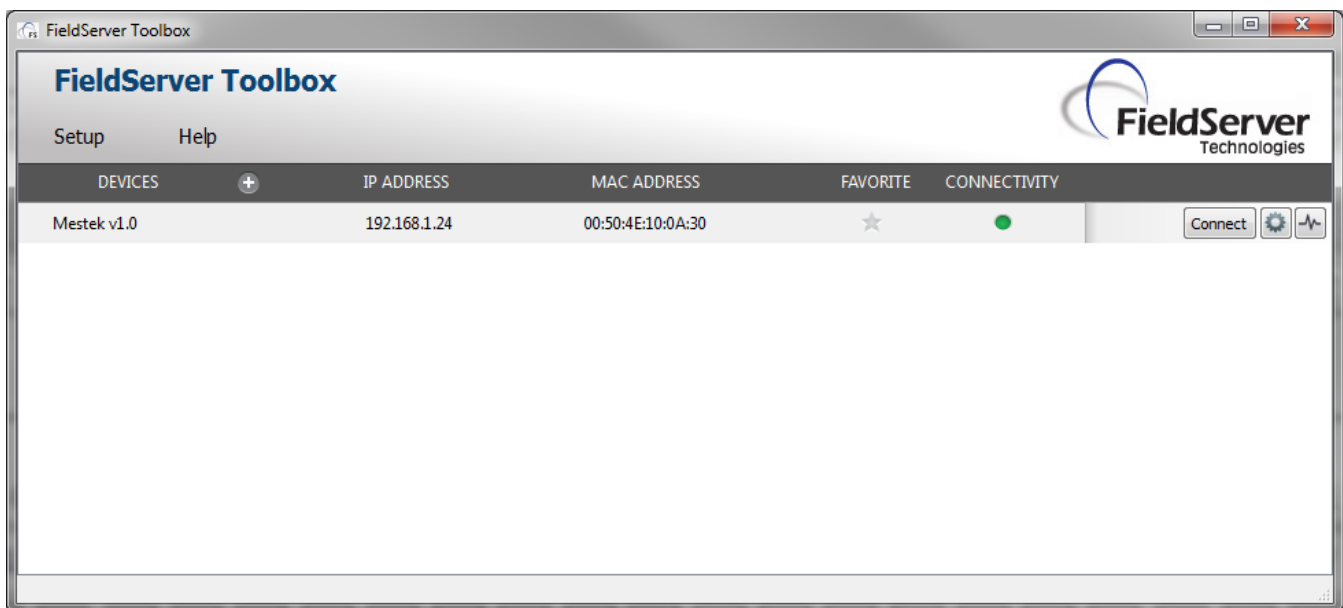


Figure 12 – FieldServer Toolbox - ProtoCessor Found

If the bridge is displayed, and the Connectivity light is green, as shown in Figure 12, you are now ready to monitor and/or configure the bridge. Please consult our technical bulletins (or the Field Server documentation) for configuring the most common settings.

## Connecting a Computer to a FieldSafe Secure Mestek Communications Bridge

### 1 LOGIN TO THE PROTOCESSOR

The first time the FieldServer GUI is opened in a browser, the IP Address for the gateway will appear as untrusted shown in figure 13. This will cause the following pop-up windows to appear.

- When the Web Server Security Unconfigured window appears, read the text, and choose whether to move forward with HTTPS or HTTP

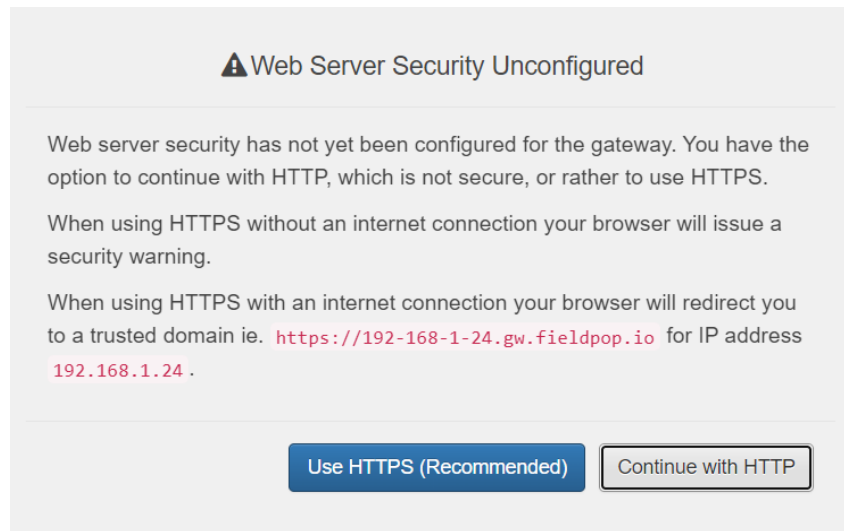


Figure 13 Web Server Security Unconfigured

- When the warning that “Your connection is not private” appears, click the Advanced button on the bottom left corner of the screen as shown in figure 14.

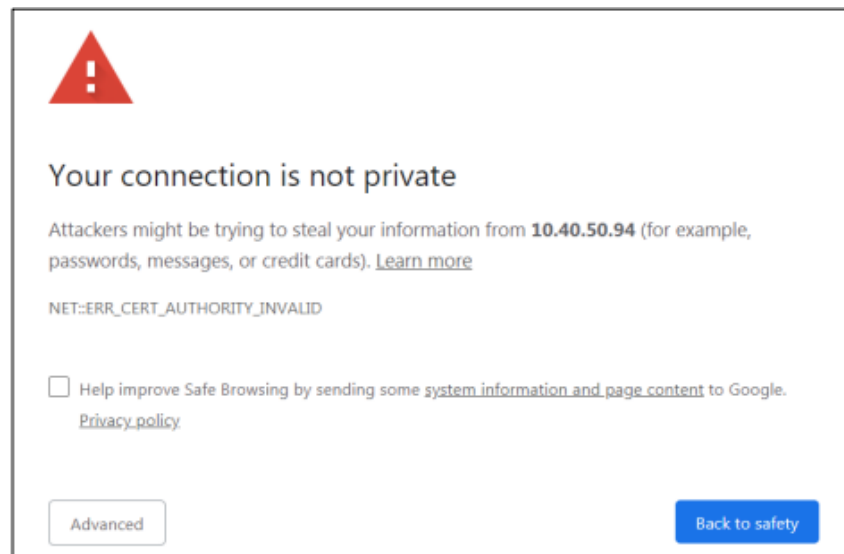


Figure 14 Your Connection is Not Private.

- Additional text will expand below the warning, click the underlined text “Proceed to 192.168.1.24 (unsafe)” as shown in figure 15.

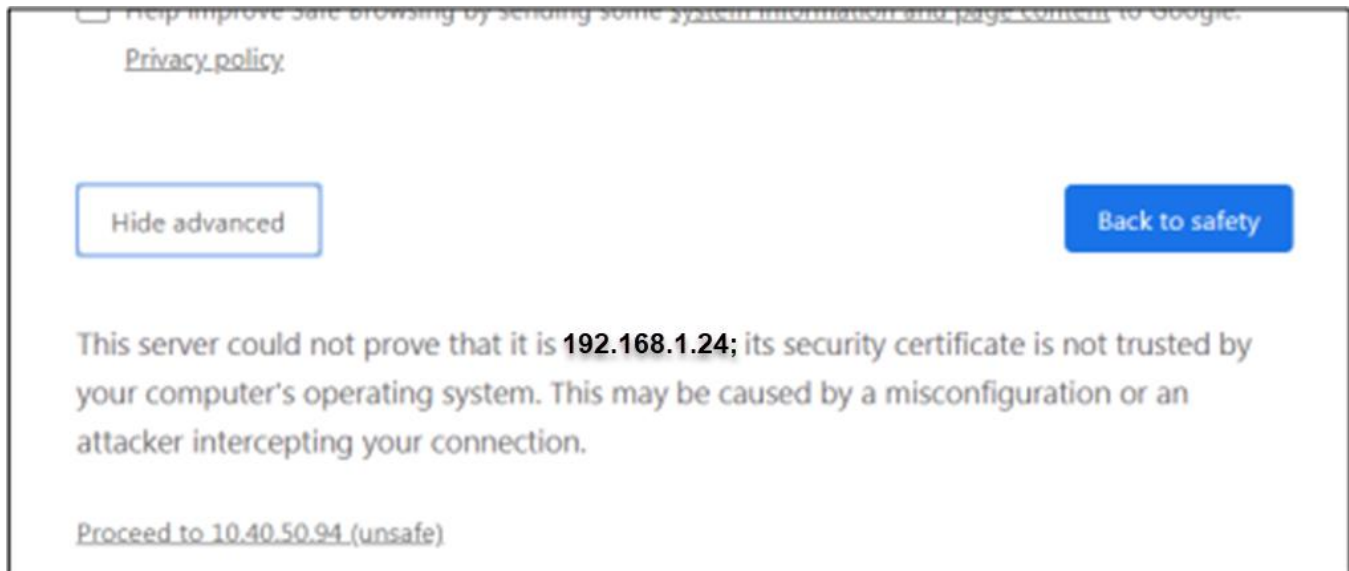


Figure 15 Advanced Window Expanded Text Warning

- When the login screen appears, as in figure 16, type in the Username (default is “admin”) and the Password (found on the label of the ProtoCessor).

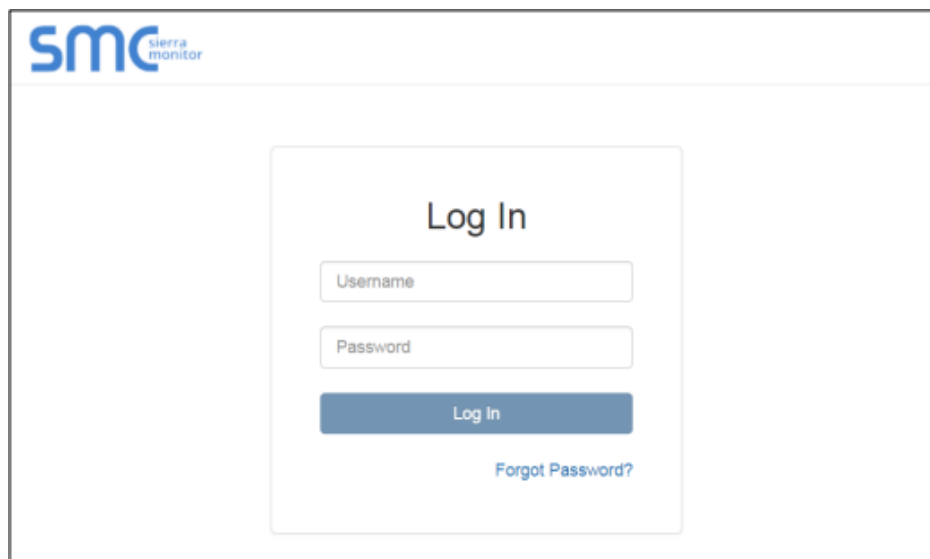


Figure 16 Log In screen

**NOTE:** A user has 5 attempts to log in, then there will be a 10-minute lockout. There is no timeout on the ProtoCessor to enter a password.

There is also a QR code in the top right corner of the ProtoCessor label as shown in figure 17 that shows the default unique password when scanned. The SMC login screen will be displayed.

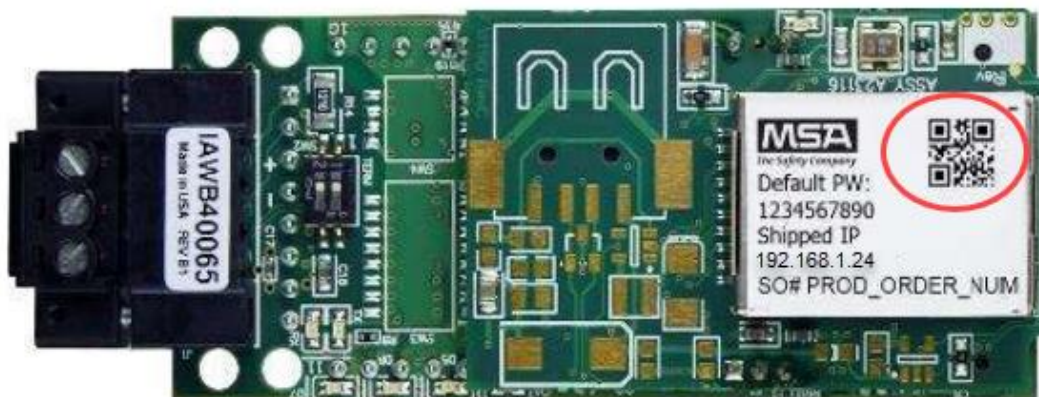


Figure 17 ProtoCessor QR Code

## 2 SELECT THE SECURITY MODE

• On the first login to the ProtoCessor, as shown below in figure 18, the following screen will appear that allows the user to select which mode the ProtoCessor should use.

Figure 18 Security Mode Selection Screen

**NOTE: Cookies are used for authentication.**

## 2.1 HTTPS with Own Trusted TLS Certificate

This is the recommended selection and the most secure.

- Once this option is selected, the Certificate, Private Key and Private Key Passphrase fields will appear under the mode selection.

**Mode**

- ☒ HTTPS with own trusted TLS certificate (**recommended** and most secure)
- ☐ HTTPS with default untrusted self-signed TLS certificate (vulnerable to man-in-the-middle attack)
- ☐ HTTP with built-in payload encryption (vulnerable to man-in-the-middle attack)

**Certificate**

```
XzyMbQZFIRuJZiPe7CTHl.cHOrHl.owoUEoVTaBMyd4d6VGdNklKazByWKcNOL7mrX
A4IBAQBfM+IPvOx3T/47VEmaiXqE3bx3zEuBFJ6pWPlw7LH2r2Zohw+9xb+aNMU
dVvAelhBMTMsni2ERvQVp0xj3psSv2EJyKXS1bOYNRLsq7UzpwuAdT/Wy3o6vUM5
K+Cwf9gEoQ0LUXDZTIECt67MkcHMiuFi5pk7TRicHnQF/sfOAYOulduHOy9exIk9
FmHFVDIZ/cJUaF+e74EuSph+gEr0IQo2wvmhyc7L22UXse1NoOfU2Zg0Eu1VVtu
JRyaMWIRFEWuuzMGZIKFWVC+8q2JQsVcqiRWM7naoblLEhOCMH+sKHJMCxDoXGt
vIZjpZUoAL51YXxWSVcyZdGiAP5e
-----END CERTIFICATE-----
```

**Private Key**

```
sHB0zZoHr4YQSDk2BbYVzzbi0LDuKtc8+JiO3ooGjoTuHnqkeAj/fKfbTAsKeAzW
gKQe+H5UQNK0bdvZfOJrm6daDK2vDmR5k+jUUhEj5N49uplroB97MQgYotzqfT+
THlbp5t1SIK617k04ObKmHF5i8fck+ru545sVmpeeZh0m5j5SURYAZMvbq5daCu
J4l5NlihbEvxRF4UK41ZDMCvuj0PcBKUWrb1a/3XXnDnM2K9xyz2wze998D6Wk46
+7aOFY9F+7j5ljmnkoS3GYtwCyH5iP+mPP1K6RnuiD019wvGPb4dtN/RTnfd0eF
GYeVSkI9fxxkxDOftfdWRZbm/rPin4tmO1Xf8HqONVN1x/iaMynOXG4cukoi4+VO
u0rZaUEsII2zNkfrn7fAASm5NBWg202Cy9IAYnuujs3aALi5uGBEEK62oTMxlzx
-----END RSA PRIVATE KEY-----
```

**Private Key Passphrase**

Specify if encrypted

Save

Figure 19 Security Mode Certificate and Private Key Selection

- Copy and paste the Certificate and Private Key text into their respective fields. If the Private Key is encrypted type in the associated Passphrase.
- Click Save.
- A “Redirecting” message will appear and after a short period of time the FieldServer GUI will open.

## 2.2 HTTPS with Default Untrusted Self-Signed TLS Certificate or HTTP with Built-in Payload Encryption

- Simply select one of these options and click the Save button.
- A “Redirecting” message will appear and after a short period of time the FieldServer GUI will open.

### 3 CHANGE SETTINGS AFTER INITIAL SETUP

**NOTE:** Any changes will require a ProtoCessor reboot to take effect.

- Navigate from the FieldServer Web App Landing screen to the FS-GUI by clicking the blue “Diagnostics” text on the bottom of the screen.

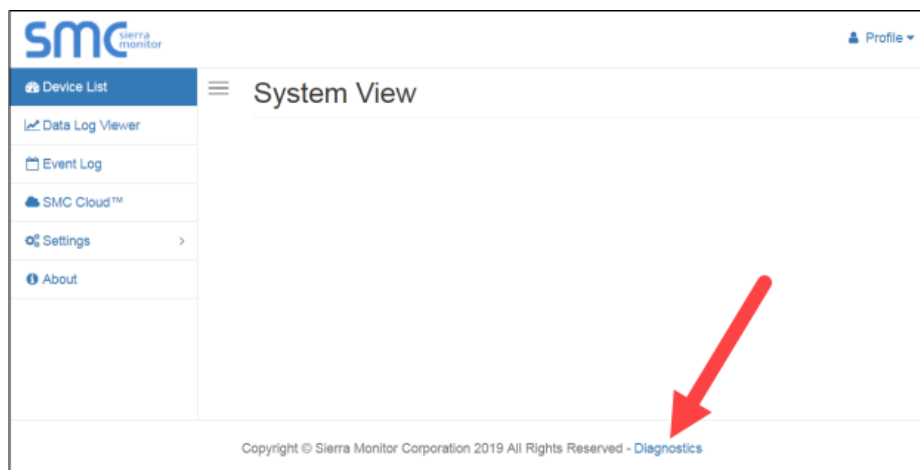


Figure 20 FS-GUI Web App Landing Screen

Click Setup in the Navigation pane.

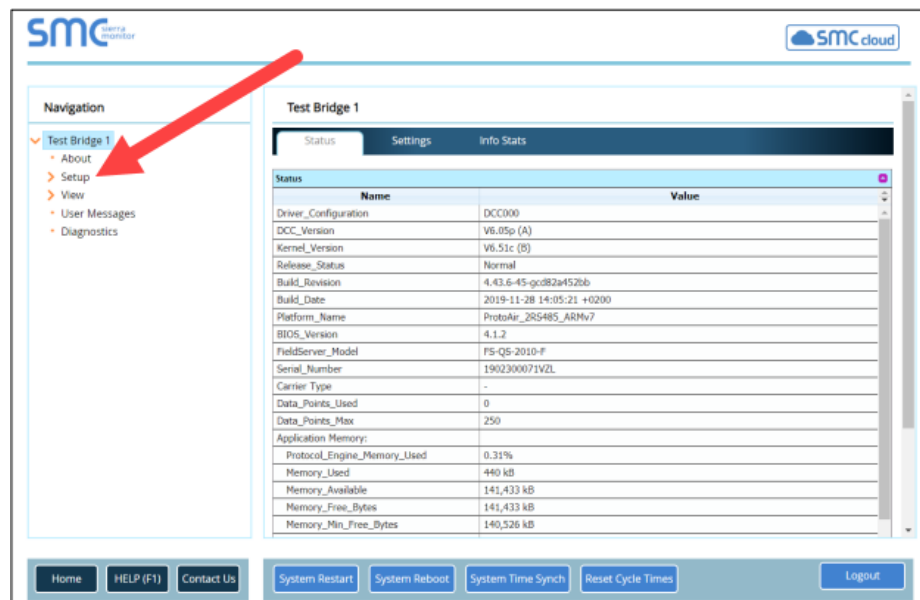


Figure 21 FS-GUI Landing Screen

### 3.1 Change Security Mode

- Click Security in the Navigation panel.

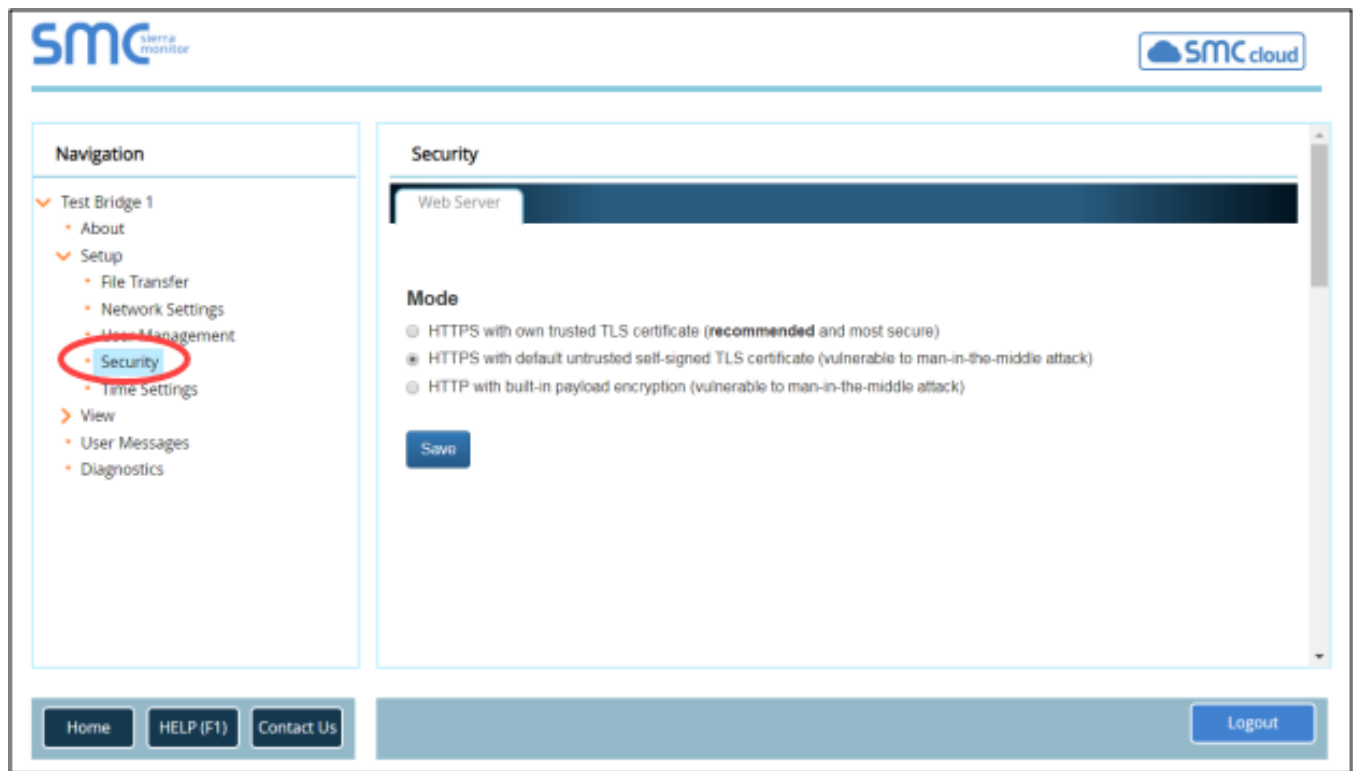


Figure 22 FS-GUI Security Setup

- Click the Mode desired.
  - o If HTTPS with own trusted TLS certificate is selected, follow instructions in Section 2.1
- Click the Save button.



### 3.2 Edit the Certificate Loaded onto the ProtoCessor

**NOTE:** A loaded certificate will only be available if the security mode was previously setup as HTTPS with own trusted TLS certificate.

- Click Security in the Navigation panel.
- Click the Edit Certificate button to open the certificate and key fields.
- Edit the loaded certificate or key text as needed.
- Click Save.

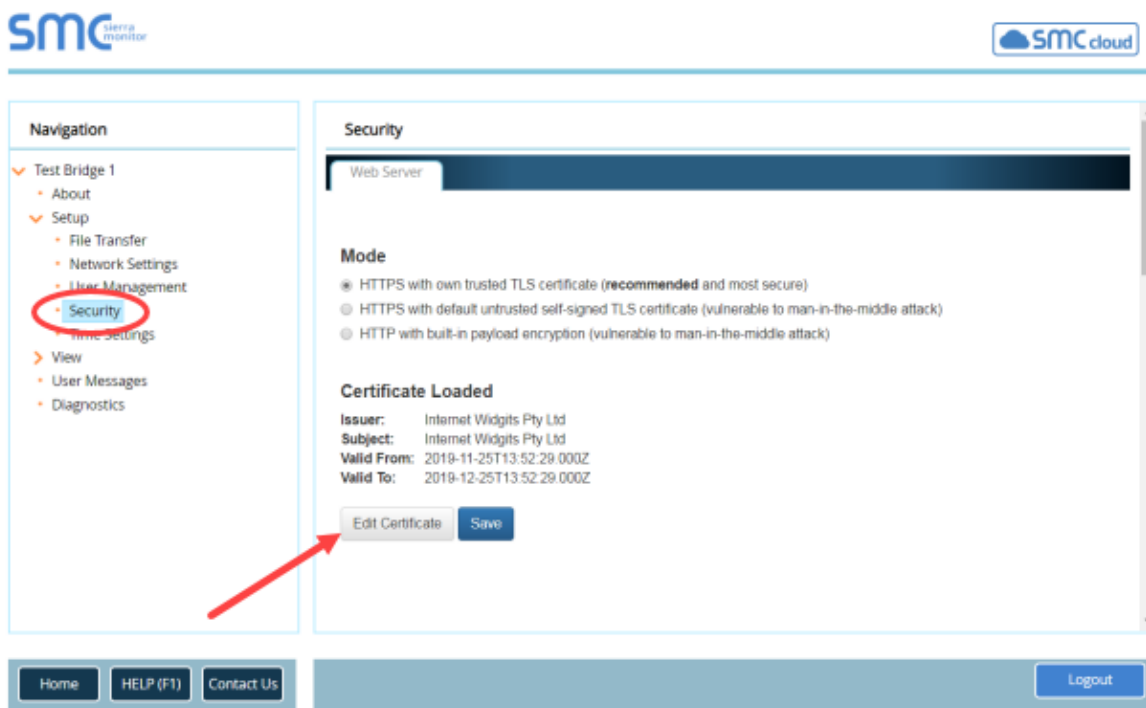


Figure 23 FS-GUI Security Setup-Certificate Loaded

### 3.3 Change User Management Settings

- Click User Management in the navigation panel.

**NOTE:** If the passwords are lost, the unit can be reset to factory settings to reinstate the default unique password on the label. For ProtoNode, ProtoCessor or ProtoCarrier recovery instructions, follow the FieldServer Recovery Instructions in section 4.



### 3.3.1 User Management

- Check that the Users tab is selected.

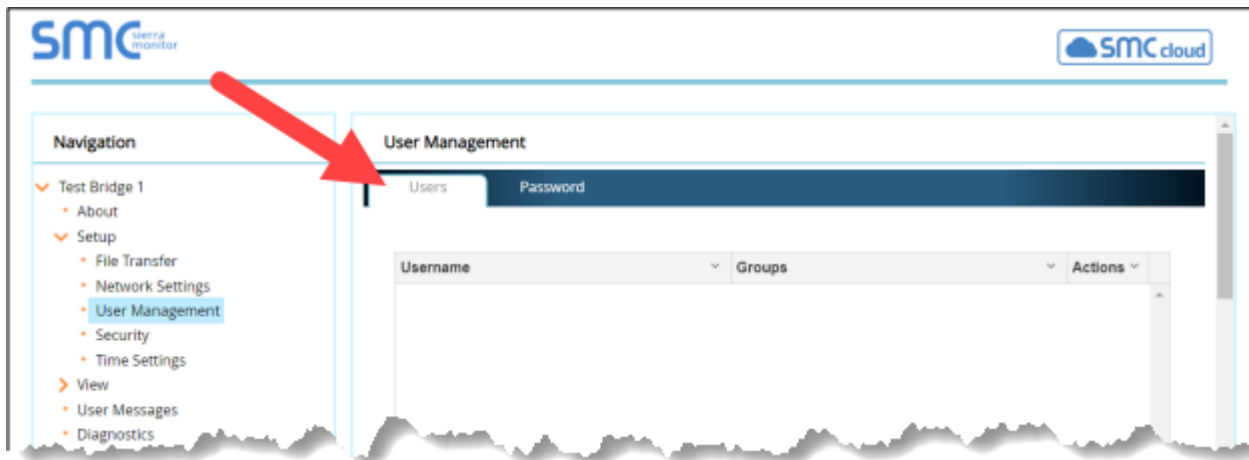


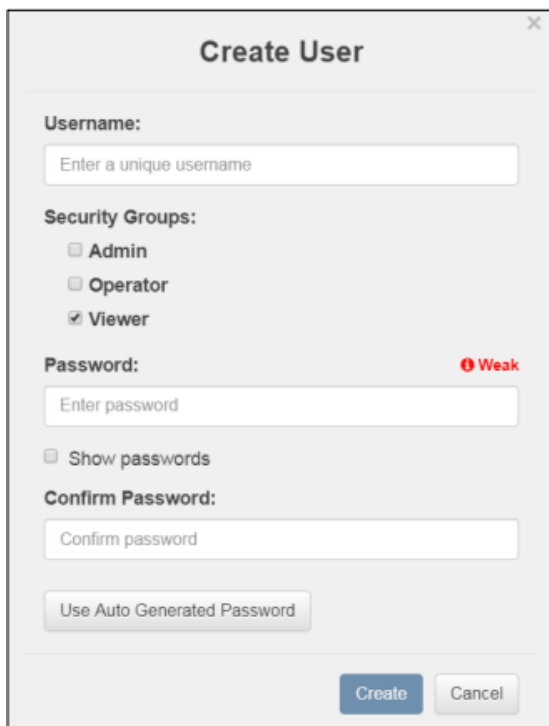
Figure 24 FS-GUI User Management

**User Types:** Admin – Can modify and view any settings on the ProtoCessor.

**Operator** – Can modify and view any data in the ProtoCessor array(s).

**Viewer** – Can only view settings/readings on the ProtoCessor.

#### Create Users



- Enter the new User fields: Name, Security Group and Password.

**NOTE: Passwords must be at least 10 characters long. An algorithm automatically checks the password entered, and notes the level of strength on the top right of the Password text field.**

- User details are hashed and salted.
- Click the Create button.
- Once the Success message appears, click OK.

Figure 25 Create User Window

### 3.3.1.1 Edit Users

- Click the pencil icon next to the desired user to open the User Edit window.

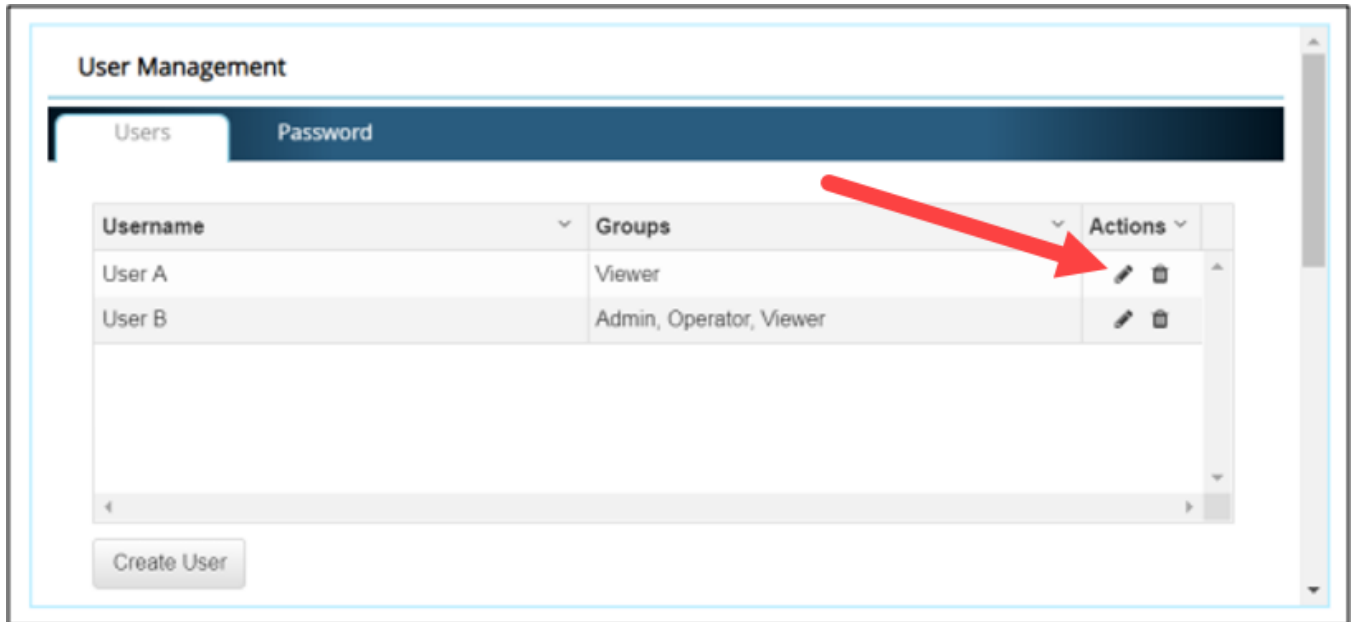


Figure 26 Setup Users

### Edit Users

The 'Edit User' window contains the following fields and controls:

- Username:** A text field containing 'User A'.
- Security Groups:** A list of checkboxes for 'Admin', 'Operator', and 'Viewer'. The 'Viewer' checkbox is checked.
- Password:** A text field containing 'Optional'.
- Show passwords:** A checkbox that is currently unchecked.
- Confirm Password:** A text field containing 'Optional'.
- Use Auto Generated Password:** A button located below the password fields.
- Confirm** and **Cancel** buttons at the bottom right.

- Once the Edit User window opens, change the User Security Group and Password as needed.
- Click Confirm.
- Once the Success message appears, click OK.

Figure 27 Edit User Window

### 3.3.1.2 Delete Users

- Click the trash can icon next to the desired user to delete the entry.

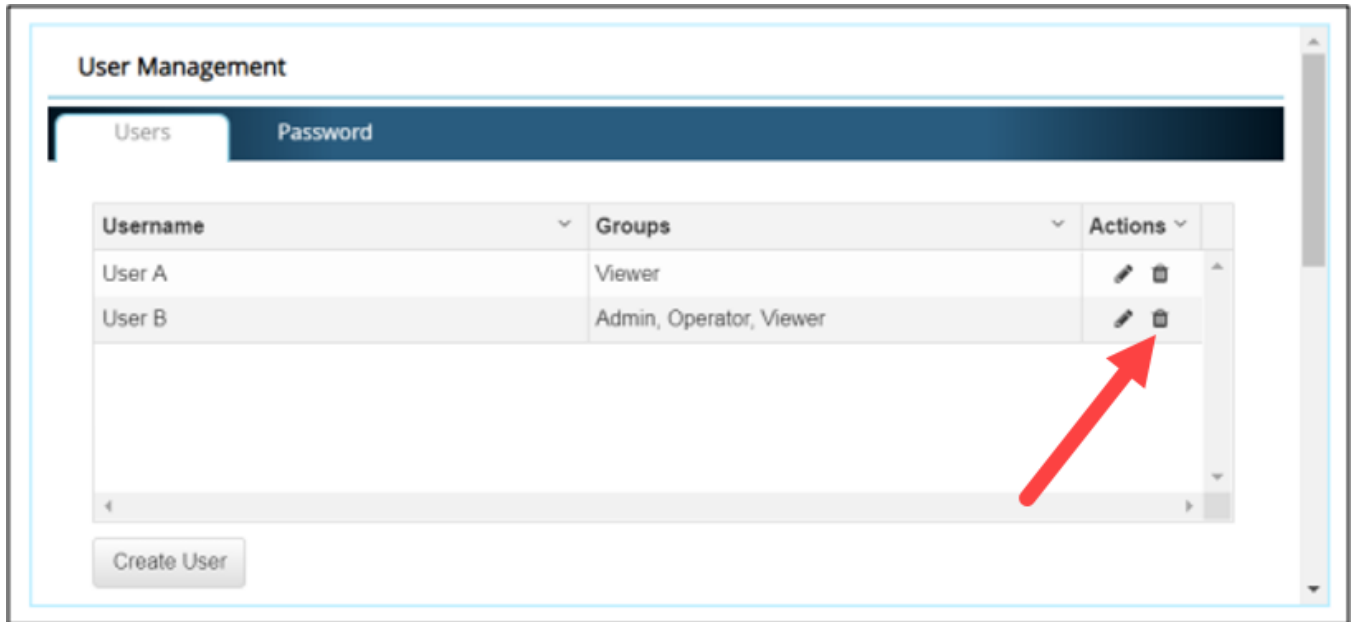


Figure 28 Setup Users

- When the warning message appears, as in figure 29, click Confirm.

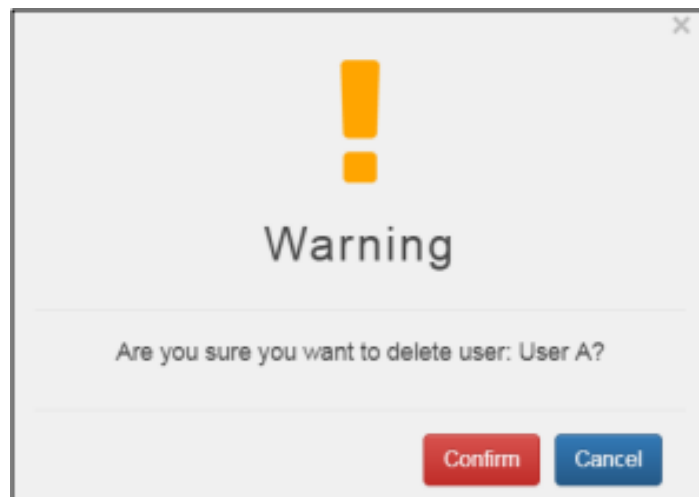


Figure 29 User Delete Warning

### 3.3.2 Change ProtoCessor Password

- Click the Password tab.

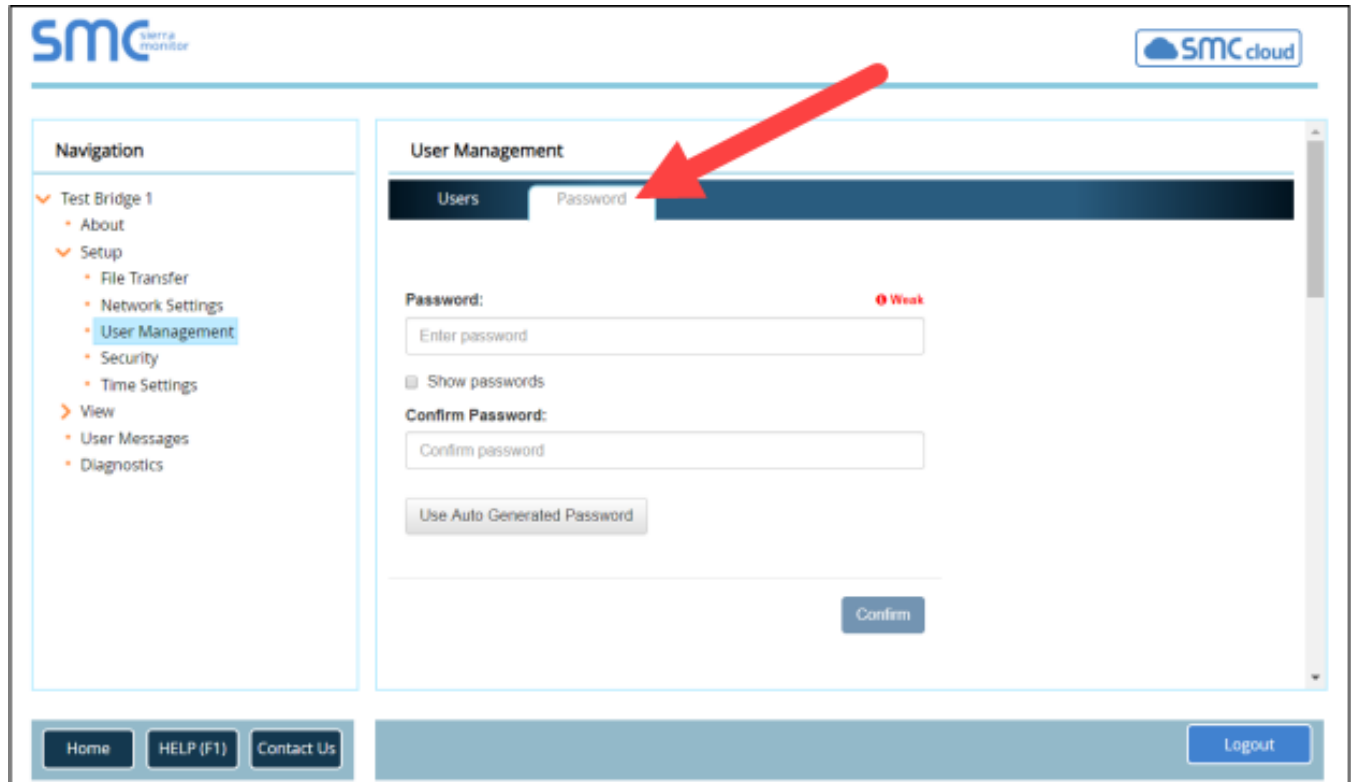


Figure 30 ProtoCessor Password Update via FS-GUI

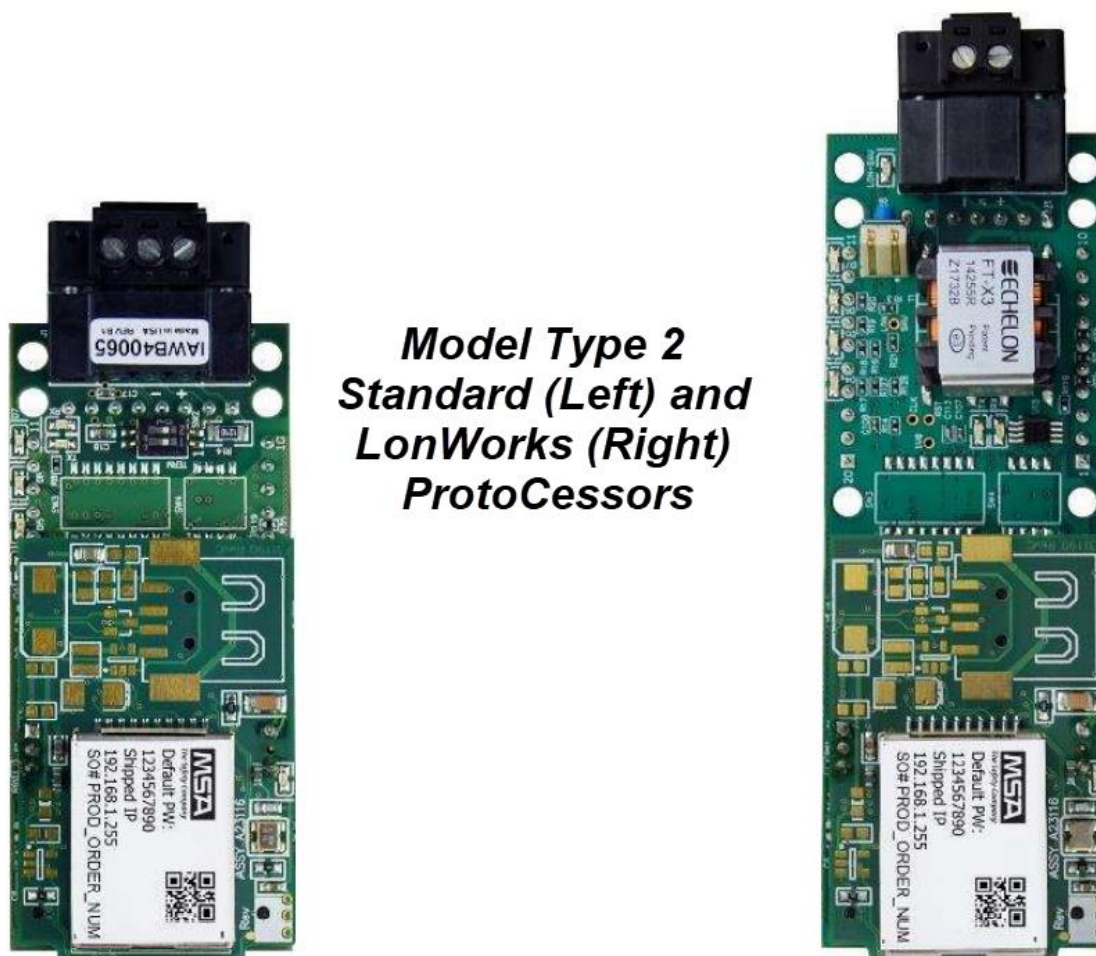
- Change the login password for the ProtoCessor as needed.

**NOTE: Passwords must be at least 10 characters long. An algorithm automatically checks the password entered and notes the level of strength on the top right of the Password text field.**

#### ***4.0 ProtoNode, ProtoCessor, and ProtoCarrier Quick Recovery Instructions***

Perform the following recovery if the password has been changed, lost, or forgotten, and now you are unable to connect to a Fieldserver.

The following recovery instructions only apply to Fieldserver ProtoNodes, ProtoCarriers, or ProtoCessors Model Type 2 shown in figure 31.



**Figure 31 Model Type 2 Standard and LonWorks ProtoCessors**

## 4.1 Recovery Instructions

- Put a jumper on the first and second pins shown on the left side of the Ethernet port shown in figure 32.

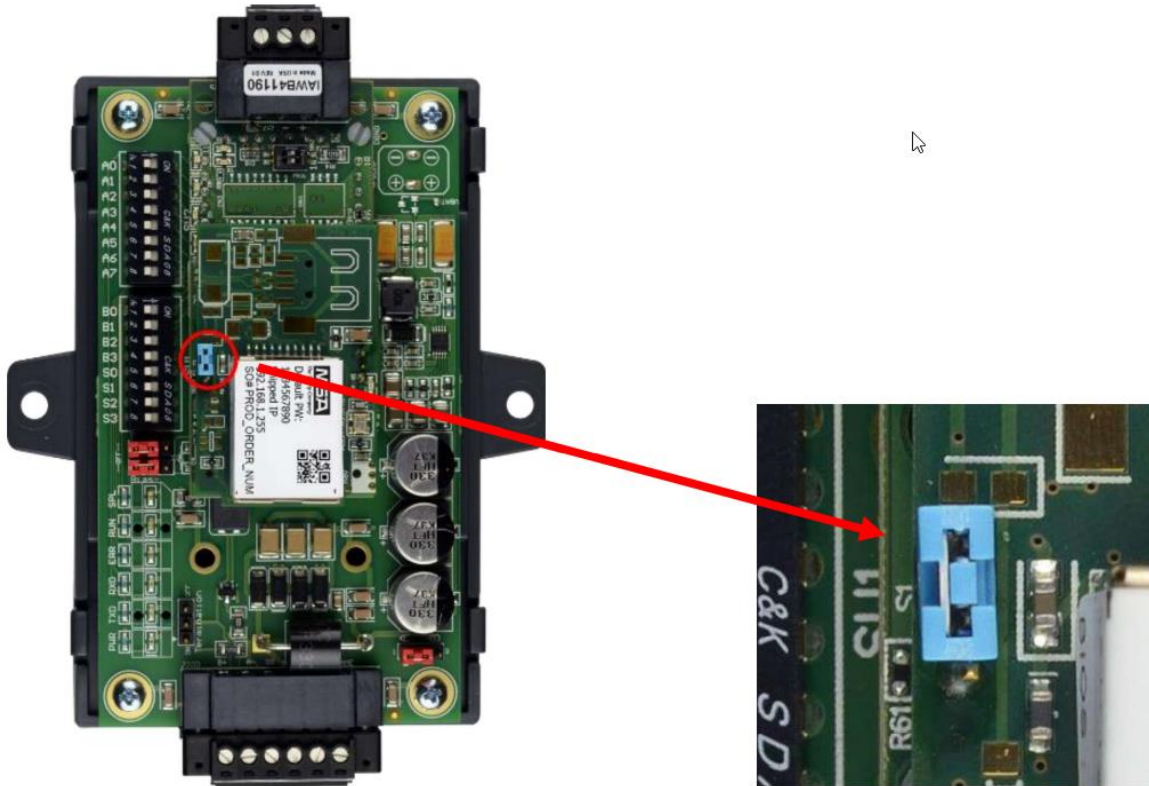


Figure 32 ProtoNode with Jumper Set for Recovery

- Wait 1 to 2 minutes for the run LED to start flashing.

## 4.2 Run LED Location

The RUN LED and other diagnostic LED's locations are shown below in figure 33.

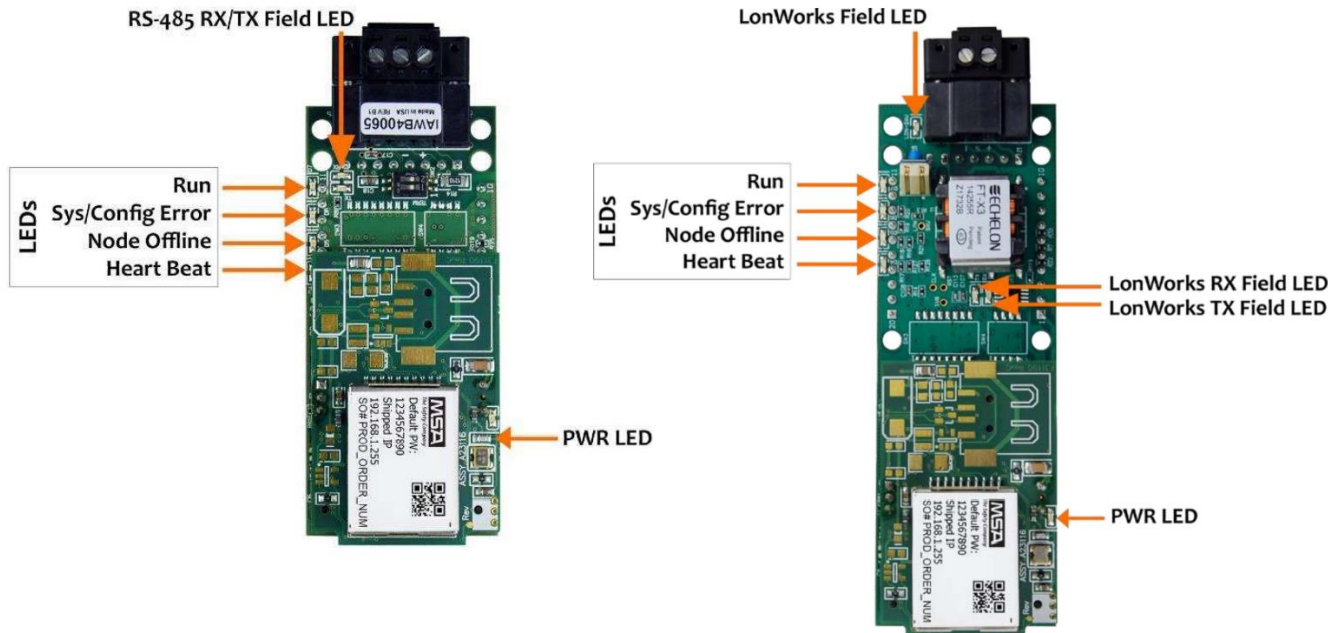


Figure 33 Run LED Location Standard (Left) and LonWorks (Right)

- When Run LED starts flashing, remove the jumper.
- The Unit IP Address reverts to the one determined by the firmware:
  - For current firmware ProtoNodes, ProtoCarriers and ProtoCessors: 192.168.1.24