**MSA** The Safety Company | **fieldserver**

**Start-up Guide**

# FieldServer Toolbox and Graphic User Interface (FS-GUI)

**APPLICABILITY & EFFECTIVITY**
Effective for all systems manufactured after July 2021.

MSA Safety
1991 Tarob Court
Milpitas, CA 95035
Website: www.MSAsafety.com

U.S. Support Information:
+1 408 964-4443
+1 800 727-4377
Email: smc-support@msasafety.com

EMEA Support Information:
+31 33 808 0590
Email: smc-support.emea@msasafety.com

**Table of Contents**

## List of Figures

## 1    Overview

The FS-GUI is a web-browser based User Interface and uses a combination of technologies and devices to provide a platform that the user can interact with for the tasks of easily gathering and producing information. FS-GUI allows the user to:

1.  Check the status and diagnostics of a FieldServer including such information as network settings, connection info, node information, map descriptors, and error messages.

2.  Monitor a working FieldServer's internal data and parameters.

3.  Change or update a FieldServer's internal data and parameters.

4.  Transfer files to and from a FieldServer.

5.  Delete files on a FieldServer.

6.  Change the FieldServer's IP Address.

7.  Set Admin and User Passwords for security.

8.  Restart a FieldServer.

The FS-GUI is shipped with every ProtoAir, QuickServer, FS-B35XX Series and ProtoNode FieldServer Gateway.

## 2   Getting Started

### 2.1   PC Requirements

#### 2.1.1   Hardware

 A Computer with web browser that connects over Ethernet on port 80.

#### 2.1.2   Software

The Utilities run under the following web browsers:

- Chrome Rev. 57 and higher

- Firefox Rev. 35 and higher

- Microsoft Edge Rev. 41 and higher

- Safari Rev. 3 and higher

**NOTE:  Internet Explorer is not supported.**

**NOTE:  Computer and network firewalls must be opened for Port 80 to allow FS-GUI to function.**

#### 2.1.3   Utility – FieldServer Toolbox

- The FieldServer Toolbox is used to find FieldServers on the network. The Toolbox can be found on the flash drive shipped with the FieldServer, or it can be downloaded from the MSA website.

- After downloading, it will be available as an icon on the desktop.

- The Toolbox will only find FieldServers existing on the same subnet as the computer.

### 2.2   Installation and Setup

- The utilities are loaded on the flash drive shipped with the FieldServer and can be accessed from the desktop as an icon after they have been installed. The utilities are also available from the Sierra Monitor website in the Customer Support page → Software Downloads section.

- The FS-GUI PC and the FieldServer must be setup with an IP Address on the same subnet.

## 3    Connecting to a FieldServer

### 3.1    Power Up the Device

Apply power to the device. Ensure that the power supply used complies with the specifications provided in the specific FieldServer's Start-up guide.



| Power to Gateway | Gateway Pin Label | Pin Assignment |
|---|---|---|
| Power In (+) | L + | V + |
| Power In (-) | N - | V - |
| Frame Ground | FG | FRAME GND |

**Figure 1: Power Connections**
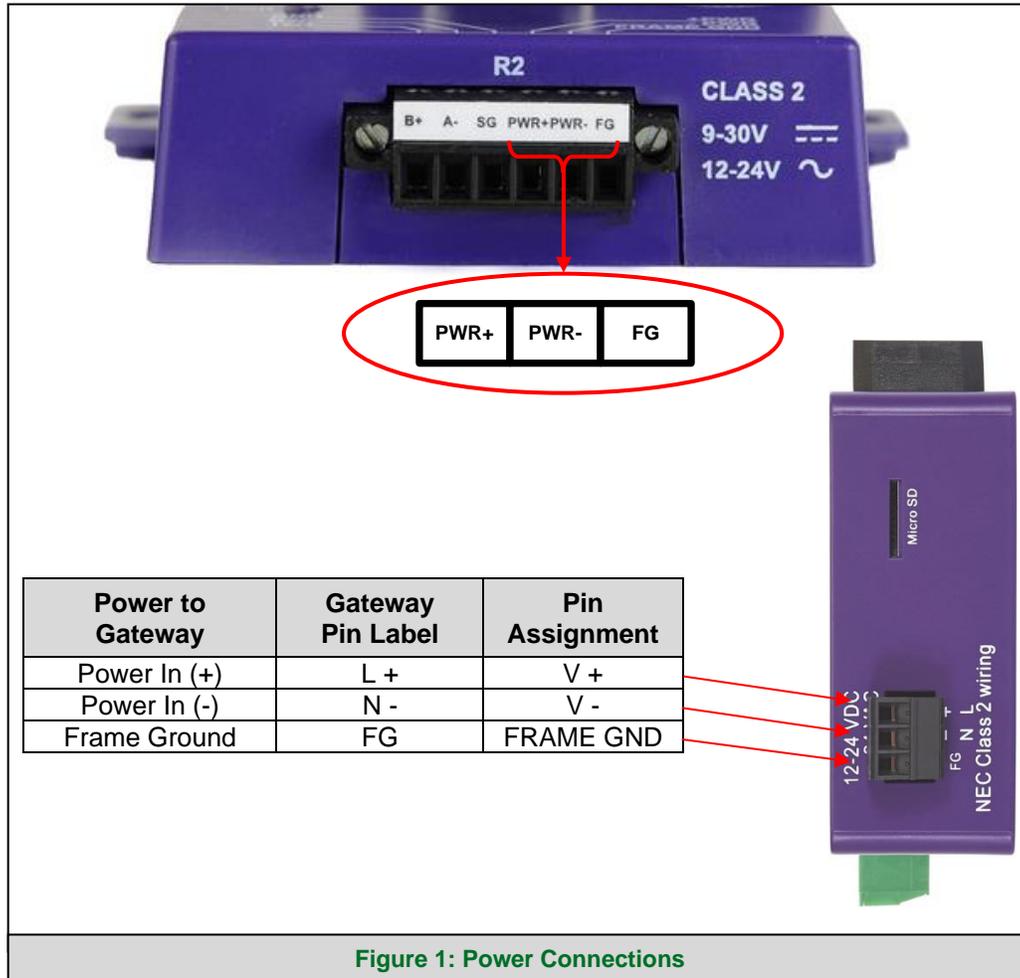
### 3.2    Connect the PC to the FieldServer Over the Ethernet Port

Connect an Ethernet cable between the PC and FieldServer or connect the FieldServer and the PC to the switch using a straight Cat-5 cable. Find connection instructions for the specific gateway on the FieldServer's Start-up Guide.



**Figure 2: Ethernet Port**
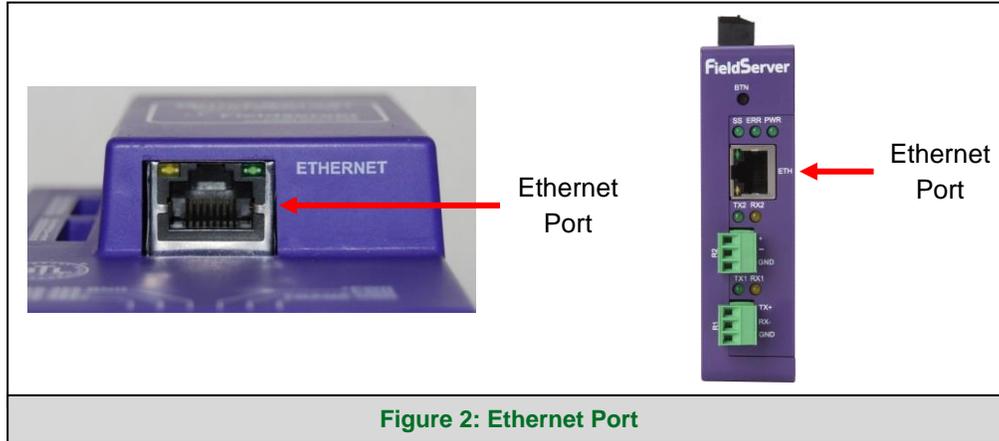
## 3.3 Connecting to the FieldServer

### 3.3.1 Using the FieldServer Toolbox to Launch FS-GUI

- Install the FS Toolbox application from the USB drive or download it from the MSA website.

- Use the FS Toolbox to find the FieldServer and launch the FS-GUI.

**NOTE:** **If the connect button is greyed out, the FieldServer's IP Address must be set to be on the same network as the PC.**
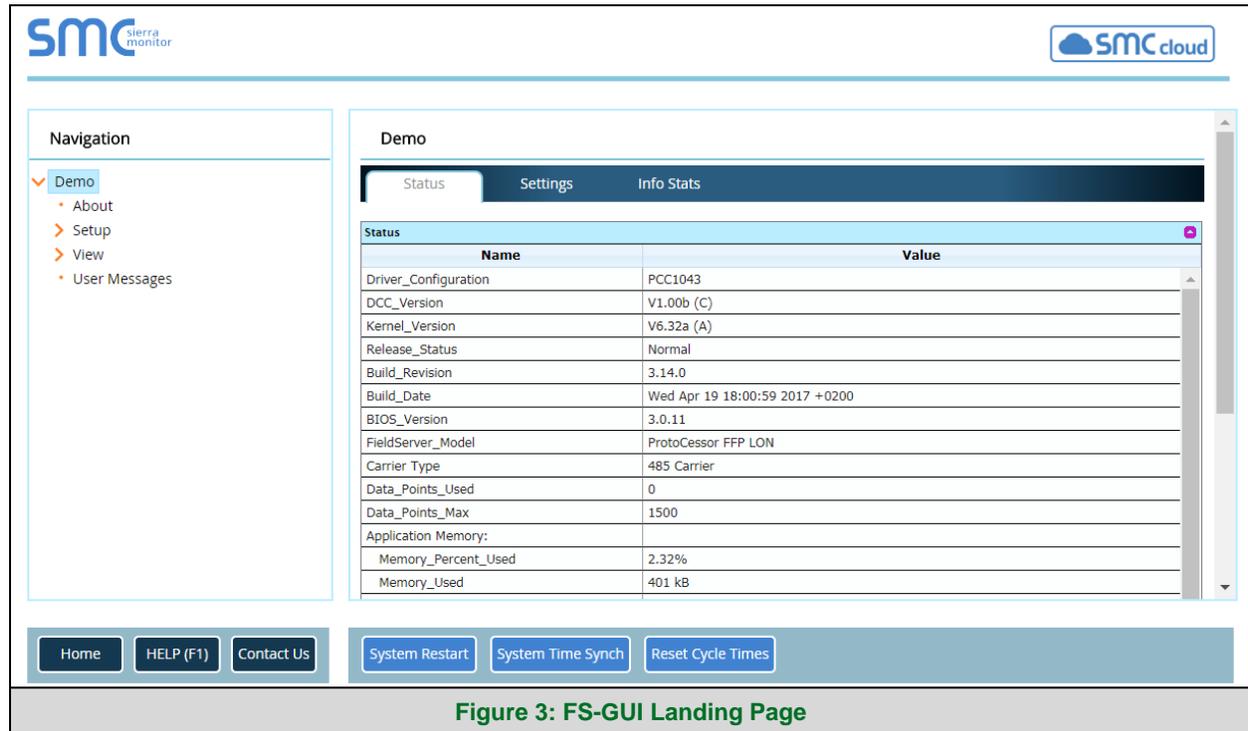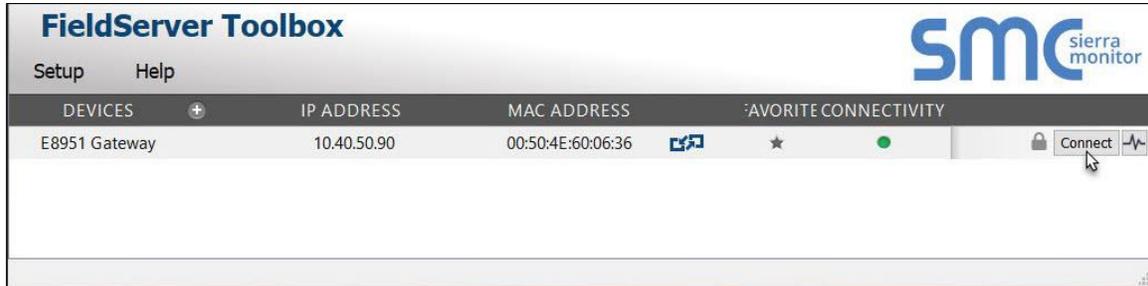




**Figure 3: FS-GUI Landing Page**

### 3.3.2 Connecting FieldServer to the Grid

The SMC Cloud button  (see **Figure 3**) allows users to connect to the Grid, MSA Safety's device cloud solution for IIoT. The Grid enables secure remote connection to field devices through a FieldServer and its local applications for configuration, management, maintenance. For more information about the Grid, refer to the MSA Grid Start-up Guide.

### 3.3.3 Using the Web Browser to Launch FS-GUI

If the IP Address is known, it can be typed directly into the web browser, and the FS-GUI will launch.

# 4    FS-GUI Features and Functions

The following sections explain the functions of each item in the FS-GUI Navigation Tree.

## 4.1    Root

The root of the navigation tree allows the user to check the status of the FieldServer gateway, including the configuration code, version, memory, gateway type and more. Under "Settings" the user has access to important network information. The name of the root is specified in the FieldServer Configuration file under the Title Keyword and is therefore completely user definable.

## 4.2    About

Allows the user to check current firmware of the FieldServer gateway plus version identification of the interface and skin, plus contact information. Skin is either the default FieldServer template or it can be a specific template specified by the owner.

## 4.3    Setup

### 4.3.1   File Transfer

There are 3 types of files that can be transferred, namely Configuration Files, Firmware and miscellaneous (general) files.
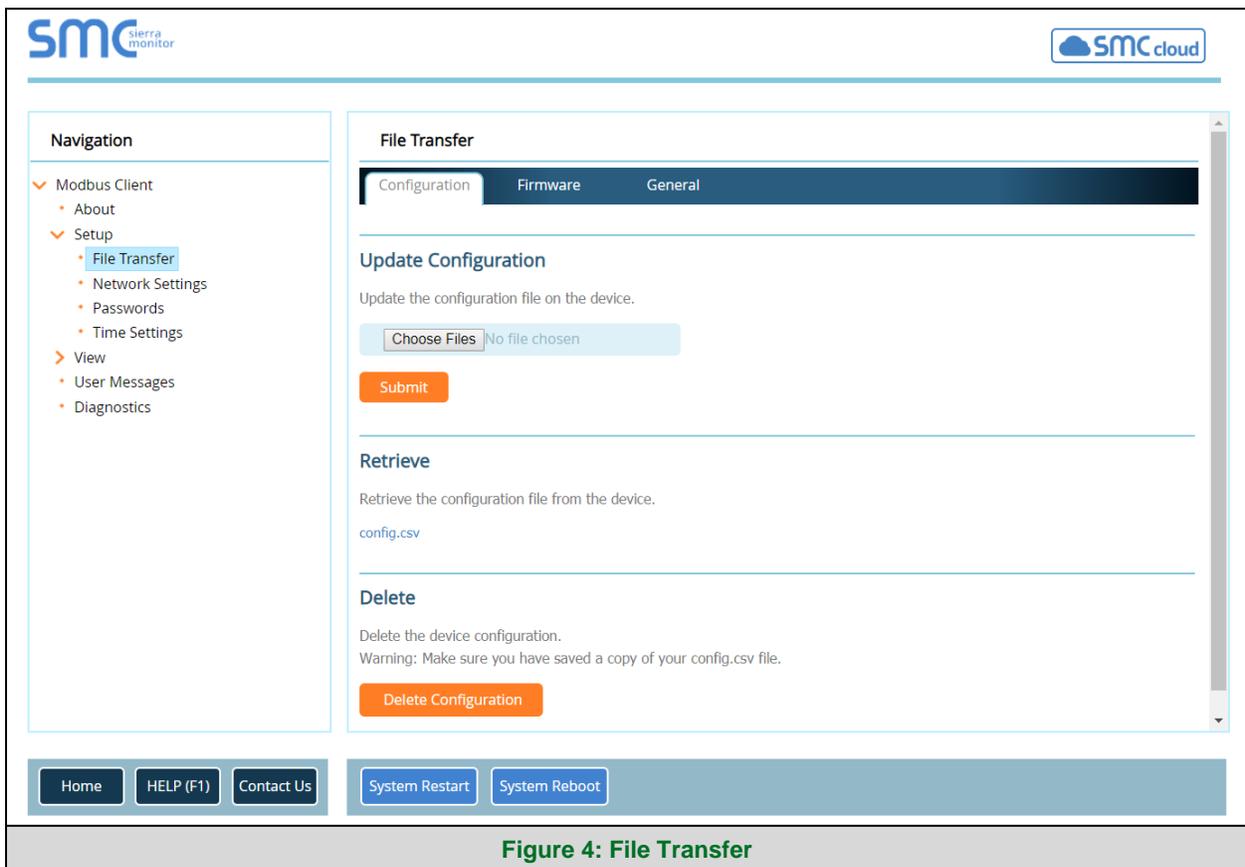


**Figure 4: File Transfer**

**<u>Configuration Files</u>**

Configuration files have a .csv extension and are used to configure the FieldServer for its specific application. See the FieldServer Configuration Manual for details, found on the MSA website.

**Update the configuration file:**

To update the FieldServer's configuration file, click the browse button and select the configuration file (.csv). Click open and submit. Wait until the message "Configuration update complete" appears and click the System Restart button to activate the new configuration file.

**Retrieve the configuration file:**

For making changes to the configuration file – Retrieve the file, edit it, save the updated file and update the file (as described in the section above).

**Delete the configuration file:**

To temporarily disable the FieldServer's protocol communications, the configuration can be deleted. The FieldServer needs to be restarted to activate the changes. **This action cannot be undone - make sure to create a backup copy of the configuration file before taking this action.**

**<u>Firmware Files</u>**

The FieldServer Firmware contains the application program commonly referred to as the DCC or the PCC. This program contains the protocol drivers applicable to the application and the FieldServer Operating System Kernel.

A Firmware update is only required when updated files are received from FieldServer support. Firmware files have a .bin extension.

**<u>General (Other) Files</u>**

Other files that can be updated include the FS-GUI image, and other files described in driver manuals. The procedure for updating these is the same as for configuration files, but the update needs to be made in the "General" update section.

### 4.3.2   Network Settings

On the Network Settings Page, the Ethernet adaptor settings of the FieldServer can be changed. The N1 and N2 (if supported) adaptor IP Address, Netmask, two Domain Name Servers and default Gateway can be changed by entering values in the applicable fields and clicking on the Update IP settings Button.

**NOTE:**  **The FieldServer must be restarted for any changed settings to take effect. Also note that enabling the DHCP client on any adaptor will cause the static IP Address settings to be overruled by a DHCP server on the network.**

The FieldServer's built-in DHCP server can be enabled to establish easy connection for Support purposes. Set the laptop or computer to automatically obtain an IP Address to use this feature. The FieldServer DHCP server periodically checks for other DHCP servers on the network and will disable itself should any other DHCP servers exist on the network. This method of operation is because the FieldServer DHCP server is strictly for support purposes and does not have all the features of a commercial DHCP server. Setting the default gateway IP Address to the network gateway ensures the FieldServer is reachable on the internet.
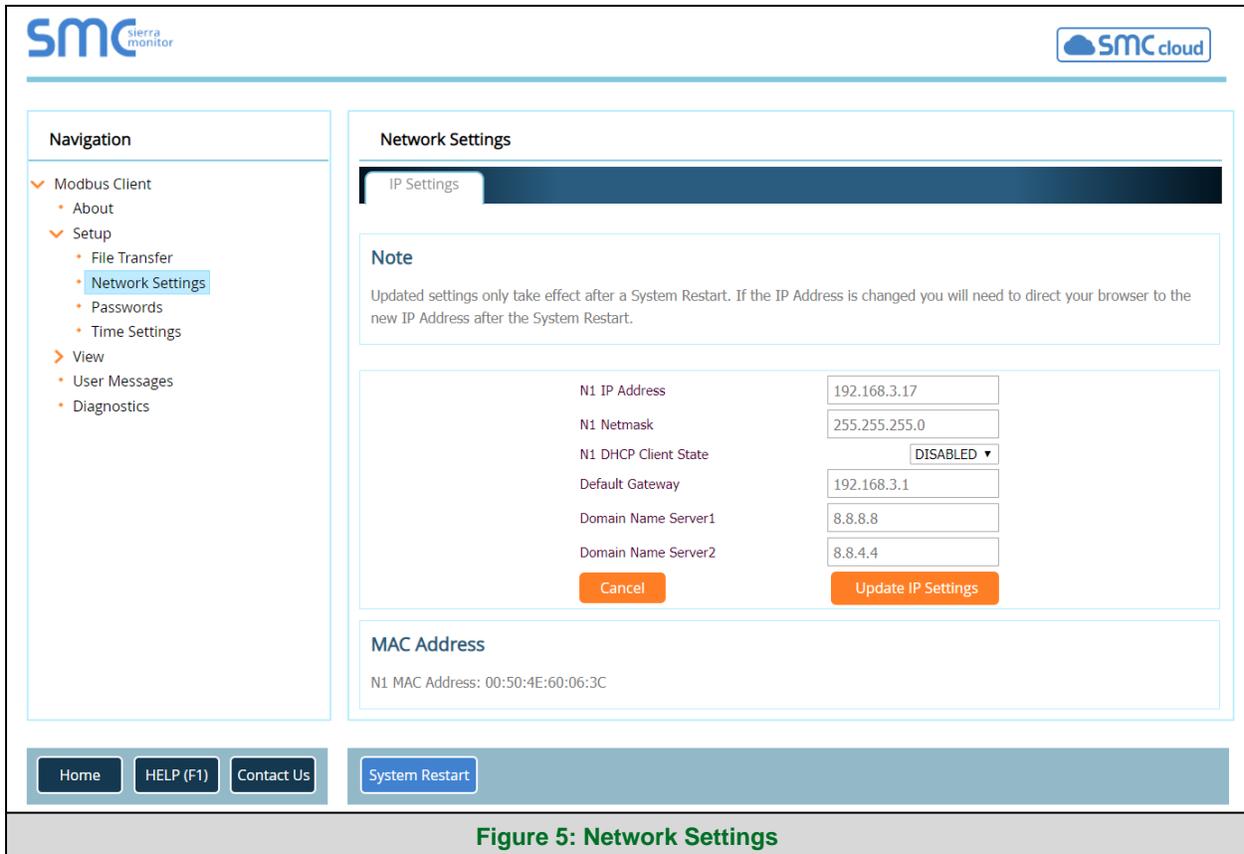


**Figure 5: Network Settings**

### 4.3.3 Passwords

Access to the FieldServer can be restricted by enabling a password on the FS-GUI Passwords page – click Setup and then Passwords in the navigation panel. There are 2 access levels defined by 2 account names: Admin and User.

- The Admin account has unrestricted access to the FieldServer.
- The User account can view any FieldServer information, but cannot make any changes or restart the FieldServer.

The password needs to be a minimum of eight characters and **is case sensitive**.

If the password has been lost, click cancel on the password authentication popup window, and e-mail the Password recovery token to smc-support@msasafety.com to receive a temporary password from the FieldServer support team. Access to the FieldServer is now available to set a new password.
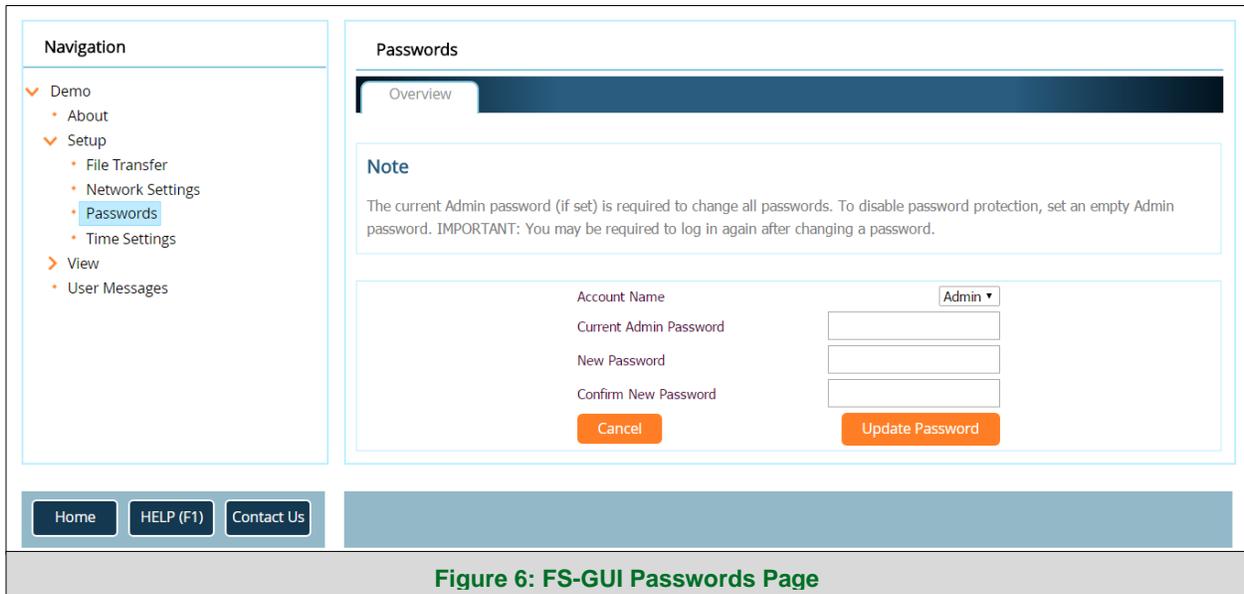


**Figure 6: FS-GUI Passwords Page**
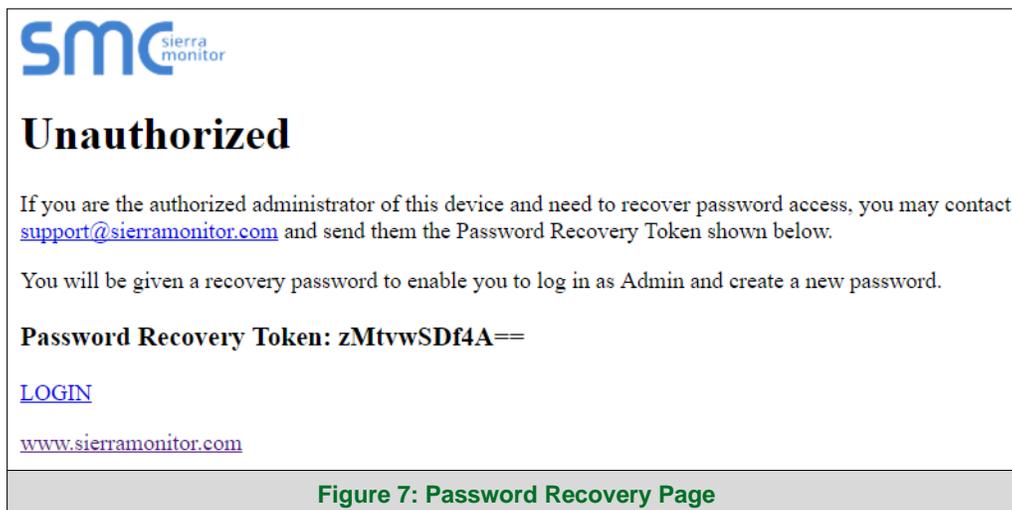


**Figure 7: Password Recovery Page**

### 4.3.4 Setting Time Zone

The time zone of the FieldServer should be set to generate accurate data.

- Navigate to the FS-GUI page using one of the following methods:
  - From Web Configurator – click the "Diagnostics and Debugging" button on the bottom right corner of the page

**NOTE: The Web Configurator page shows the FieldServer parameters to configure. See gateway start-up guide for additional information.**

  - If there is no "Diagnostics and Debugging" button in the bottom right corner of the page, check for a "Diagnostics" tab along the top of the page or a "Diagnostics" link next to the Sierra Monitor Copyright statement at the bottom center of the page

- Click Setup on the navigation tree.

- Click "Time Settings".

- Select the appropriate time zone then click Submit.



**Figure 8: Time Settings Page**
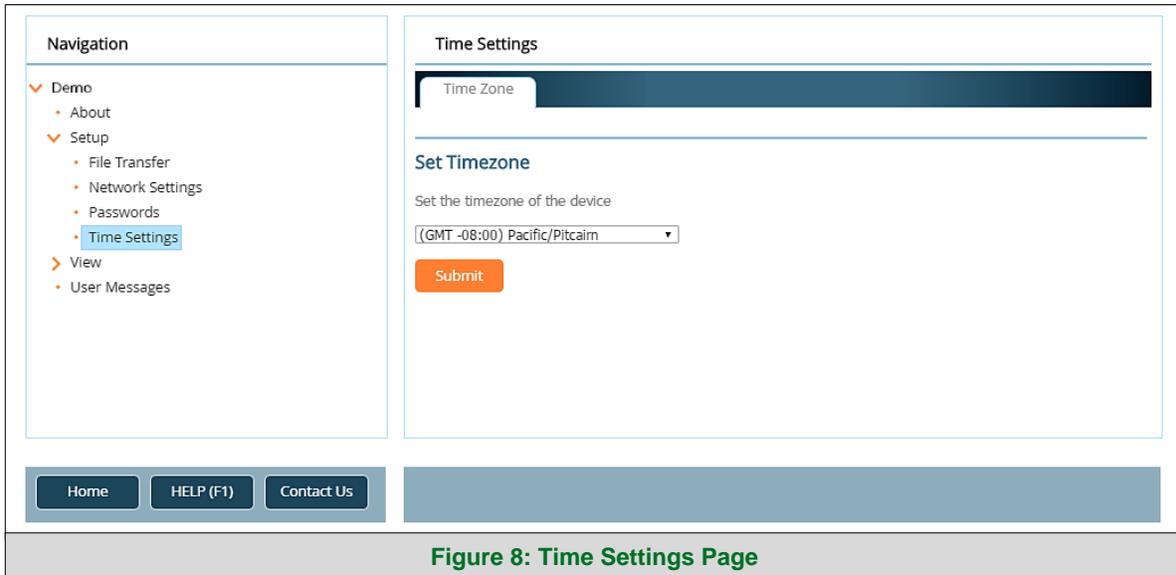
## 4.4    View

### 4.4.1   Connections

The Connections screen supplies information on communication between the FieldServer and remote devices. A number of aspect screens are available, including settings, info stats and error stats. The information on these screens cannot be changed and is for viewing only.

### 4.4.2   Data Arrays

The Data Arrays screens can be used to view the values in Data Arrays. The values can be changed by clicking on the "Enabled Grid"- button and changing the value in the data array grid.

**NOTE:**  **If values are being written into the Array by a driver, then any modifications made by grid editing will be overridden.**
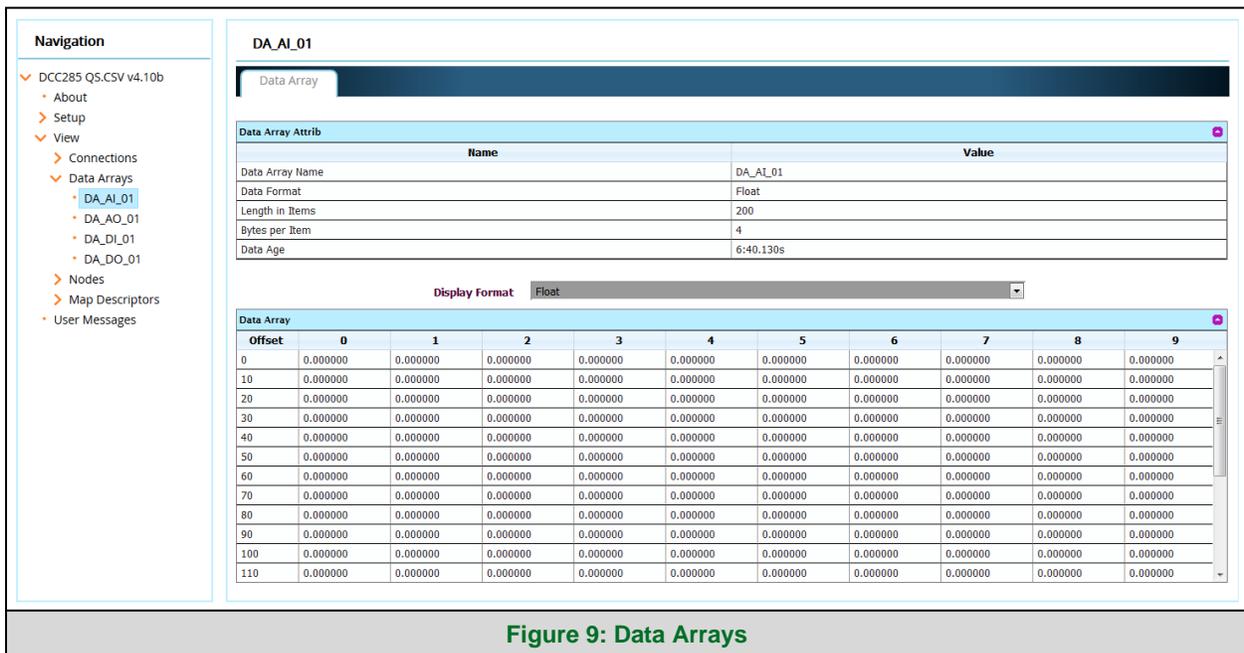


**Figure 9: Data Arrays**

### 4.4.3   Nodes

On the Nodes screens information about the remote devices on each connection can be viewed. A number of aspect screens are available, including settings, status, info stats and error stats. The information on these screens cannot be changed and is for viewing only.

### 4.4.4   Map Descriptors

On the Map Descriptors screens information on each individual Map Descriptor can be viewed. A number of aspect screens are available, including settings, status, info stats and error stats. The information on these screens cannot be changed and is for viewing only.

## 4.5 User Messages

The user message screens display FieldServer messages generated by drivers and the operating system.

User messages on the "Error"- screen usually indicate some problem with the configuration or communication and should be attended to.

User messages of an informational type will be displayed on the "Info"- screen, and no user action is usually required.

Messages generated by protocol drivers will be displayed on the "Driver"- screen. These messages convey protocol specific information that can be useful for field integration purposes.

Finally, the "Combined"- screen contains all messages chronologically from all the above message screens.

### 4.6 Diagnostics

Diagnostic Capture via FS-GUI is only available on FieldServers with a bios updated/released on November 2017 or later. Completing a Diagnostic Capture through the FieldServer allows network connections (such as Ethernet and Wi-Fi) to be captured.

**Once the Diagnostic Capture is complete, email it to technical support. The Diagnostic Capture will accelerate diagnosis of the problem.**

- Open the FieldServer FS-GUI page.

- Click on Diagnostics in the Navigation panel.
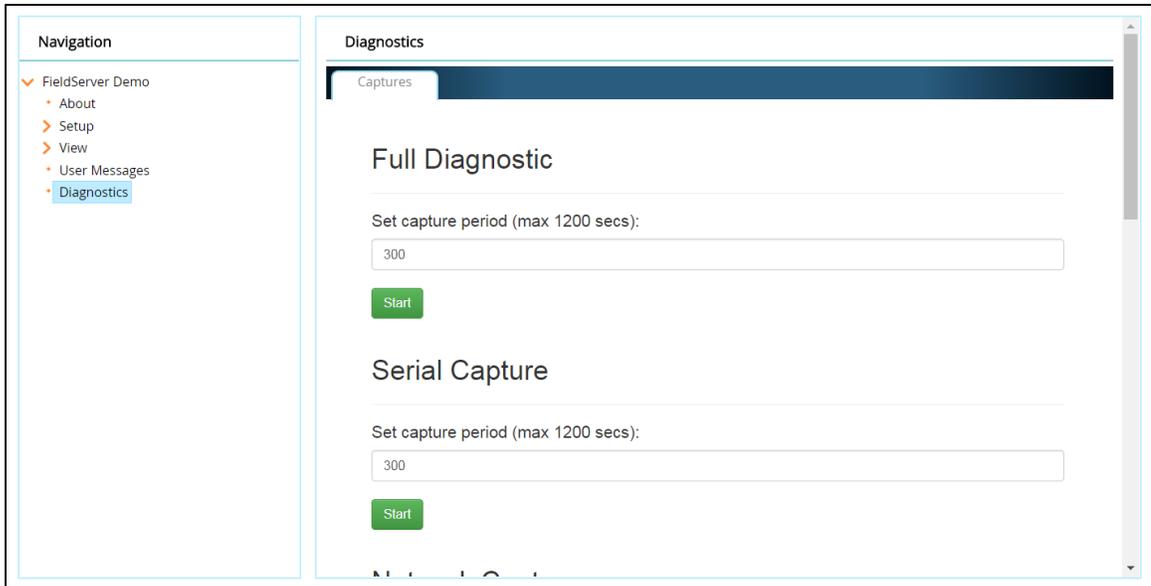


- Go to Full Diagnostic and select the capture period.

- Click the Start button under the Full Diagnostic heading to start the capture.
  - When the capture period is finished, a Download button will appear next to the Start button
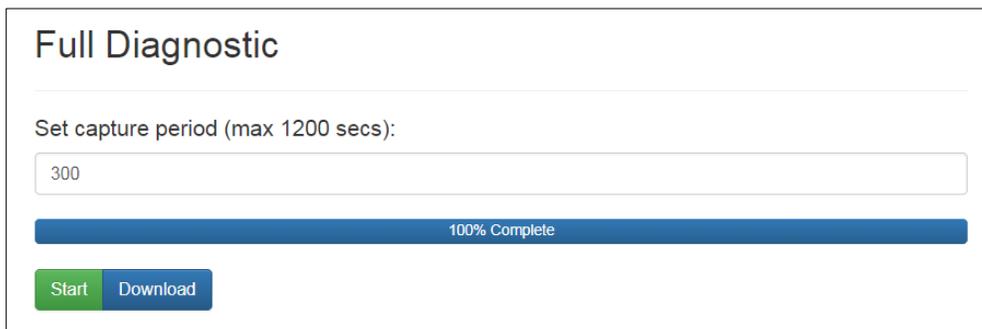


- Click Download for the capture to be downloaded to the local PC.

- Email the diagnostic zip file to technical support ([smc-support.emea@msasafety.com](mailto:smc-support.emea@msasafety.com)).

**NOTE: Diagnostic captures of BACnet MS/TP communication are output in a ".PCAP" file extension which is compatible with Wireshark.**

## 5   Troubleshooting

### 5.1   FieldServer Toolbox Display Issues

If the FieldServer Toolbox appears to be stretched out or not displaying correctly, see the image below for the correct display (normal window boarders have been removed). If the FieldServer Toolbox does not have a similar appearance there may be an issue with the DPI scaling.
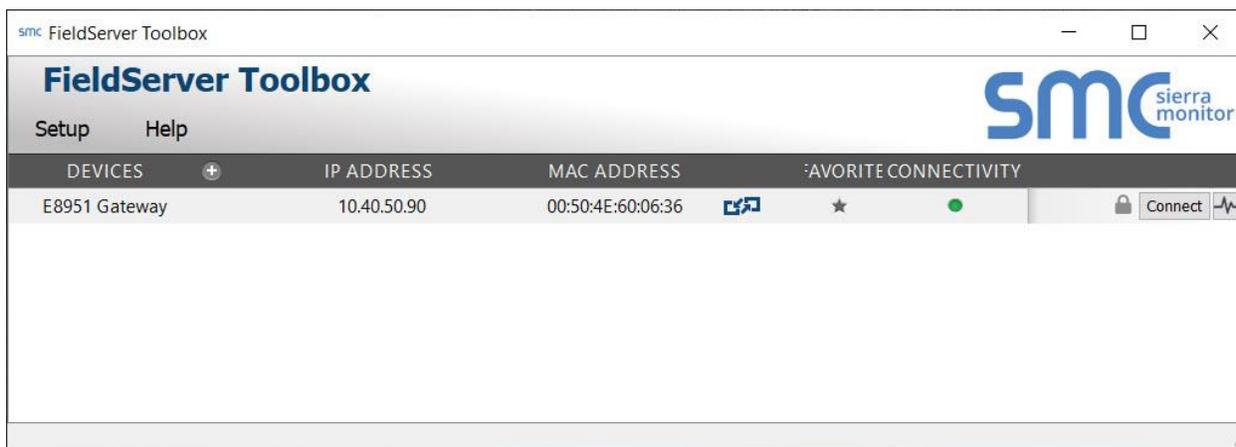


To fix a DPI scaling problem try the following:

1.   Right click on the FieldServer Toolbox icon and then click on Properties.

2.   Click the Compatibility tab.

3.   Enable the "Override high DPI scaling" option.

4.   Change the drop down menu that appears to "System-Enhanced".

5.   Click OK to save the new settings.