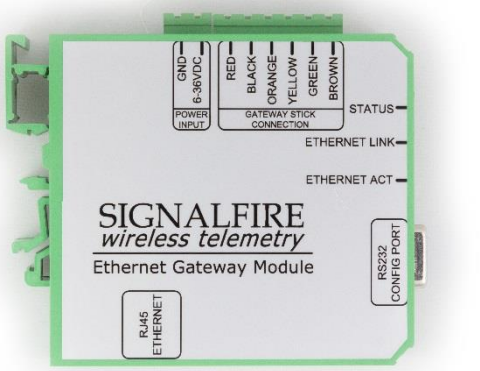
Interface Manual

Ethernet Interface Module

SignalFire Number: ENET-DIN



The SignalFire Ethernet Gateway has the following features:

- Wide range DC power input. 6 to 36VDC
- Modbus TCP Connection (supports up to 16 connections)
- Remote access to the Gateway through the SignalFire Toolkit, including full remote configuration support
- DIN Rail mounted Ethernet module
- Status LEDs

Specifications

Network Interface	Ethernet 10/100 base TX with Auto Negation, and HP Auto MDIX. RJ45 Connector
Network Standards	TCP/IP, DHCP, Telnet and HTTP
Supply	6-36VDC (screw terminals) (80mA at 12VDC)
Serial Port	DB9 serial port provides direct communication to Gateway using the SignalFire Toolkit
Modbus TCP Server	The Modbus TCP server supports 16 simultaneous server connections

Connections and Components

The SignalFire Ethernet Interface module can be used with either a SignalFire Gateway-Stick or a SignalFire DIN mount Gateway.

Ethernet Gateway Connections

The Ethernet Interface module provides screw terminals for connection to a SignalFire Gateway Stick or DIN mount Gateway. Connect the 6 wires to the Gateway following the labeled colors.

Wire Color	Connection
RED	Positive Power (6 to 36 VDC)
BLACK	Ground
GREEN	RS-485 to RSD module
BROWN	RS-485 to RSD module
ORANGE	RS-232 Debug/Programming TX
YELLOW	RS-232 Debug/Programming RX

Power must be provided by the Power Input screw terminals (6-36VDC).

RS-232

The Ethernet module has an RS-232 port, similar to the DIN Gateway. This RS-232 port is not used to configure the Ethernet module, but to configure the attached Gateway (stick or DIN) when the user is at the location. When the Ethernet module is connected to the Gateway through the screw terminals on top, the Gateway's RS-232 port becomes disabled, and the Ethernet module RS-232 port should be used for configuration.

Ethernet Interface Module Status LEDs

The Ethernet Interface Module has 3 green LEDs available for field diagnostics.

Status LED	Description
Slow Flash (3 second pause)	System is running at least one remote node is connected
Fast Flash (1 second pause)	System is running but no remote nodes have connected
Solid On	No communication with the Gateway Stick

Ethernet Link	Description
Solid On	Valid Ethernet Link detected
Off	No Ethernet Link detected

Ethernet ACT	Description
Blink On	Blinks on to indicate Ethernet traffic

Operation

The SignalFire Ethernet Interface Module provides a Modbus TCP server which allows all of the register data contained in the Gateway to be accessed by any Modbus TCP client.

In addition, a TCP port is available to allow remote configuration/debug of the Gateway using the SignalFire Toolkit. This provides the same functionality as being directly connected to the Gateway with a serial cable.

Configuration

The Ethernet Interface Module is simple to use out of the box with little if any configuration necessary.

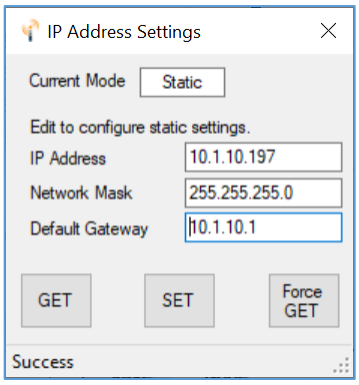
Default settings:

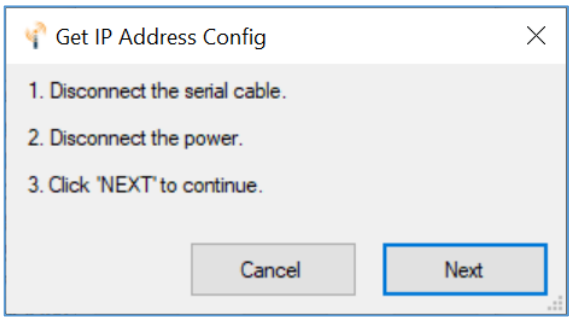
IP Address:	192.168.1.100
Host Name:	SignalFireGW
Modbus TCP Port:	502
SignalFire Toolkit Port:	10002
Web Config Username:	**admin**
Web Config Password:	**signalfire**

ToolKit Configuration

The Ethernet Interface Module's IP settings can be configured from the attached Gateway Stick or DIN-Gateway (the Gateway must have firmware version 8.23 or higher) through the ToolKit (must be version 2.2.21.00 or higher). Connect to the Gateway with the ToolKit while it's powered up and connected to the Ethernet Interface Module.

Under the "Tools" drop-down menu at the top of the Modbus Gateway window, select "Configure IP Address Settings". To read/recover the current IP address settings, click "GET" and follow the series of pop-ups exactly as prompted. The ToolKit will notify the user if the process was successful or not. Note that the process includes a manual power cycle of the system. "GET" will read the info from the Gateway if it can, otherwise it will prompt the user with instructions to get the information from the Ethernet module, while Force GET goes straight to the Ethernet module without checking the Gateway.



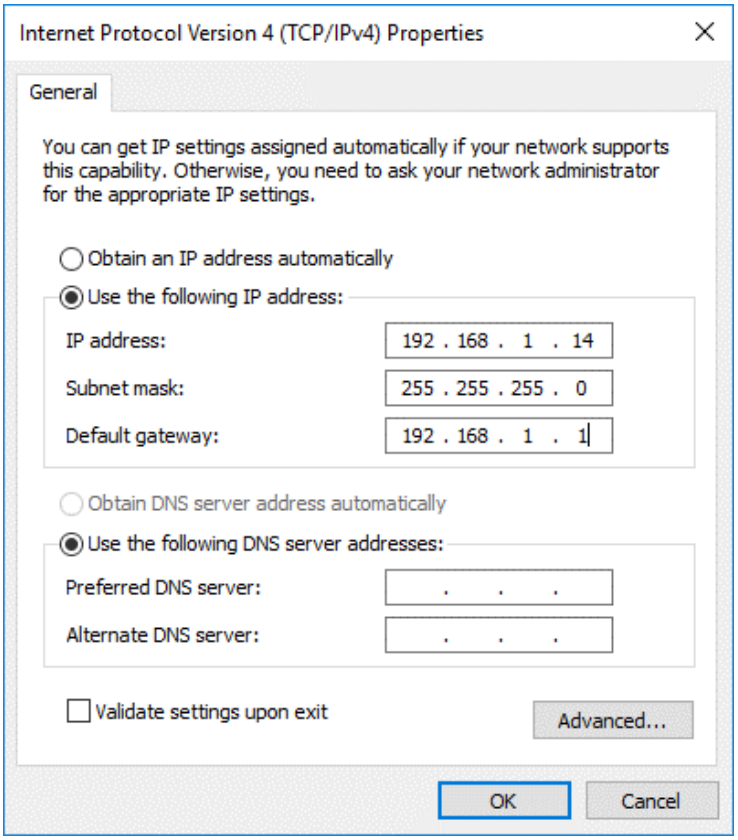


The IP address can be set directly from this menu as well. Change the "IP Address", "Network Mask", and "Default Gateway" fields as needed according to your network administrator and click "SET". This will again bring up the same prompts, requiring a reboot of the system, and will set the mode to Static.

Web Page Configuration

The Ethernet Interface Module can also manually be configured through its web page. This option is useful when the module alone needs to be configured before being installed in the field.

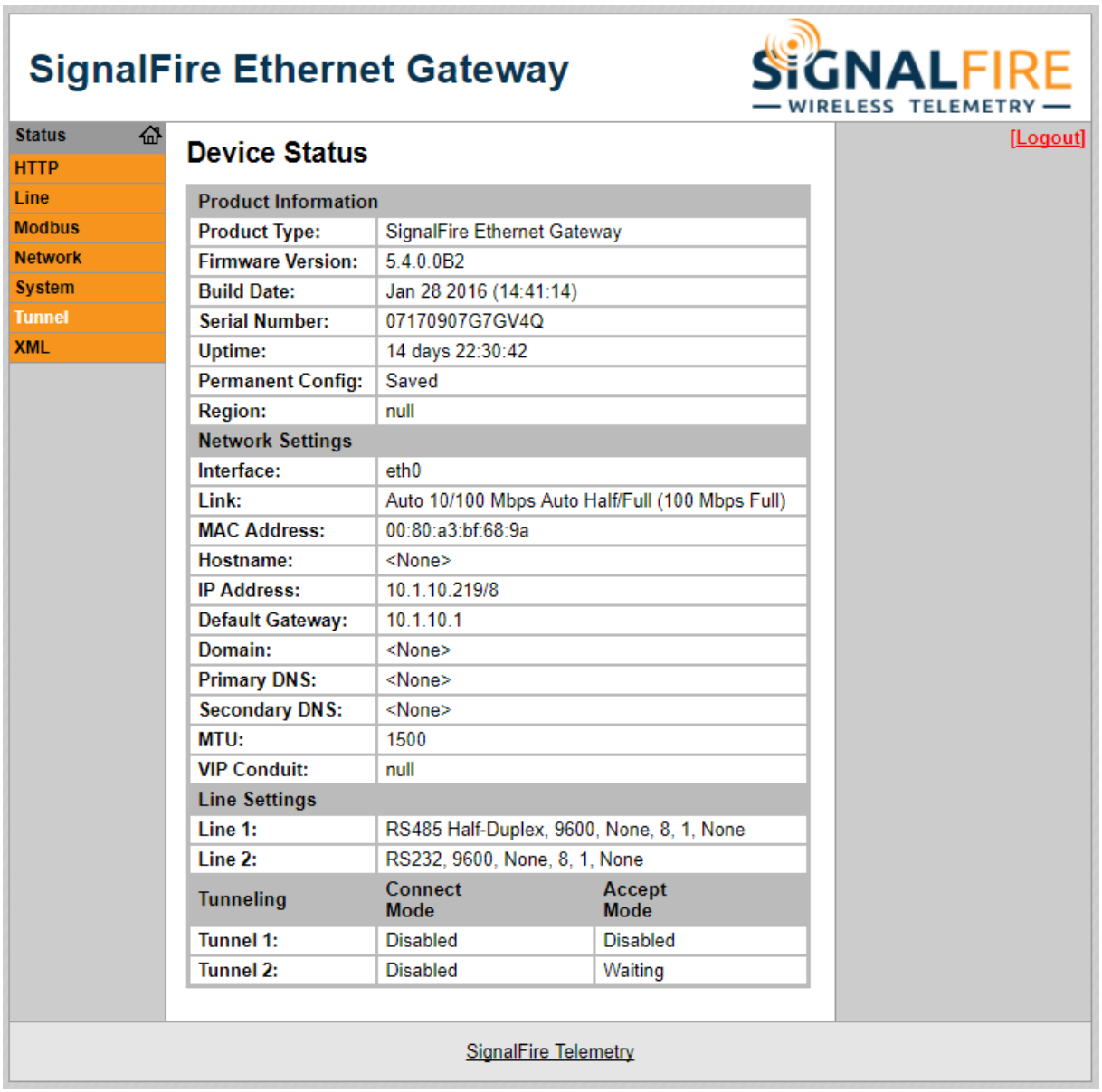
First connect the Ethernet Interface Module directly to your PC with a Cat5 cable. Set the PC to an IP address on the same subnet as the default Ethernet Interface Module IP address.



Example Windows TCP/IP Settings

From a PC running on the same LAN you can detect the IP address assigned to the Ethernet Gateway using the SignalFire Toolkit by opening the Gateway window and selecting **Detect Ethernet Gateways** from the **Tools** menu. Selecting a Gateway IP address and clicking **Connect to Gateway** will connect to the selected Gateway with the Toolkit. You can also launch the configuration webpage in your default browser from this screen.

To access the configuration webpage, enter the IP address of the Ethernet Interface Module (192.168.1.100 by default) in a web browser and log in with the Web Config username and password. (admin / signalfire by default)



SignalFire Ethernet Gateway

SIGNALFIRE — WIRELESS TELEMETRY —

Status | HTTP | Line | Modbus | Network | System | Tunnel | XML

[Logout]

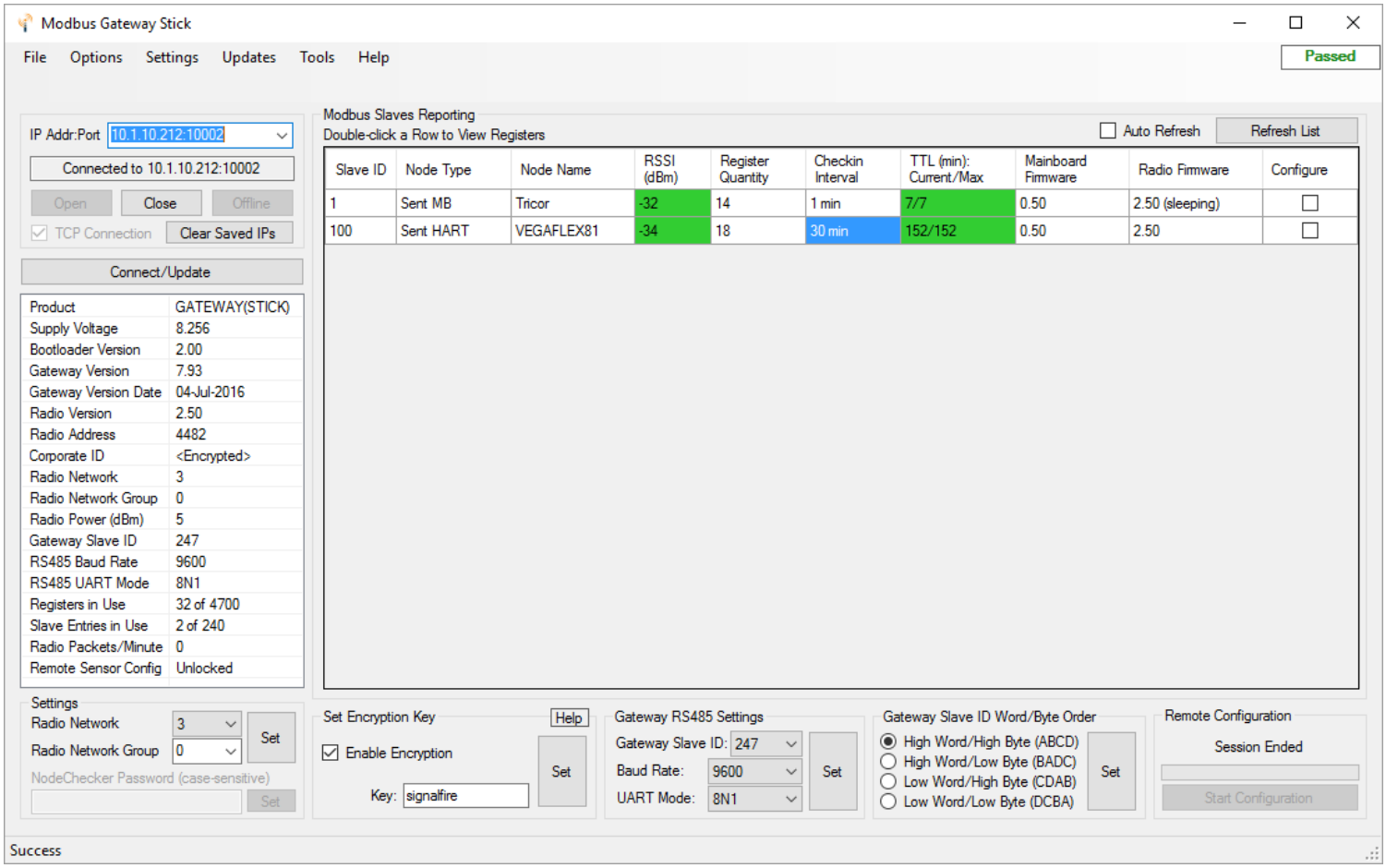
Device Status

Product Information		
Product Type:	SignalFire Ethernet Gateway	
Firmware Version:	5.4.0.0B2	
Build Date:	Jan 28 2016 (14:41:14)	
Serial Number:	07170907G7GV4Q	
Uptime:	14 days 22:30:42	
Permanent Config:	Saved	
Region:	null	
Network Settings		
Interface:	eth0	
Link:	Auto 10/100 Mbps Auto Half/Full (100 Mbps Full)	
MAC Address:	00:80:a3:bf:68:9a	
Hostname:	<None>	
IP Address:	10.1.10.219/8	
Default Gateway:	10.1.10.1	
Domain:	<None>	
Primary DNS:	<None>	
Secondary DNS:	<None>	
MTU:	1500	
VIP Conduit:	null	
Line Settings		
Line 1:	RS485 Half-Duplex, 9600, None, 8, 1, None	
Line 2:	RS232, 9600, None, 8, 1, None	
Tunneling	**Connect Mode**	**Accept Mode**
Tunnel 1:	Disabled	Disabled
Tunnel 2:	Disabled	Waiting

SignalFire Telemetry

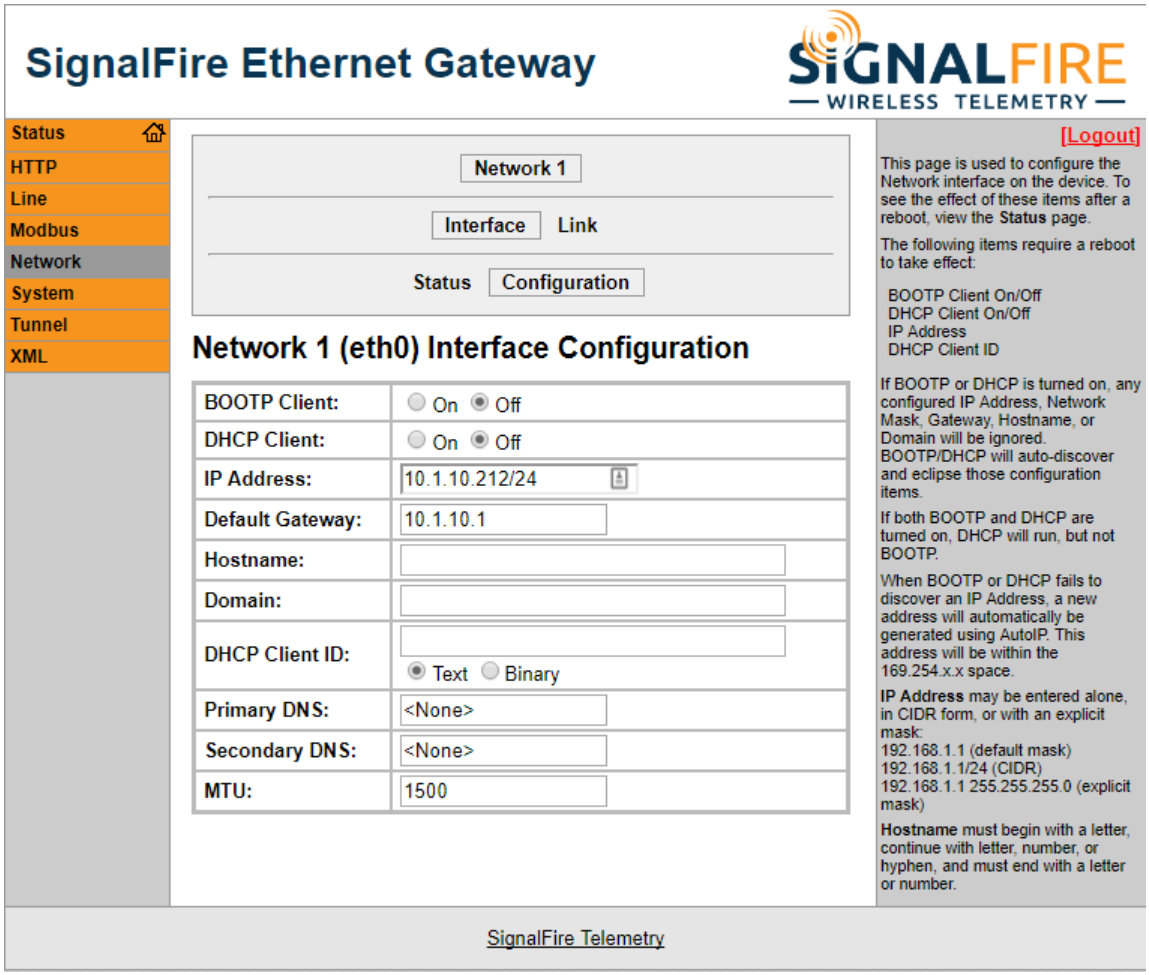
Remote Toolkit Access

To access the gateway debug port remotely, open the SignalFire Toolkit and select the Gateway Stick from the main window. Check the **TCP Connection** box in the lower left, enter the IP address of the Ethernet Interface Module, and click **Connect**. After a connection is made to the IP address full access to the Gateway is available as if a direct serial connection was used. This includes full remote configuration capability.



Changing to a Static IP Address

To change the Ethernet Interface Module to use a different static IP address, click on the **Network** button and then select the **Configuration** button. Enter your new static IP address, and click **Submit**. The Ethernet Interface Module must be rebooted for these changes to take effect.

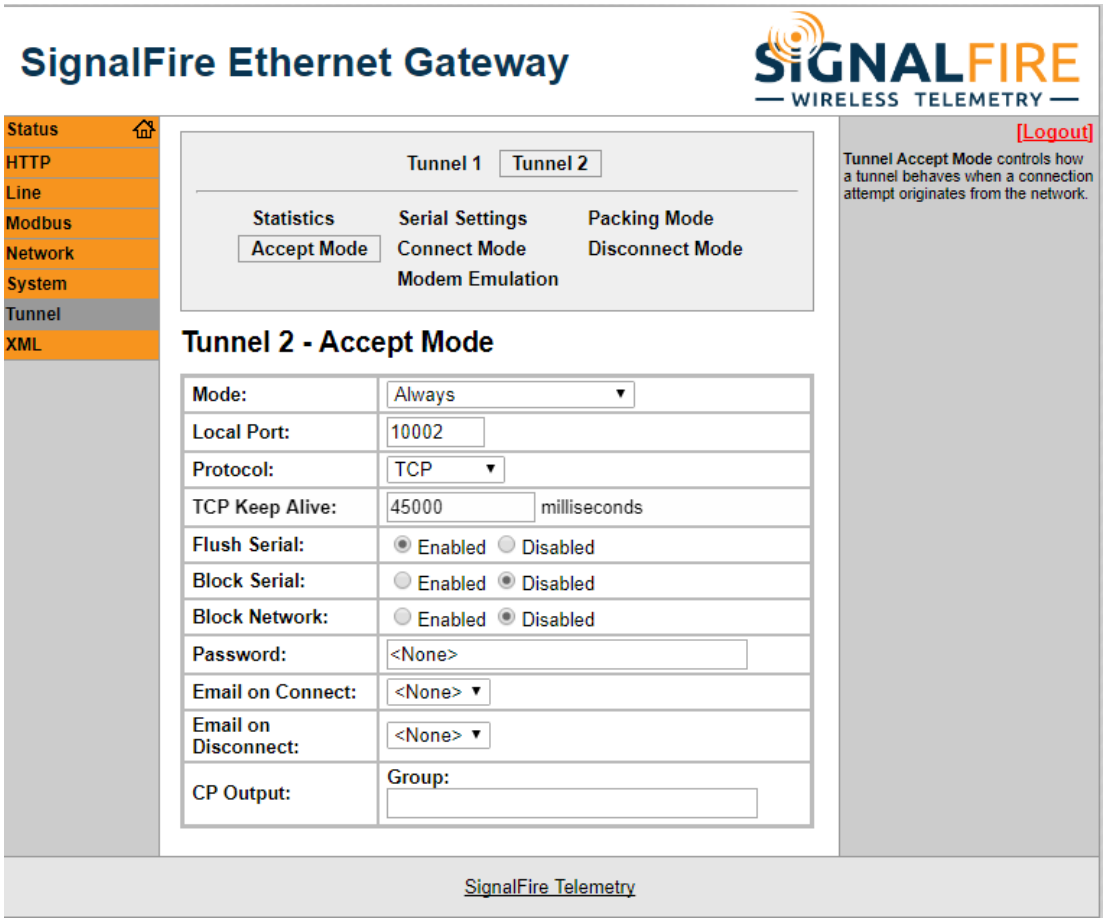


Changing to a DHCP Address

To change the Ethernet Interface Module to use a DHCP IP address, simply turn on the DHCP Client in the screen above. Note that a DHCP server must be running on the network. The Ethernet Interface Module must be rebooted for these changes to take effect.

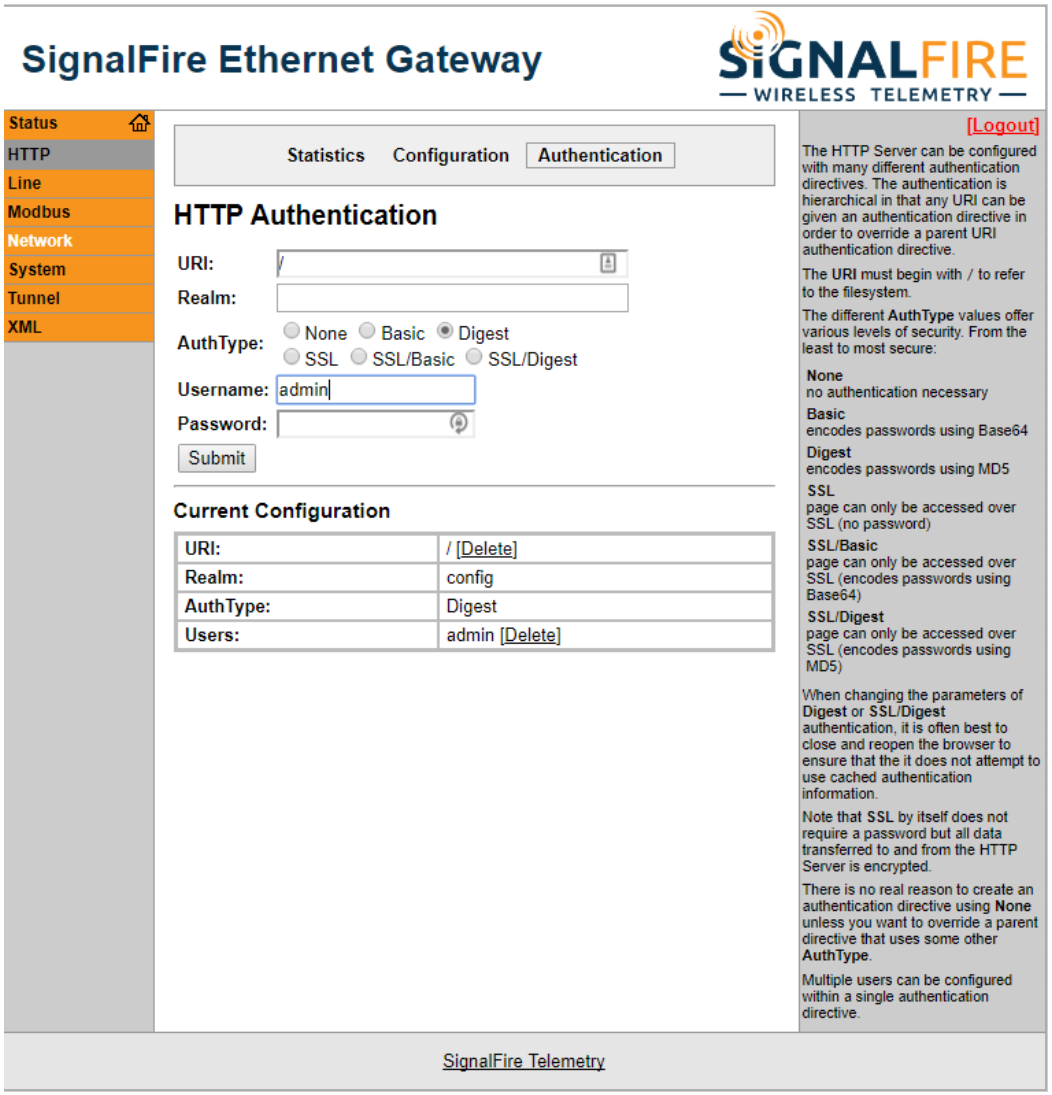
To change the SignalFire Toolkit port, first select the **Tunnel** tab. Click on **Tunnel 2** then **Accept Mode**. Change the **Local Port** field and click **Submit**.

Do not change any of the other tunnel settings.



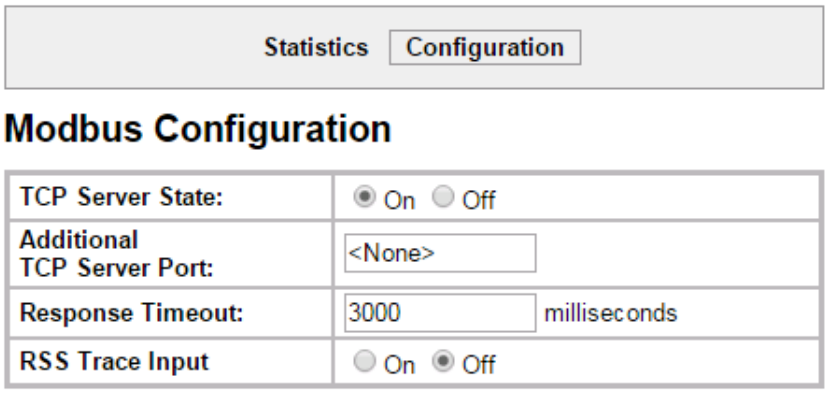
CAUTION: If the default password is changed, be sure not to forget the password, and be careful to type the new password correctly. If password is lost the device must be returned to SignalFire to be reset.

To change the website password, click on the **HTTP** tab and select **authentication**. Type "**/**" in the URL field. Select **Digest**, then enter **admin** for the username. Enter the new password and click **Submit**. You will be prompted to log back in with the new password.



Modbus Tab

This will show the Modbus TCP statistics. Selecting the Configuration option will allow an additional Modbus TCP server port to be defined. Note that Port 502 is always available for the Modbus TCP connection.



The default response timeout is 3000mS (3 seconds). This timeout is the time the Ethernet Interface Module allows for the Gateway to respond to any Modbus requests. 3 seconds is chosen to allow time for any transparent (over-the-air) Modbus requests to remote nodes.

It is also important to consider this timeout when setting up any Modbus-TCP clients. If the Modbus-TCP clients are polling rapidly with a short timeout it is possible for the Ethernet Interface Module to become backed up with Modbus requests and become non-responsive. Additional care must be taken when multiple Modbus-TCP clients are connected to the Ethernet Interface at the same time to avoid this same issue.

XML Tab

This tab can be used to download/upload custom configurations. Contact SignalFire for more information.

System Tab

The Ethernet Gateway may be rebooted (after a settings change for example) from this tab.

CAUTION: Do not restore factory defaults! This will cause all default settings to be lost and a new XML configuration file must be loaded. Contact SignalFire with any questions.

IP Address Recovery

If the IP address is lost or forgotten, it can be recovered through the ToolKit.

1) Close the ToolKit, and unplug the serial cable from the RS-232 port
2) Power cycle the Ethernet module and Gateway and wait 10 seconds
3) Plug the serial cable back into the Ethernet module's RS-232 port
4) Open the ToolKit, pick the correct COM port, and click Auto-Detect Device
5) Under the Tools menu, select "Show Ethernet Gateway IP Address"

Note that if the IP address settings are changed the system must be powered down for at least 15 seconds and then powered back up for the Gateway to read the new IP address settings.