G-Force 850 b/g

Broadband Wireless Base Station

User's Manual

Version 0.1

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5G Wireless G-Force 850 b/g Broadband Wireless Base Station User's Manual.

Disclaimer

5G Wireless Solutions, Inc. has reviewed this manual and provides it only as a guide to operation. All statements, technical information, and recommendations in this manual and in any guides or related documents are believed reliable, but the accuracy and completeness thereof are not guaranteed or warranted, and they are not intended to be, nor should they be understood to be, representations or warranties concerning the products described.

Specifications are subject to change without notice.

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Contents

Introduction

The G-Force 850 b/g Broadband Wireless Base Station from 5G Wireless Solutions, Inc. creates cellular-style wireless networks for coverage across a large area. The base station provides many attractive features, including:

- IEEE 802.11b/g support
- Indoor and outdoor coverage
- Maximum NLOS (Non-Line-of-Sight) coverage from a single base station
- Minimum hardware and cable runs for the lowest TCO (Total Cost of Ownership)
- Easy installation—deploys right alongside existing cellular equipment
- Support for WEP, WPA-Personal, and WPA-Enterprise encryption standards
- Latest security technology enabling different security levels for different users
- Simple web-based configuration interface allowing remote management and maintenance

This manual describes the necessary hardware connections (Hardware Connections on page 5) and the web-based configuration interface (Configuration Interface on page 7).

Hardware Connections

The base station needs to be connected to power, ground, one or more antennae, and a network. These connections are shown in Figure 1 on page 6 and described below.

To hook up the base station:

1. Connect an antenna to each antenna jack to be used on the base station.
2. Remove the cover from the protected Ethernet jack, then align and insert the protected end of the included Ethernet cable into the jack. Screw on the cap to secure it.
3. Insert the other end of the Ethernet cable into the DATA & PWR jack (J1) on the AC Power Adapter.
4. Connect the DATA jack (J2) on the AC Power Adapter to a network jack, such as on a DSL or cable modem, using a straight-through Ethernet cable (not included).
5. Ground the base station using the ground connector.
6. Plug the AC Power Adapter into a standard 110/120V power outlet.

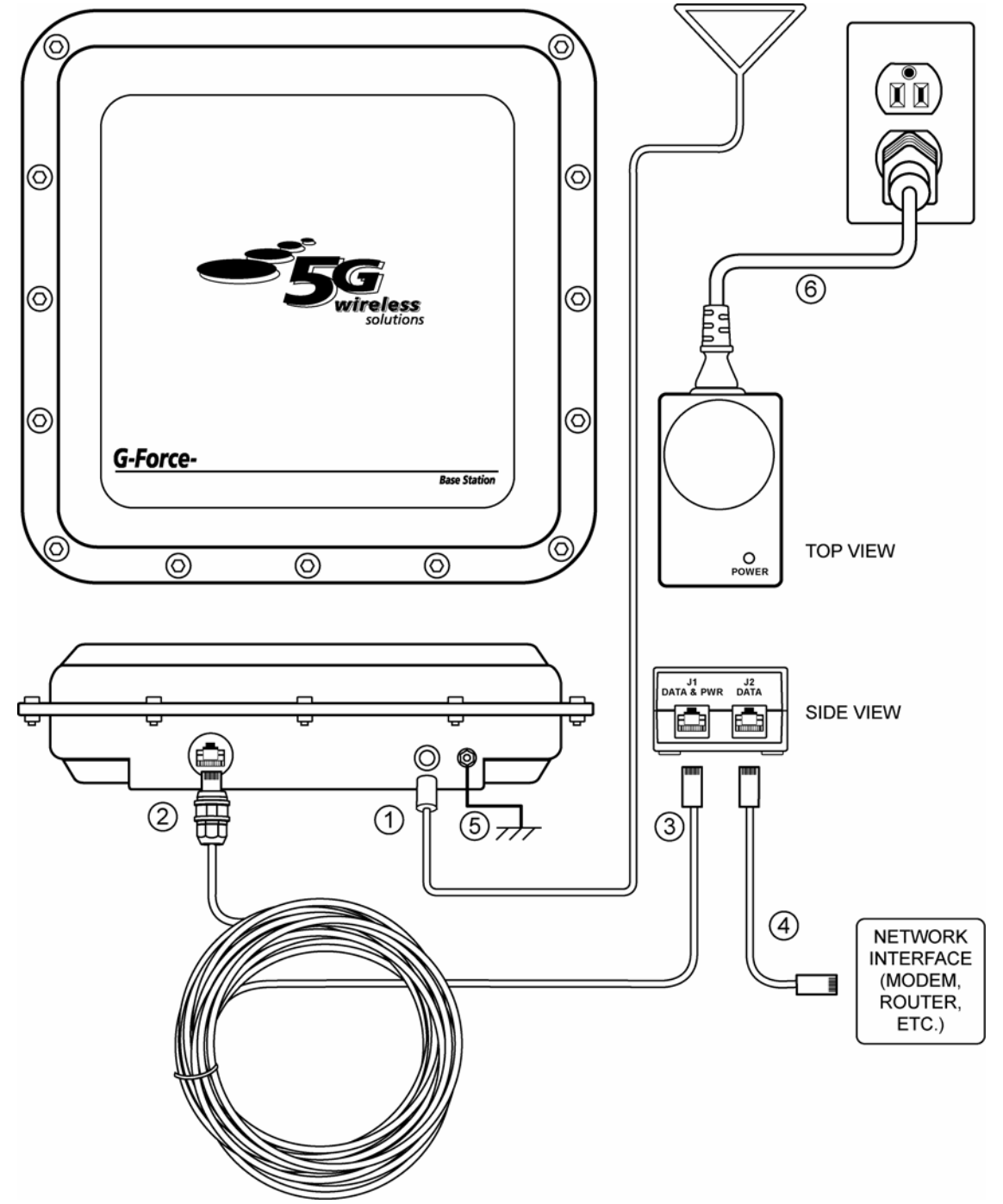

Figure 1. *Hardware Connection Diagram*

Configuration Interface

The configuration interface for the G-Force 850 b/g Broadband Wireless Base Station is web-based, with an IP address that defaults to 10.0.0.1. To access the interface, point your web browser to the base station's configuration IP address. The default username and password are both "admin".

The first page that appears on access is the System Status page, as shown in Figure 2. The rest of the configuration pages are listed on the left-hand side of the page, and described below.

Note: After changing the device configuration, you must reboot the device before the changes will take effect. See Reboot on page 24 for the procedure.

Figure 2. *Opening Configuration Screen*

System

The System section allows you to save and restore device configurations, update the device firmware, and configure access to the configuration interface.

Configuration: Backing Up and Restoring Base Station Configurations

The Configuration page allows you to save and restore the device configuration.

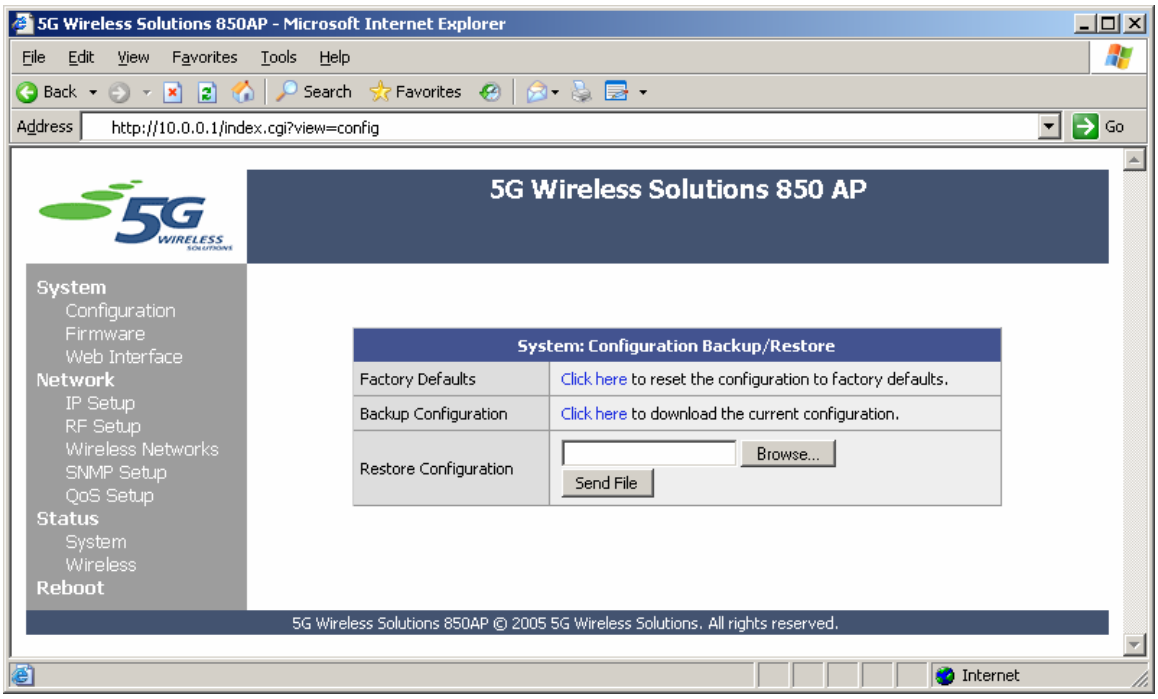

Figure 3. *System > Configuration*

The options are as follows:

Factory Defaults	Restores the device configuration to factory defaults
Backup Configuration	Saves the current configuration to disk for later use. Click to save, then navigate to the desired location.
Restore Configuration	Restores the device configuration to a backed up configuration. Enter the filename or browse to select the file, then click **Send File** to restore.

Firmware

The Firmware page allows you to update the firmware from a file.

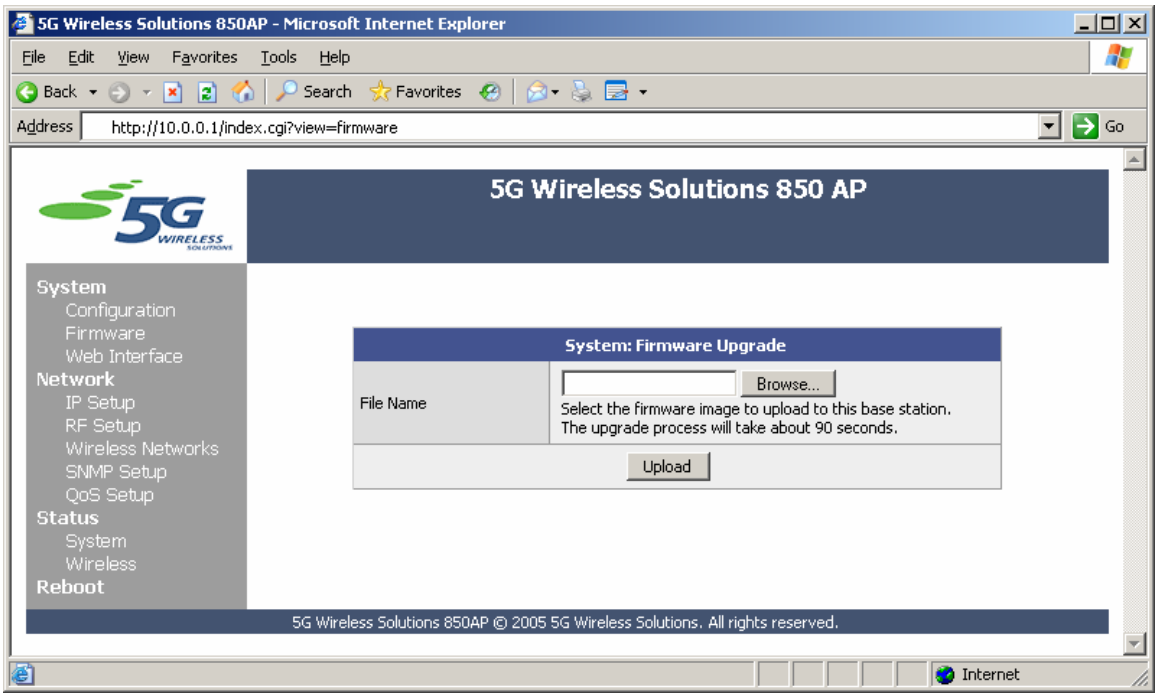

Figure 4. *System > Firmware*

Enter the name of the firmware update file or browse to select it, then click **Upload** to update the device firmware.

Web Interface: Changing Configuration Interface Access Parameters

The Web Interface page allows you to change the access parameters for the configuration interface (though not the IP address).

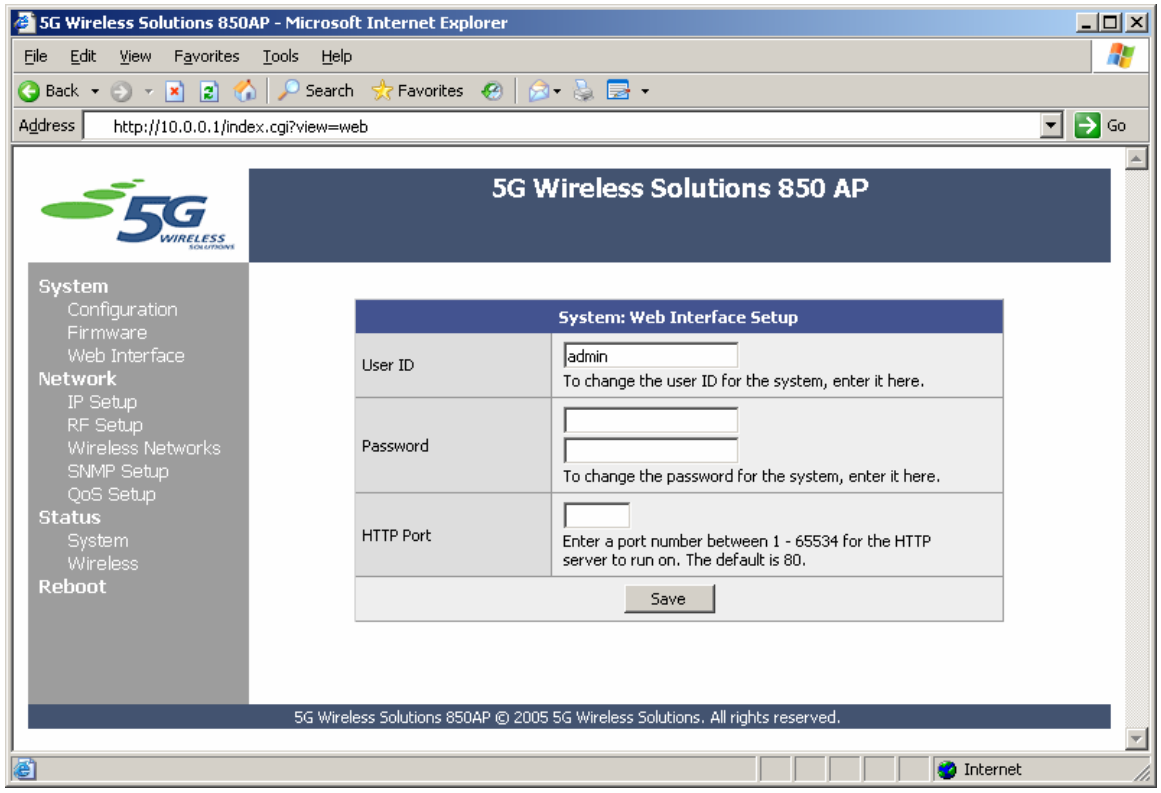

Figure 5. *System > Web Interface*

The options are as follows:

User ID	Changes the user ID required to access the interface
Password	Changes the password required to access the interface. Enter the password twice, once in each box.
HTTP Port	Sets the HTTP port used by the configuration interface

When you have entered the desired options, click **Save** to set them.

Network

The Network section configures network options and connectivity, including IP address, RF settings, SNMP, and wireless networks connected to the base station.

IP Setup: Changing the Configuration Interface IP Address

The IP Setup page allows you to configure the IP address used by the base station for the web-based configuration interface.

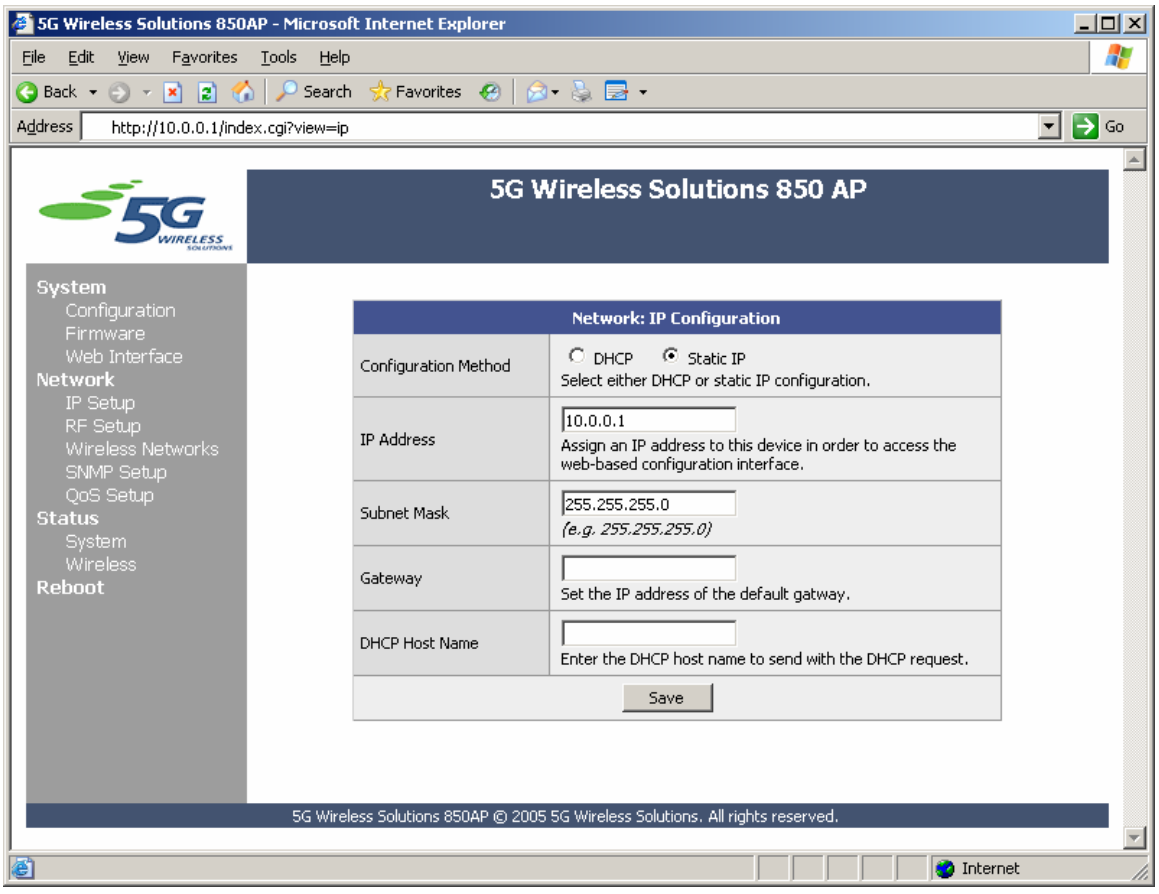

Figure 6. *Network > IP Setup*

The options are as follows:

Configuration Method	Sets the method used to determine the device IP address: DHCP or Static IP
IP Address	When Static IP is selected, sets the device IP address
Subnet Mask	When Static IP is selected, sets the subnet mask used by the device
Gateway	When Static IP is selected, sets the gateway used by the device
DHCP	When DHCP is selected, sets the host name to be sent with the DHCP request

When you have entered the desired options, click **Save** to set them.

RF Setup: Configuring the Wireless Transceiver

The RF Setup page allows you to change the wireless transceiver settings.

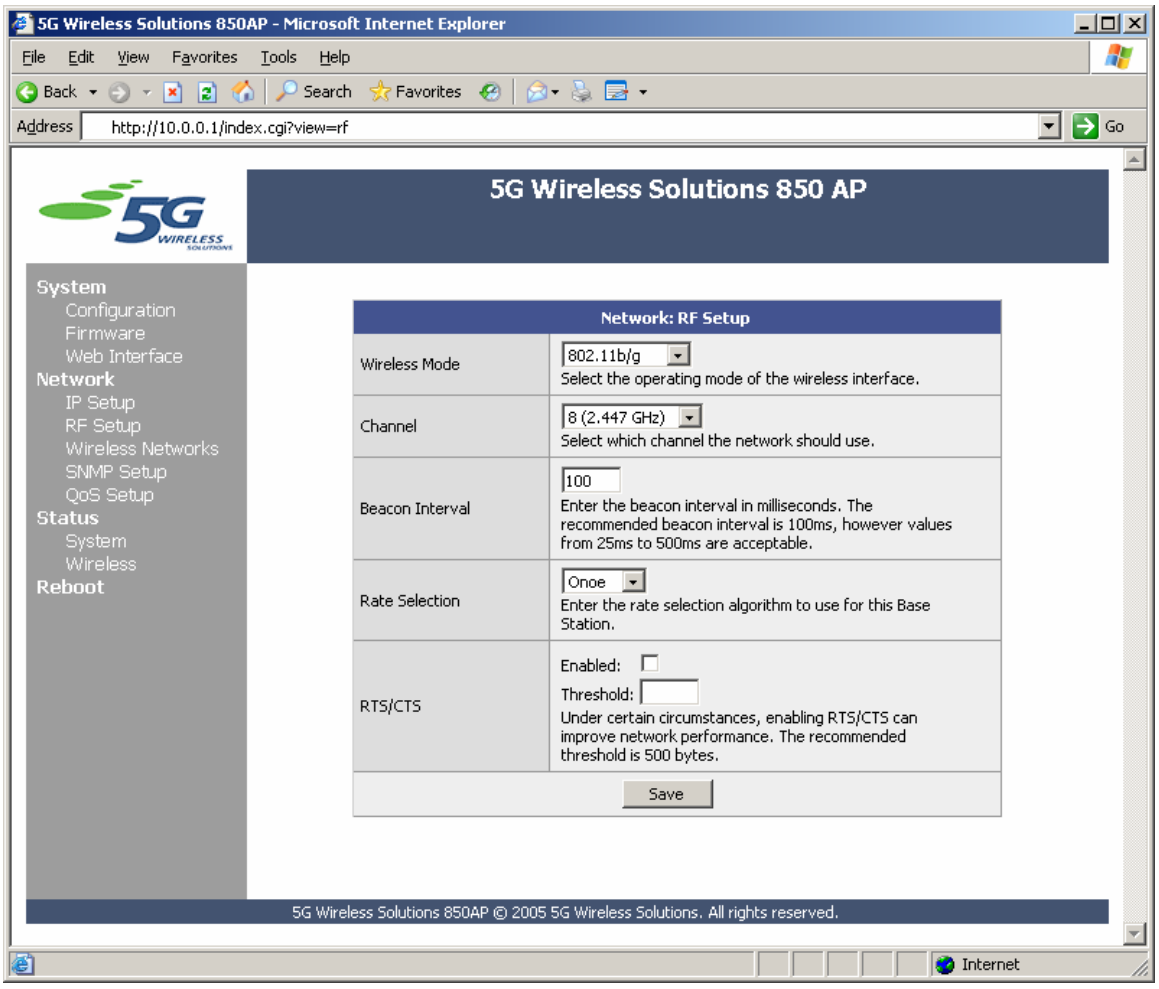

Figure 7. *Network > RF Setup*

The options are as follows:

Wireless Mode	Sets the IEEE wireless mode used by the base station: 802.11b/g, 802.11b only, or 802.11g only
Channel	Sets the frequency channel used by the transceiver. The options range from 2.412GHz to 2.462GHz in increments of 0.005GHz.
Beacon Interval	Sets the interval on which the device transmits a beacon signal in milliseconds. The recommended interval is 100ms, but may be set anywhere between 25ms and 500ms.
Rate Selection	Sets the rate selection algorithm used by the base station: Once or Single. Select Once for clean signal environments, and Single for noisy signal environments.

RTS/CTS	Turns RTS/CTS flow control on and sets its buffer threshold

When you have entered the desired options, click **Save** to set them.

Wireless Networks

The Wireless Networks page allows you to view the status of the virtual networks connected to the base station and change their settings. There may be up to four virtual networks.

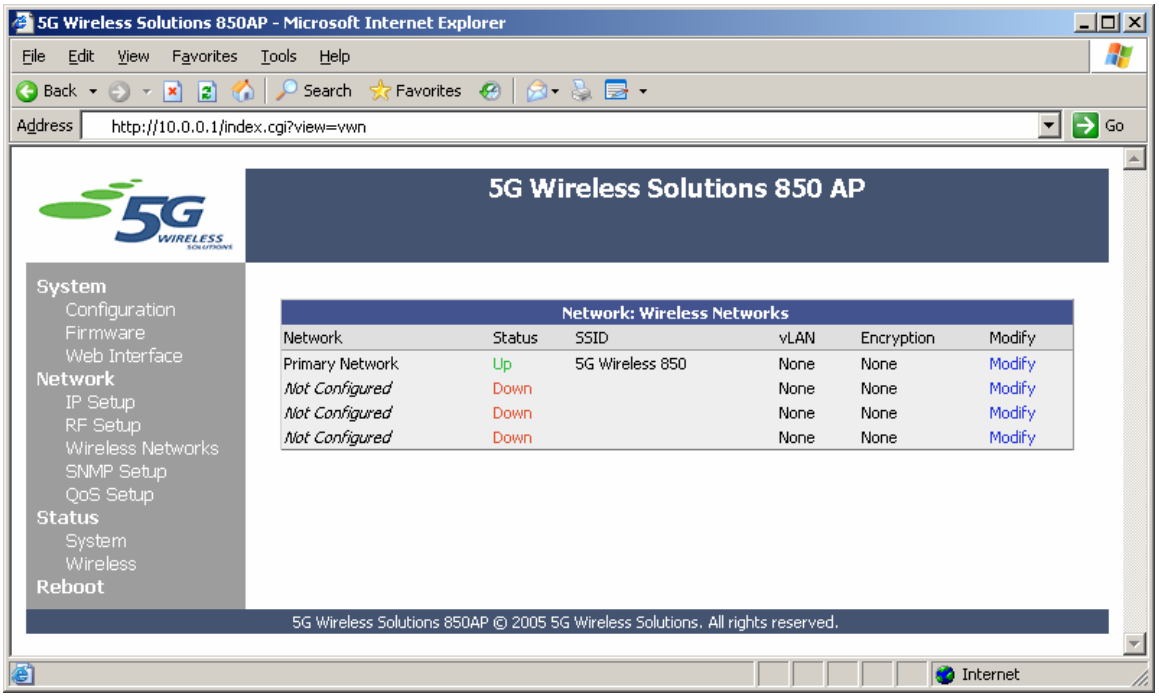

Figure 8. *Network > Wireless Networks*

Each network listing shows the network's name, status, SSID, vLAN tag, and encryption mode. To change the settings for a wireless network, click **Modify** to the right of the network's listing and the network's setup page will appear.

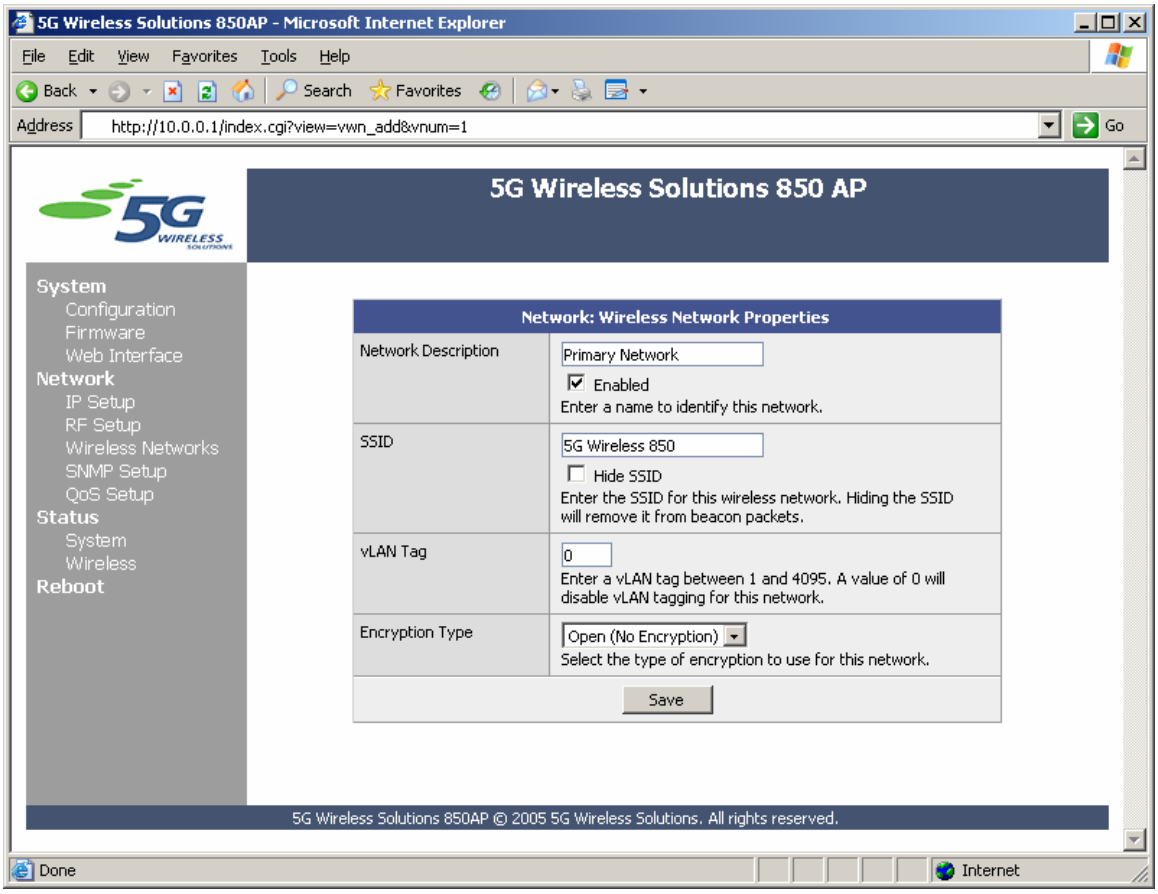

Figure 9. *Network > Wireless Networks > Setup (Encryption: Open)*

The options available on the setup page vary depending on the type of encryption used. The basic options are as follows:

Network Description	Sets the name used to identify the network, and enables/disables the network
SSID	Sets the SSID used for the network, and hides/shows the SSID. When the SSID is hidden, it will be removed from the beacon packets and will not be visible as a network.
vLAN Tag	Sets the vLAN tag for the network, which may be between 1 and 4095. A value of 0 will turn off vLAN tagging for the network.
Encryption Type	Sets the encryption method used by the network: Open (no encryption), WEP, WPA-Personal, or WPA-Enterprise

When you have entered the desired options, click **Save** to set them.

The rest of the available network options vary depending on the encryption method selected, as shown in Figure 10 on page 15 to Figure 12 on page 17.

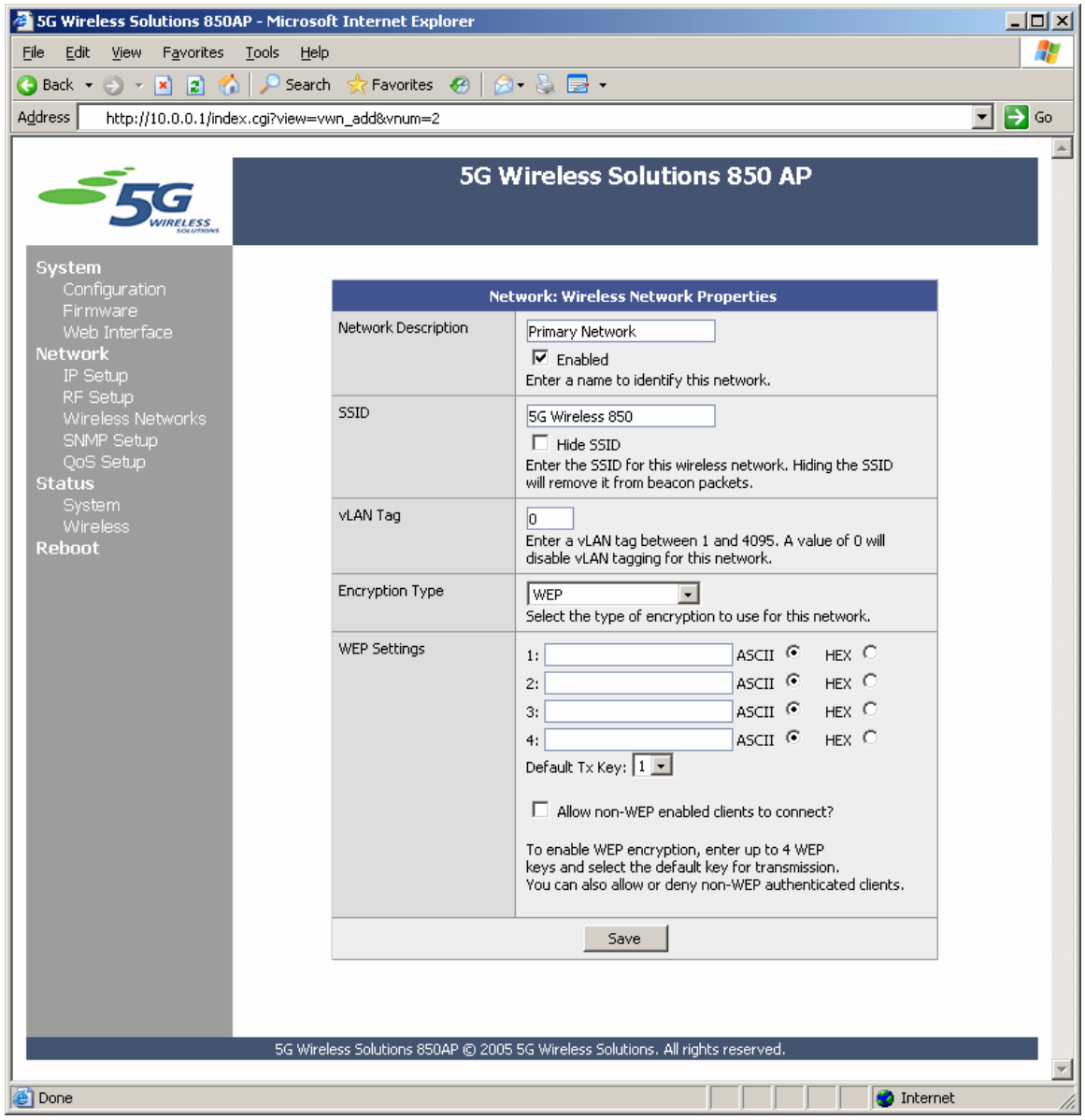

Figure 10. *Network > Wireless Networks > Setup (Encryption: WEP)*

The **WEP Settings** section of the page sets up to four ASCII or hexadecimal keys to access the network, as well as the default key. Select **Allow non-WEP enabled clients to connect** to allow clients on the network that do not support WEP.

When you have entered the desired options, click **Save** to set them.

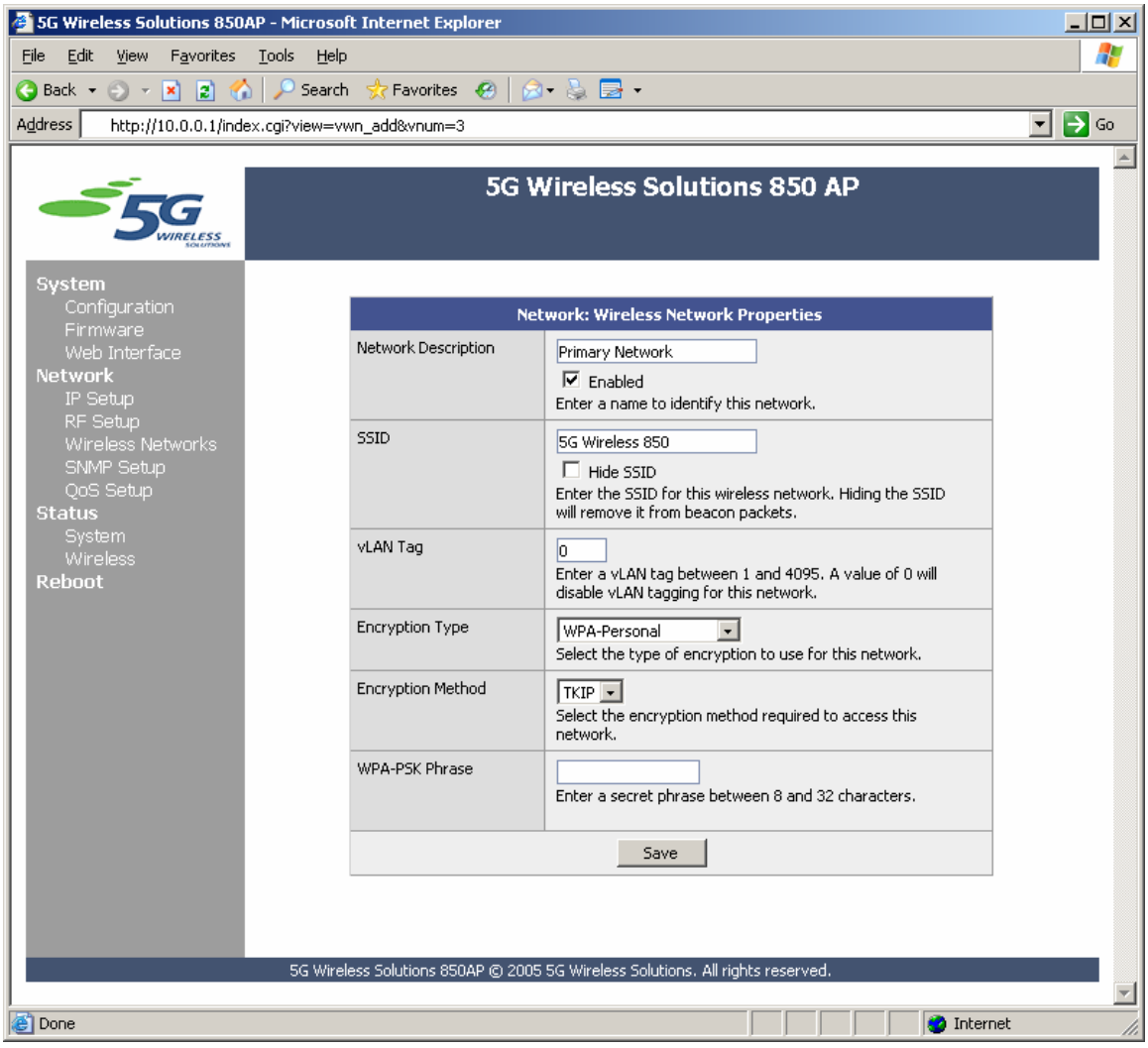

Figure 11. *Network > Wireless Networks > Setup (Encryption: WPA-Personal)*

The options available for WPA-Personal encryption are as follows:

Encryption Method — Sets the encryption method required to access the network. At this point, the only method available is TKIP.

WPA-PSK Phrase — Sets the passphrase required to access the network

When you have entered the desired options, click **Save** to set them.

Figure 12. *Network > Wireless Networks > Setup (Encryption: WPA-Enterprise)*

The options available for WPA-Enterprise encryption are as follows:

Encryption Method	Sets the encryption method required to access the network. At this point, the only method available is TKIP.
802.1x	Enables/disables 802.1x port authentication on the network
EAP Message	Sets an EAP message to be sent out with the EAP-Request/Identity frame (optional)
NAS Identifier	Sets the NAS identifier for the RADIUS server (optional)
Authentication Radius Server	Sets the RADIUS server (IP address, port, and secret) used for client authentication
Accounting Radius Server	Sets the RADIUS server (IP address, port, and secret) used for client accounting

When you have entered the desired options, click **Save** to set them.

SNMP Setup

The SNMP Setup page allows you to enable and configure SNMP support.

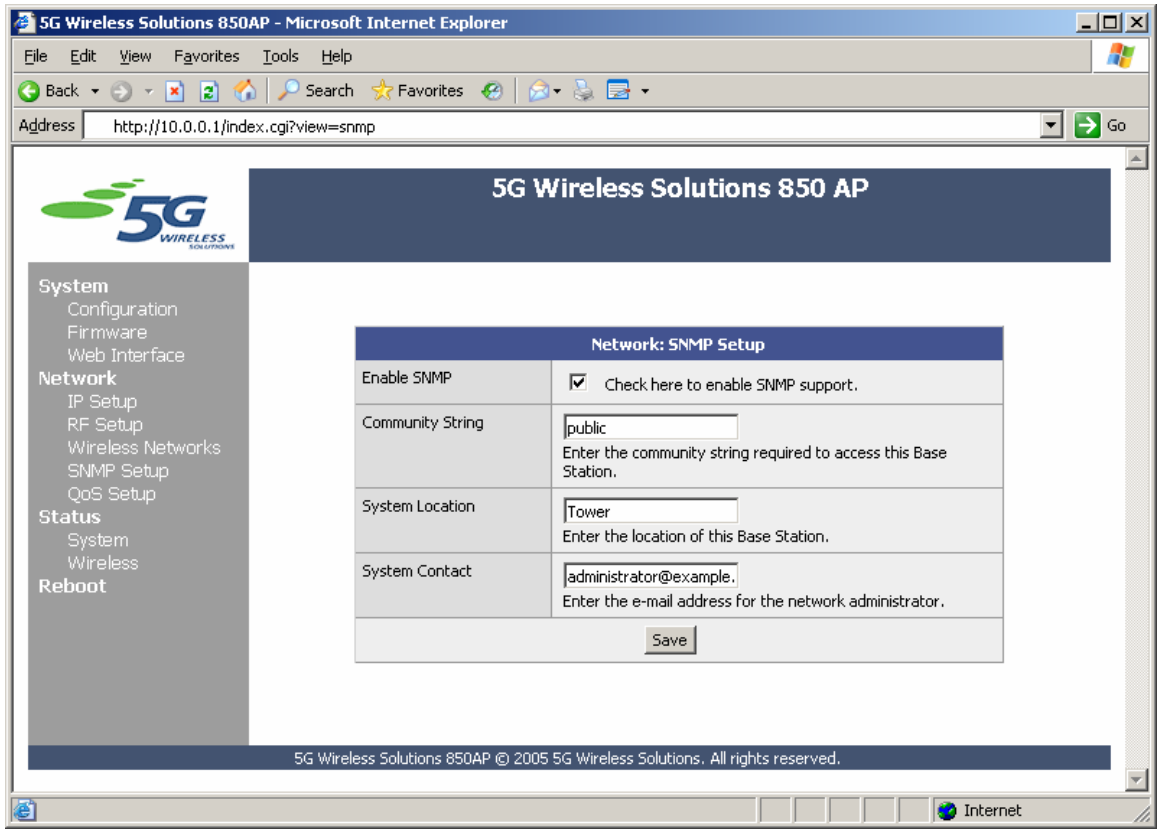

Figure 13. *Network > SNMP Setup*

The SNMP options are as follows:

Enable SNMP	Enables/disables SNMP support
Community String	Sets the community string required to access the base station
System Location	Sets a string used to identify the location of the base station
System Contact	Sets the email contact for this base station (that is, the network administrator)

When you have entered the desired options, click **Save** to set them.

QoS Setup

The QoS Setup page allows you to turn on and configure the base station's WMM QoS support.

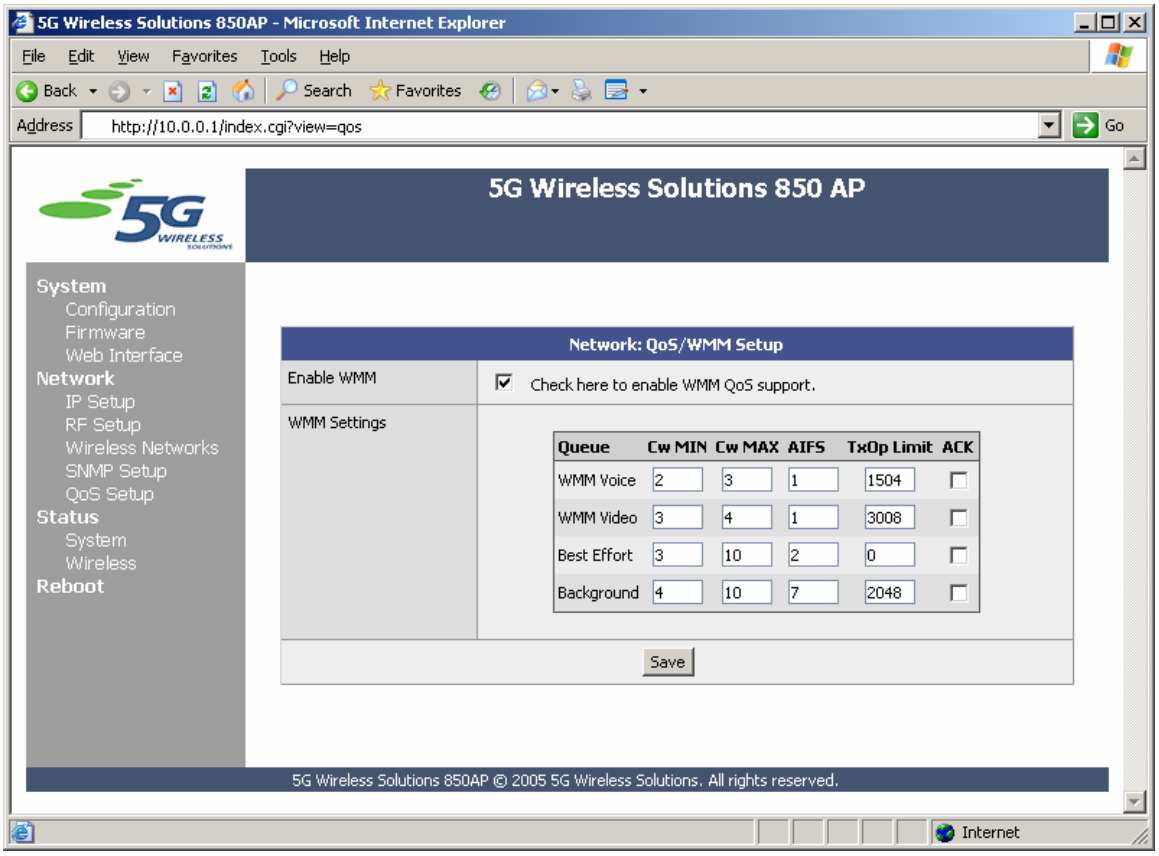

Figure 14. *Network > QoS Setup*

The QoS options are as follows:

Enable WMM — Enables/disables WMM QoS support

WMM Settings — Configures how the base station treats WMM traffic, divided into four categories: WMM Voice, WMM Video, Best Effort, and Background. You can change the following options for each category:

- **Cw MIN**—Contention Window Minimum; sets the minimum backoff interval, in bytes, for collision avoidance. Set this value lower for higher-priority traffic.
- **Cw MAX**—Contention Window Maximum; sets the maximum backoff interval, in bytes, for collision avoidance
- **AIFS**—Arbitration Inter-Frame Space; sets the wait interval, in milliseconds, for channel access negotiation after the channel becomes idle
- **TxOp Limit**—Transmission Opportunity Limit; sets the maximum length, in microseconds, that a station can transmit
- **ACK**—Turns data acknowledgement on and off. Acknowledgements can be turned off to reduce latency for traffic that can withstand some packet loss.

When you have entered the desired options, click **Save** to set them.

Status

The Status section displays the current status of the base station and all wireless networks connected to it.

System

The System page displays information regarding the base station.

Figure 15. *Status > System*

The information displayed is as follows:

Version	The firmware version installed on the base station
Model	The base station model number
Uptime	The current system uptime

Wireless

The Wireless page displays the network name, SSID, and vLAN tag for all wireless networks currently enabled and managed by the base station.

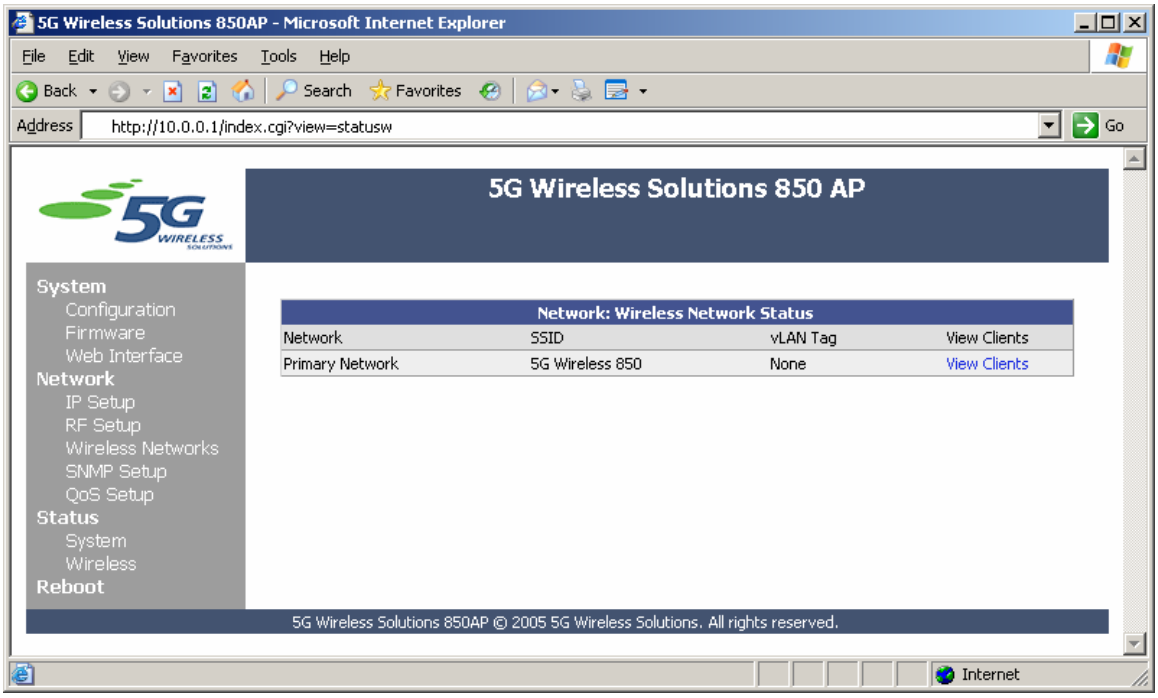

Figure 16. *Status > Wireless*

To show all clients connected to a network, click **View Clients** to the right of the listing.

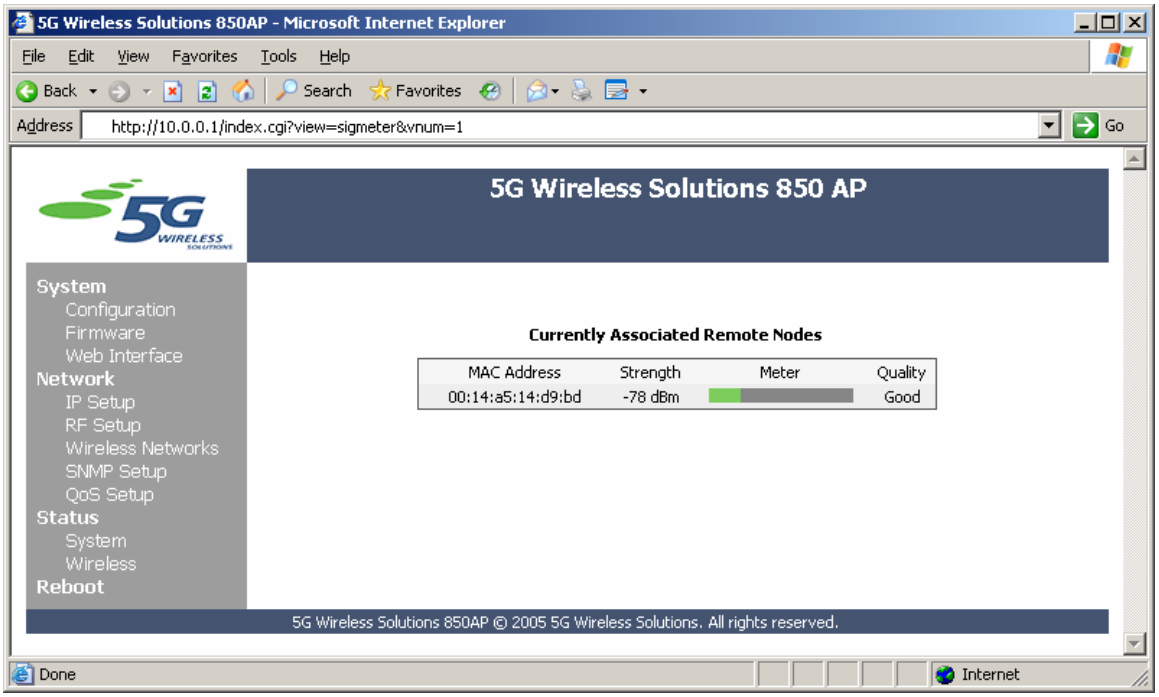

Figure 17. *Status > Wireless > View Clients*

The Clients page shows the MAC address, signal strength, and connection quality for each client connected to the selected network.

Reboot: Rebooting the Base Station

The Reboot page allows you to reboot the base station. You must reboot the base station after making any configuration changes before the changes will take effect.

Figure 18. *Reboot*

Click **Reboot** to reboot the base station. The reboot process may take up to 90 seconds.

Note: If you have changed the base station's configuration IP address, be sure to use the new address the next time you access the configuration interface.

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