VF2825

# VideoFlex 2825 Wireless Multimedia Router

Part number: 8000001

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### Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

The device has met the FCC 15.247 requirement. In order to comply with the FCC RF exposure requirement, the user must keep 20cm away from the antenna.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Information to the user

The user’s manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

### EN 55 022 Declaration of Conformance

This is to certify that the MediaFlex 2900 Multimedia Access Point is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22).

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# Preface

This VideoFlex 2825 Wireless Multimedia Router User's Guide will help you understand the VideoFlex 2825 Wireless Multimedia Router—how to install it, and configure it using the Ruckus Wireless Web Interface.

## Who Should Use this Guide

This User's Guide assumes that the reader has basic to intermediate computer and Internet skills. All the basic computer networking, Internet, and other information required to configure this device is provided herein.

## What You'll Find in this Guide

The following topics are covered:

- Chapter 1 "Introduction"
- Chapter 2 "Installation and Setup"
- Chapter 3 "Using the Ruckus Wireless Web Interface"
- Appendix A: "Technical Specifications"

## Typographic conventions

This User's Guide uses the following typographic conventions:

**Table 1—Typographic conventions**

| Typeface or Symbol | Meaning | Example |
|---|---|---|
| *italics* | Emphasis, book titles, CD names, special terms.<br>Also used to denote optional input if surrounded by <*brackets*> | Read your *User's Guide* thoroughly.<br>Enter an address in the range `192.168.0.<2-253>` |
| **bold** | System menu names, user input | Open the **Control Panel**. |
| `fixed` | Screen text, URLs, IP addresses | Browse to the following IP address:<br>`http://192.168.0.1` |

## System Requirements

The VideoFlex 2825 Wireless Multimedia Router is compatible with most contemporary personal computers and operating systems that are configured for Internet and wireless networking.

The VF2825 is accessed and configured via a Web browser interface. Any of the following Web browsers are supported:

- Microsoft Internet Explorer 5.0 and higher
- Netscape version 6.0 and higher
- Apple Safari 1.0 and higher
- Mozilla Firefox version 1.0 and higher

## Support and Warranty Information

See the *Warranty and Support* card for detailed information about contacting Technical Support, and the Warranty terms for your VideoFlex 2825 Wireless Multimedia Router.

# Chapter 1 Introduction

Congratulations on your purchase of the VideoFlex 2825 Wireless Multimedia Router (VF2825). The VF2825 is a device that enables wireless multimedia networking for video, voice and data, without replacing existing routers, network adapters and media receivers.

A typical installation consists of a Ruckus Wireless, Inc. VideoFlex 2825 Wireless Multimedia Router connected to a DSL router or cable modem. The VF2825 sends wireless signals to an adapter that is connected to a set top box. Video, data and voice traffic are distributed amongst TV, video appliances, and other wireless-enabled home entertainment appliances.

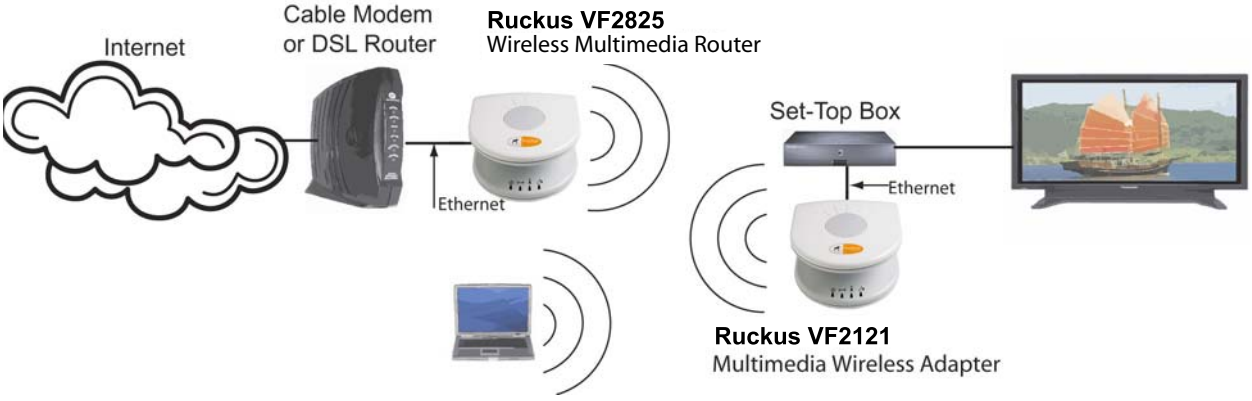


***Figure 1—****The VideoFlex 2825 Wireless Multimedia Router in a Typical Home Network*

## MediaFlex™

MediaFlex™ is Ruckus Wireless, Inc.'s family of purpose-built, multimedia WiFi appliances that enable reliable wireless distribution of entertainment-quality, real-time media applications throughout the home. Media applications require consistent and uninterrupted bandwidth; however most wireless LANs (WLANs) cannot provide consistent service because of the variable nature of the wireless medium.

Ruckus Wireless, Inc.'s new, patent-pending Multicast TV-over-WLAN (TVoWLAN) technology differentiates multicast video frames from general multicast and broadcast traffic to provide robust wireless transport for IPTV streams—from the broadband gateway to the set top boxes.

To mitigate the performance impact of concurrent applications and interfering devices in a shared medium network, MediaFlex integrates Video54's new, patent-pending Media Quality of Service (QoS) technology to automatically classify video traffic and prioritize transmissions among applications.

## BeamFlex™

BeamFlex™ is Ruckus Wireless, Inc.'s patent-pending antenna technology that allows wireless signals to navigate around interference, extend wireless signal range, and increase speeds and capacity for 802.11b/g wireless networks. The BeamFlex™ antenna system consists of an array of six high-gain directional antenna elements, that allow the VF2825 to find quality signal paths in a changing environment, and sustain the baseline performance required for supporting data, audio and video applications.

## Key Features

### BeamFlex™ Smart MIMO Antenna Maximizes Wireless Range and Performance

- Multi-In, Multi-Out (MIMO) technology supports real time learning of Radio Frequency, station, network and application conditions.
- On-the-fly adaptation to each receiving device in response to environmental changes such as interference to maximize signal quality, data rate and minimize packet errors and retransmissions.
- Internal driver software controls an antenna array with 6 high-gain, directional antenna elements and 63 unique antenna combinations.
- Expert system 802.11 driver controls data rate and retransmission policies on a per-packet basis.

### Media QoS Ensures Highest Video Quality

- Automatic traffic classification and Type-of-Service (TOS) tagging eliminates complex QoS configurations.
- Priority queuing for voice, video, best-effort and background traffic, per WiFi Alliance WiFi Multimedia (WMM) specifications.
- Strict priority with short (2 frames) hardware queue depth to ensure rapid feedback from the remote AP.

### Multiple Concurrent Video Streams with Simultaneous Data Traffic

- Delivers 15-20 Mbps of bandwidth at 99.9% availability throughout a typical 2500ft$^2$ (300m$^2$) home.
- Supports one MPEG-4/WMV stream, one DVD-quality MPEG-2 streams, or one 10Mbps+ high definition video stream at 50ft (18m), with simultaneous data traffic.

### Simple Configuration and Installation

- Simple Web-based user interface for easy configuration and customization of features such as SSID, WEP or WPA key, statistics monitoring and software upgrade.

### Standards-based Solution Protects User Investment, Minimizes Replacement Cost

- Compliant with 802.11b and 802.11g: supports 802.11g wireless networking at up to 108 Mbps; and can interoperate in 802.11g-only or mixed networks.
- Compliant with 802.1x (WEP and WPA with TKIP) and Wi-Fi Alliance WMM specifications.
- Supports Wi-Fi Protected Access-Pre-Shared Key (WPA-PSK) data encryption. WPA provides strong data encryption and authentication based on a pre-shared key.
- Supports 64-bit and 128-bit WEP encryption security. WEP keys can be generated manually or by passphrase.
- Provides Access Control List (ACL) configuration to restrict wireless access based on MAC address, WEP keys or WPA passphrase.
- Attaches to installed routers or home gateways via Ethernet to optimize the WLAN without replacing existing router, firewall or media devices.
- Forward compatible with the emerging 802.11n WLAN standard.

## Key Features

The key features of the VideoFlex 2825 Wireless Multimedia Router are as follows:

- SmartCast
    - Heuristic classification of video and voice traffic
- Routing
    - DHCP Client support on WAN interface
    - DHCP Server support on LAN interface
    - NAT
    - PPPoE
- Remote Management
    - SNMP
    - Comprehensivestatistics via CLI and WebUI
    - Remote PING and Traceroute from the device
    - AutoFirmware upgrade

    - SSH and Telnet
- Dual BSSID for Service Provider and Home User profiles (Virtual AP)
- WPA2-Personal
    - Authentication based on pre-shared key
    - Encryption based on AES

# Chapter 2  Installation and Setup

This chapter describes how to install your VideoFlex 2825 Wireless Multimedia Router, and how to set up your PC to connect to the Ruckus Wireless Web Interface.

Topics covered in this chapter include:


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Placement Guidelines . . . . . 15
Connecting to the VF2825 . . . . . 15
Accessing the Web Interface . . . . . 17

# Packing List

1. VideoFlex 2825 Wireless Multimedia Router
2. AC power adapter (Input DC 5-18V 1-2A)
3. Category 5 (CAT5) Ethernet Cable
4. *VideoFlex 2825 Wireless Multimedia Router Quick Setup Guide*

# VideoFlex 2825 Wireless Multimedia Router

## Front View

Figure 2— "Front View of theVideoFlex 2825 Wireless Multimedia Router" shows the front view of the VF2825, with the LED indicators numbered. The numbers correspond to the labels describing LED behavior in Table 2— "LED Indicators and Meanings" on page 13.

***Figure 2—****Front View of theVideoFlex 2825 Wireless Multimedia Router*

## LED Status Lights

Table 2— “LED Indicators and Meanings” describes the LED lights on the front of the VF2825.

**Table 2—LED Indicators and Meanings**

| Label | LED | Activity | Description |
|---|---|---|---|
| **1** | Antenna | All LEDs On Green Solid<br>Counterclockwise flashing<br>Green Flashing randomly | The VF2825 is booting.<br>The VF2825 is up.<br>The lit LEDs indicate which antennae are active. |
| **2** | Power | Green<br>Off | Power is supplied to the VF2825.<br>Power is not supplied to the VF2825. |
| **3** | LAN | Green Steady<br>Off | The VF2825 has link.<br>The VF2825 has no link. |
| **4** | Wireless | Green Flashing<br>Green Steady | The VF2825 is transmitting data. The faster the flashing, the more data is being transmitted or received.<br>The Wireless port is initialized and enabled. |
| **5** | Air Quality | Green Steady<br>Green Flashing<br>Green intermittent Flashing | **Good Air Quality:** A steady Green LED indicates that the current environment will support quality video streaming.<br>**Marginally Acceptable Air Quality:** a flashing Green LED (on for 0.25 second, off 0.25 second) indicates that the current environment does not always meet the video standard. While video streaming is possible, the quality will vary.<br>**Bad Air Quality:** A briefly flashing Green LED (on for 0.03 second and off for 1 second) indicates that video streaming is not possible in the current environment. The brief flash also indicates that the device is still functioning. |

## Rear View

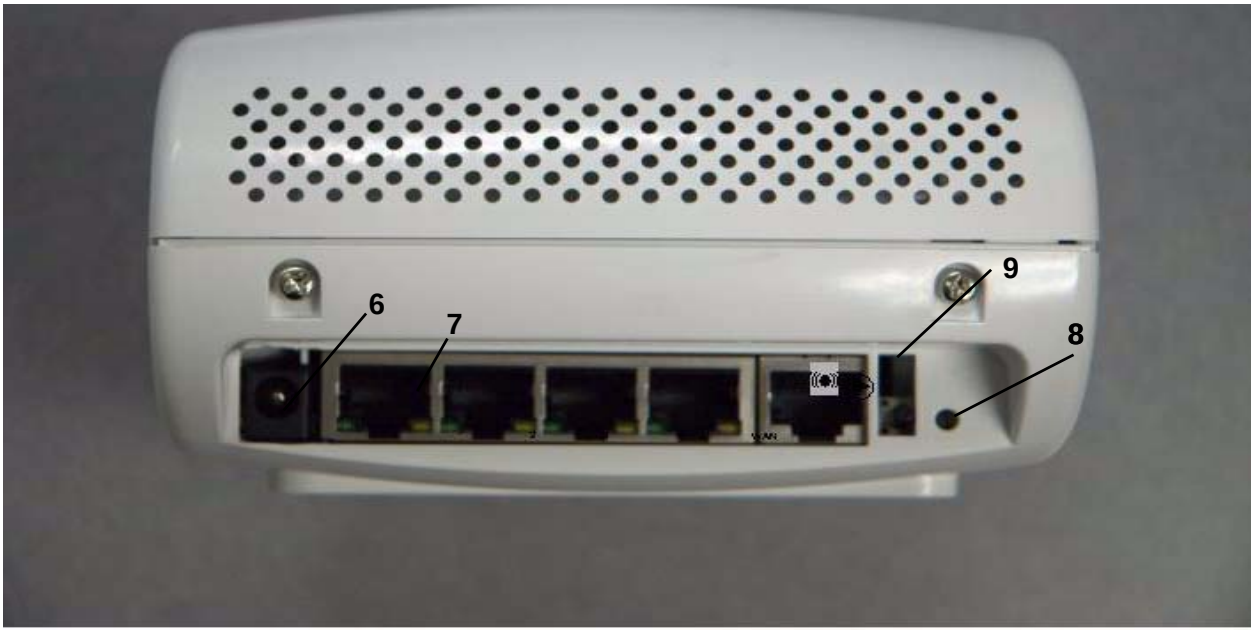


***Figure 3—****Rear View of the VF2825*

**Table 3—Rear Ports and Adapters**

| Label | Description |
|---|---|
| 6 | AC Power Adapter (Input: DC 5V 2A) |
| 7 | Five 10/100 Mbps Auto-sensing, autonegotiating RJ-45 network ports |
| 8 | Reset button. Used only if you need to reset the VF2825 to its factory default settings. Insert the end of a paper clip or pin into the hole and hold it in for at least 8 seconds. |
| 9 | Over the Air Auto Provisioning Button (not active for current release). |

# Placement Guidelines

You or your service provider or installer can determine the best placement for the VF2825 by using the following guidelines.

## Establishing a good general location

Your VF2825 should be placed:

- Near the center of the room.
- On a shelf or other elevated location where other wireless networking devices are within line-of-sight access.
- Away from other sources of electromagnetic interference (for example, microwave ovens, and cordless phones).
- Away from large metal surfaces, pictures or mirrors.
- Away from large furniture or other physical obstructions.

## Using the Air Quality Indicator to fine-tune the placement

Wireless environments are sensitive to the physical arrangement of both electronic devices and furniture in a room. You or your installer can observe the Air Quality Indicator LED to determine the best location. The Air Quality indicator LED is described in Table 2— “LED Indicators and Meanings” on page 13.

Your service provider or installer can guide you through a self-help troubleshooting session if video quality deteriorates after an installation. Or, you may be able to determine a solution to the problem on your own.

If “Bad” or “Maybe Acceptable,” air quality is indicated, you can adjust the location of the VF2825 and other devices until a steady green LED indicates “good” air quality.

# Connecting to the VF2825

Before using the VF2825, you have to configure it to work within your home network. Your service provider or installer will likely perform all installation tasks for you, or you may read the following section to understand how to configure it manually.

To gain administrative control of the unit, set your PC or laptop network IP address to an address within the same network as the VF2825’s default IP address. Then, connect your PC to the VF2825 using the provided Ethernet cable.

You can set your PC’s IP address to an address within the network **`192.168.0.<2-253>`** (Example: **`192.168.0.100`**).

## Manually Configuring an IP Address on Your PC

1. *Windows 2000:* **Start>Settings>Network and Dial-up Connections**
   *Windows XP:* **Start>Settings>Control Panel>Network Connections**
2. Double-click the icon for the Local Area Connection designated for your home network, then click the **Properties** button at the bottom of the screen. (This is not the same icon as your home wireless network.)

3. In the Local Area Connection Properties window, select Internet Protocol (TCP/IP) and click the **Properties** button. The Internet Protocol (TCP/IP) Properties window appears ( Figure 4).

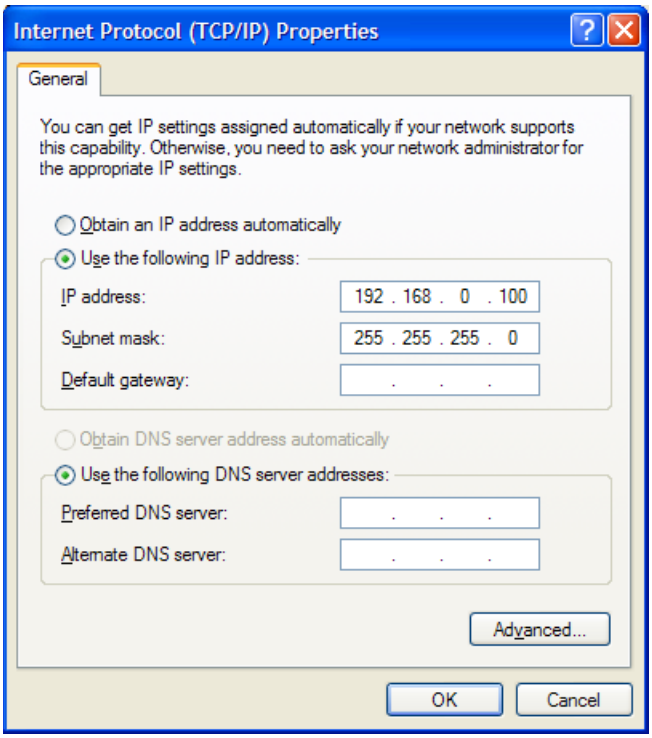


***Figure 4—****Internet Protocol (TCP/IP)Properties Window*

4. Select the **Use the following IP address button**, and enter an IP address within the network as noted above.
5. Press **Tab** and allow the Subnet mask address to auto-fill to **255.255.255.0.**
6. Click **OK** to exit the **TCP/IP Properties** window.
7. Click **OK** to exit the **Local Area Connection Properties** window.

## Connecting a PC to the VF2825

The following steps will guide you through connecting to your VF2825.

1. Remove the VF2825 from the packaging and place it next to your PC or laptop.
2. Connect the AC Power Supply to the VF2825 and connect to a power outlet.
3. Connect your PC or laptop to the Ethernet port on the VF2825 using the supplied Ethernet cable.
4. On your PC, open a browser window. Enter the address `http://192.168.0.1`.
5. When the login screen appears, enter the username `admin` and leave the password field blank. Then click **Logon**.

***CAUTION:—****Make sure to write down the new IP address, username, password and SSID. If you change the VF2825's default IP address to one outside the current address range of your PC, you will not be able to connect to the device after reboot until you reset your computer's IP address to be within the same network as the VF2825. See* *Table 5, "Wireless Network Settings Worksheet," on page 20* *and* *Table 6, "VF2825 Default and User Settings Worksheet," on page 21* *for more information.*

You should now be able to find the default SSID "V54" of your VF2825 over your wireless connection:

**Table 4—Default Wireless Settings**

| Wireless Feature | Setting |
|---|---|
| Network Name (SSID) | V54-WXYZ |
| Security | Disabled |

## Accessing the Web Interface

The VF2825 provides a Web-based user interface for configuration and monitoring. For information about using the Ruckus Wireless Web Interface, refer to Chapter 3, "Using the Ruckus Wireless Web Interface .

1. To access the Ruckus Wireless Web Interface, launch a Web browser and enter the VF2825's IP address. If this is the first time the access point is being configured, enter the default IP address: **http://192.168.0.1**.
2. A logon screen will appear. Use the default logon information:

   Username: **`admin`**

   Password: <*blank*>

After logging in, you will see the main information page. On the information page, there are two panes. The pane on the left shows major information or configuration points. Each major information or configuration area has a number of sub-menus. Clicking on the relevant menu will bring the relevant page onto the screen.

The system monitors the activities on the Web user interface. If you do not use the Web interface for more than five minutes, the system will time out, and you will be logged out automatically. You need to re-log in to access the interface.

***CAUTION:—****Any configuration changes will be lost unless you use the* ***Update*** *button. It is recommended that after each configuration screen you modify, you click the* ***Update*** *button.*

# Chapter 3 Using the Ruckus Wireless Web Interface

This chapter describes the tasks you need to do to customize the VF2825 to run on your wireless network.

Topics covered in this chapter include:


- Wireless Settings Worksheet. . . . . 20
- VF2825 Settings Worksheet . . . . . 21
- Ruckus Wireless Web Interface Menus . . . . . 22
- Configuring the VF2825 . . . . . 23
- Viewing Status Information . . . . . 31
- Administration Information . . . . . 36
- Updating the Firmware . . . . . 37
- Rebooting the System . . . . . 39
- Taking a System Support Snapshot . . . . . 40

## Wireless Settings Worksheet

Before you modify any wireless settings on the VF2825, print Table 5— "Wireless Network Settings Worksheet" and record the following information about your wireless network. Your ISP or network administrator may provide you with this information. The wireless information recorded in this worksheet should be used to configure the VF2825's wireless settings.

**Table 5—Wireless Network Settings Worksheet**

| Item | Description and Your Network Setting |
|---|---|
| VF2825 SSID | The VF2825 will not provide Internet access like a home router or gateway. The SSID identifies the remote AP. Make sure to specify the SSID of the remote AP. You can use up to 32 alphanumeric characters. The SSID *is* case sensitive.<br>After configuration, the VF2825's SSID will become available as a device on your wireless network. |
| Security | If using WEP, circle the method used: Open SystemShared KeyAuto<br>Circle the type of Shared key: 64-bit 128 bit<br>Passphrase method<br>• If using 64-bit WEP: use 10 hex digits (any combination of **0-9** or **a-f)** or 5 ascii characters<br>• If using 128-bit WEP, use 26 hex digits or 13 ascii characters<br>The WEP key values are *not* case-sensitive.<br>**Key 1** _____<br>**Key 2** _____<br>**Key 3** _____<br>**Key 4** _____ |
| | If using WPA-PSK, write down the passphrase. The WPA-PSK passphrase *is* case-sensitive.<br>**WPA Passphrase:** _____ |

# VF2825 Settings Worksheet

Print Table 6, and record your personalized settings for configuring the VF2825. Enter the security settings you recorded in Table 5, “Wireless Network Settings Worksheet,” on page 20.

***Remember**—If the wireless device settings and the VF2825 do not match, the VF2825 will not be able to authenticate onto your network.*

Store this information in a safe place.

**Table 6—VF2825 Default and User Settings Worksheet**

| Item | Default Setting | Your Setting |
|---|---|---|
| User Name | `admin` | _____ |
| Password | *<none>* | _____ |
| IP Address | `192.168.0.1` | _____ |
| Subnet Mask | `255.255.255.0` | _____ |
| SSID | V54-WXYZ | _____ |
| Wireless Mode | 802.11g&b | _____ |
| Security | Disabled | _____ |

# Ruckus Wireless Web Interface Menus

The Ruckus Wireless Web Interface menus are located on the left-hand navigation pane. To select a particular menu, simply click on the menu link.

## Common Buttons

The Ruckus Wireless Web Interface screens contain the following menu buttons (Table 7):

**Table 7—Wireless Web Interface Menu Buttons**

| Button | Action |
|---|---|
| Logout | Logs out the current session. |
| Restore | Restores the original configuration. |
| Update | Saves the new configuration. |
| Next | Progresses to the next menu. Only found in the Configuration menus. |
| Back | Reverts to the previous menu. Only found in the Configuration menus. |

***Remember**—Some of the configuration screens shown in this chapter include entries or status information for both the home user and the service provider. In actual operation, the screen will be information for only one or the other, depending on the access arrangement. If no distinction is made on a particular screen, then this screen applies to both service providers and home users.*

# Configuring the VF2825

This section describes the tasks and screens used to customize the VF2825 configuration to run on your wireless network.

Review the following topics before you change any system configuration settings:

- "Connecting to the VF2825" on page 15
- "Accessing the Web Interface" on page 17.

## Device Configuration

Table 6, “VF2825 Default and User Settings Worksheet,” on page 21 shows the default settings used to login to the device.

A minimum set of configurations is required to put the VF2825 into operational mode. The system provides the default settings for these configuration items. You should change the default settings where necessary to match your own wireless network’s configuration, and to protect your privacy.

1. Connect to the VF2121 adapter by following the instructions in "Connecting to the VF2825" on page 15.
2. Choose **Configuration->Device**. The window Figure 5 appears.

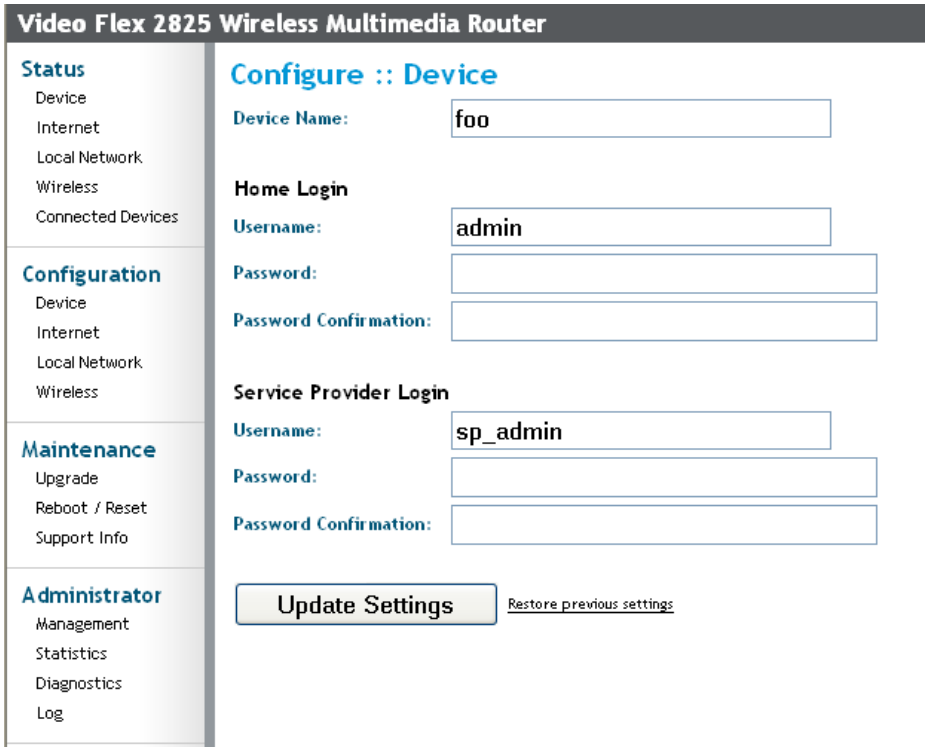


***Figure 5—Device Configuration***

3. Enter your configuration changes in the appropriate fields.
4. Click **Update Settings** to save your settings.

***CAUTION:—****You must click the* ***Update*** *button to save any configuration changes. The Ruckus Wireless Web Interface will timeout after 5 minutes of inactivity. If you let the system time out before clicking the* ***Update*** *button, any changes you made will be lost.*

***CAUTION:—****If, after having changed any default settings, you have forgotten what the new settings are, you may not be able to login to the VF2825. To regain access to the VF2825, you must reset the device to its factory default settings. Do this by inserting the end of a paper clip into the Reset Button while the unit is on and keep holding the button down until the green LEDs at the top of the unit briefly go out— indicating the system is rebooting.*

**5.** Choose **Configuration->Local Network**. The window of appears.

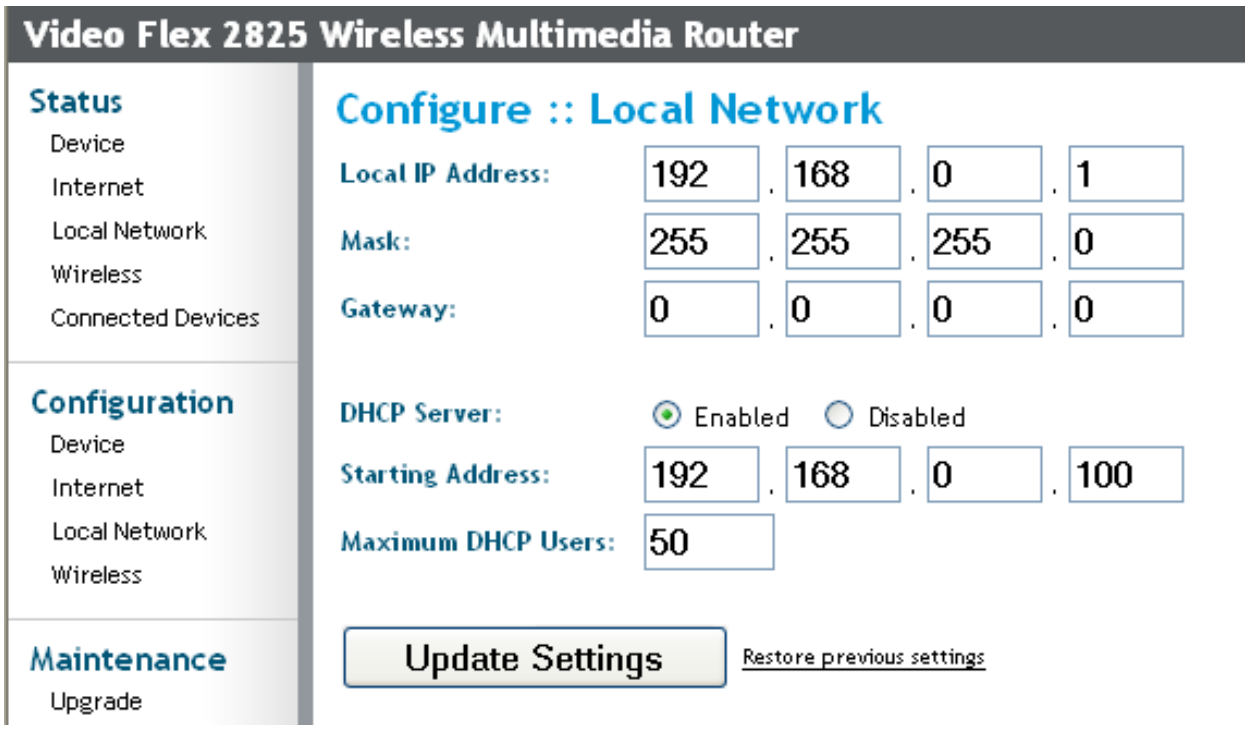


***Figure 6****—Local Network Configuration*

## Customizing the System Configuration

It is recommended that you customize the username and password so that you can control who can gain administrative access to the VF2825. You may also wish to change the default IP address if it conflicts with another device in your wireless network. Refer to Table 8 for details on each field.

**Table 8—System Configuration**

| Field | Description |
|---|---|
| Device Name | The name you have assigned to your computer. |
| User Name | The user name. The default user name is `admin`. If you change the user name, make sure to write it down for future reference. |
| Password / Confirm | The user password. The default is no password. If you change the password, make sure to write it down for future reference. |
| IP Address | The IP address of the VF2825. This IP address is used only when you need to access the Ruckus Wireless Web Interface to change configuration or view information about the VF2825. |
| Subnet Mask | The subnet mask of the VF2825. The default is 255.255.255.0. Changing the Subnet Mask field is not recommended for most installations. |
| Default Gateway | The IP address of default gateway. The default is 0.0.0.0. If connecting the VF2825 to a home gateway, enter the IP of the home gateway into this field. Your service provider or installer may provide this address. |
| DHCP Server | When enabled, an IP address will be assigned to your computer automatically. If disabled, you must assign a static IP address using Windows networking. |
| Start Address | The first computer or device IP address. When using DHCP, this will be the first IP address assigned. |
| Maximum DHCP Users | The number of devices or computers you expect on your netwrok. |

## Configuring the Wireless Interface

It is recommended that you consult with your service provider to understand the wireless settings. Before changing any settings in the Wireless configuration menu, make sure you have recorded and verified the information in the following worksheets:

- "Wireless Network Settings Worksheet" on page 20
- "VF2825 Default and User Settings Worksheet" on page 21.

1. After connecting to the MF2501 Adapter, choose **Configuration->Wireless**. The window ofFigure 7 appears.

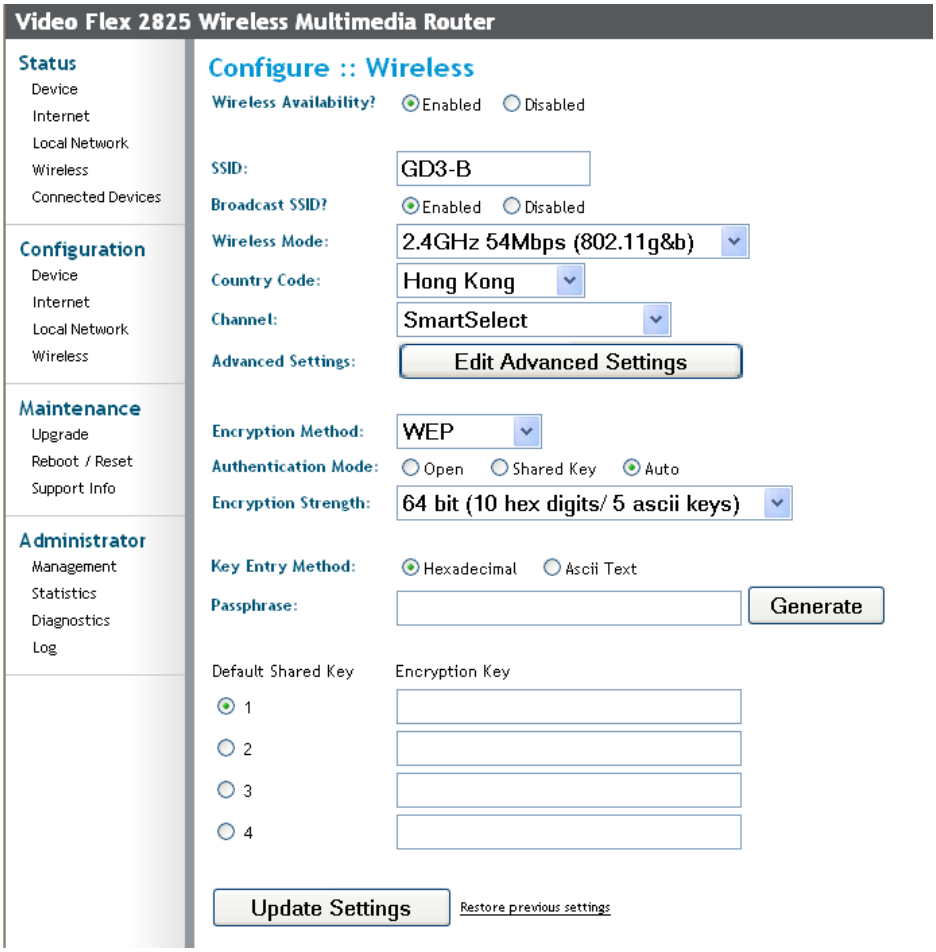


***Figure 7—****Wireless Interface Configuration*

**2.** Fill in the parameters as described in Table 9.

**Table 9—Wireless Interface Configuration**

| Field | Description |
|---|---|
| SSID | The SSID (Service Set IDentifier) is the name of the wireless network. The default SSID is V54, but it is strongly recommended that you change your SSID. If there are other wireless networks in your area, you should give your wireless network a unique name. The SSID can consist of up to 32 characters. |
| Broadcast SSID | If enabled, the SSID will be broadcast to all wireless devices within range. If disabled, the SSID will be hidden from view. |
| Wireless mode | The wireless mode options are:<br>• **2.4GHz 54Mbps (802.11g&b)** - allows both 802.11g- and 802.11b-compliant devices to join the network. This is the default setting.<br>• **2.4GHz 11Mbps (802.11b only)** - allow only 802.11b-compliant devices to join the network. |
| Country Code | Sets your country or region code. Selecting the incorrect country or region may result in violation of applicable law. The selectable countries or regions are United States, Europe, Hong Kong, and Japan.<br><br>**NOTE –** For VF2825s shipped in the United States, the country code cannot be modified. The country code is pre-defined for **United States** only. |
| Radio Frequency | Selects the radio frequency of your choice. Alternatively, you may select *SmartSelect*, which scans all frequencies on bootup, and chooses the frequency displaying minimum interference and noise. |
| Advanced Setting | This button provides access to the advanced wireless settings. Advanced wireless settings are for advanced configuration or testing purposes only.<br>Changing the advanced settings may negatively affect the operation of the VF2825 and is *not recommended*. |

**Table 9—Wireless Interface Configuration (Continued)**

| Field | Description |
|---|---|
| Encryption Method | The wireless security options are:<br>• **Disabled**: This setting disables all encryption, so traffic is sent in the clear. This setting is not recommended.<br>• **WEP**: This setting enables Wired Equivalent Privacy. WEP Shared Key authentication and WEP data encryption provides sufficient security in most cases.<br>• **WPA-PSK:** Wi-Fi Protected Access, Pre-Shared Key (WPA-PSK). Each packet of information is encrypted with a different key. Provides very strong security, but may not be supported on older systems. |
| Authentication Mode (WEP Encryption) | Choices are:<br>• **Open**—No authentication is Enforced<br>• **Shared Key**—Authentication using a shared Key<br>• A**uto**—Automatically selects the authentication mode depending on the method used by the station attempting to associate to the VF2825. |
| Encryption Strength (WEP Encryption) | The valid key length options are:<br>• None—No key<br>• 40 bit WEP—Key with 10 hexadecimal digits or 5 ASCII characters<br>• 128 bit WEP—Key with 26 hexadecimal digits or 13 ASCII characters |
| Key Entry Method | The key entry method options are:<br>• **Hexadecimal:** Accept entering encryption key with hexadecimal (0-9, A-F).<br>• **Ascii Text:** Accept entering encryption key with ASCII characters. |
| Passphrase | This allows automatic key generation. Enter the desired passphrase and click **Generate**. The system will generate all four WEP keys automatically. |
| Default Shared Key | The default share key number. There are four shared keys; select one of these keys as the default. |

**3.** Click **Update Settings** to confirm your choices.

## Configuring WPA PSK

WPA PSK configuration menu allows automatic key generation based on a single passphrase. WPA PSK provides very strong security, but may not be supported on older systems.

If you configure the VF2825 with WPA-PSK, the other devices in the network will not connect unless they, too are set to WPA-PSK, and are configured with the same passphrase.

Figure 8 shows the WPA-PSK window.

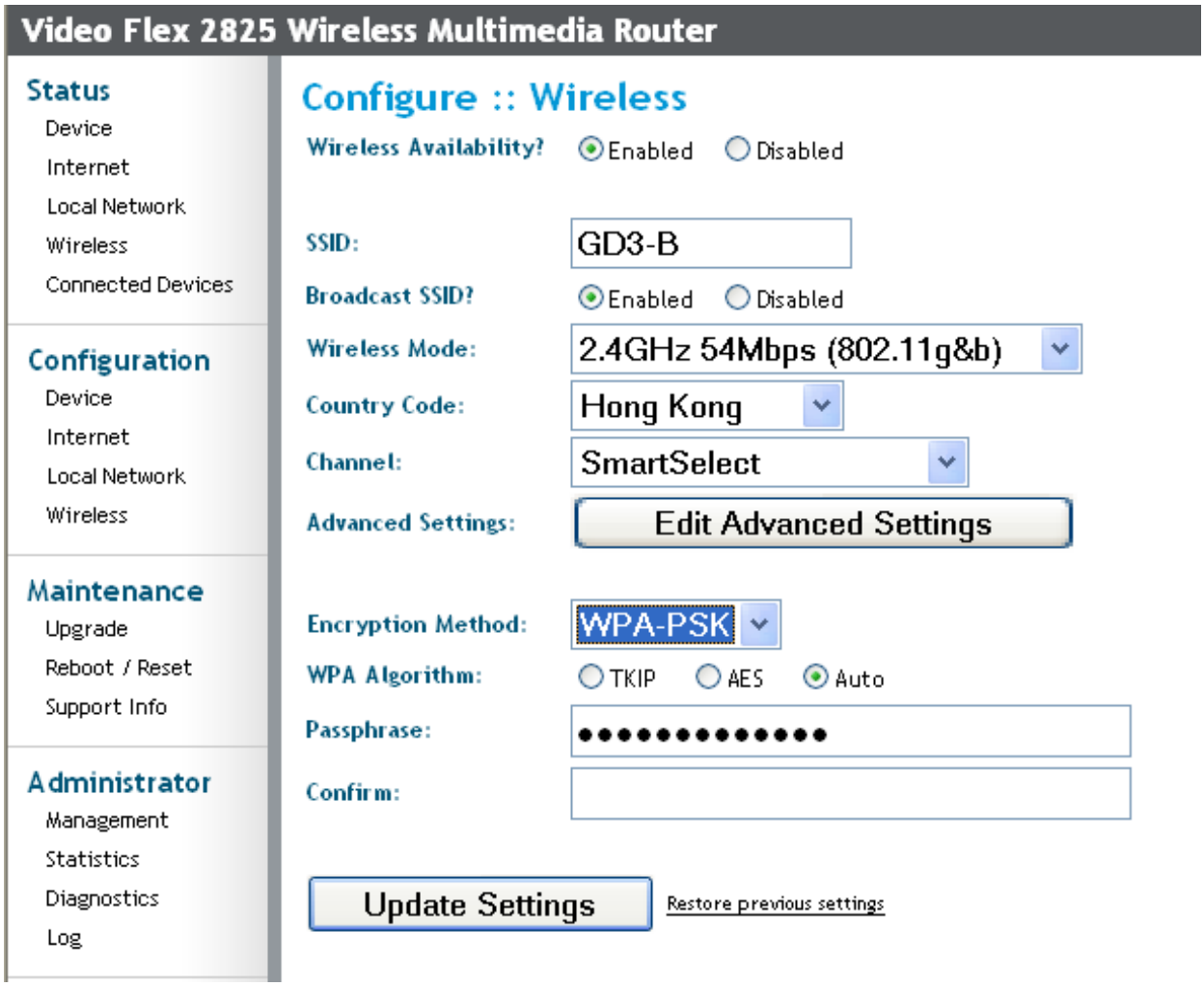


***Figure 8—WPA-PSK Wireless Settings***

## Configuring WPA PSK

WPA PSK configuration menu allows automatic key generation based on a single passphrase. WPA PSK provides very strong security, but may not be supported on older systems.

If you configure the VF2825 with WPA-PSK, the other devices in the network will not connect unless they are also set to WPA-PSK, and are configured with the same passphrase.

1. Click the **Configuration -> Wireless** link in the left-hand navigation pane (Figure 7).
2. Select **WPA-PSK** in the **Security** drop-down menu.

Table 10 explains the WPA Configuration parameters

**Table 10—WPA Algorithm**

| Field | Description |
|---|---|
| TKIP | Temporal Key Integrity Protocol, fromthe IEEE 802.11i encryption standard for wireless LANs. TKIP is the successor to WEP, and provides per-packet key mixing, a message integrity check and a re-keying mechanism. |
| AES | The Advanced Encryption Standard |
| Auto | Using Auto allows devices that cannot use AES to use TKIP. |

3. In the **Configuration ->Security (WPA-PSK)** menu, enter a passphrase and enter it again in the **Confirm** field.
4. Click the **Update Settings** button to save your settings.

# Viewing Status Information

There are four status information windows. These are Device Status, Internet Status, Local Network Status, Wireless Status and Connected Devices Status.

## Device Status

Figure 9 shows the Device Status window. You can bring up the window by choosing **Status->Device**.

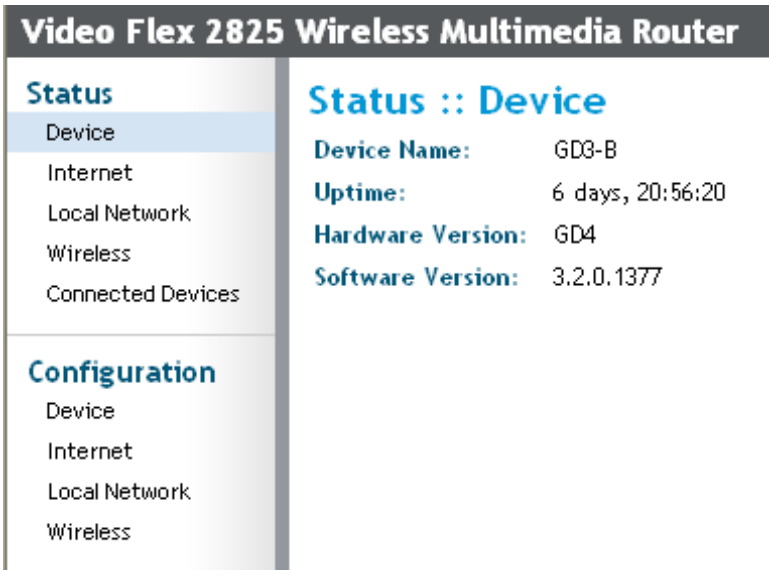


***Figure 9—****Device Status Window*

Table 11 explains the System Information Parameters.

**Table 11—System Information Parameters**

| Field | Description |
|---|---|
| Device Name | The local name for the device (for example, PC) connected to the VF2825. |
| Uptime | The system uptime since last reboot, displayed in HH:MM:SS (hours, minutes, seconds). |
| H/W Version | The hardware revision. |
| S/W Version | The firmware version that is currently operating. |

## Internet Status

Figure 10 shows the Internet Status window. You can bring up the window by choosing **Status->Internet**.

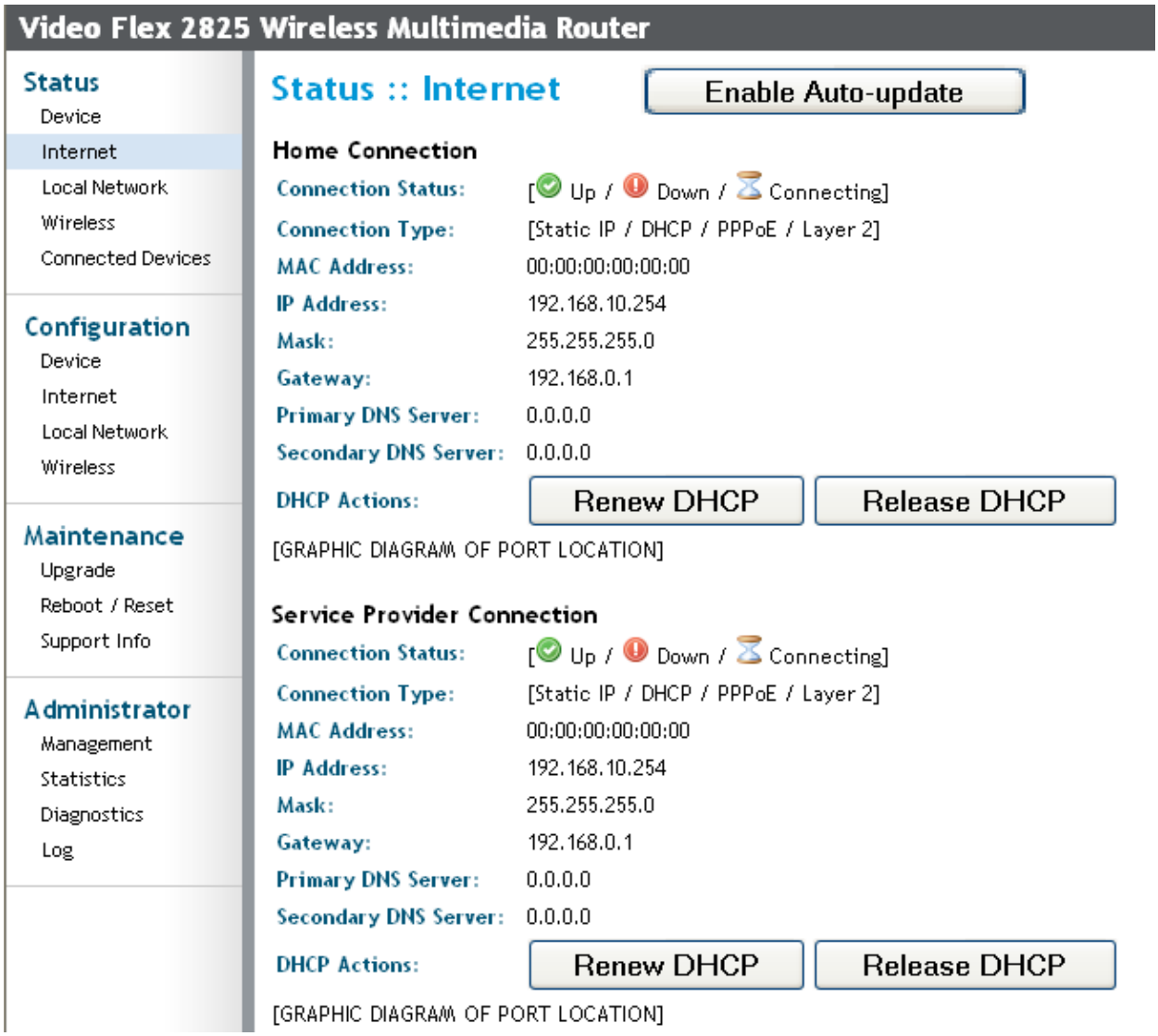


***Figure 10—****Internet Status Window*

The Internet Status window shows the values and status of the various parameters that were configured in the Configuration section. A graphical representation of the connection is shown. You can also renew and release DHCP. If you enable auto update, the information will be continuously updated.

## Local Network Status

Figure 11 shows the Local Network Status Window. You can bring up the window by choosing **Status->Local Network**.

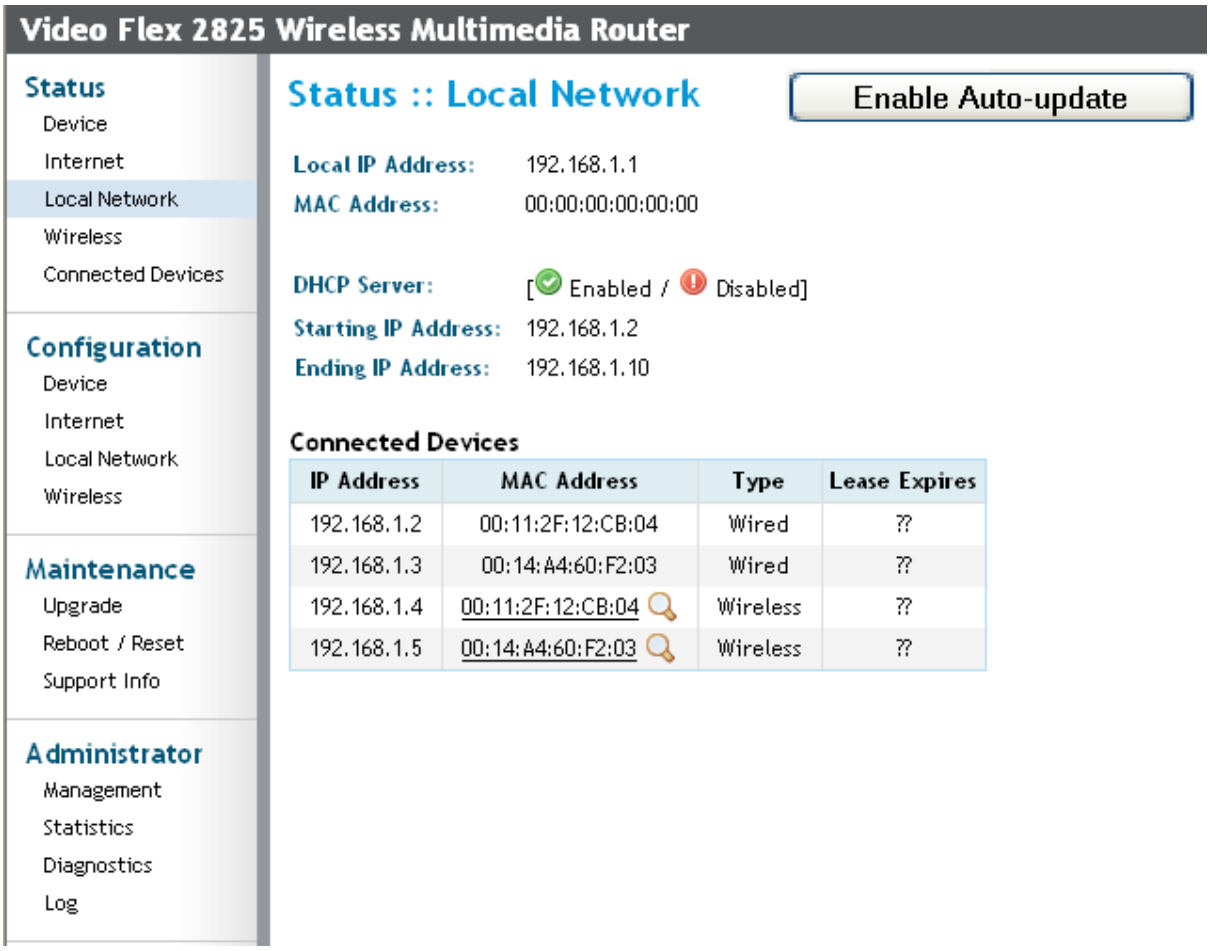


***Figure 11—****Local Network Status Window*

The local network status window shows the Local IP Address and MAC Address of the local area network. It shows the status of the DHCP server, with the starting and ending IP addresses of devices on the network. For each connected device, its IP and MAC Address are given, along with the type of connection (wired or wireless) and the expiration date and time of the lease.

## Wireless Status

Figure 12 shows the Wireless Status Window.You can bring up the window by choosing **Status->Wireless**.

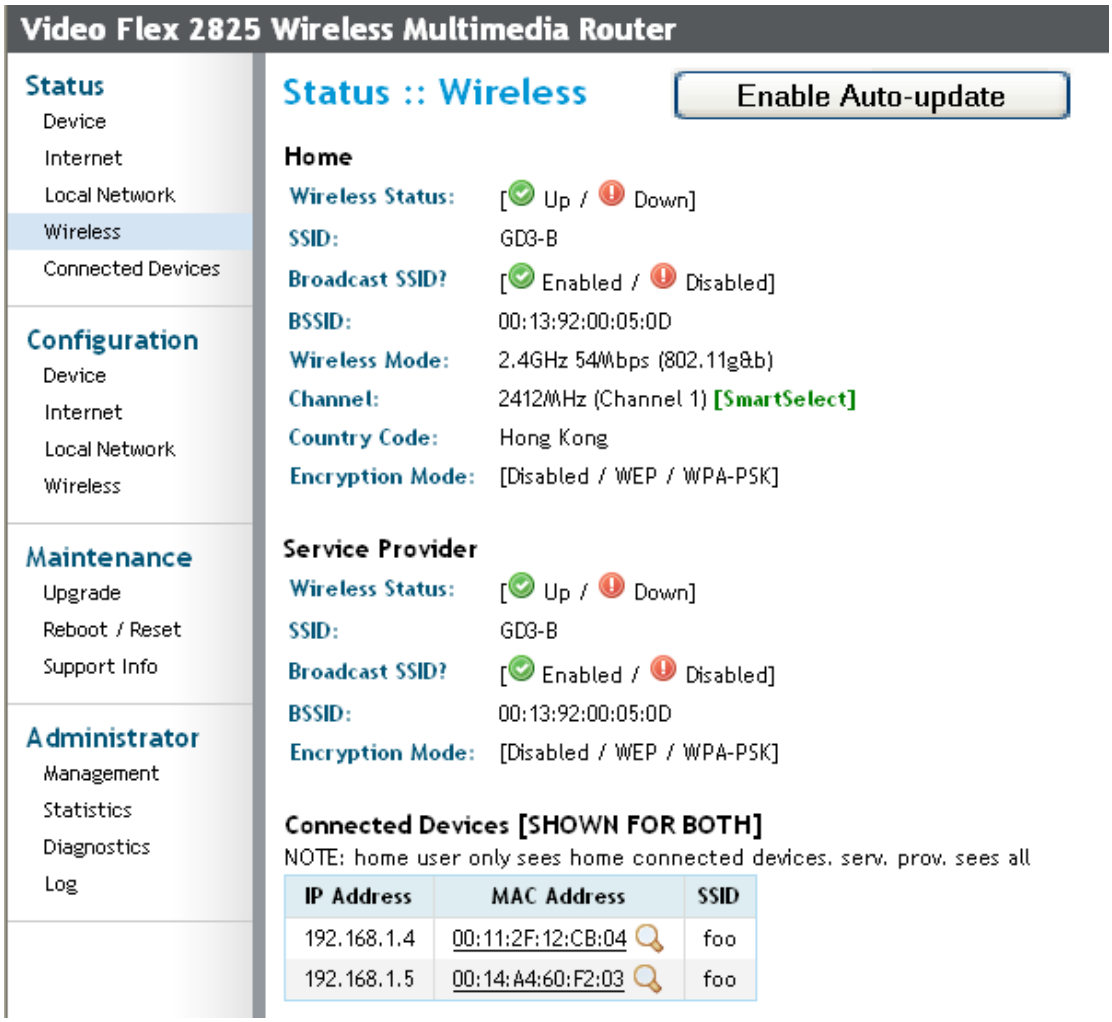


***Figure 12—Wireless Status***

Table 12 shows the Wireless Information Window parameters.

**Table 12—Wireless Status Window Parameters**

| Field | Description |
|---|---|
| Wireless Status | Shows the status as either Up or Down. |
| SSID | The SSID (Service Set Identifier) is the name of the wireless network. |
| BSSID | The BSSID is the MAC address of the VF2825. |
| Wireless Mode | The wireless mode, such as **2.4 GHz 54Mbps (802.11b/g)** |
| Channel | The wireless channel number and operating frequency in MHz. |

**Table 12—Wireless Status Window Parameters (Continued)**

| Field | Description |
|---|---|
| Country code | The country in which the VF2825 is operating.The country code will automatically select the Channels available for that country. |
| Encryption | Describes the encryption type currently in use. The encryption types are WEP, WPA-PSK, or disabled. For more information about each type of encryption, see Table 9— “Wireless Interface Configuration” on page 27. |
| Connected Devices | Shows the IP Address, MAC Address and SSID for all connected devices. A home user sees only home connected devices; a service provider sees all |

# Administration Information

## Station Details

Figure 13 shows the Administrator Station Details Window. You can bring up this window by choosing **Administrator->Statistics**.

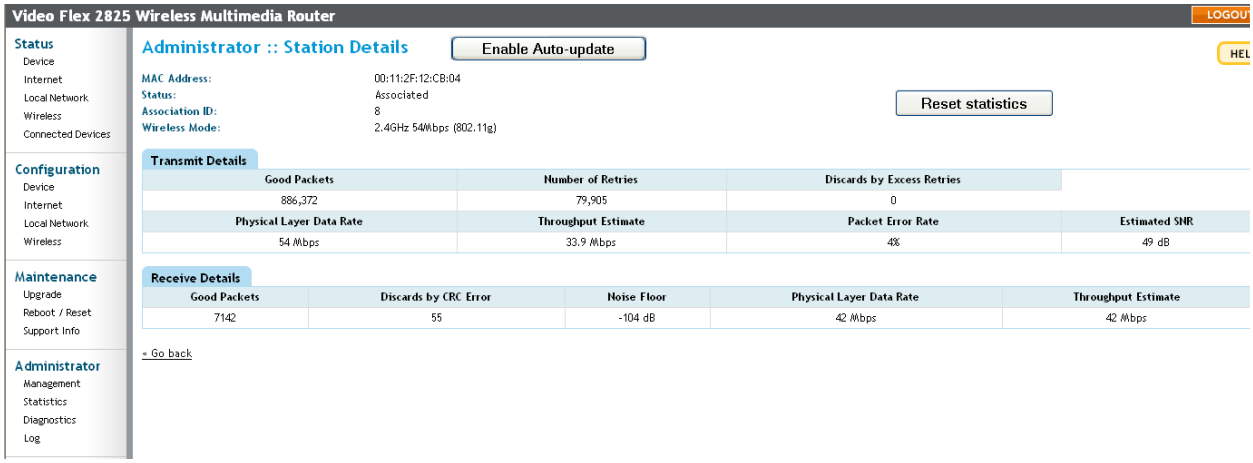


***Figure 13—****Administratror Station Details Window*

Table 13 shows the Station Details Window Parameters.

**Table 13—Station Details Window Parameters**

| Field | Description |
|---|---|
| MAC Address | The MAC address of the router. |
| Status | Choices are *Up* or *Down*. |
| Association ID | To facilitate installation and to avoid possible unintended association of adapter to AP during default mode, a unique SSID is now pre-configured at the factory. This unique SSID is pre set by appending V54- with the last two bytes of the MAC address (WLAN01 interface of the MF2900 and MF2501). The SSID will have the format of V54-WXYZ. |
| Wireless Mode | The wireless mode options are:<br>• **2.4GHz 54Mbps (802.11g&b)** - allows both 802.11g- and 802.11b-compliant devices to join the network. This is the default setting.<br>• **2.4GHz 11Mbps (802.11b only)** - allow only 802.11b-compliant devices to join the network. |
| Good Packets | Represents the total good transmit TX packet – record the cumulative number of packets sent since the previous period. This counter continues to increase, until the device is clear. |

**Table 13—Station Details Window Parameters (Continued)**

| Field | Description |
|---|---|
| Number of Retries | Records the cumulative number of TX retries since the previous period. Potential source of retries are triggered when the sender did not get the ACK back from the receiver due to errors on the channel. |
| Discards by Excess Retries | Records the cumulative number of the packets dropped due to the number of retries exceeding the retry threshold. This data represent data that are not received on the receiving end due to poor channel quality. |
| Physical Layer Data Rate (Transmit) | Displays the physical layer transmission mode currently in effect for packets transmitted to a particular station. |
| Throughput Estimate (Transmit) | Displays the estimated maximum throughput achievable to a particular station. |
| Packet Error Rate | Displays the packet error rate on the transmit link. Represents the percent of frames transmitted that did not receive an 802.11 ACK. The time window is based on the last 100 frames. |
| Estimated SNR | Displays the estimated signal to noise ratio from the station to the AP. This data represents the best estimate of the channel condition. |
| Good Packets | Represents the number of received packets. |
| Discards by CRC Errors | Represent the number of packets with CRC errors. Includes only the CRC errors that the adapter can see with the packet destined for the adapter. Does not include all of the CRC errors on the wireless medium. |
| Noise Floor | Represents the noise level of the device. |
| Physical Layer Data Rate (Receive) | Displays the physical layer transmission mode currently in effect for packets received by to a particular station. |
| Throughput Estimate (Received) | Displays the estimated maximum throughput achievable from a particular station. |

## Updating the Firmware

This menu provides a utility for updating the VF2825's firmware. A firmware update may be necessary or desirable to add new features, important fixes or enhancements to the VF2825.

Contact your service provider for more information about Web sites or TFTP/FTP sites used to store firmware images for the VF2825.

***CAUTION:—****If you have recently made configuration changes to the VF2825, make sure to reboot the system (see "Rebooting the System" on page 39) first so that your changes are preserved. Then update the firmware.*

## Performing a Web Download

To download a firmware image from a Web site and use it to update the firmware on the VF2825:

1. Point your browser to the Web site where the VF2825's firmware is stored, and download the firmware image to a folder on your hard drive. Note the location of the downloaded image.
2. In the Ruckus Wireless Web Interface, click the **Maintenance->Upgrade** menu.

Table 14 describes the Updating the Firmware parameters.

**Table 14—Updating the Firmware**

| Field | Description |
|---|---|
| Web Download | If you have downloaded a Firmware image from a Web site and stored it locally on your PC, you can click the **Browse...** button to select the image. The path to the image will appear in the **Local File Name:** field.<br>Click the **Update Firmware** button located below **Local File Name** field. |
| TFTP/FTP Download | Allows you to use a TFTP or FTP server to download a firmware image.<br>• **Host Name:** enter the IP address of the server.<br>• **User Name:** enter the User Name that is used to access to the specified server. This is required only for an FTP server<br>• **Password:** enter the Password that is used to access to the specified server. This is required only for an FTP server.<br>• **Image Name:** enter the filename of the firmware image on the TFTP or FTP server.<br>Click the **Update Firmware** button located below **Image Name** field. |

3. Click the **Browse...** button to locate and select the firmware image.
4. Click the **Update Firmware** button to perform the update.
5. If the firmware has updated successfully, a green check mark will appear. Click the **Reboot** button.
6. If the firmware did not update, a **Failed: file type** error message will appear.

   A file type error indicates that the firmware image may be corrupt or invalid. Try downloading the firmware image again, and repeat the above steps.

## TFTP or FTP Download

To specify a specific trivial file transfer protocol (TFTP) or File Transfer Protocol (FTP) server from which to download a firmware image:

1. Choose the download method by selecting either the **TFTP** or **FTP** button.
2. Enter the IP address or Hostname of the server.
3. For FTP only: Enter the **User Name** and **Password** for the server.
4. Enter the name of the firmware image.
5. Click the **Update Firmware** button at the bottom of the screen to perform the upgrade.

6. If the firmware has updated successfully, a green check mark will appear. Click the **Reboot** button.
7. If the firmware did not update, a **Failed: file type** error message will appear.

   A file type error indicates that the firmware image may be corrupt or invalid. Check the TFTP/FTP server address and the firmware image name. Then try downloading the firmware image again, and repeat the above steps.

## Rebooting the System

You must reboot the system if you want your configuration changes to take effect.Two types of reboot are provided:

The **Reboot Now** button re-starts the system. All the configurations that have been saved are preserved through the reboot. Rebooting is necessary in order to make your configuration changes permanent.

- If the system times out and you have to re-login before setting the reboot, you configuration changes will be saved, **as long as you have already clicked the Update button to save the current configuration.**
- If you have powered down or logged out of the VF2825 before clicking the **Update** button and the **Reboot** button, your configuration changes will be lost.

The **Reset to Factory Settings** button restarts the system with the factory default configurations. All previous configurations will be lost.

1. To reboot for either type, click **Maintenance->Reboot Now** from any window. The window of Figure 14 appears.

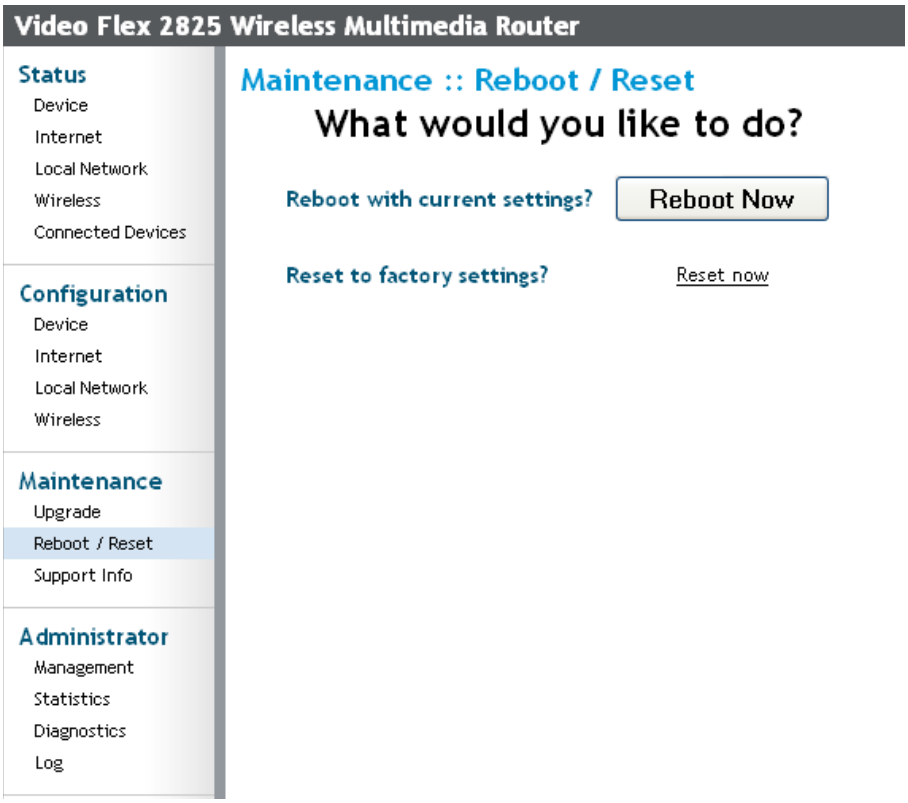


***Figure 14—****Reboot Menu*

2. Click the reboot option you want.During a reboot, the antenna LEDs on the top of the VF2825 will momentarily go out, then light up again.

### How to tell when the Access point is ready?

After about 18 seconds, the antenna LEDs will start flashing in a clockwise pattern, indicating the VF2825 is ready. The **Click here when Access Point is ready** link will open the main login page.

**NOTE –** If you have modified the device IP address, and then rebooted the device to factory default configuration, the above link will not work. Instead, click the **Logout** button, and then point your browser to the default IP address for the device.

## Taking a System Support Snapshot

The Support menu enables you to take a system snapshot for further analysis and troubleshooting. The system snapshot can be sent and saved to a TFTP or FTP server for analysis by a technical support engineer.

1. To view the support menu, choose Maintenance->Support from any window.

Table 15 describes the support menu parameters.

**Table 15—Support Menu**

| Field | Description |
|---|---|
| Server Type | Select the server type: TFTP or FTP. |
| File Name | Specify the file name for the system snapshot that is to be saved on a TFTP or FTP server. |

2. If you have not yet configured the TFTP or FTP server, click the **Maintenance->Update** link.
3. In the **Firmware->Update** menu, enter the TFTP or FTP server information. The same server is used for both upgrading the firmware and uploading the system snapshot.

Your service provider or technical support contact should provide you with information for configuring the TFTP or FTP server.

4. Click on the **Refresh** button to get the current system snapshot.
5. Click on the **Send To** button to send the `support.txt` file to the TFTP or FTP server. You can set the address for the TFTP or FTP server in the **Firmware Update** menu.
6. Click the **Upload** link at the bottom of the page to upload to the specified server.

# Appendix A: Technical Specifications

## Physical Characteristics

| | |
|---|---|
| Power requirements | **VF2825:**<br>5V-18V 10W<br><br>**External power adapter:**<br>Unifive Technology Co LTD, Model US300520, Input 100-240V AC, Output 5V DC 2A, UL Listed<br>DVE, Model DSA-031F-12 UK 12, Input 100-240V AC, Output 12V DC 1A, TUV Certified<br>DVE, Model DSA-031F-12 EU 12, Input 100-240V AC, Output 12V DC 1A, TUV Certified |
| Physical size | 5.72 x 4.92 x 2.9 in (145 x 125 x 74 mm.) |
| Weight | 0.53 lbs (0.24 kg) |
| Antenna | Internal software-configurable antenna array with six directional, high-gain elements and 63 unique antenna patterns |
| Ethernet ports | 5 auto MDX, auto sensing 10/100 Mbps, RJ45 port |
| LED display | Antenna<br>Power<br>LAN<br>Wireless<br>Air Quality |
| Environmental conditions | Operating Temperature: $32^{o}$F – $104^{o}$F ($0^{o}$C – $40^{o}$C)<br>Operating Humidity: 15% - 95% non condensing |
| Electromagnetic Emissions | Meets requirements of FCC Part 15 Class B |

## Performance and Supported Configurations

| | |
|---|---|
| Target UDP throughput | 15-20 Mbps sustainable throughout a typical 2500 $ft^2$ (300 $m^2$) home |

| | |
|---|---|
| Number of simultaneous video streams | 2-3 simultaneous MPEG-4/WMV streams, or 1-2 DVD-quality MPEG-2 streams, or a single 10Mbps+ high definition stream at 50ft (18m) with simultaneous background traffic |
| Video clients | Video streaming to 802.11b clients not supported |

## Traffic Management and QoS

| | |
|---|---|
| Classes of service | Voice, Video, Best Effort and Background |
| Number of hardware queues | 4 |
| Number of software queues | 4 |

## Management

| | |
|---|---|
| Configuration and monitoring interface | Ruckus Wireless Web User Interface (WebUI) |
| Login | Username: **admin**<br>Password: <*blank*> |
| Auto configuration | Not available in this release |
| Statistics | LAN, wireless and associated stations<br>Accessible via Ruckus Wireless Web Interface |
| Software update | Via FTP, TFTP, or Web download<br>Accessible via Ruckus Wireless Web Interface |
| Other Utilities | System Support Snapshot |
| Others | |
| Standards/Specifications | 802.11 b/g<br>802.11u<br>802.11e,<br>Wi-Fi Alliance WMM<br>802.1x |
| Channels | US/Canada: 1-11<br>Europe (ETSI X30): 1-13<br>Japan X41: 1-13 |
| RF Power output | 17 dBm for 802.11b<br>20 dBm for 802.11g |
| Certifications | FCC, IC-03, CE |
| Wireless Security | 802.1x WEP/WPA<br>Access Control List by station MAC address |