



MediaFlex 7811 Access Point and MediaFlex 7111 Adapter User Guide

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Preface

This Ruckus Wireless MediaFlex 7811 Access Point User Guide will help you understand the Ruckus Wireless MediaFlex 7811 Access Point — how to install it, and configure it using the Ruckus Wireless Web Interface.

Who Should Use This Guide

This User 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: “Configuration”](#)
- [Chapter 4: “Maintenance](#)
- [Chapter 5: “7111 Adapter Setup, Provisioning, and Management](#)
- [Appendix A: “Technical Specifications”](#)
- [Appendix B: “Configuration Worksheets](#)

Typographic Conventions

This User Guide uses the following typographic conventions:

Table 1—Typographic conventions

Typeface or Symbol	Meaning	Example
<i>italics</i>	Emphasis, book titles, CD names, special terms. Also used to denote optional input if surrounded by <i><brackets></i>	Read your <i>User Guide</i> thoroughly. Enter an address in the range 192.168.2.<2-253>
bold	System menu names, user input	Open the Control Panel .
fixed	Screen text, URLs, IP addresses	Browse to the following IP address: <code>http://192.168.2.1</code>



System Requirements

The 7811 is compatible with most contemporary personal computers and operating systems that are configured for Internet and wireless networking.

The 7811 is accessed and configured via a Web browser interface. Any of the following Web browsers are supported:

- Internet Explorer version 6.0
- Netscape version 8.1
- Firefox version 1.5.0.6
- Safari 1.0

Support and Warranty Information

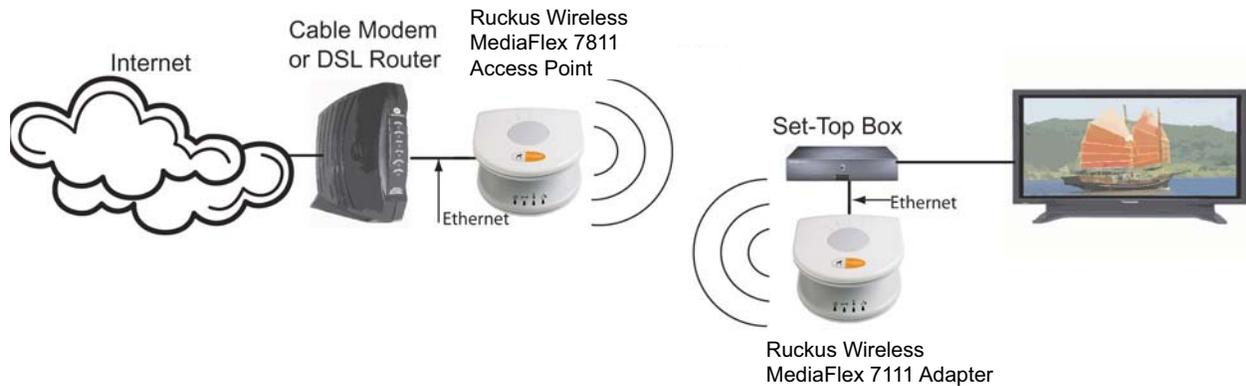
See the Warranty card for detailed information about contacting Technical Support, and the Warranty terms for your 7811.

Chapter 1: Introduction

Congratulations on your purchase of the Ruckus Wireless MediaFlex 7811 Access Point (7811). The 7811 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 7811 connected to a DSL router or cable modem. The 7811 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—Ruckus Wireless MediaFlex 7811 Access Point in a typical home network



The 7811 supports one BSSID and features HTTPS and secure shell (SSH) management, with device specific certificates.

MediaFlex™

MediaFlex™ is Ruckus Wireless, Inc.'s family of purpose-built, multimedia WiFi devices 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 the Ruckus Wireless 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 802.11n wireless networks. The BeamFlex™ antenna system consists of an array of six high-gain directional antenna elements, that allow the 7811 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

- Multiple-Input, Multiple-Output (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 that combine to form 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 30-40Mbps of bandwidth at 99.9% availability throughout a typical 2500ft² (300m²) home.
- Supports total number of streams with aggregate of 30Mbps to 40Mbps video throughput
- 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, WPA key, statistics monitoring and software upgrade.

Standards-based Solution Protects User Investment, Minimizes Replacement Cost

- Compliant with 802.11n: Supports 802.11n wireless networking and can interoperate in 802.11n-only or mixed networks
- Compliant with WPA-AES, WPA2-AES, and Wi-Fi Alliance WMM specifications
- Supports Wi-Fi Protected Access-Pre-Shared Key (WPA-PSK) data encryption. WPA provides strong data encryption based on a pre-shared key
- Attaches to installed routers or home gateways via Ethernet to optimize the WLAN without replacing existing router, firewall or media devices
- Compatible with the emerging 802.11n WLAN standard
- Virtual AP support of one BSSID
- HTTPS management
- SSH management
- Device-specific certificates



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Chapter 2: Installation and Setup

This chapter describes how to install your Ruckus Wireless MediaFlex 7811 Access Point, and how to set up your PC to connect to the Ruckus Wireless Web Interface.

Topics covered in this chapter include:

- Packing List6
- Ruckus Wireless MediaFlex 7811 Access Point6
- LED Status Lights7
- Placement Guidelines.....9
- Connecting and Configuring the 7811.....9
- Troubleshooting Setup.....14

Packing List

1. Ruckus Wireless MediaFlex 7811 Access Point
2. AC power adapter (Output DC 5-18V 1-2A)
3. Category 5 (CAT5) Ethernet Cable
4. *Ruckus Wireless MediaFlex 7811 Quick Setup Guide*
5. Limited Warranty Statement and Software License Agreement
6. Federal Communications Commission Notices

Ruckus Wireless MediaFlex 7811 Access Point

Front View

Figure 2— “Front view of the 7811” shows the front view of the 7811, with the LED indicators numbered. The numbers correspond to the labels describing LED behavior in [Table 1— “LED Indicators and Meanings”](#) on page 7.

Figure 2—Front view of the 7811



LED Status Lights

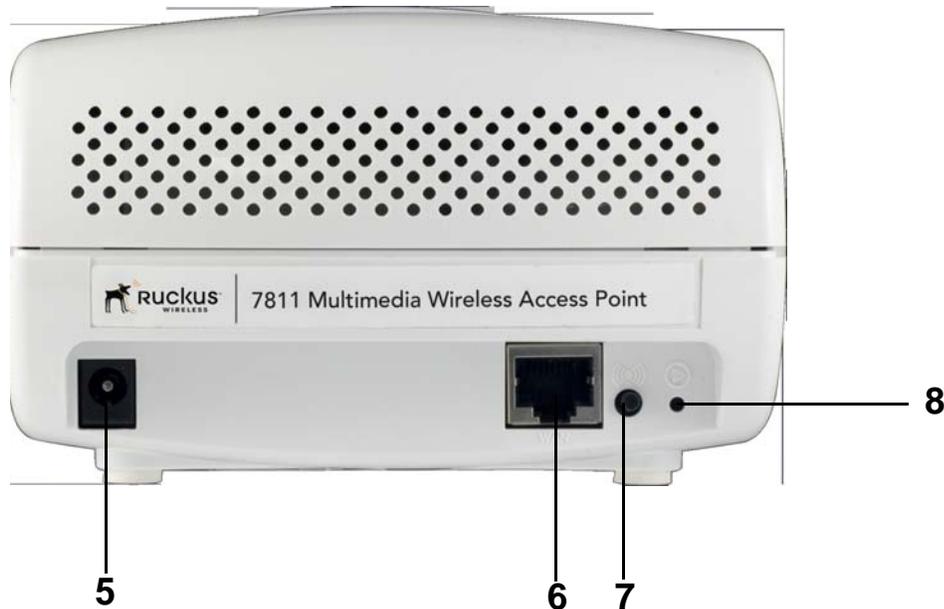
Table 1—“LED Indicators and Meanings” describes the LED lights on the front of the 7811.

Table 1—LED Indicators and Meanings

Label	LED	Activity	Description
1	Power	Green	Power is supplied to the 7811.
		Off	Power is not supplied to the 7811.
2	WAN Connectivity	Green	The WAN port has detected link.
		Flashing Green	Data is being transmitted or received on the WAN port.
		Off	No link connectivity.
3	Wireless Device Association	Amber	The WLAN interface is up, but no station is connected.
		Green	A station is connected to the WLAN (either the home WLAN or the service provider WLAN).
		Off	WLAN is not up
4	Signal Quality	Green	Good signal quality at the service provider WLAN interface.
		Flashing Green	Marginally acceptable signal quality at the service provider WLAN interface.
		Off	No station associated with service provider WLAN.

Rear View

Figure 3—Rear view of the 7811



[Table 2](#) describes the physical features of the AP's rear panel.

Table 2—Rear Panel Features

Label	Description
5	AC Power (Input 100-120V or 220-240V depending on the country, 50/60HZ, 0.3A)
6	WAN port, a 10/100Mbps auto-sensing, autonegotiating Ethernet port that needs to be connected to the broadband gateway.
7	Over the Air Auto Provisioning Button (not active for current release).
8	Reset button. Used only if you need to reset the 7811 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.

Placement Guidelines

The Ruckus Wireless MediaFlex 7811 will automatically adjust, within limits, to room conditions. You can achieve better signal reception by following the below placement guidelines:

Establishing a Good General Location

Your 7811 should be placed:

- Near the center of the room, if possible.
- 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, metal bookcases, displays, racks, etc.
- Away from large furniture or other physical obstructions, particularly metallic materials.

Using the Signal Quality LED to Fine Tune the Placement

Wireless environments are sensitive to the physical arrangement of both electronic devices and furniture in a room. You can observe the Signal Quality Indicator LED to determine the best location. The Signal Quality indicator LED is described in [Table 1— “LED Indicators and Meanings” on page 7](#).

Refer to the troubleshooting section on [page 14](#) if video quality deteriorates after an installation.

If “Minimum Acceptable” or “Marginally Acceptable,” air quality is indicated, you can adjust the location of the 7811 and other devices until a steady green LED indicates “good” signal quality.

Connecting and Configuring the 7811

If it has not been already configured, you must configure your 7811 to work within your home network. Read the following section to understand how to configure it manually.

NOTE – Depending on the pre-configurations of the 7811, the device behavior may be slightly different than what is described in this manual.

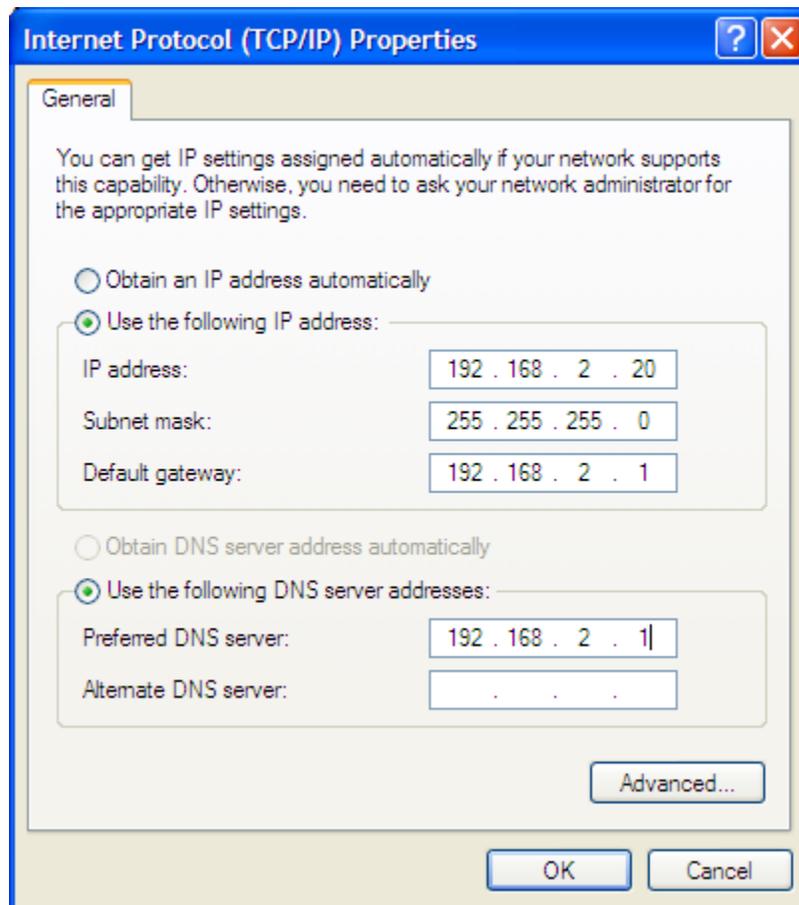
Configuring an IP Address on Your Computer

1. Do one of the following:
 - For Windows 2000: Select **Start > Settings > Network and Dialup Connections**
 - For Windows XP: Select **Start > Control Panel > Network Connections**
2. Right-click the icon for the Local Area Connection designated for your home network and select **Properties**.

NOTE – 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 **Properties**. The *Internet Protocol (TCP/IP) Properties* window ([Figure](#)) appears.

Figure 4—TCP/IP Properties



4. Write down the current settings so you can restore your computer to its current configuration, if needed.
5. Select **Use the following IP address**, and enter **192.168.2.20** in the *IP address* text box.
6. For **Subnet mask**, enter 255.255.255.0.
7. For **Default gateway**, enter 192.168.2.1.
8. Select **Use the following DNS server addresses** and enter **192.168.2.1** for the *Preferred DNS server*.
9. Click **OK** to save these settings and exit the Local Area Connection Properties window.

Connecting the 7811

1. Connect the provided AC Power adapter to the 7811 and plug the other end into a power outlet or to a surge protector that is plugged into a power outlet. The Power LED will turn green when you connect the power.
2. Connect the CAT5 Ethernet cable to the WAN port on the 7811 and the Ethernet port on your PC. The WAN Connectivity LED should turn steady green.

- Open a browser window on your PC. Type the default router WAN port IP address shown in [Table 3](#) as `https://<ip-address>`.

Table 3—Default Settings

Parameter	Service Provider
Network Name	V54-xxxxxx (where xxxxxx are the last six digits of the MAC address.
Security	WPA-PSK
IP Addressing	192.168.2.1 (WAN port) 192.168.2.254 (adapter)
Username/Password	Username: super Password: sp-admin

NOTE – Depending on your Service Provider's configuration, the default values might be different than what is stated in this table.

- The Security Alert window appears ([Figure 5](#)).

Figure 5—Security Alert window



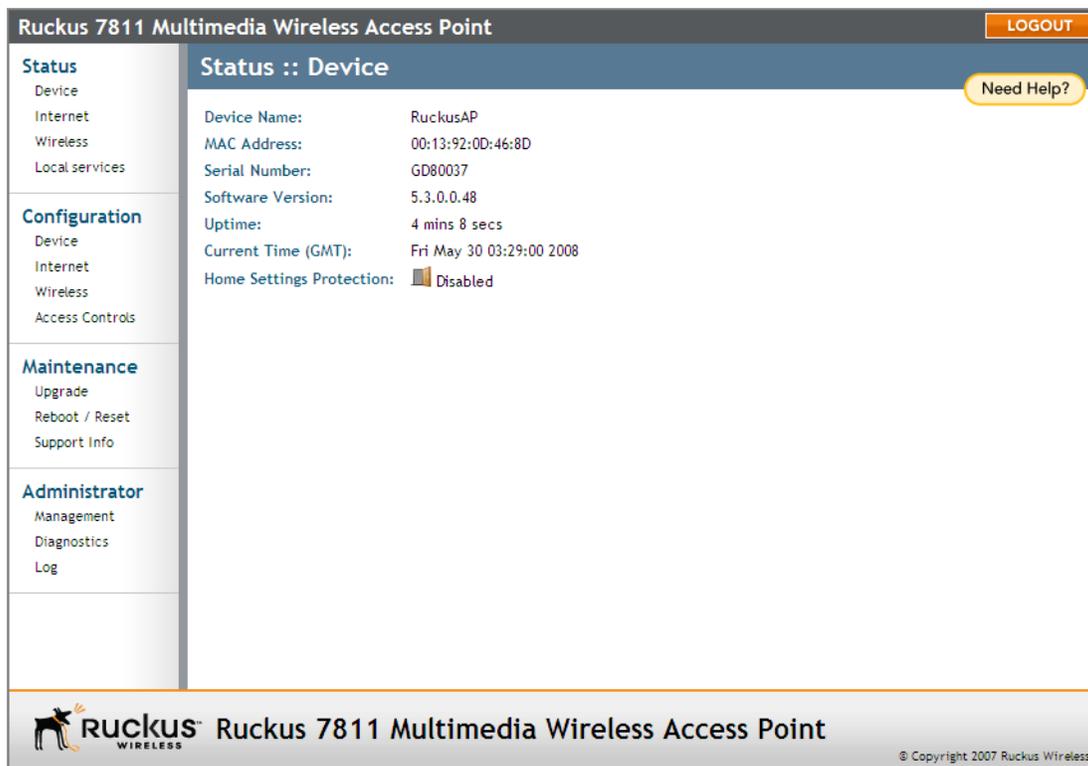
- Click **Yes**.

Figure 6—Login Window



6. The login screen appears, type the appropriate Username and Password shown in [Table 3](#).
7. Click **Login**. The Status > Device window appears ([Figure 7](#)).

Figure 7—Status > Device Window

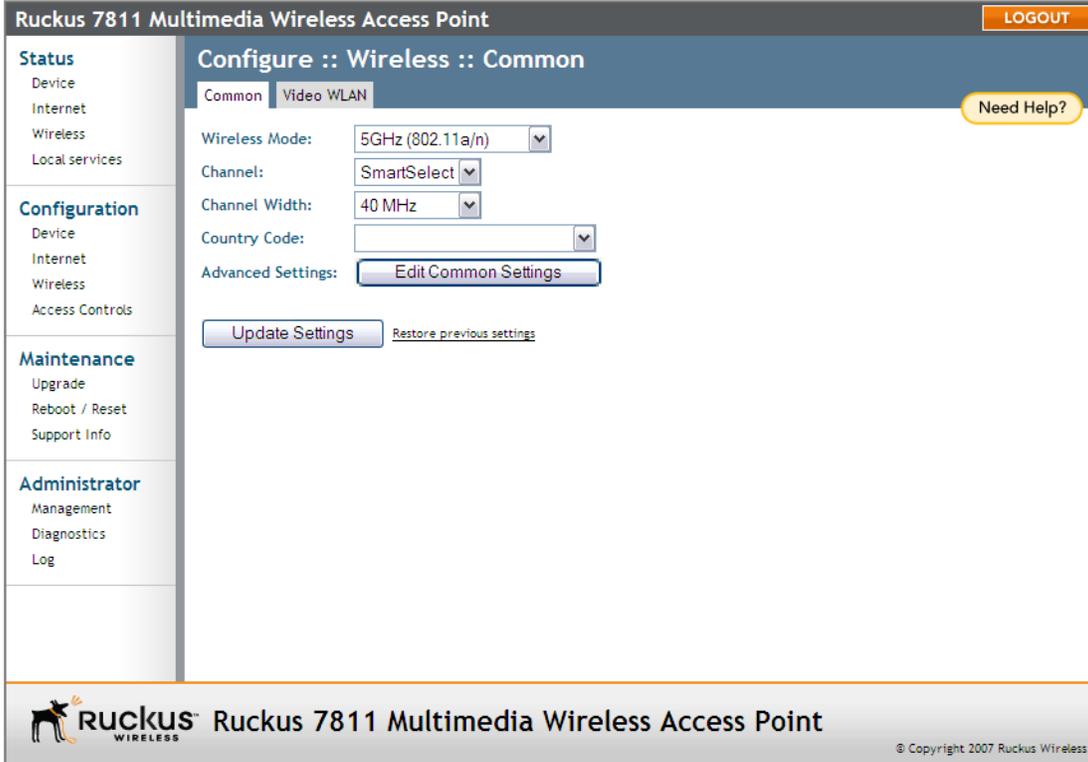


Configuring Wireless Settings

Follow the basic steps below to configure wireless settings. For more detailed information, see [Configuring the Wireless Settings on page 22](#).

1. Choose **Configuration > Wireless**. The window in [Figure 8](#) appears.

Figure 8—Configure > Wireless Settings (Common)



The screenshot displays the configuration interface for a Ruckus 7811 Multimedia Wireless Access Point. The page title is "Ruckus 7811 Multimedia Wireless Access Point" with a "LOGOUT" button in the top right. The main heading is "Configure :: Wireless :: Common". On the left is a navigation menu with sections: Status (Device, Internet, Wireless, Local services), Configuration (Device, Internet, Wireless, Access Controls), Maintenance (Upgrade, Reboot / Reset, Support Info), and Administrator (Management, Diagnostics, Log). The main content area has tabs for "Common" and "Video WLAN". A "Need Help?" button is in the top right of the main area. The settings are as follows: Wireless Mode: 5GHz (802.11a/n); Channel: SmartSelect; Channel Width: 40 MHz; Country Code: (empty dropdown); Advanced Settings: Edit Common Settings (button). At the bottom of the main area are buttons for "Update Settings" and "Restore previous settings". The footer contains the Ruckus logo, "Ruckus 7811 Multimedia Wireless Access Point", and "© Copyright 2007 Ruckus Wireless".

NOTE – The value for **Wireless Mode** is fixed to **5GHz (802.11a/n)** and is not configurable.

2. For Channel, choose **SmartSelect**.
3. When you are finished, click **Update Settings**.
4. Click **Update Settings**.

Troubleshooting Setup

If you cannot connect to the 7811, follow this startup sequence:

1. Unplug the 7811's power adapter.
2. Plug in the 7811's power adapter.
3. Connect the 7811 (through the WAN port) to your DSL modem or gateway.
4. Connect your computer to your DSL modem or gateway, and then set the IP address of your computer by following [Configuring an IP Address on Your Computer on page 9](#).
5. On your PC, open a browser window. Enter the default IP address of the 7811 that appears on the label at the bottom of the 7811. When the login screen appears, enter the username and password shown on the label at the bottom of the 7811.
6. Choose **Configuration :: Device**. Verify that your computer's wireless network settings match that of the 7811.
7. Check the LED status lights to verify correct operation.
 - Make sure you are using the correct power adapter supplied by Ruckus Wireless.
 - Make sure the Power LED is lit. If it is not lit, make sure that the power cord is properly connected to the 7811, and that the AC power adapter is properly connected to a functioning power outlet. If the problem persists, you have a hardware problem and should contact technical support.
 - Make sure your WAN Connectivity LED is lit. Make sure that the Ethernet cable connections are secure at the 7811 and your computer. The WAN Connectivity LED on the 7811 indicates link when the adapter is fully seated in the port.
 - Make sure the Wireless Device Association LED is either steady or flashing Green. If not lit, the Wireless settings may be incorrect between the 7811 and your computer. If necessary, reset the 7811 to its factory defaults

Resetting the Device To Factory Defaults

If you forgot what IP address or security settings you assigned to the 7811, you can reset it to factory defaults by inserting the end of a paper clip into the reset button hole located on the back of the unit. Press and hold the reset button for at least eight (8) seconds. Then you can connect to the 7811 using the default network settings.



Chapter 3: Configuration

This chapter describes the tasks you need to do to customize the 7811 to run on your wireless network.

Topics covered in this chapter include:

- Wireless Settings Worksheet16
- 7811 Settings Worksheet17
- Ruckus Wireless Web Interface Menus18
- Configuring the 781118
- Viewing Status Information28
- Access Controls35



Wireless Settings Worksheet

Before you modify any wireless settings on the 7811, print [Table 4—“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 7811’s wireless settings.

[Table 4](#) shows is the Wireless Network Settings Worksheet that you can use to record your settings.

NOTE – [Appendix B: Configuration Worksheets](#) also contains a printable version of this table.

Table 4—Wireless Network Settings Worksheet

Item	Description and Your Network Setting
7811 SSID	The SSID for the service provider. This is typically used for streaming IPTV video content. SSID _____
Encryption Method	If using WPA-PSK, write down the passphrase. The WPA-PSK passphrase <i>is</i> case-sensitive. WPA Version: _____ WPA Algorithm _____ WPA Passphrase: _____

7811 Settings Worksheet

Table 5 enables you to record your personalized settings for configuring the 7811. Enter the security settings you recorded in Table 4, “Wireless Network Settings Worksheet,” on page 16.

Store this information in a safe place.

NOTE – Appendix B: Configuration Worksheets also contains a printable version of this table.

Table 5—7811 Default and User Settings Worksheet

Item	Default Setting	Your Setting
Service Provider User Name	super	_____
Service Provider Password	sp-admin	_____
Internet Access Type	DHCP Client Enabled (can be set to static or PPPoE)	_____
Local Network Configuration	DHCP Server Enabled	_____
Default IP Address (WAN port if no DHCP response from the DHCP server)	192.168.2.1	_____
Subnet Mask	255.255.255.0	_____
Service Provider SSID	V54-xxxxxxx where xxxxxxx are the last six digits of the MAC address.	_____
Wireless Mode	5GHz (802.11a/n) - Fixed	Not configurable

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 6](#)):

Table 6—Wireless Web Interface Menu Buttons

Button	Action
Logout	Logs out from the current session.
Restore Previous Settings	Restores the original configuration.
Update Settings	Saves the new configuration.
Back	Reverts to the previous menu. Only found in the Configuration menus.

Configuring the 7811

This section describes the tasks and screens used to customize the 7811 configuration to run on your wireless network.

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

- ["Connecting and Configuring the 7811" on page 9.](#)

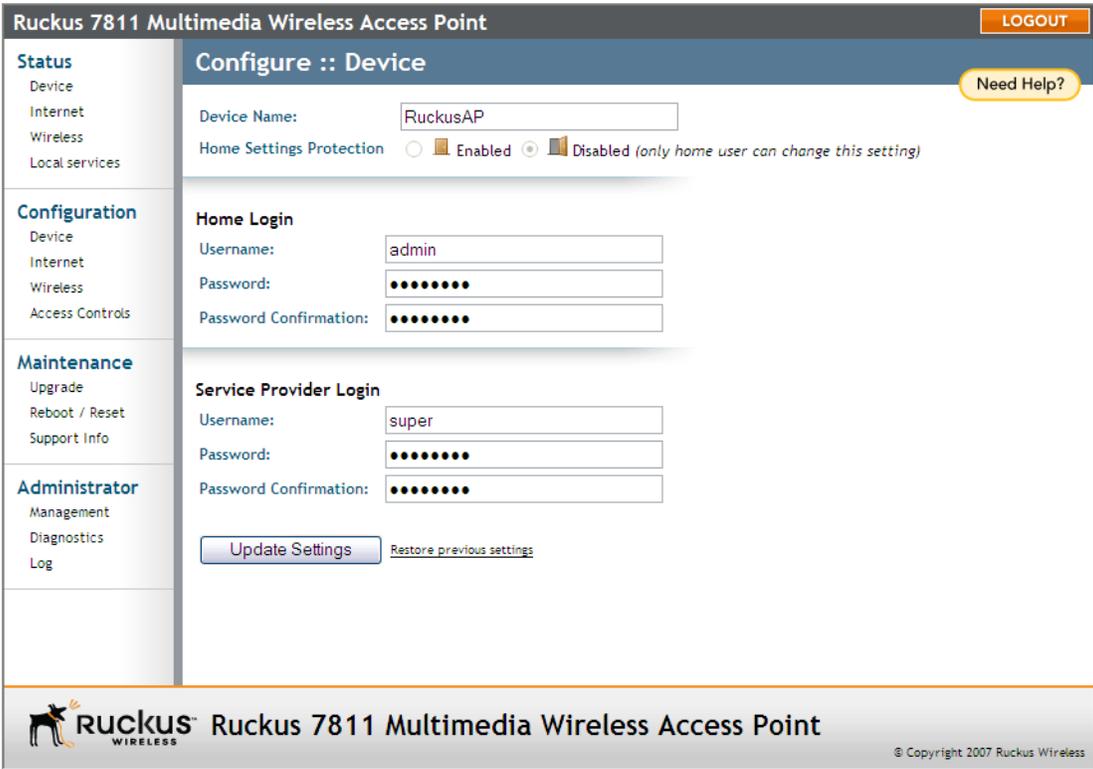
Device Configuration

[Table 5, "7811 Default and User Settings Worksheet," on page 17](#) shows the default settings used to login to the device.

A minimum set of configurations is required to put the 7811 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.

To set the name of your device or to modify the login name and passwords, do the following:

1. Go to **Configuration > Device**. The window of [Figure 9](#) appears.

Figure 9—Device Configuration


Ruckus 7811 Multimedia Wireless Access Point LOGOUT

Configure :: Device Need Help?

Device Name:

Home Settings Protection Enabled Disabled (only home user can change this setting)

Home Login

Username:

Password:

Password Confirmation:

Service Provider Login

Username:

Password:

Password Confirmation:

[Restore previous settings](#)

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2. Change any of the following:
 - **Device Name:** Assigned name of the 7811
 - **Home Settings Protection:** This feature prevents the home user's settings from being overwritten by the Service Provider. When this is **Enabled**, the Service Provider can only change Service Provider specific settings, such as the Service Provider Username and Password.
 - **Home Login** Username and Password (plus Password Confirmation)
 - (Service Providers only) **Service Provider Login** Username and Password (plus Password Confirmation)
3. Click **Update Settings** to save your settings.

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 7811. You may also wish to change the default IP address if it conflicts with another device in your wireless network. Refer to [Table 5](#) for details on each field.



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



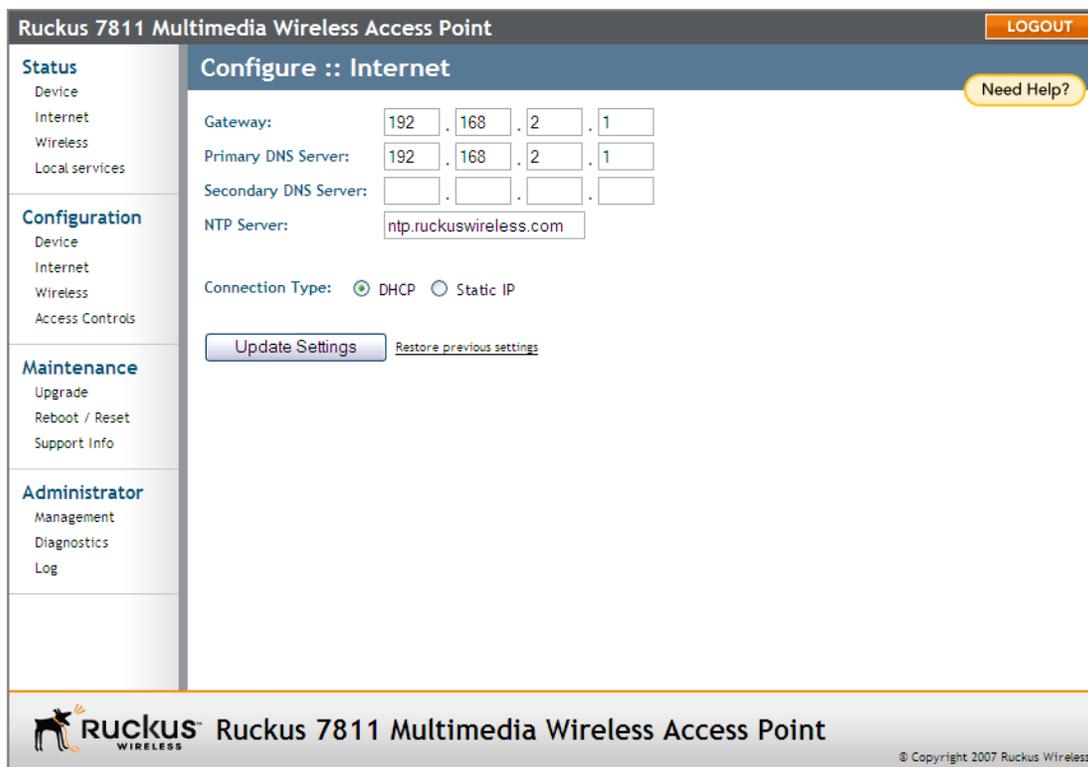
CAUTION:—If, after having changed any default settings, you have forgotten what the new settings are, you may not be able to login to the 7811. To regain access to the 7811, you must reset the device to its factory default settings. Do this by inserting the end of a paper clip into the Reset Button while 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. This should take about eight seconds.

Internet Configuration

To define how the 7811 is configured to the Internet, do the following:

1. Go to **Configuration > Internet**. The window of [Figure 10](#) appears.

Figure 10—Internet Configuration



The screenshot shows the Ruckus 7811 Multimedia Wireless Access Point web interface. The page title is "Ruckus 7811 Multimedia Wireless Access Point" and the current page is "Configure :: Internet". The interface includes a sidebar with navigation options: Status (Device, Internet, Wireless, Local services), Configuration (Device, Internet, Wireless, Access Controls), Maintenance (Upgrade, Reboot / Reset, Support Info), and Administrator (Management, Diagnostics, Log). The main content area is titled "Configure :: Internet" and contains the following fields:

- Gateway: 192 . 168 . 2 . 1
- Primary DNS Server: 192 . 168 . 2 . 1
- Secondary DNS Server:
- NTP Server: ntp.ruckuswireless.com
- Connection Type: DHCP Static IP

At the bottom of the main content area, there are two buttons: "Update Settings" and "Restore previous settings". The footer of the page includes the Ruckus logo and the text "Ruckus 7811 Multimedia Wireless Access Point" and "© Copyright 2007 Ruckus Wireless".

Table 7 shows the Internet Configuration Parameters.

Table 7—Internet Configuration Parameters

Field	Description
Gateway	This is the gateway IP address of the internet interface.
Primary DNS Server	This is the primary Domain Name System (DNS) server IP address.
Secondary DNS Server	This is the secondary Domain Name System (DNS) server IP address.
NTP Server	The hostname or IP address of the Network Time Protocol server which keeps time for your 7811 and its associated 7111 adapters.
Connection Type	This indicates the connection type of the Internet interface to be configured. The options of connection type are Static IP, DHCP or PPPoE. Typically for cable modem access, DHCP is used. For DSL access, PPPoE is used. You must get the PPPoE username and password from your ISP.

Configuring the Wireless Settings

Before changing any settings in the Wireless configuration menu, make sure you have recorded and verified the information in "7811 Default and User Settings Worksheet" on page 17.

To configure the Wireless settings, do the following:

1. Go to **Configuration > Wireless**.

Figure 11—Configure :: Wireless tab

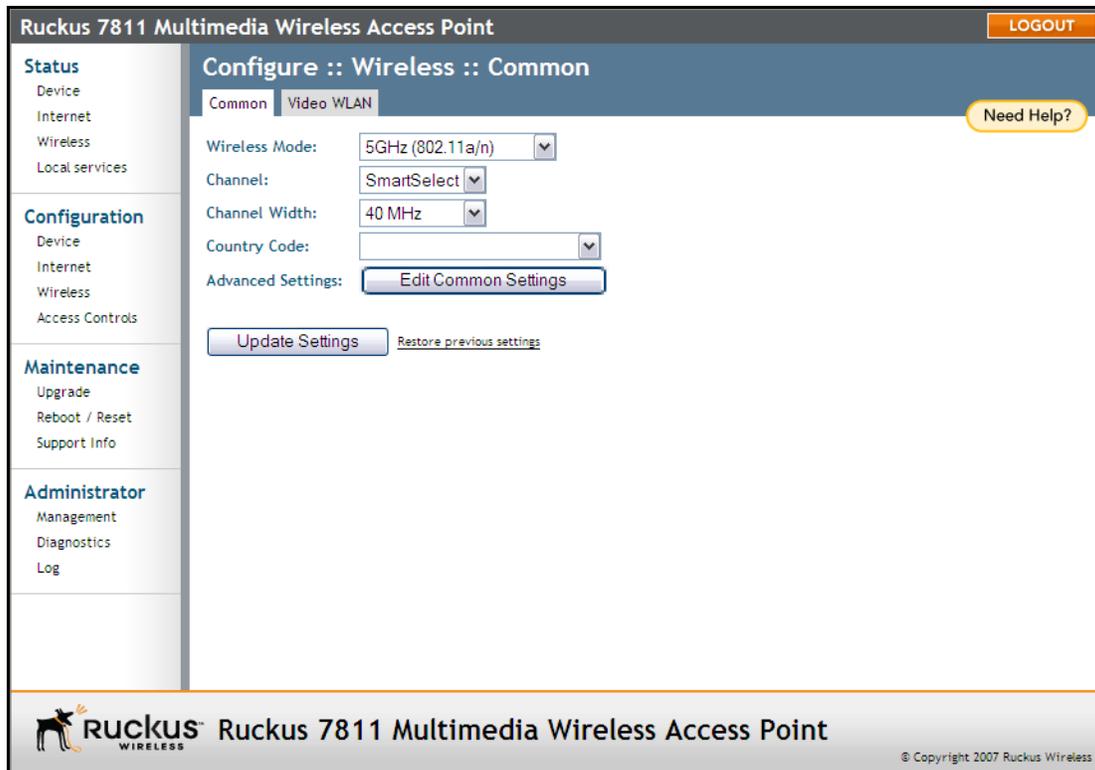
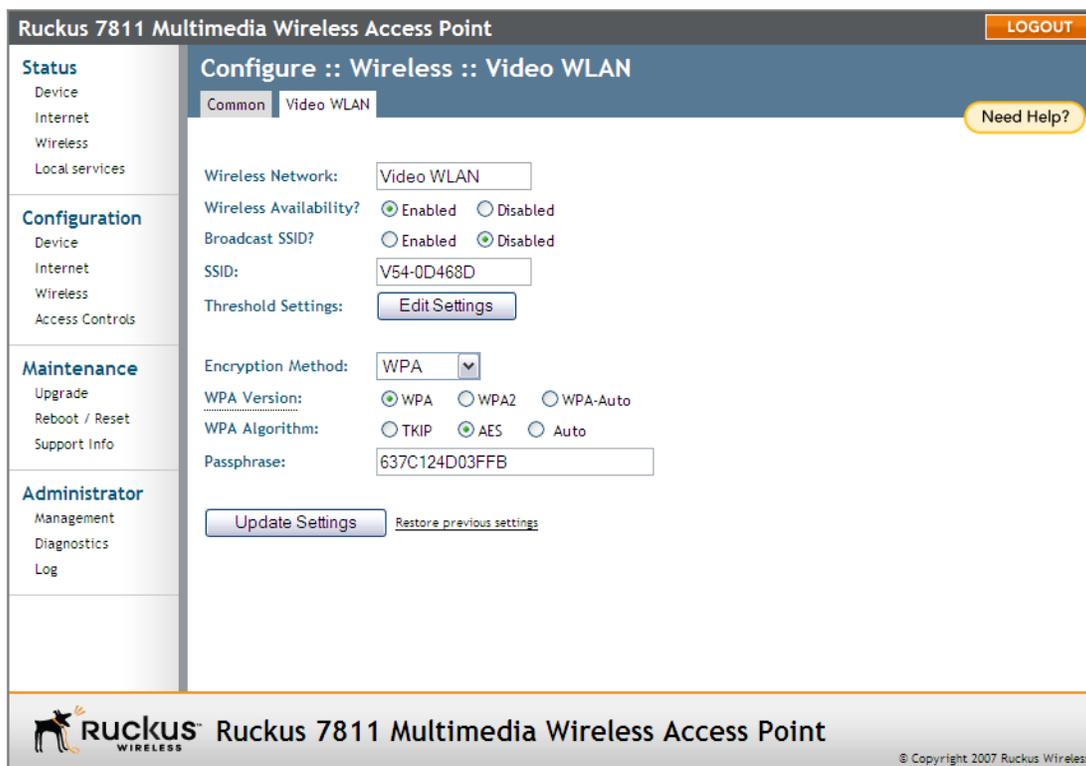


Figure 12—Configure :: Wireless :: Video WLAN tab


Ruckus 7811 Multimedia Wireless Access Point LOGOUT

Configure :: Wireless :: Video WLAN Need Help?

Common | Video WLAN

Wireless Network:

Wireless Availability? Enabled Disabled

Broadcast SSID? Enabled Disabled

SSID:

Threshold Settings:

Encryption Method:

WPA Version: WPA WPA2 WPA-Auto

WPA Algorithm: TKIP AES Auto

Passphrase:

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- Under the Common tab, choose the **Channel** and **Country Code** as described in [Table 8](#).

Table 8—Wireless Interface Configuration

Field	Description
Wireless mode	This value is fixed to 5GHz (802.11a/n) and is not configurable.
Channel	This is the channel used by the network. You can choose Smart Select , or force a specific channel. If you choose Smart Select, the 7811 selects the best channel (least interference) to transmit the signal.
Country Code	Sets your country or region code. Selecting the incorrect country or region may result in violation of applicable law. For 7811s shipped in the United States, the country code cannot be modified. The country code is pre-defined for United States only.

- Click the **Edit Common Settings** button by **Advanced Settings**. The window of [Figure 13](#) appears. The settings are described in [Table 9](#).

Figure 13—Advanced Wireless Configuration Settings

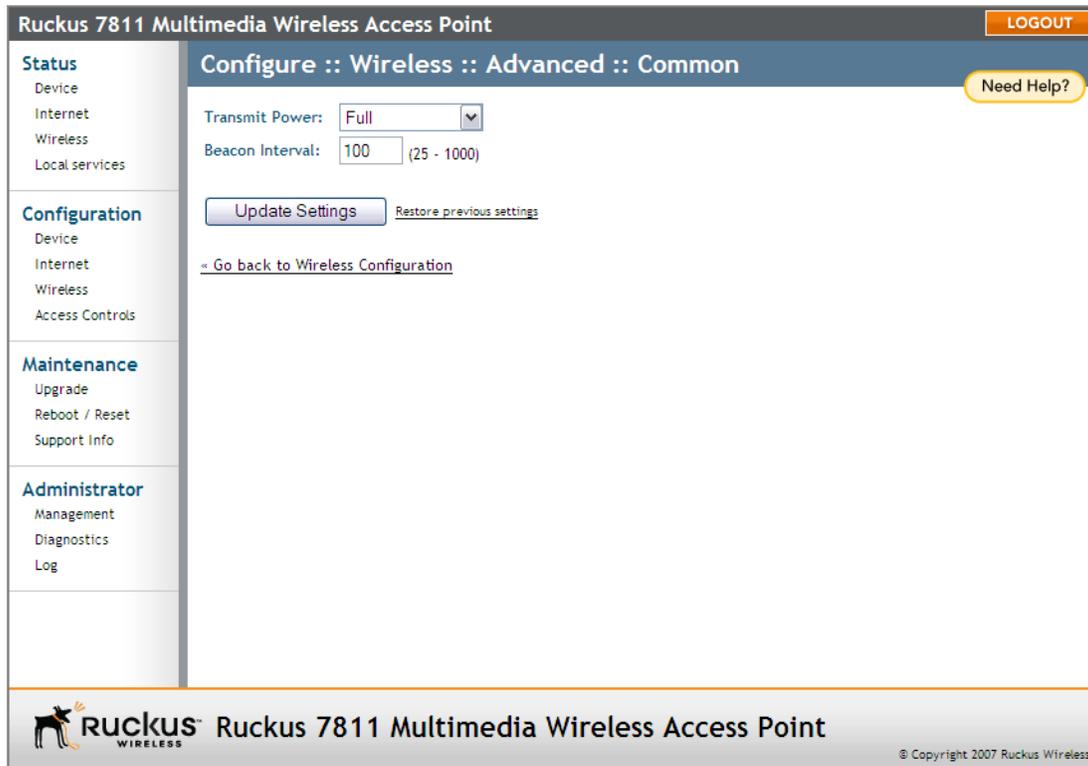


Table 9—Advanced Wireless Settings

Field	Description
Transmit Power	Specifies the maximum transmit power level relative to the calibrated power. Select the level of transmit power from the drop-down menu. The default is <i>Full</i>
Beacon Interval	The Beacon Interval value indicates the frequency interval of the beacon in milliseconds. A beacon is a broadcast packet by Access Point (AP) to synchronize wireless network. The default value is 100.

NOTE – This window is used to set up the advanced wireless functions. These settings should only be changed by an experienced administrator. Incorrect settings can impact wireless performance. It is recommended that you keep the default settings for best performance.

4. Click **Update Settings** to save your settings.
5. Once back under the **Configure :: Wireless :: Common** settings, click the **Video WLAN** tab.

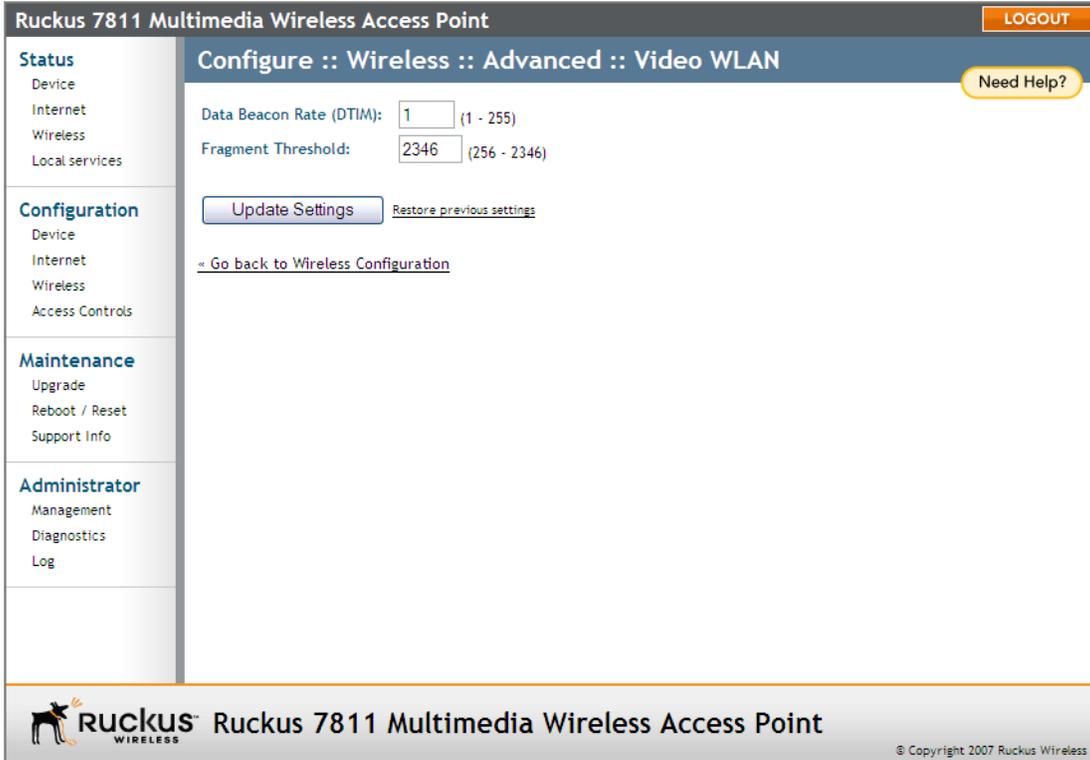
Figure 14—Threshold Settings window


Table 10 describes the Threshold Settings parameters.

Table 10—Threshold Settings Parameters

Field	Description
Data Beacon Rate (DTIM)	The value indicates the interval of the Delivery Traffic Indication Message (DTIM). This is a countdown field that Access Point (AP) informs its clients of the next window for listening to broadcast or multicast messages. The default value is 1.
Fragment Threshold	This value indicates the maximum length of a packet before data is fragmented into multiple packets. In a good wireless environment, the larger the fragment, the more efficient the network operates. In a noisy environment, the threshold should be adjusted to a smaller size to minimize retransmission and increase the reliability of the transmission. The default value is 2346.

6. Click **Update Settings** to save your settings.

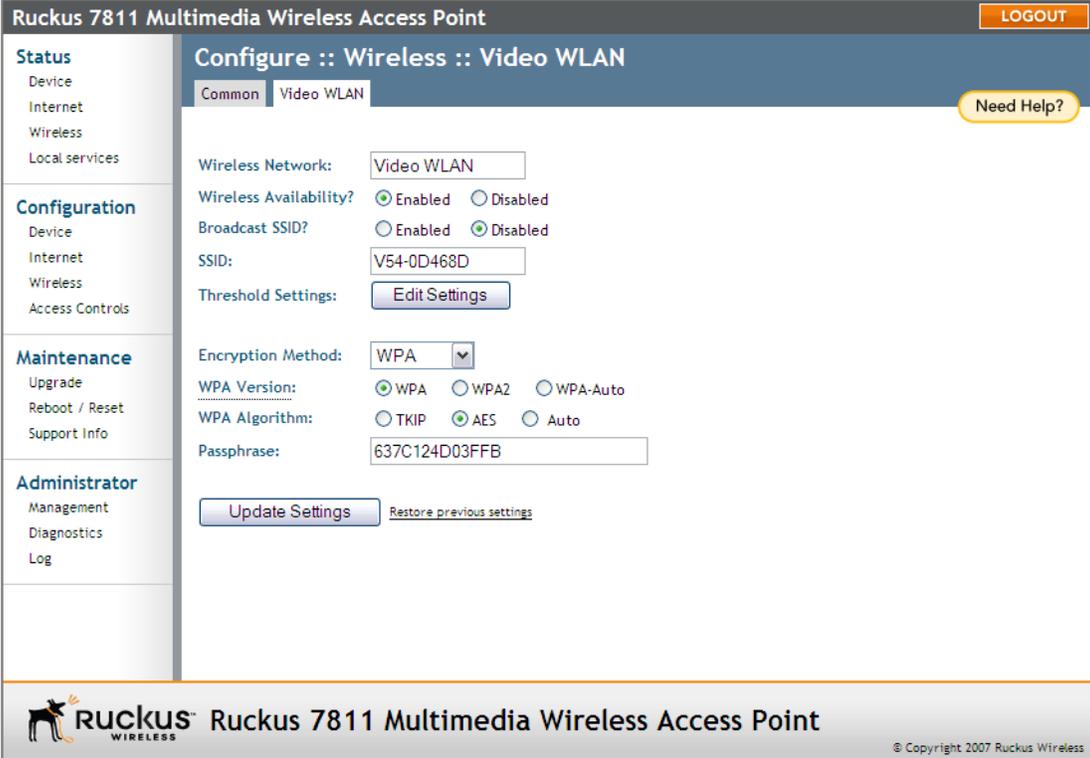
Configuring WPA

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 wireless systems (in some cases, the older wireless systems can be upgraded with the newer adapters to support WPA-PSK).

If you configure the 7811 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 15 shows the WPA-PSK window.

Figure 15—WPA-PSK Wireless Settings



The screenshot displays the configuration page for the Ruckus 7811 Multimedia Wireless Access Point, specifically the 'Configure :: Wireless :: Video WLAN' section. The interface includes a sidebar with navigation options: Status (Device, Internet, Wireless, Local services), Configuration (Device, Internet, Wireless, Access Controls), Maintenance (Upgrade, Reboot / Reset, Support Info), and Administrator (Management, Diagnostics, Log). The main configuration area is titled 'Configure :: Wireless :: Video WLAN' and has tabs for 'Common' and 'Video WLAN'. A 'Need Help?' button is located in the top right corner. The settings are as follows:

- Wireless Network: Video WLAN
- Wireless Availability?: Enabled Disabled
- Broadcast SSID?: Enabled Disabled
- SSID: V54-0D468D
- Threshold Settings: [Edit Settings](#)
- Encryption Method: WPA (dropdown menu)
- WPA Version: WPA WPA2 WPA-Auto
- WPA Algorithm: TKIP AES Auto
- Passphrase: 637C124D03FFB

At the bottom of the configuration area, there are buttons for 'Update Settings' and 'Restore previous settings'. The footer of the page includes the Ruckus logo and the text 'Ruckus 7811 Multimedia Wireless Access Point' and '© Copyright 2007 Ruckus Wireless'.

1. Go to **Configuration > Wireless**.
2. Click the **Video WLAN** tab.
3. Select **WPA-PSK** in the *Encryption Method* drop-down menu.

Table 11 explains the WPA Configuration parameters

Table 11—WPA Algorithm

Field	Description
WPA Version	<p>Choices are WPA, WPA2 or WPA Auto. When WPA-Auto is selected, the wireless client decides the version of WPA will be used.</p> <p>WPA is the recommended default for best compatibility. Wi-Fi WPA-capable PDAs and other gadgets are usually limited to WPA + TKIP. WPA2 is an advanced option. WPA2 support on Windows requires a Microsoft patch and is only available on Windows XP with Service pack 2 or later.</p> <p>WPA-Auto is an advanced option. Only the best WPA 802.11i-conforming/Wi-Fi WPA-certified client devices can operate in this mode.</p>
WPA Algorithm	<p>AES, the only option for this field, is the strongest encryption method and requires additional hardware support on wireless devices. You should consult the documentation of your wireless client devices.</p>
Passphrase	<p>Enter any combination of printable characters. The Passphrase must be between 8 and 32 characters long.</p>

4. In the **Configuration > Wireless** menu, enter a passphrase.
5. Click **Update Settings** to save your settings.

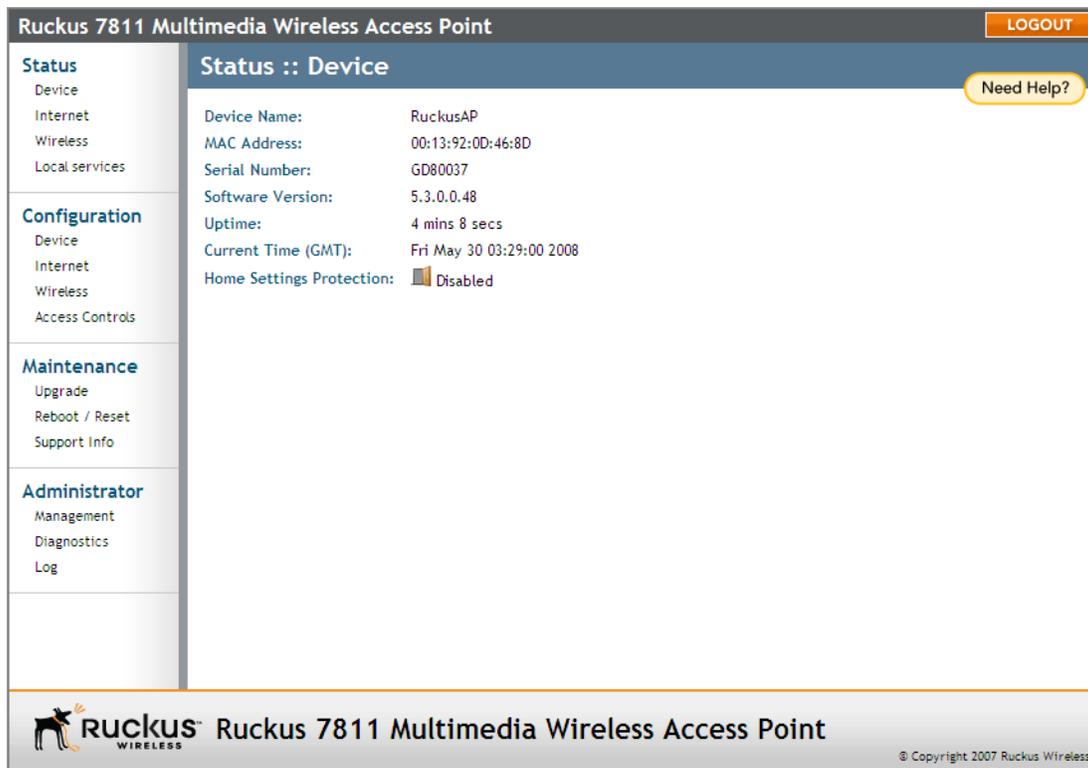
Viewing Status Information

There are five status information windows. These are "Device Status" on page 28, "Internet Status" on page 30, "Wireless Status" on page 32, and "Local Services Status" on page 34.

Device Status

The Status page shows current status and configuration information about the Ruckus Wireless Router or Adapter. [Figure 16](#) shows the Device Status window. You can bring up the window by choosing **Status > Device**.

Figure 16—Device Status Window



[Table 12](#) explains the Device Status Parameters.

Table 12—Device Status Parameters

Field	Description
Device Name	This is the name of the Ruckus Wireless Router or Adapter. The name can be configured using Configuration > Device window.
MAC Address	This is the Media Access Control (MAC) address of the 7811.
Serial Number	This is the serial number of the 7811.

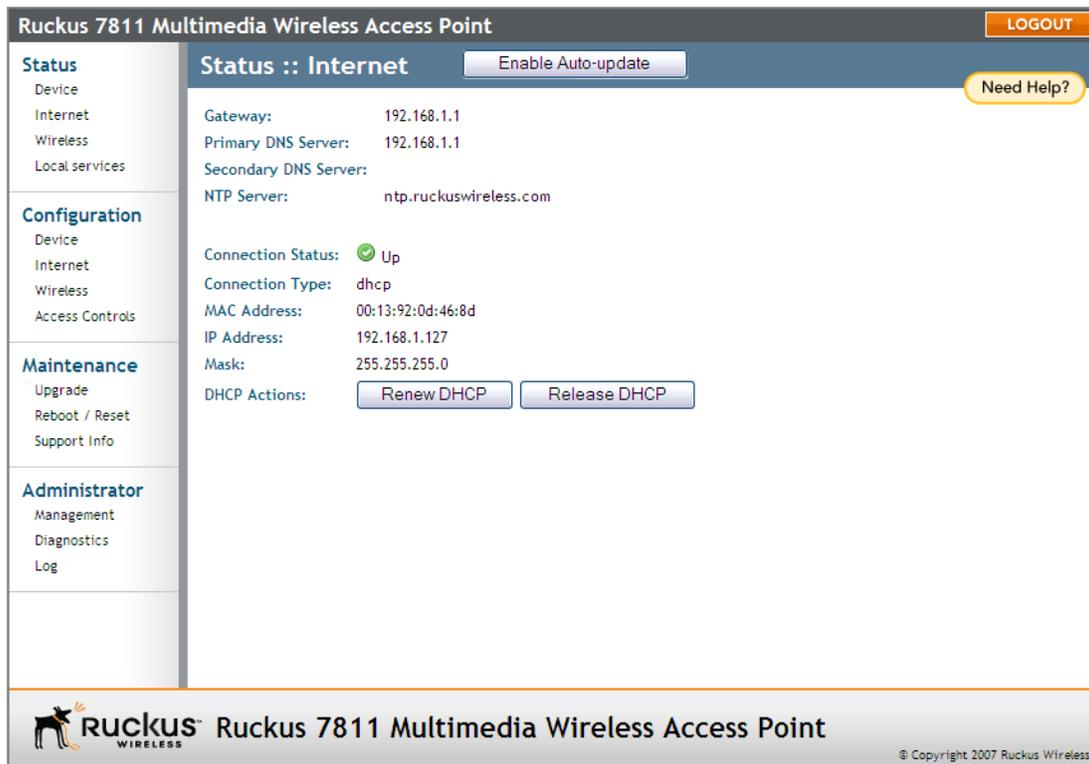
Table 12—Device Status Parameters (Continued)

Field	Description
Software Version	This is the current software version for the 7811.
Uptime	This is the time that the 7811 has been powered on since the last reboot.
Current Time (GMT)	The current time on the 7811
Home Settings Protection	When enabled, a service provider will not be able to view the home user device user name, password, SSID, security mode and security keys. Only the home user can change this setting. It must be changed using the Configuration > Device Window.

Internet Status

Figure 17 shows the Internet Status window. You can bring up the window by choosing **Status > Internet**.

Figure 17—Internet Status Window



The Internet Status window shows the values and status of the various parameters that were configured in the Configuration section. You can also renew and release DHCP request to the DHCP servers located on the network. If you enable auto update, the information will be continuously updated on the display.

Table 13 explains the Status—Internet Parameters.

Table 13—Status—Internet Parameters

Field	Description
Gateway	The IP address of the router or WAN port. The default is as shown 192.168.2.1.
Primary DNS Server	This is the primary Domain Name System (DNS) server IP address.
Secondary DNS Server	This is the secondary DNS server IP address.
NTP Server	IP address or hostname of the NTP server which synchronizes time on the 7811 and managed 7111 adapters.
Connection Status	This indicates the status of the Internet interface, Up or Down.

Table 13—Status—Internet Parameters (Continued)

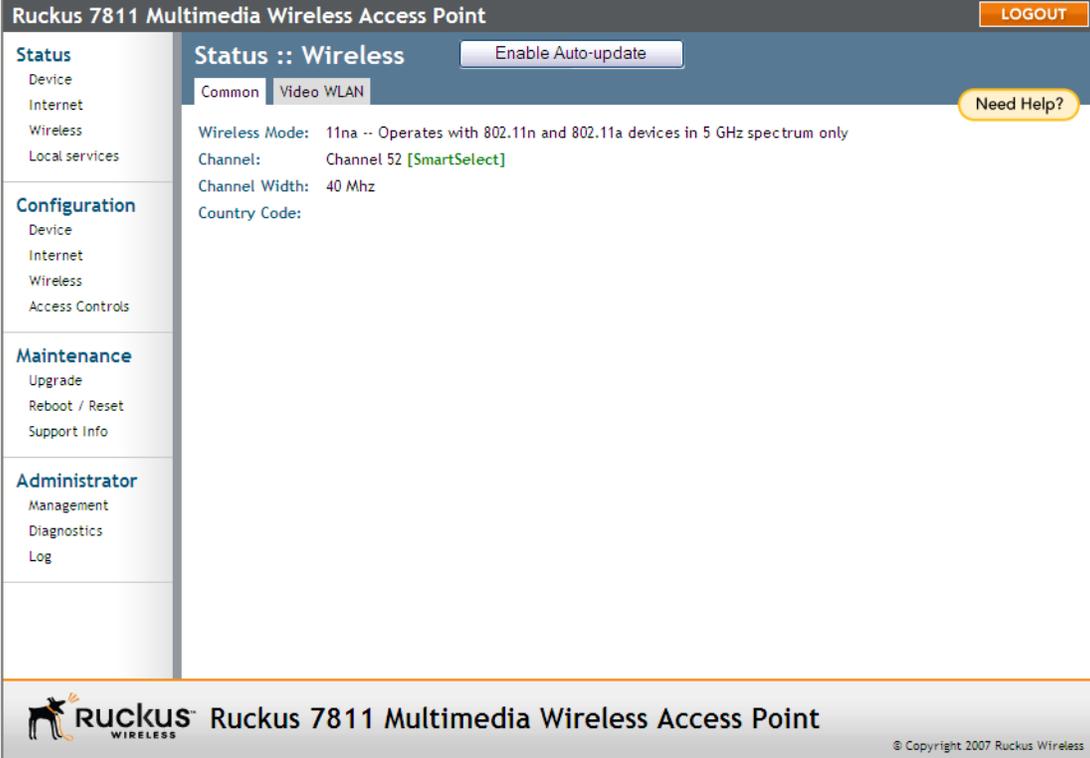
Field	Description
Connection Type	This indicates the connection type of the internet interface that was configured. The options of connection type are Static IP, DHCP or PPPoE.
MAC Address	This is the Media Access Control (MAC) address of the WAN port.
IP Address / Mask	This is the IP address and network mask of the Internet WAN interface. If PPPoE is selected, this is the IP address assigned from the PPPoE server on the network. If DHCP is selected, this is the dynamically assigned IP address to the 7811.

NOTE – When Internet connection type is either DHCP or PPPoE, if the 7811 does not receive the dynamic IP address from DHCP server or PPPoE server, the default IP address for WAN port will be 192.168.2.1.

Wireless Status

Figure 18 shows the Wireless Status Window. You can bring up the window by choosing **Status > Wireless**. Note that the common settings are displayed.

Figure 18—Status :: Wireless :: Common



The screenshot displays the web interface for a Ruckus 7811 Multimedia Wireless Access Point. The page title is "Ruckus 7811 Multimedia Wireless Access Point" with a "LOGOUT" button in the top right corner. The main content area is titled "Status :: Wireless" and includes an "Enable Auto-update" button. Below the title, there are two tabs: "Common" (selected) and "Video WLAN". A "Need Help?" button is located in the top right of the main content area. The "Common" tab displays the following wireless settings:

- Wireless Mode: 11na -- Operates with 802.11n and 802.11a devices in 5 GHz spectrum only
- Channel: Channel 52 [SmartSelect]
- Channel Width: 40 Mhz
- Country Code:

The left sidebar contains a navigation menu with the following sections:

- Status**
 - Device
 - Internet
 - Wireless
 - Local services
- Configuration**
 - Device
 - Internet
 - Wireless
 - Access Controls
- Maintenance**
 - Upgrade
 - Reboot / Reset
 - Support Info
- Administrator**
 - Management
 - Diagnostics
 - Log

The footer of the page includes the Ruckus logo, the text "Ruckus 7811 Multimedia Wireless Access Point", and the copyright notice "© Copyright 2007 Ruckus Wireless".

To view the wireless status of the Video WLAN, click the **Video WLAN** tab (Figure 19).

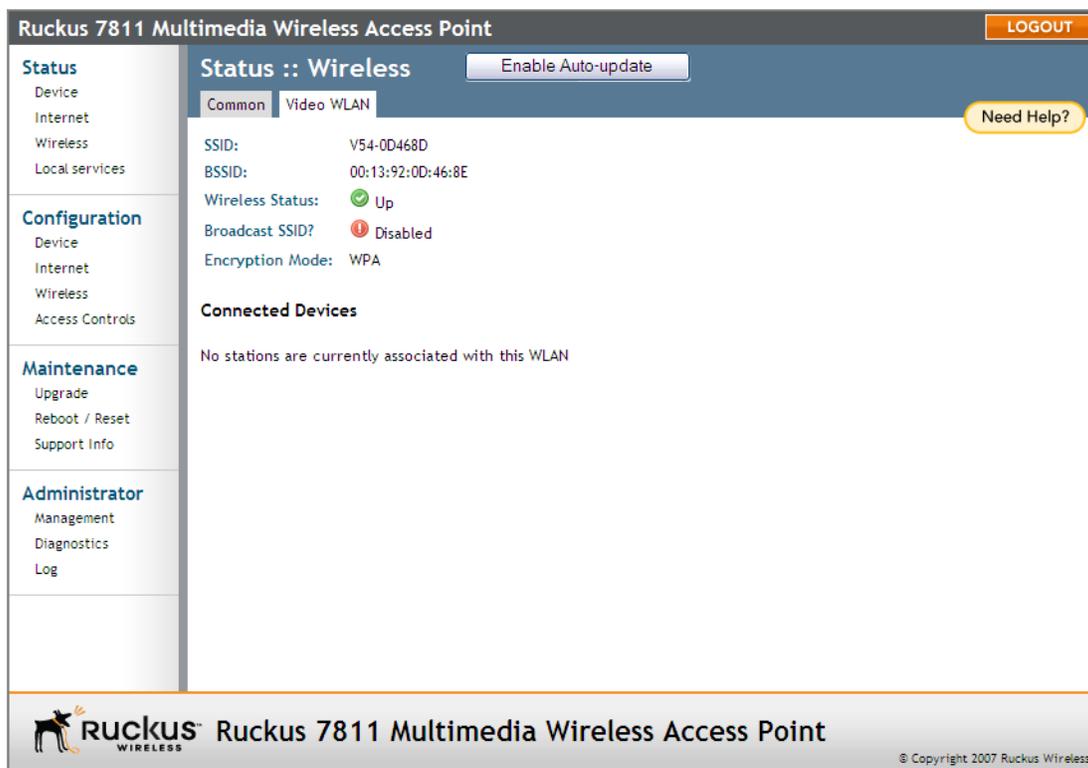
Figure 19—Status :: Wireless :: Video WLAN


Table 14 shows the Wireless Information Window parameters.

Table 14—Wireless Status Window Parameters

Field	Description
Wireless Mode	Not configurable – this value is fixed to 5GHz (802.11a/n)
Channel	The wireless channel number.
Country code	The country in which the 7811 is operating. The country code will automatically select the Channels available for that country.
SSID	The SSID (Service Set Identifier) is the name of the wireless network (either the home wireless or the service provider wireless domain).
BSSID	The BSSID is the MAC address of the Wireless LAN interface of the wireless domain.
Wireless Status	Shows the status as either Up or Down.
Broadcast SSID	Shows the visibility status of your SSID as enabled (visible to anyone looking for wireless networks) or disabled (not visible).

Table 14—Wireless Status Window Parameters (Continued)

Field	Description
Encryption Mode	Describes the encryption type currently in use. The encryption types are WPA-PSK or disabled. For more information about each type of encryption, see Table 8— “Wireless Interface Configuration” on page 23 .
Connected Devices	Shows the IP Address, MAC Address and SSID for all connected devices.

Local Services Status

[Figure 20](#) shows the Status :: Local Services window. Local Services shows automatically discovered services utilizing the 7811’s wireless network. Each service is listed by name, and includes the IP address assigned to the service and the port over which the service operates.

Figure 20—Local Services status window

Status :: Local Services

The following local services have been discovered:

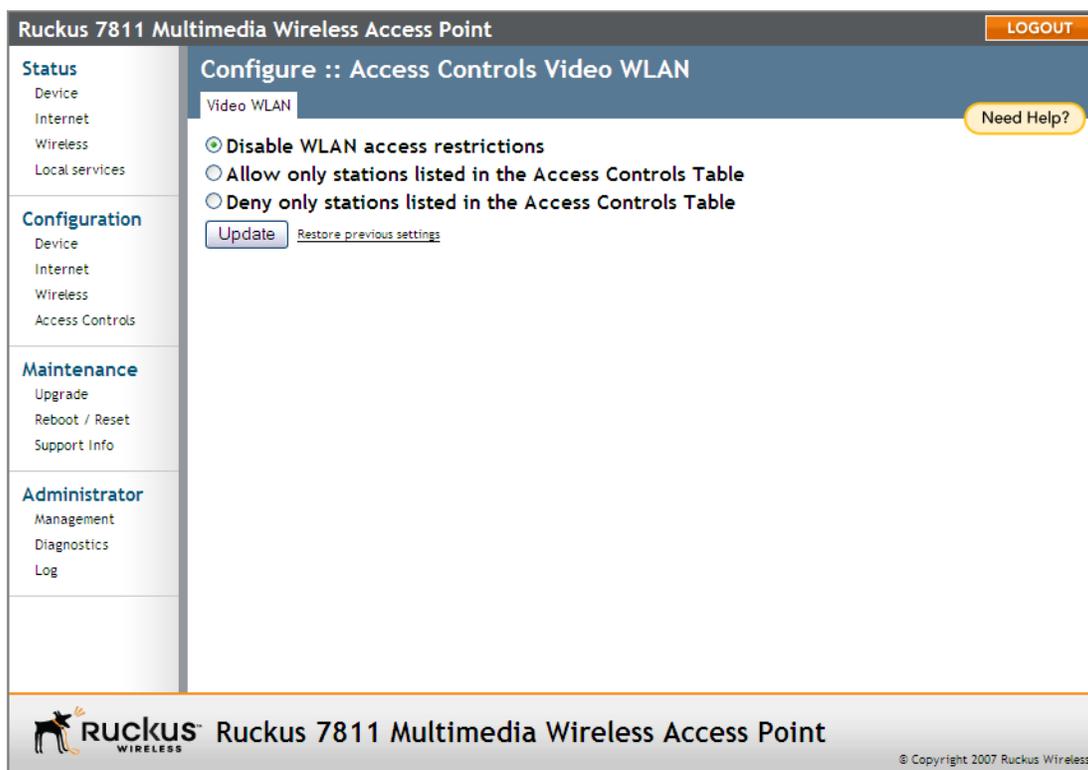
Web

-  HP LaserJet P3005 [A31373] (<http://192.168.50.121:80>)
-  CorporateAP (<http://192.168.50.3:80>)
-  Brother HL-5170DN series (BRN_3935DB_P1_AT) (<http://192.168.50.246:80>)
-  Brother MFC-8840D (BRN_3ABFE8_P1_AT) (<http://192.168.50.243:80>)
-  HP LaserJet P3005 [A1D16E] (<http://192.168.50.117:80>)
-  hp color LaserJet 4650 (3B2471) (<http://192.168.50.103:80>)
-  Dell 1815dn (DEL0015991FCED4) (<http://192.168.50.21:80>)
-  HP Color LaserJet 2600n (<http://192.168.50.17:80>)

Access Controls

Access Controls give you control over which stations are allowed to join (associate with) your WLAN networks. There are "tab" entries for each available WLAN.

Figure 21—Configuring Access Controls main page



Access Controls Options

Disabling WLAN access restrictions

If you select "Disable WLAN access restrictions", then MAC-address-based restrictions on which stations can join the WLAN are disabled; thus, any station can join. If the WLAN uses encryption, then the station must still supply the correct encryption pass-phrase.

The Access Controls table is hidden if the current mode is "Disable WLAN access restrictions".

Allowing only stations explicitly listed in the Access Controls Table

If you select "Allow only stations listed in the Access Controls Table", then stations entered into the access-controls table are allowed but all others are disallowed. To add MAC addresses, see ["Changing Access Controls"](#) on page 36.

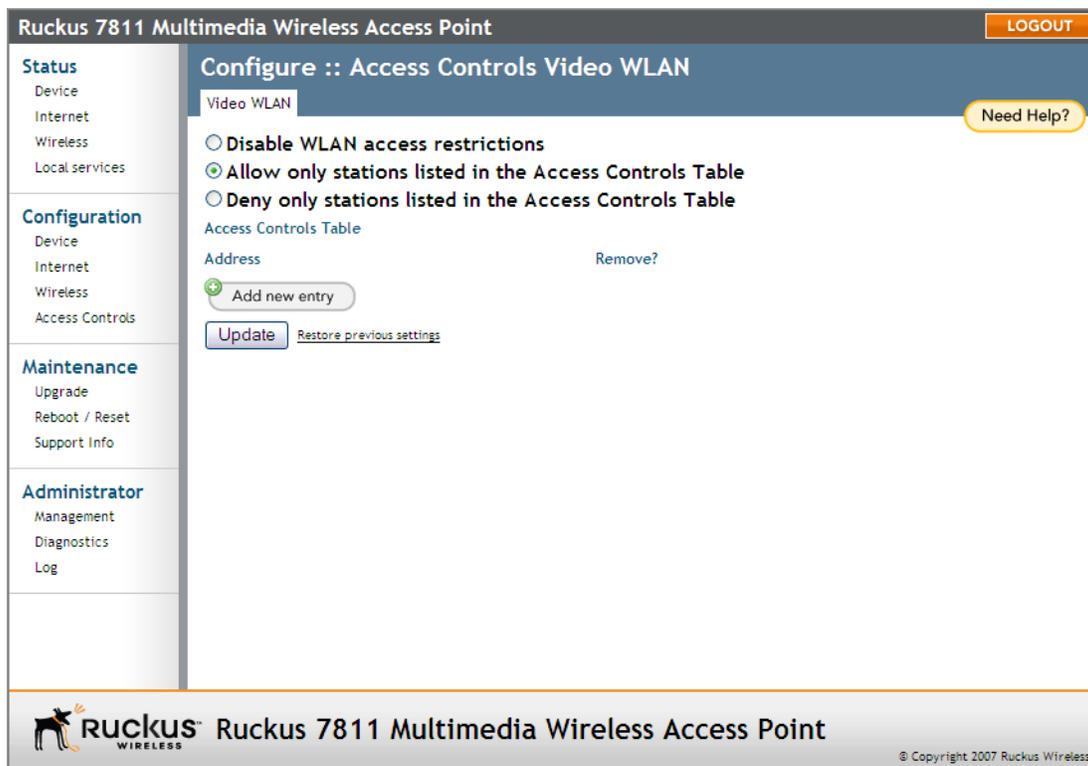
Denying only stations explicitly listed in the Access Controls Table

If you select "Deny only stations listed in the Access Controls Table", then stations entered into the access-controls table are disallowed but all others are allowed. To add MAC addresses, see "[Changing Access Controls](#)" on page 36.

Changing Access Controls

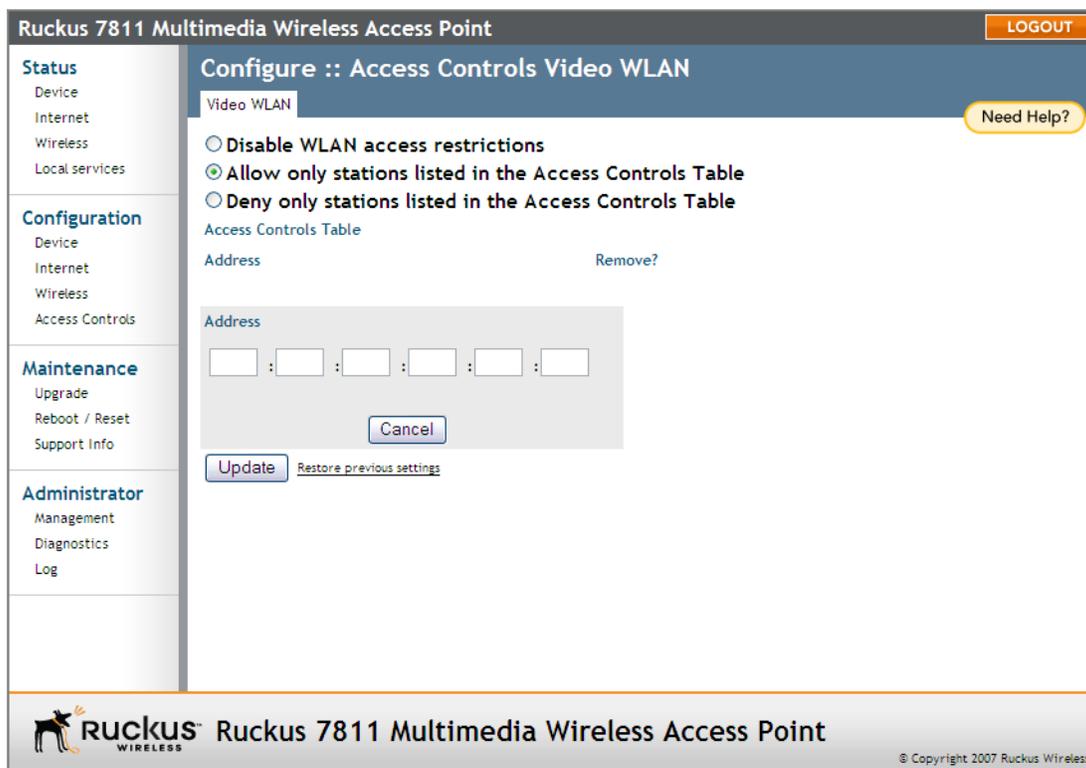
1. Go to **Configuration > Access Controls**.
2. Select the radio button for the desired access control. (For a description of the options, see "[Access Controls Options](#)" on page 35.) The Access Controls Table appears [with no entries]

Figure 22—Access Controls allow settings



3. Click the **Add new entry** button to add a MAC address to the table.

Figure 23—Access controls: adding an entry



The screenshot shows the configuration interface for a Ruckus 7811 Multimedia Wireless Access Point. The page title is "Configure :: Access Controls Video WLAN". On the left, there is a navigation menu with sections: Status (Device, Internet, Wireless, Local services), Configuration (Device, Internet, Wireless, Access Controls), Maintenance (Upgrade, Reboot / Reset, Support Info), and Administrator (Management, Diagnostics, Log). The main content area is titled "Video WLAN" and has a "Need Help?" button. It contains three radio button options: "Disable WLAN access restrictions", "Allow only stations listed in the Access Controls Table" (which is selected), and "Deny only stations listed in the Access Controls Table". Below these is an "Access Controls Table" with a header row containing "Address" and "Remove?". A modal form is open for adding a new entry, with a label "Address" and six input boxes separated by colons. The modal has "Cancel" and "Update" buttons. Below the modal, there is an "Update" button and a link for "Restore previous settings". The footer of the page includes the Ruckus logo, "Ruckus 7811 Multimedia Wireless Access Point", and a copyright notice: "© Copyright 2007 Ruckus Wireless".

4. Type the MAC address in the spaces provided.
5. Click the **Update** button to save your changes. Assuming all parameters you entered are acceptable, that value will be added to the table.
6. If you have additional MAC addresses you want included, click **Add new entry** and repeat these steps until you've entered all the stations you want. There is a limit of 128 rows.

Access Control Table Columns

The Access Control Table contains the following columns:

- **Address:** six text boxes appear in which you enter the desired MAC address, in hexadecimal digit form, two characters in each box. You can specify a full 12-hex-digit MAC address or enter "wildcard" characters for "don't care" digits. Allowable hex-digit characters are 0-9, a-f, and A-F. Most address-tags and software where you find MAC addresses listed include colons or dashes to separate the address-pairs; that is provided for you on the Web page, so do not enter the colons or dashes. The wildcard characters are "x", "X" and blank (space character). Wildcards are useful when you want to specify all MAC addresses from a given manufacturer. Thus for example, by specifying only the Organizationally Unique Identifier (the first six hexadecimal digits of any MAC address from that manufacturer is its OUI) saves you having to enter all 24 million of them (the table size is limited in the AP/Router to 128 entries). Some manufacturers produce devices using more than one OUI, in which case you may need to enter each applicable one.
- **Remove:** Check the 'Remove' box for any row(s) you no longer want used.



Removing MAC Addresses from a List

Simply check the box under the Remove column for the MAC address entry or entries you want to remove from the table and click **Update**.

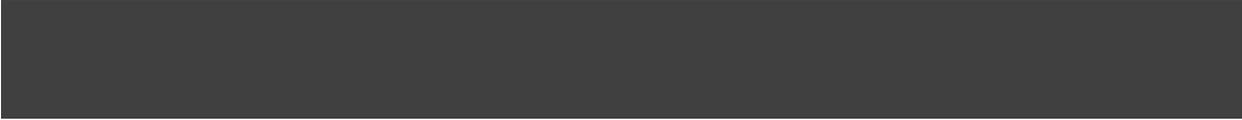
Showing/Hiding Locally Known MAC Addresses

The AP/Router "knows" the MAC addresses of devices in the local network and this information can be shown by clicking the "Show locally-known MAC addresses" link. It will disappear when you click "Hide locally-known MAC addresses". By default, the "Remove" box is checked in each of these. Un-check it for those devices you want included in the table. When you click **Update**, only entries in the table whose "Remove" check box is un-checked will be included in the Access Controls table.



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Chapter 4: Maintenance

This chapter shows you how to perform maintenance functions—to upgrade the firmware of the 7811 and to take a system support snapshot.

Topics covered in this chapter include:

- Upgrading the Firmware42
- Rebooting the System50
- Taking a System Support Snapshot52
- Administrator Information53

Upgrading the Firmware

This menu provides a utility for upgrading the 7811's firmware. A firmware upgrade may be necessary or desirable to add new features, important fixes or enhancements to the 7811.

The Image Control File contains information on both the image and the firmware server. Image information includes the file size and file name. For the firmware server, the image control file contains the IP address of the firmware server, which may be different than the IP address where the image file is stored.

Performing a Firmware Upgrade Using TFTP

To download a firmware image from a TFTP server and use it to update the firmware on the 7811:

1. Go to **Maintenance > Upgrade**. The window of [Figure 24](#) appears.
2. If you want to use TFTP to download the firmware image, select **TFTP** as the Upgrade Method.

- Under *TFTP Options*, enter the IP Address or hostname of the TFTP Server, the listening port (69 by default), and the name of the image control file.

Figure 24—Maintenance > Upgrade—TFTP

Maintenance :: Upgrade

Upgrade Method: TFTP FTP Web Local

TFTP Options

Firmware Server:

Port:

Image Control File:

Auto Upgrade? Enabled Disabled

Interval to Check for Software Upgrade: ▼

Schedule Reboot Time after Upgrade: ▼

Changes made to this area apply to the Automatic Firmware Update settings as well.

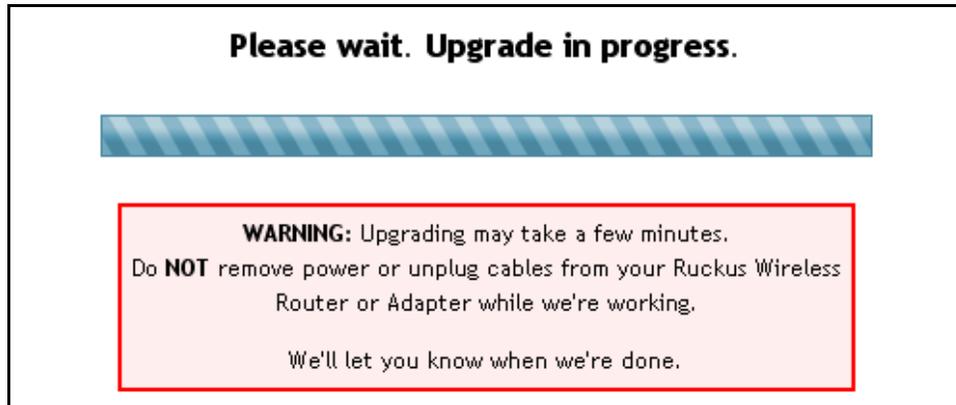
WARNING: Upgrading the firmware could take a few minutes and your network will not be available during this time. Please do **NOT** remove power from your Ruckus Wireless Router or Adapter until the upgrade finishes.

[Restore previous settings](#)

- Do one of the following:
 - If you want to enable Auto Upgrade, select **Enabled**, and specify the interval to check for upgrades. Click **Save parameters only** to save your settings. The upgrade occurs automatically according to the scheduled time.
 - If you want to perform a manual upgrade, click **Perform Upgrade**. The window of [Figure 25](#) appears.

NOTE – When entering the server name for firmware upgrade, make sure the Fully Qualified Domain Name (FQDN) is entered (for example, fwupdate.ruckuswireless.com).

Figure 25—Download Started



Performing a Firmware Upgrade Using FTP

1. Go to **Maintenance > Upgrade**. The window of [Figure 26](#) appears.
2. If you want to perform the download using FTP, select **FTP** as the Upgrade Method.

Figure 26—Maintenance > Upgrade—FTP

Maintenance :: Upgrade

Upgrade Method: TFTP FTP Web Local

FTP Options

Firmware Server:

Port:

Image Control File:

Username:

Password:

Auto Upgrade? Enabled Disabled

Interval to Check for Software Upgrade: ▼

Schedule Reboot Time after Upgrade: ▼

Changes made to this area apply to the Automatic Firmware Update settings as well.

WARNING: Upgrading the firmware could take a few minutes and your network will not be available during this time. Please do **NOT** remove power from your Ruckus Wireless Router or Adapter until the upgrade finishes.

3. Under *FTP Options*, enter the IP Address or the host name of the FTP server, the listening port (21 by default), the image control file name, and the username and password for logging into the FTP server.



4. Do one of the following:

- If you want to enable Auto Upgrade, select **Enabled**, and specify the interval to check for upgrades. Click **Save parameters only** to save your settings. The upgrade occurs automatically according to the scheduled time.
- If you want to perform a manual upgrade, click **Perform Upgrade**. The window of [Figure 25](#) appears.

NOTE – When entering the server name for firmware upgrade, make sure the Fully Qualified Domain Name (FQDN) is entered (for example, fwupdate.ruckuswireless.com).

Performing a Firmware Upgrade Using HTTP

1. Go to **Maintenance > Upgrade**. The window of [Figure 27](#) appears.
2. If you want to perform the download using HTTP, select **Web** as the Upgrade Method.

Figure 27—Maintenance > Upgrade—Web/HTTP

Maintenance :: Upgrade

Upgrade Method: TFTP FTP Web Local

Web Options

Url:

Auto Upgrade? Enabled Disabled

Interval to Check for Software Upgrade: ▼

Schedule Reboot Time after Upgrade: ▼

Changes made to this area apply to the Automatic Firmware Update settings as well.

WARNING: Upgrading the firmware could take a few minutes and your network will not be available during this time. Please do **NOT** remove power from your Ruckus Wireless Router or Adapter until the upgrade finishes.

[Restore previous settings](#)

3. Under *Web Options*, enter the full URL of the image control file name on the Web server.
4. Do one of the following:
 - If you want to enable Auto Upgrade, select **Enabled**, and specify the interval to check for upgrades. Click **Save parameters only** to save your settings. The upgrade occurs automatically according to the scheduled time.
 - If you want to perform a manual upgrade, click **Perform Upgrade**. The window of [Figure 25](#) appears.

NOTE – When entering the server name for firmware upgrade, make sure the Fully Qualified Domain Name (FQDN) is entered (for example, fwupdate.ruckuswireless.com).

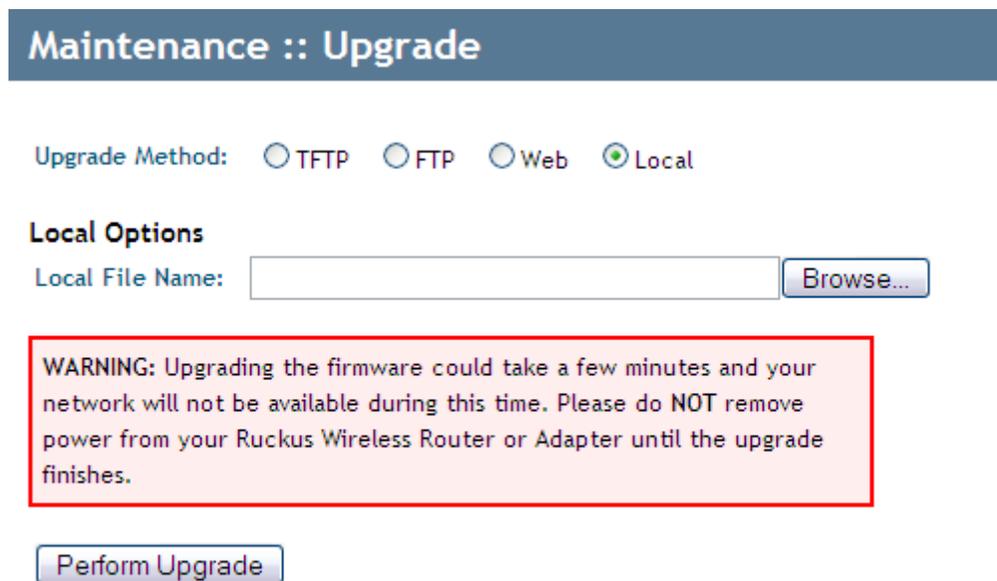
Performing a Local Firmware Upgrade

Before you perform a local firmware upgrade, take note of the current software version on the **Status :: Device** page. You need to know the current software version to verify that the upgrade process was successfully completed.

To perform a local firmware upgrade

1. Visit the Ruckus Wireless Web site, and then download the latest firmware for 7811. You can find the 7811 firmware files at http://support.ruckuswireless.com/software/for_product/mf7811. Take note of the version number of the firmware that you are downloading.
2. Save the 7811 firmware file to the computer that you use to access the 7811 Web interface.
3. Log on to the 7811 Web interface.
4. On the menu, click **Maintenance > Upgrade**.
5. In **Upgrade Method**, click **Local**.

Figure 28—Maintenance > Upgrade—Local

The screenshot shows the "Maintenance :: Upgrade" web interface. At the top, there is a dark blue header with the text "Maintenance :: Upgrade" in white. Below the header, the "Upgrade Method:" section has four radio buttons: "TFTP", "FTP", "Web", and "Local". The "Local" radio button is selected. Underneath, the "Local Options" section contains a text input field for "Local File Name:" and a "Browse..." button. A red-bordered warning box contains the text: "WARNING: Upgrading the firmware could take a few minutes and your network will not be available during this time. Please do NOT remove power from your Ruckus Wireless Router or Adapter until the upgrade finishes." At the bottom of the form is a "Perform Upgrade" button.

6. In **Local File Name**, click **Browse**, and then browse to the location where you saved the firmware file.
7. Select the file, and then click **Open**.
8. Click **Perform Upgrade**. The message “Loading...” appears, as shown in [Table 29](#).

Figure 29—The following message appears as the 7811 upgrades its firmware

Loading...

WARNING: Upgrading the firmware could take a few minutes and your network will not be available during this time. Please do **NOT** remove power from your Ruckus Wireless Router or Adapter until the upgrade finishes.

When the upgrade is complete, the login page reappears.

9. Log back into the 7811 Web interface, and then check if the software version number on the **Status :: Device** page has been updated. If it reflects the version number of the firmware that you downloaded earlier, this indicates that the upgrade was completed successfully.

Rebooting the System

Two types of reboot are provided:

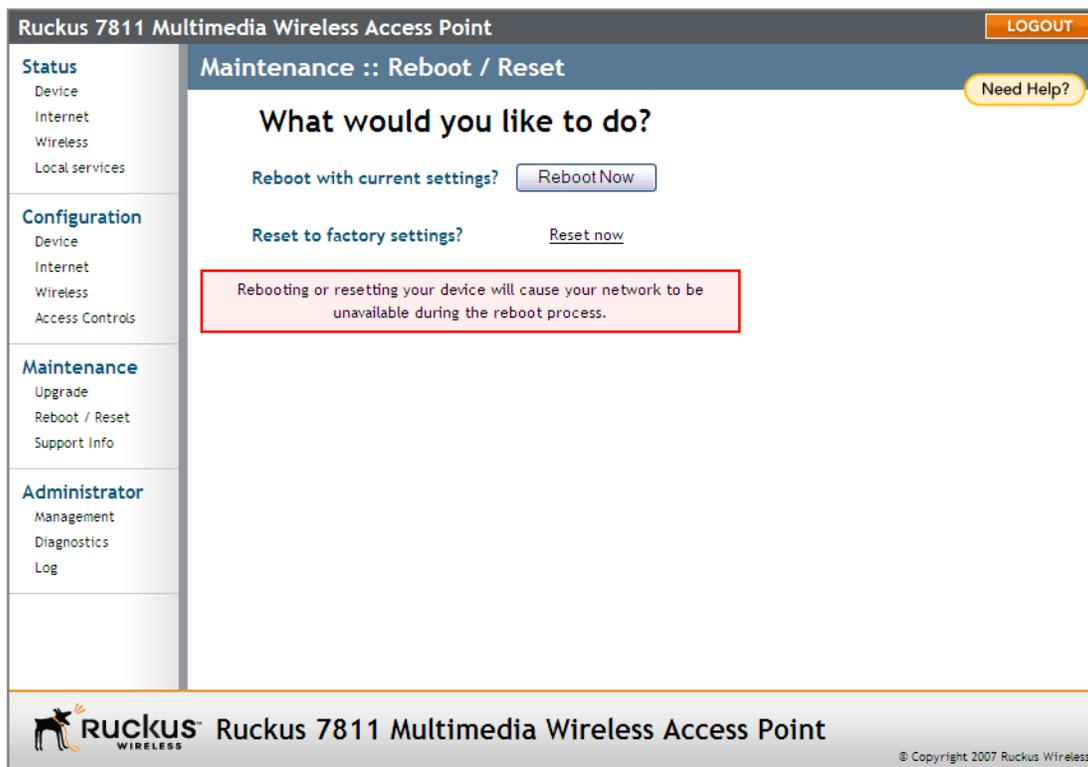
- The **Reboot Now** button re-starts the system. All the configurations that have been saved are preserved through the reboot. Any configuration changes made before the Reboot will be lost if they are not saved by clicking **Update Settings**.
- The **Reset to Factory Settings** button restarts the system with the factory default configurations. All previous configurations will be lost.

NOTE – Make sure to save your settings before you reboot.

To reboot for either type, do the following:

1. Go to **Maintenance > Reboot/Reset**. The window of [Figure 30](#) appears.

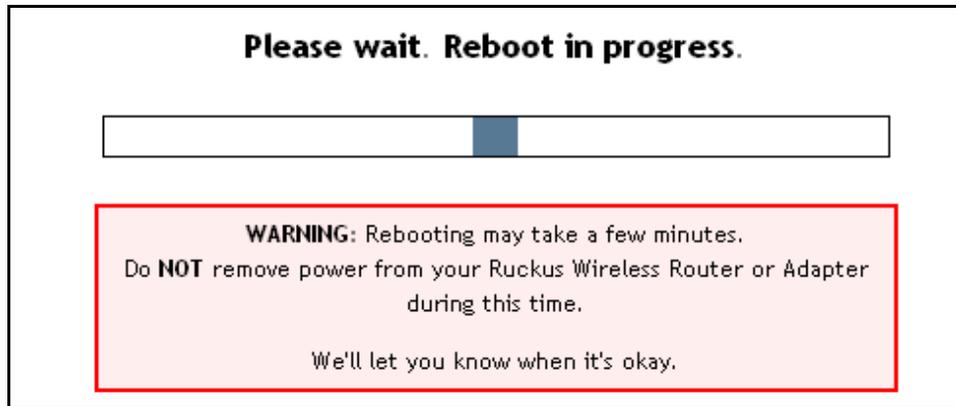
Figure 30—Reboot Menu



2. Do one of the following:
 - Click **Reboot Now** to reboot the device while maintaining its current settings. During a reboot, the Dome LED on the top of the 7811 will momentarily go out, then light up again.
 - Click the **Reset Now** link to reset the device to factory settings; thus, erasing any of your custom settings.

The reboot in progress window appears ([Figure 31](#)).

Figure 31—Reboot in Progress Window



The system notifies you when it is done ([Figure 32](#)).

Figure 32—Reboot Done



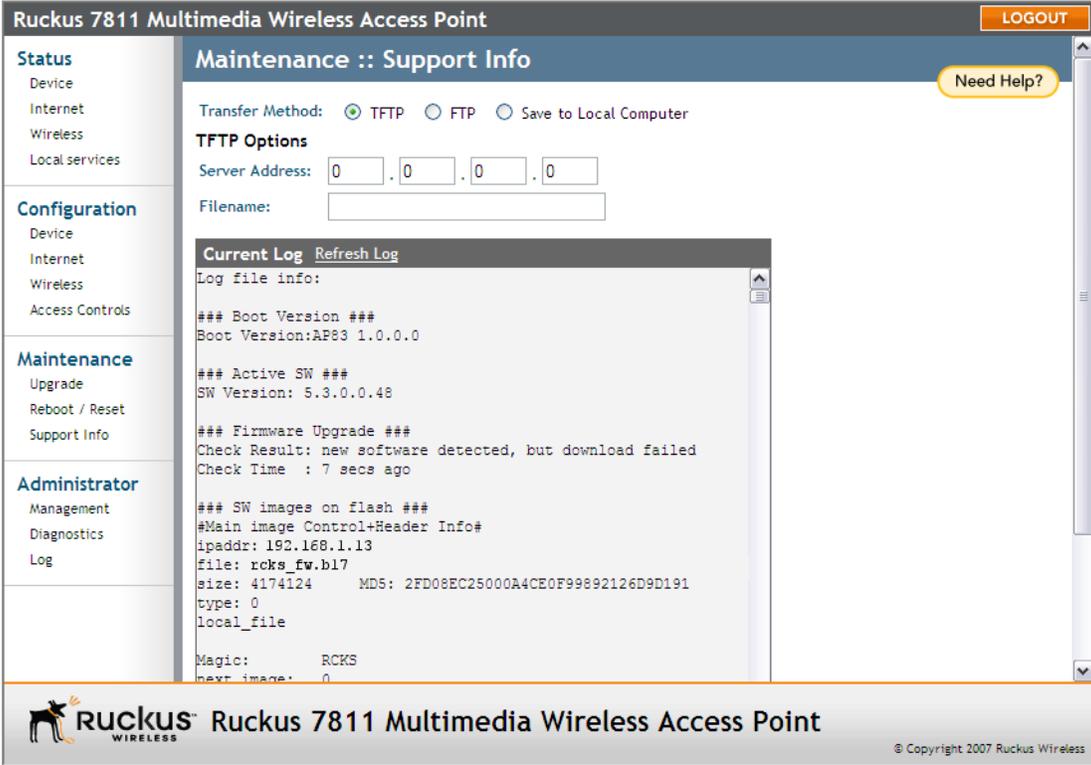
Taking a System Support Snapshot

NOTE – This menu is only available when you are logged in as a service provider.

Support Info enables you to take a system snapshot for further analysis and troubleshooting. The system snapshot can be saved to a TFTP or FTP server, or your local computer, and then sent to a technical support engineer for analysis.

1. Go to **Maintenance > Support Info**. The window of [Figure 33](#) appears.

Figure 33—Maintenance :: Support Info Window



Ruckus 7811 Multimedia Wireless Access Point LOGOUT

Maintenance :: Support Info Need Help?

Transfer Method: TFTP FTP Save to Local Computer

TFTP Options

Server Address: . . .

Filename:

Current Log [Refresh Log](#)

```
Log file info:
### Boot Version ###
Boot Version:AP83 1.0.0.0

### Active SW ###
SW Version: 5.3.0.0.48

### Firmware Upgrade ###
Check Result: new software detected, but download failed
Check Time : 7 secs ago

### SW images on flash ###
#Main image Control+Header Info#
ipaddr: 192.168.1.13
file: rcks_fw.b17
size: 4174124 MD5: 2FD08EC25000A4CE0F99892126D9D191
type: 0
local_file

Magic: RCKS
next_image: 0
```

Ruckus Ruckus 7811 Multimedia Wireless Access Point © Copyright 2007 Ruckus Wireless

2. At **Upload Method**, select one of the following:
 - TFTP: Specify the TFTP server's IP address, and enter a filename for the snapshot.
 - FTP: Specify the FTP server's IP address, username and password, and then enter a filename for the snapshot.
 - Save to Local Computer: Right-click on the link that appears and save. Navigate to the folder where you want the file saved and click **Save**.

Administrator Information

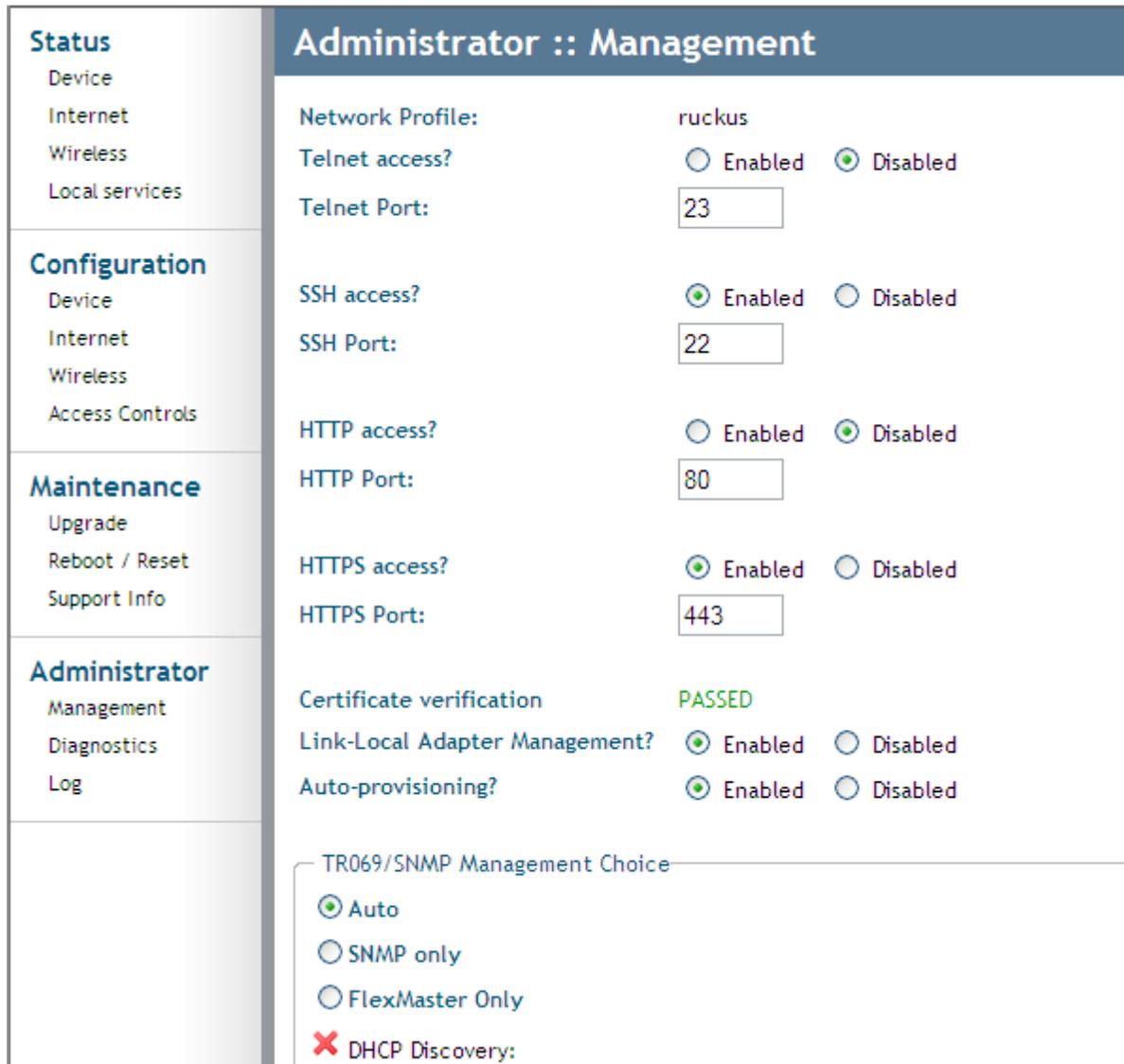
NOTE – This menu is available only when you are logged in as a service provider.

Management Information

Figure 34 shows the Administrator Management Window.

1. Go to **Administrator > Management**.

Figure 34—Administrator Management Window



Administrator :: Management	
Status	
Device	
Internet	
Wireless	
Local services	
Configuration	
Device	
Internet	
Wireless	
Access Controls	
Maintenance	
Upgrade	
Reboot / Reset	
Support Info	
Administrator	
Management	
Diagnostics	
Log	
	<p>Network Profile: ruckus</p> <p>Telnet access? <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled</p> <p>Telnet Port: <input type="text" value="23"/></p> <p>SSH access? <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled</p> <p>SSH Port: <input type="text" value="22"/></p> <p>HTTP access? <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled</p> <p>HTTP Port: <input type="text" value="80"/></p> <p>HTTPS access? <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled</p> <p>HTTPS Port: <input type="text" value="443"/></p> <p>Certificate verification PASSED</p> <p>Link-Local Adapter Management? <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled</p> <p>Auto-provisioning? <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled</p> <hr/> <p>TR069/SNMP Management Choice</p> <p><input checked="" type="radio"/> Auto</p> <p><input type="radio"/> SNMP only</p> <p><input type="radio"/> FlexMaster Only</p> <p><input checked="" type="checkbox"/> DHCP Discovery:</p>

2. Review the access options and make changes as needed. [Table 15](#) lists the access options that are available.

Table 15—Administrator Management Window Parameters

Field	Description
Network Profile	Predefined network configuration in the system. The 7811 can be preconfigured into a different network profile.
Telnet Access	Allows you to enable or disable Telnet access to the Ruckus Wireless device. By default, this option is disabled (inactive).
Telnet Port	Lists the default Telnet port of 23—only if Telnet is active. You can manually change this port number if required.
SSH Access?	Allows you to enable or disable SSH access to the Ruckus Wireless device. By default, this option is enabled (active).
SSH Port	Specifies the port number for Telnet access. The default port number is 23.
HTTP Access?	Allows you to enable or disable HTTP (Web) access to the Ruckus Wireless device.
HTTPS Access?	Allows you to enable or disable HTTPS (Secure Web) access to the Ruckus Wireless device.
HTTPS Port	Specifies the port number for HTTPS access. The default port number is 80.
Certification Verification	Specifies whether the security certificate linked to the HTTPS settings has been passed or not.
Link-Local Adapter Management	When enabled, allows the 7811 to manage Ruckus 7111 adapters. For more information, see Adapter Management on page 64 .
Auto Provisioning	When enabled, the 7811 can be set up to automatically synchronize the relevant parameters to the adapter. For more details on auto provisioning, refer to What is Auto Provisioning? on page 62 .

- Under **TR-069/SNMP Management Choices**, configure the options as needed. [Table 16](#) lists the management options that are available.

Table 16—TR-069/SNMP Management Options

Field	Description
Auto	Enables the device to connect to either SNMP, Ruckus ZoneDirector or FlexMaster.
SNMP only	Only allow SNMP management
FlexMaster only	Only allow FlexMaster management
DHCP Discovery	URL of the DHCP server
FlexMaster Server URL	URL of the FlexMaster server
Contact FlexMaster every	Interval at which the device will attempt to contact the FlexMaster server

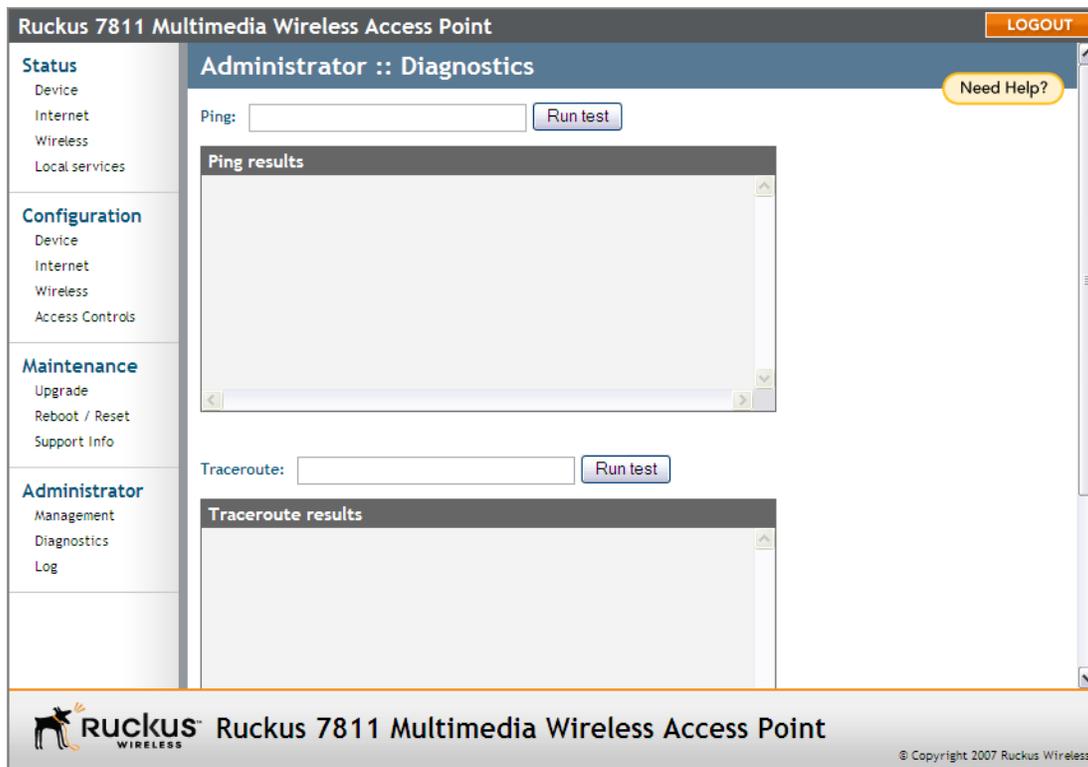
- Under **TR-069 Status**, view information on the status of the connection between your device and FlexMaster.
- Click **Update Settings** to save your settings. The message “Your parameters were saved” appears at the top of the workspace.

Administrator Diagnostics

The administrator diagnostics allow you to run the command line programs ping and traceroute directly without having to open a command line window.

1. Go to **Administrator > Diagnostics** (Figure 35).

Figure 35—Administrator Diagnostics Window



2. To use the ping command, enter the IP address you wish to ping and click **Run test**. The results appear in the Ping results window.
3. To use the traceroute command, enter the IP address you wish to trace and click **Run test**. The results appear in the Traceroute results window.

NOTE – It may take some time before the results are displayed.

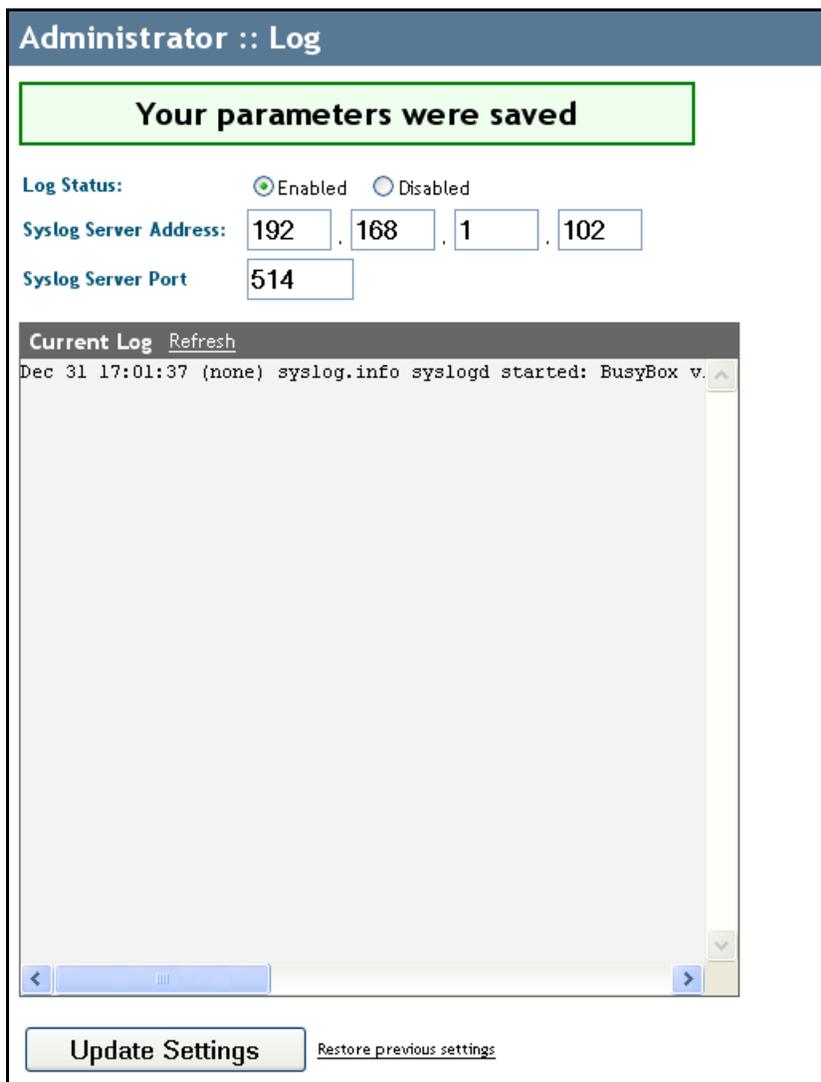
Administrator Log

The current log screen shows the log messages kept by the Ruckus Wireless Router since it was last rebooted. The log has limited size: the oldest messages are replaced as new messages arrive.

It also sends the messages to a server (the Syslog server) that you designate. To configure the administrator log:

1. Go to **Administrator > Log**. The window of [Figure 36](#) opens.
2. **Enable** Log Status if you want to continue to send messages to your Syslog Server. Otherwise, **disable** Log Status.
3. Enter the **IP address** of your Syslog Server.
4. Enter the **Syslog Server Port Number**. The default port number is 514.
5. Click **Update Settings** to save your settings.

Figure 36—Administrator Log Window



Administrator :: Log

Your parameters were saved

Log Status: Enabled Disabled

Syslog Server Address: 192 . 168 . 1 . 102

Syslog Server Port 514

Current Log Refresh

```
Dec 31 17:01:37 (none) syslog.info syslogd started: BusyBox v.
```

Update Settings [Restore previous settings](#)



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Chapter 5: 7111 Adapter Setup, Provisioning, and Management

This chapter shows you how to set up and provision the Ruckus Wireless MediaFlex 7111 Adapter with the Ruckus Wireless MediaFlex 7811 Access Point.

Topics covered in this chapter include

- Packing List60
- Placing the 7111 into Operation.60
- Troubleshooting Setup.60
- Verifying Proper Provisioning61
- What is Auto Provisioning?62
- Connecting and Configuring Your Ruckus 7111 Adapter61
- Performing Auto Provisioning.62
- Adapter Management.64
- Disabling Adapter Management65
- Enabling Adapter Management66

Packing List

Each 7111 is supplied with the following:

- Ruckus Wireless MediaFlex 7111 Adapter
- AC power adapter
- Category 5 (CAT5) Ethernet cable

Placing the 7111 into Operation

The 7111 connects to the set-top box or other media receiver while communicating wirelessly with the 7811. The 7811 already has a basic default configuration that can be used for auto-provisioning the adapter.

Note that normally the 7111 is pre-configured for plug and play operation in the IPTV deployment. You need only follow these steps to place the 7111 into operation.

1. Remove the 7111 adapter from the packaging and place it next to your set-top box.
2. Connect the AC power supply to the 7111 adapter and plug the other end into either a power outlet or a surge protector that is plugged into a power outlet.
3. Connect the CAT5 Ethernet cable between the Ethernet port on the 7111 and the set-top box.
4. Power on the set-top box.

Troubleshooting Setup

If you cannot see the video on your TV, follow these troubleshooting tips:

1. Disconnect the 7111 power adapter.
2. Re-connect the 7111 power adapter.
3. Connect the 7111 to the set-top box (or remote computer).
4. From the TV connected to the set-top box, check to see if you can watch IPTV channels.
5. If not, turn off the set-top box.
6. Turn on the set-top box.
7. Re-check the TV channel (or the remote computer).
8. If you still cannot connect, turn off all network devices.
9. Power on the router and the access point.
10. Turn on the 7111.
11. Turn on the set-top box.
12. Check the LED status lights to verify correct operation ([Figure 37](#)).

Figure 37—LEDs


13. Make sure you are using the power adapter supplied by Ruckus Wireless.
14. Make sure the Power LED is lit. If it is not lit, make sure that the power cord is properly connected to the 7111, and that the power supply adapter is properly connected to a functioning power outlet. If the error persists, you have a hardware problem and should contact technical support.
15. Make sure your Network LED is lit. Make sure that the Ethernet cable connections are secure at the 7111 adapter and your computer. The Network LED on the 7111 adapter indicates link when the adapter is fully seated in the port.
16. Make sure the Wireless LED is either steady or flashing Green. If is not lit, the Wireless settings may be incorrect between the 7111 adapter and the AP.
17. If you still cannot see the video, proceed to the next section, "*Verifying Proper Provisioning.*"

Verifying Proper Provisioning

To verify proper provisioning of the 7111, you can log in to the Web interface of the 7111 using the following steps.

Manually Configuring an IP Address on Your Computer

Follow the steps detailed in [Configuring an IP Address on Your Computer on page 9](#).

Connecting and Configuring Your Ruckus 7111 Adapter

The following steps guide you to set up and gain administrative access to your Ruckus 7111.

1. Move the 7111 next to your computer.
2. Connect the AC power adapter to the Ruckus 7111 and plug the other end into either a power outlet or to a surge protector that is plugged into a power outlet.

3. Connect the CAT5 Ethernet cable to the Ethernet port on your computer, and to the Ethernet port on the 7111.
4. On your PC, open a browser window.
5. Upon login, check the **Status :: Wireless** page to verify that the wireless status is up. If the status is down, then you have a connection problem between the 7811 and the 7111. You may need to reset the unit to factory defaults and perform auto provisioning with the 7811.
6. If necessary, reset the 7111 to its factory defaults. Press and hold the Reset button on the device for at least eight (8) seconds.
7. Repeat the auto provisioning steps by referring to [Performing Auto Provisioning on page 62](#).

What is Auto Provisioning?

Using auto provisioning, you can synchronize wireless settings between the 7111 and the 7811.

In order for the adapter to communicate with the AP, the 7111 must have the same wireless settings (such as SSID, security mode, and passphrase) as the 7811. With auto provisioning, the adapter can obtain these settings without the need to use a PC for configuration.

The auto provisioning method is very simple. You simply connect the 7111 to the 7811, and all of the wireless settings of the 7811 are securely sent to the 7111.

Performing Auto Provisioning

To perform auto provisioning, perform the following steps:

1. The adapter must be in factory default mode. If the adapter is not in factory default mode, use a pin to depress the Reset button (for at least 8 seconds) on the back of the adapter to set it to factory defaults.
2. When the adapter is in default mode, the right two LEDs (Wireless Device Association and the Signal Quality) should be blinking in unison. This indicates that the adapter is in factory default mode and is waiting to be auto provisioned.
3. The 7811 should be powered on.
4. Use an Ethernet cable to connect the 7811 (any port) to the 7111's Ethernet port.
5. Observe the Wireless Device Association and the Signal Quality LEDs of the 7111. These LEDs should continue to blink in unison.
6. The auto provisioning process will take between 5 to 15 seconds. At the end of this process, these two LEDs should turn off.
7. Unplug the Ethernet cable from the 7111. The 7111 will reboot automatically. Be sure that the 7111 is rebooting by checking the three right most LEDs.
8. If the 7811 and the 7111 are correctly auto provisioned and associated, the right two LEDs of the 7111 should show constant green.

7811 Parameters Included in Auto Provisioning

The following 7811 parameters are synchronized over to the Adapter at the completion of the auto provisioning stage ([Table 17](#)):

Table 17— 7811 Parameters Included in Auto Provisioning

Parameter	Description
Country Code	Configured country code for regulatory compliance
SSID	Configured Service Set Identifier
Encryption mode	Configured encryption mode status
Cipher	Configured security encryption cipher
Passphrase	Configured Pre-Shared Passphrase

7811 Parameters Not Included in Auto Provisioning

The following less common parameters are not included. If you need to sync these parameters, you must configure them using the Web user interface or the CLI (if provided) ([Table 18](#)).

Table 18— 7811 Parameters Not Included in Auto Provisioning

Parameter	Description
User Name and Password	You may want the AP and Adapter to have different usernames and passwords
Country Code Fixed Mode	Set during manufacturing

Resetting to Factory Defaults

When the adapter is factory reset (by pressing the Reset button on the back of the unit for at least 8 seconds), the auto provisioned parameters will be lost. The adapter will go back to the original parameters as provisioned from the factory. If you want to retain the parameters from the AP, you must repeat the auto provisioning process described above.

Adapter Management

After setting up and provisioning your 7111 adapter, the 7111 can be configured to be managed via the Web user interface of the 7811. This adapter management enables a service provider to access and configure the 7111 without being physically local to the device. Adapter management also enables the 7111 to connect to the firmware server via NAT through the 7811. As the 7111 does not have a publicly addressable IP address, using NAT through the 7811 allows the adapter to receive updates without special access between networks.

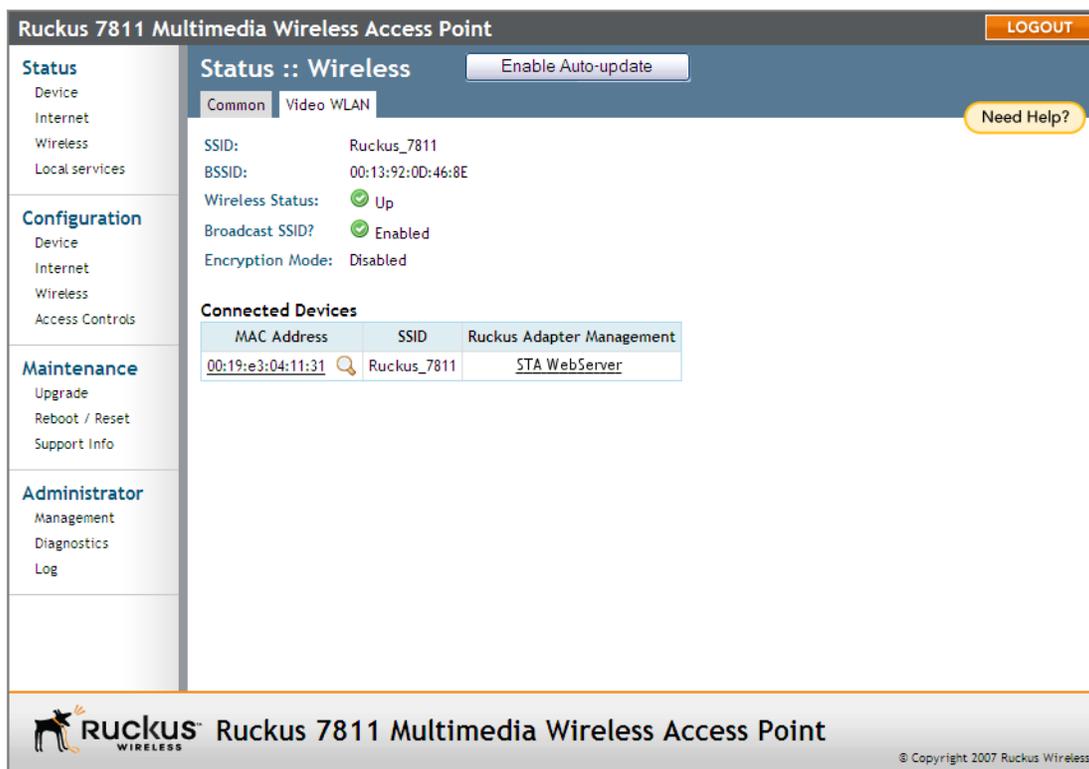
NOTE – When adapter management is enabled on the 7111 adapter, it is not possible to change the IP address of the 7111. To change the IP address of the 7111 adapter, adapter management must first be disabled.

To utilize adapter management, do the following:

NOTE – The following steps assume you have reconfigured your client PC to connect to the 7811.

1. Login to the wireless Web interface of the 7811.
2. Go to **Status :: Wireless**.
3. Click the **Video WLAN** tab. In the *Connected Devices* table, note the *Ruckus Adapter Management* column. This column has one of two values:
 - **STA WebServer**: This indicates that the adapter is under adapter management.
 - **n/a**: The 7111 is connected but not currently under adapter management. You must open a separate browser window and enter the address of the 7111 to configure the adapter. To login to the 7111 and enable adapter management, see [Enabling Adapter Management on page 66](#).

Figure 38—Viewing the adapter management status of a 7111 via the 7811



4. Click the **STA WebServer** link. A separate browser window opens to the 7111's Web user interface login page. Note in [Figure 39](#) the IP address of the login is identical to that of the 7811, with the exception of the port number '25401' appended to the 7811's IP address.

Figure 39—Logging into the 7111 via adapter management



5. Login to the 7111 using the appropriate user name and password. You can now configure your 7111 adapter.

Disabling Adapter Management

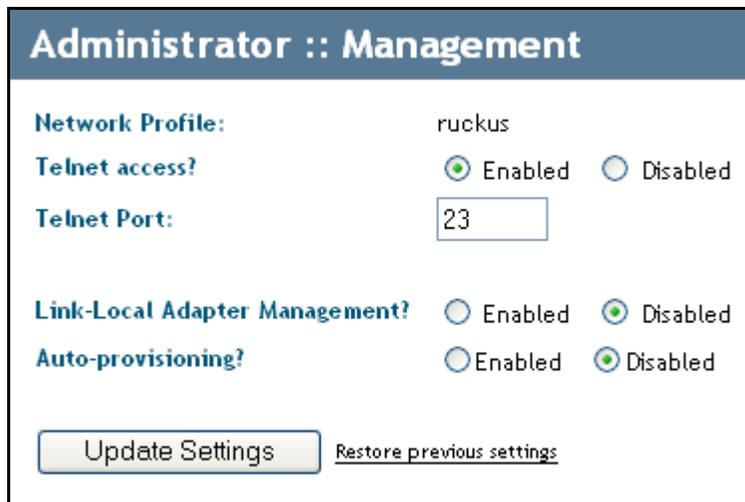
To disable adapter management, do the following:

NOTE – This procedure assumes adapter management is currently enabled.

1. Login to the 7811 Web user interface.
2. Go to **Status :: Wireless**.
3. Click the **Video WLAN** tab. In the *Connected Devices* table, note the *Ruckus Adapter Management* column.
4. Click the **STA WebServer** link. A separate browser window opens to the 7111's Web user interface login page.
5. Login to the 7111 using the appropriate user name and password.
6. In the 7111 Web user interface, go to **Administrator :: Management**. Note that the **Link-Local Adapter Management?** field shows "Enabled".
7. Click the **Disabled** radio button at Link-Local Adapter Management.

- Click **Update Settings** to save your settings.

Figure 40—Disabling adapter management



Administrator :: Management

Network Profile: ruckus

Telnet access? Enabled Disabled

Telnet Port:

Link-Local Adapter Management? Enabled Disabled

Auto-provisioning? Enabled Disabled

[Restore previous settings](#)

Enabling Adapter Management

To enable adapter management, do the following:

NOTE – With Release 4.2 and later, adapter management is enabled by default upon 7111 provisioning with the 7811. This procedure assumes that adapter management is currently disabled.

- Connect a PC to the 7111's Ethernet port.
- If necessary, change the IP address of your PC to an address in the same subnet (192.168.2.x) as the 7111.
- Login to the 7111 using the IP address, user name, and password located on the label on the bottom of the adapter.
- Go to **Administrator :: Management**.
- Select the 'Enabled' radio button for **Link-Local Adapter Management**.
- Click **Update Settings** to save your settings.

Upgrading 7111 Firmware using Adapter Management

NOTE – This procedure assumes adapter management is currently enabled.

- Login to the 7811 Web user interface.
- Go to **Status :: Wireless**.
- Click the **Video WLAN** tab. In the *Connected Devices* table, note the *Ruckus Adapter Management* column.
- Click the **STA WebServer** link. A separate browser window opens to the 7111's Web user interface login page.
- Login to the 7111 using the appropriate user name and password.
- In the 7111 Web user interface, go to **Maintenance :: Upgrade**.
- Follow the instructions in the 7111 user guide to perform the firmware upgrade.



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Appendix A: Technical Specifications

Physical Characteristics

Power requirements	VF7811: 12V, 1A External power adapter: Ruckus Wireless Model DSA-12R-12AUS Ruckus Wireless Model DSA-12R-12AUK Ruckus Wireless Model DSA-12R-12AEU Ruckus Wireless Model DSA-12R-12AAU (N136 with Electrical Approval V06649 for safety)
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	One (1) auto MDX, auto sensing 10/100Mbps, RJ45 port
LED display	Antenna Power WAN Connectivity Wireless Device Association Signal Quality
Environmental conditions	Operating Temperature: 32°F – 104°F (0°C – 40°C) Operating Humidity: 15% - 95% non condensing
Electromagnetic Emissions	Meets requirements of FCC Part 15 Class B

Performance and Supported Configurations

Target UDP throughput	30Mbps-40Mbps sustainable throughout a typical 2500 ft ² (300 m ²) home
Number of simultaneous video streams	The aggregated throughput of multiple video streams can reach up to 30Mbps-40Mbps

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), Telnet
Login	Service Provider Username: <i>super</i>
Statistics	Wireless and associated stations Accessible via Ruckus Wireless Web Interface
Firmware Update	Via FTP, TFTP, or Web download Accessible via Ruckus Wireless Web Interface Manual or Automatic
Other Utilities	System Support Snapshot
Standards/Specifications	802.11 n 802.11u 802.11e, Wi-Fi Alliance WMM
Channels	US/Canada: 1-11 Europe (ETSI X30): 1-13 Japan X41: 1-14
Wireless Security	WPA-PSK, WPA-AES, WPA2-AES
Diagnostic Tools	Ping and Traceroute

Certifications

Countries	FCC (US), IC (Canada), CE (EU)
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Appendix B: Configuration Worksheets

The following worksheets were presented in [Chapter 3: “Configuration](#), and are offered here in printable, one-page each format.

Table 19—Wireless Network Settings Worksheet—Service Provider User

Item	Description and Your Network Setting
VF7811 SSID	The SSID for the service provider. This is typically used for streaming IPTV video content. SSID _____
Encryption Method	If using WPA-PSK, write down the passphrase. The WPA-PSK passphrase <i>is</i> case-sensitive. WPA Version: _____ WPA Algorithm _____ WPA Passphrase: _____

Table 20—VF7811 Default and User Settings Worksheet

Item	Default Setting	Your Setting
Service Provider User Name	super	_____
Service Provider Password	sp-admin	_____
Internet Access Type	DHCP Client Enabled (can be set to static or PPPoE)	_____
Local Network Configuration	DHCP Server Enabled	_____
Default IP Address (WAN port if no DHCP response from the DHCP server)	192.168.2.1	_____
Subnet Mask	255.255.255.0	_____
Service Provider SSID	V54-xxxxxxx where xxxxxxx are the last six digits of the MAC address.	_____
Wireless Mode	5GHz (802.11a/n) - Fixed	Not configurable

Federal Communications Commission Notices

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Harmful Interference Notice

This product has been tested and complies with the specifications 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 equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to 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 equipment does cause harmful interference to radio or television reception, which is found 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 or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

Changes or modifications to this equipment that have not been approved by Ruckus Wireless may void the user's authority to operate this equipment.

Industry Canada Statement

This device complies with Industry Canada ICES-003 and RSS210 rules. Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Règlement d'Industry Canada

Cet appareil est conforme aux normes NMB003 et RSS210 d'Industrie Canada. Le fonctionnement est soumis aux conditions suivantes :

1. Ce périphérique ne doit pas causer d'interférences;
2. Ce périphérique doit accepter toutes les interférences reçues, y compris celles qui risquent d'entraîner un fonctionnement indésirable.

European Union Notices

Compliance Information for 5-GHz Wireless Products

The following standards were applied during the assessment of the product against the requirements of the Directive 1999/5/EC:

- Radio: EN 300 893
- EMC: EN 301 489-1, EN 301 489-17
- Safety: EN 60950

The frequency band 5150 – 5350 MHz is restricted to indoor use.



Česky [Czech]	Ruckus Wireless tímto prohlašuje, že tento Radio LAN je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede Ruckus Wireless erklærer herved, at følgende udstyr Radio LAN overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erklärt Ruckus Wireless, dass sich das Gerät Radio LAN in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab Ruckus Wireless seadme Radio LAN vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, Ruckus Wireless declares that this Radio LAN is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente Ruckus Wireless declara que el Radio LAN cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ruckus Wireless ΔΗΛΩΝΕΙ ΟΤΙ Radio LAN ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]	Par la présente Ruckus Wireless déclare que l'appareil Radio LAN est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente Ruckus Wireless dichiara che questo Radio LAN è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo Ruckus Wireless deklarē, ka Radio LAN atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo Ruckus Wireless deklaruoja, kad šis Radio LAN atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart Ruckus Wireless dat het toestel Radio LAN in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, Ruckus Wireless, jiddikjara li dan Radio LAN jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, Ruckus Wireless nyilatkozom, hogy a Radio LAN megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]	Niniejszym Ruckus Wireless oświadcza, że Radio LAN jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	Ruckus Wireless declara que este Radio LAN está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	Ruckus Wireless izjavlja, da je ta Radio LAN v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	Ruckus Wireless týmto vyhlasuje, že Radio LAN spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	Ruckus Wireless vakuuttaa täten että Radio LAN tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar Ruckus Wireless att denna Radio LAN står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Íslenska [Icelandic]	Hér með lýsir Ruckus Wireless yfir því að Radio LAN er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
Norsk [Norwegian]	Ruckus Wireless erklærer herved at utstyret Radio LAN er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.