VIEW Certified Configuration Guide

Motorola

RFS6000 Wireless Switch

May 2009 Edition
1725-36197-001
Version A

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Introduction

Polycom's Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between SpectraLink 8020/8030 Wireless Telephones and WLAN infrastructure products.

The products listed below have been thoroughly tested in Polycom's lab using the VIEW Certification Test Plan. This document details how to configure the RFS6000 Wireless Switch and the AP300 access point (AP) to best support SpectraLink 8020/8030 Wireless Telephones.

Certified Product Summary

Manufacturer:	Motorola		
Approved products:	RFS6000 Wireless Switch with AP300†		
RF technology:	802.11a/b/g		
Radio:	2.4 GHz (802.11b/g), 5 GHz (802.11a)		
Security:	WPA-PSK, WPA2-PSK		
AP and WLC software version certified:	3.3.1.0-003R		
SpectraLink handset models certified: **	e340/h340/i640	8020/8030†	
SpectraLink handset software certified:	89.135 or greater	122.021 or greater	
SpectraLink radio mode:	802.11b	802.11b	802.11a
Maximum telephone calls tested per AP:	12	12	12*
Network topology:	Switched Ethernet (recommended)		

† Denotes products directly used in VIEW Certification testing.

* Maximum calls tested during VIEW Certification. The certified product may actually support a higher number of maximum calls for 802.11a and 802.11g radio modes.

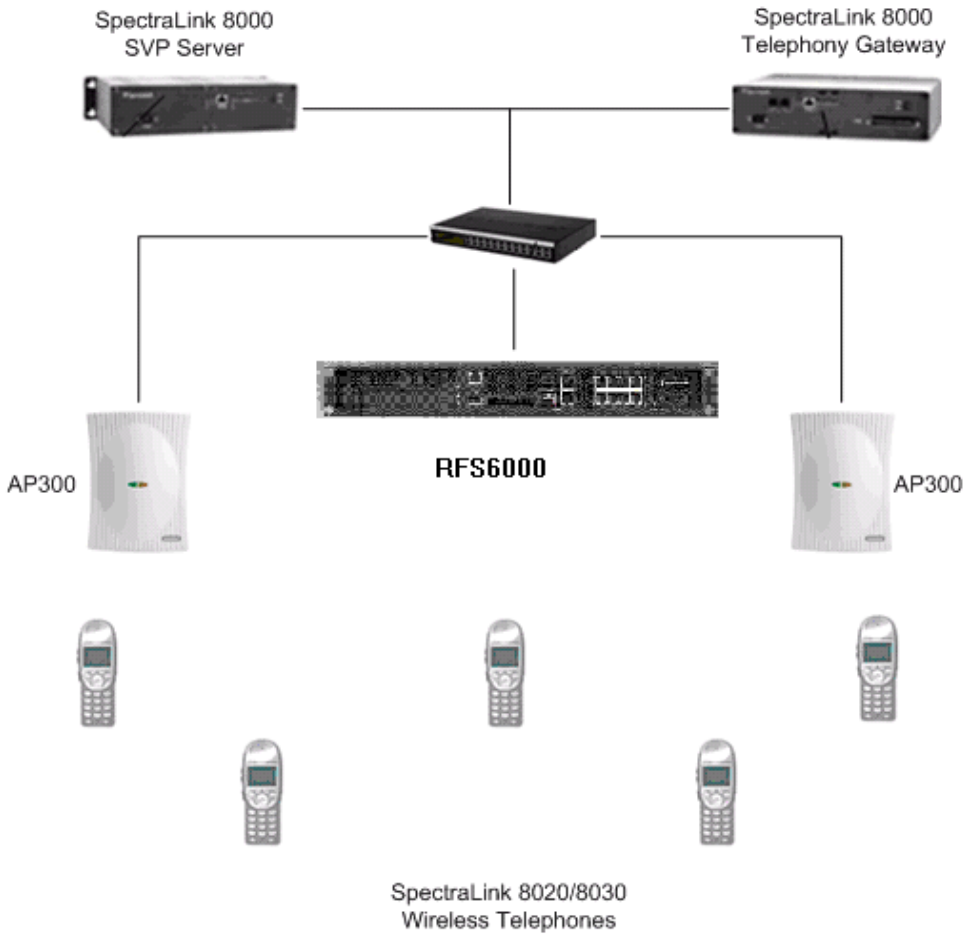
** SpectraLink handset models 8020/8030, e340/h340/i640 and their OEM derivates are VIEW Certified with the WLAN hardware and software identified in the table. Throughout the remainder of this document they will be referred to collectively as "SpectraLink Wireless Telephones".

Service Information

If you encounter difficulties or have questions regarding the configuration process, please contact Motorola technical support at (800) 653-5350, or at http://www.symbol.com/services/contactsupport.

Network Topology

The following topology was used during VIEW Certification testing.



Configuration Settings

Installing a New Image

The VIEW Certified firmware release can be obtained from Motorola's Developer Zone at http://support.symbol.com/support/product/softwaredownloads.do. Upgrading the RFS6000 Wireless Switch to the new firmware can be done through the Web interface or through the command line interface (CLI). Place the image on the FTP server, TFTP server or through Compact Flash card, depending on the file transfer mechanism chosen.

Installing firmware through the CLI

1. Enter your username and password to log into the CLI. The defaults are login: `cli user`, admin password: `superuser`. The serial interface parameters are `19200`, `8`, `n`, `1`, `n`.
2. Connect the FTP/TFTP server to subnet 1.
   a. For TFTP, issue the following commands:

```
RFS6000>en
RFS6000#upgrade
tftp://TFTP_SERVER_IP_ADDR/RFS6000_FIRMWARE_FILENAME
```

   b. For FTP, issue the following commands:

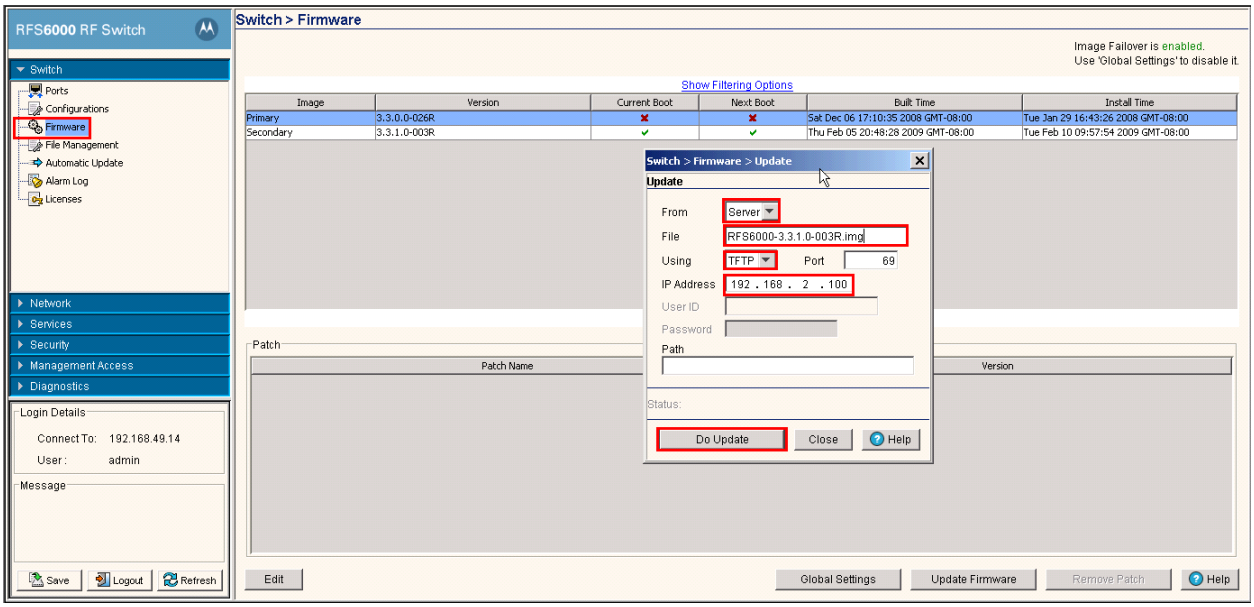
```
RFS6000>en
RFS6000#upgrade
ftp://FTP_USERNAME:FTP_PASSWD@FTP_SERVER_IP_ADDR/
_FIRMWARE_FILENAME
```

3. After the upgrade is successful issue the following command:

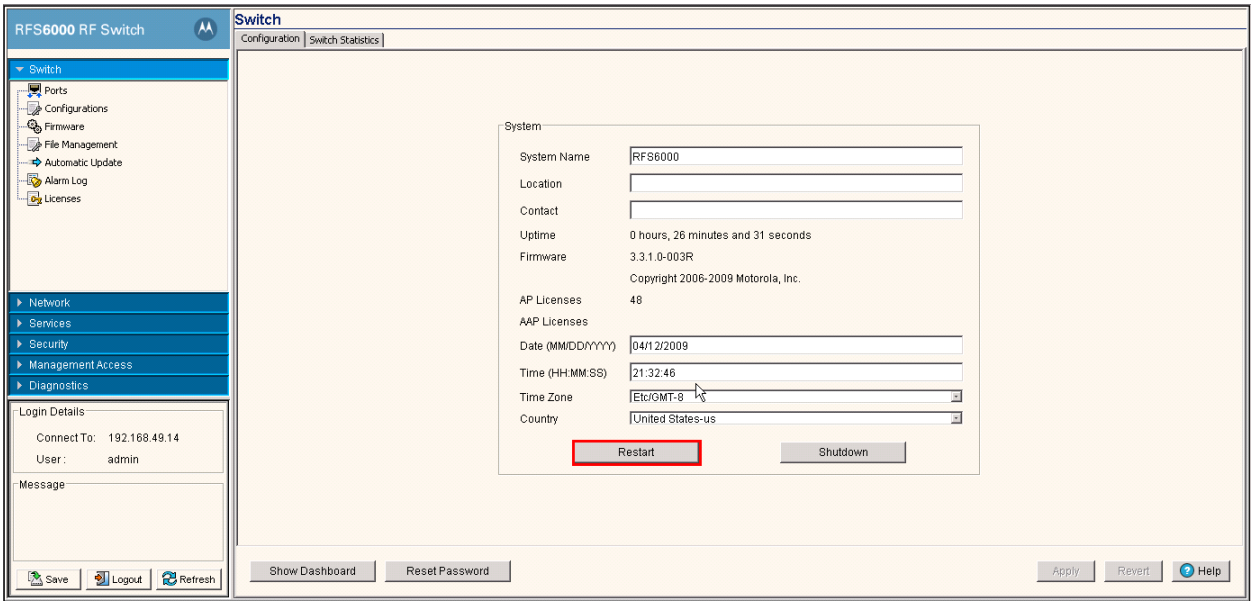
```
RFS6000#reload
```

Installing firmware through the Web interface

1. Open the RFS6000 applet by entering the IP address of the wireless switch: http://192.168.2.103
2. In the navigation pane under **Switch**, click **Firmware.**
3. In the **Firmware** screen, click the **Update Firmware** button located at the lower right of the page.
4. In the **Update** dialog box, select **TFTP** from the **Using** drop-down list.
5. At **File**, enter the RFS6000 firmware image filename.
6. At **IP Address**, enter the TFTP server IP address.
7. Click the **Do Update** button.
8. After the RFS6000 Wireless Switch performs the upgrade, navigate to the **Switch** window.



9. In the navigation pane under **Switch**, click **Configurations**.
10. Click the **Restart** button to reboot the switch.



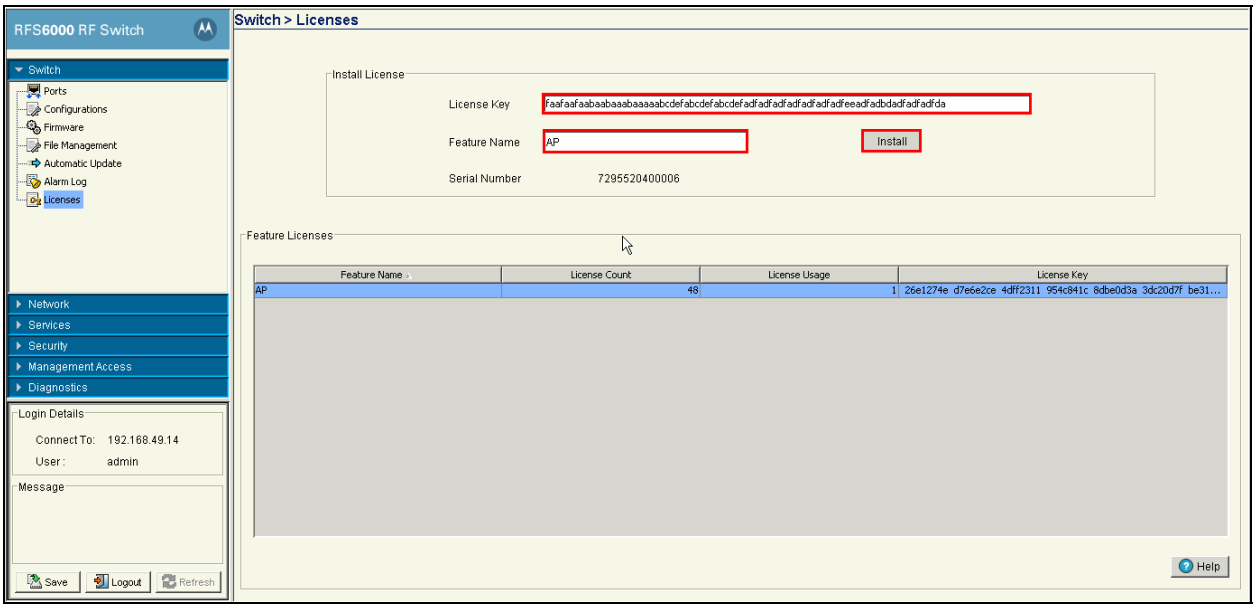
Installing the AP license through the CLI

For the RFS6000 to adopt AP300s, a license has to be installed. Obtain the license key and then install based on the following steps:

```
RFS6000>en
RFS6000#conf t
RFS6000(config)#license AP <LICENSE_KEY>
```

Installing the AP license through the Web interface

1. Open the RFS6000 applet by entering the IP address of the wireless switch: http://192.168.2.103
2. In the navigation pane under **Switch**, click **Licenses**.
3. Enter the **License Key** and **Feature Name** as seen in the figure below.
4. Click the **Install** button to install the license.



Configuring the Wireless Switch from the Default Configuration

Radio Settings

Configuring radio settings through the CLI

The parameters for default-11bg will be configured on the switch. When an AP is adopted on the switch it will inherit all the default-11bg or 11a parameters. To configure radio settings for the wireless switch, use the following commands.

When SpectraLink Wireless Telephones are configured for 802.11b & b/g mixed mode:

```
RFS6000>en
RFS6000#conf t
RFS6000 (config)#wireless
RFS6000 (config-wireless)#country-code us
RFS6000 (config-wireless)#radio add 1 00-A0-F8-CD-ED-EC
11bg ap300
RFS6000 (config-wireless)#radio 1 beacon-interval 100
RFS6000 (config-wireless)#radio 1 dtim-period 3
RFS6000 (config-wireless)#radio 1 bss 1 1
RFS6000 (config-wireless)#radio 1 speed basic1 basic2
basic5p5 6 9 basic11 12 18 24 36 48
```

When SpectraLink Wireless Telephones are configured for 802.11g only mode:

```
RFS6000>en
RFS6000#conf t
RFS6000 (config)#wireless
RFS6000 (config-wireless)#country-code us
RFS6000 (config-wireless)#radio add 1 00-A0-F8-CD-ED-EC
11bg ap300
RFS6000 (config-wireless)#radio 1 beacon-interval 100
RFS6000 (config-wireless)#radio 1 dtim-period 3
RFS6000 (config-wireless)#radio 1 bss 1 1
RFS6000 (config-wireless)#radio 1 speed 1 2 5p5 basic6 9
11 basic12 18 basic24 36 48 54
```

When SpectraLink Wireless Telephones are configured for 802.11a mode:

```
RFS6000>en
RFS6000#conf t
RFS6000 (config)#wireless
RFS6000 (config-wireless)#country-code us
RFS6000 (config-wireless)#radio add 2 00-A0-F8-CD-ED-EC
11a ap300
RFS6000 (config-wireless)#radio 2 beacon-interval 100
RFS6000 (config-wireless)#radio 2 dtim-period 3
RFS6000 (config-wireless)#radio 2 bss 1 1
RFS6000 (config-wireless)#radio 2 speed basic6 9 basic12
18 basic24 36 48 54
```

Channel selection

You can specify the desired channel manually by using the following commands.

For 802.11b/g radio:

```
RFS6000(config-wireless)#radio 1 channel-power indoor 11
20
```

For 802.11a radio:

```
RFS6000(config-wireless)#radio 2 channel-power indoor 36
17
```

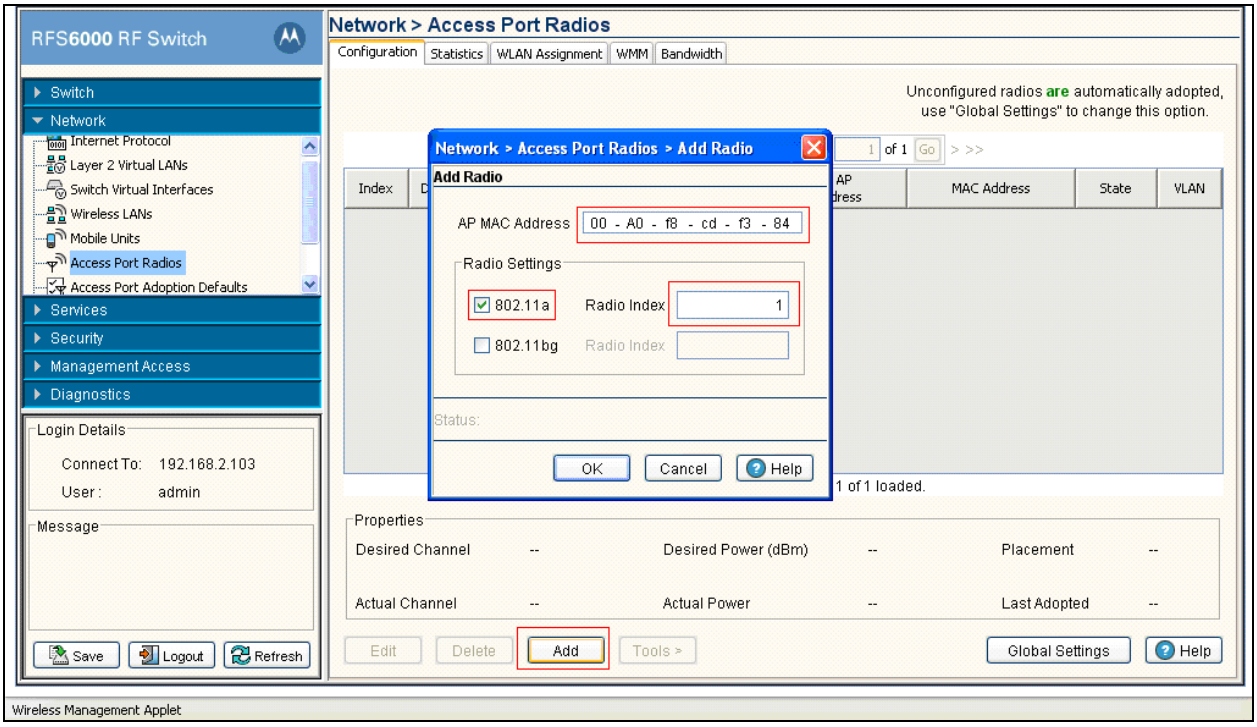
For configuring power and data rate settings, please consult your facility's RF site survey, designed for voice traffic, to determine if you have sufficient coverage to support all data rates. SpectraLink Wireless Telephones require the following minimum dBm reading to support the corresponding **Basic** data rate setting in the access point.

802.11 Radio Standard	Minimum Available Signal Strength (RSSI)	Maximum "Basic" Data Rate
802.11b	-70 dBm	1 Mb/s
	-60 dBm	11 Mb/s
802.11g	-63 dBm	6 Mb/s
	-47 dBm	54 Mb/s
802.11a	-60 dBm	6 Mb/s
	-45 dBm	54 Mb/s

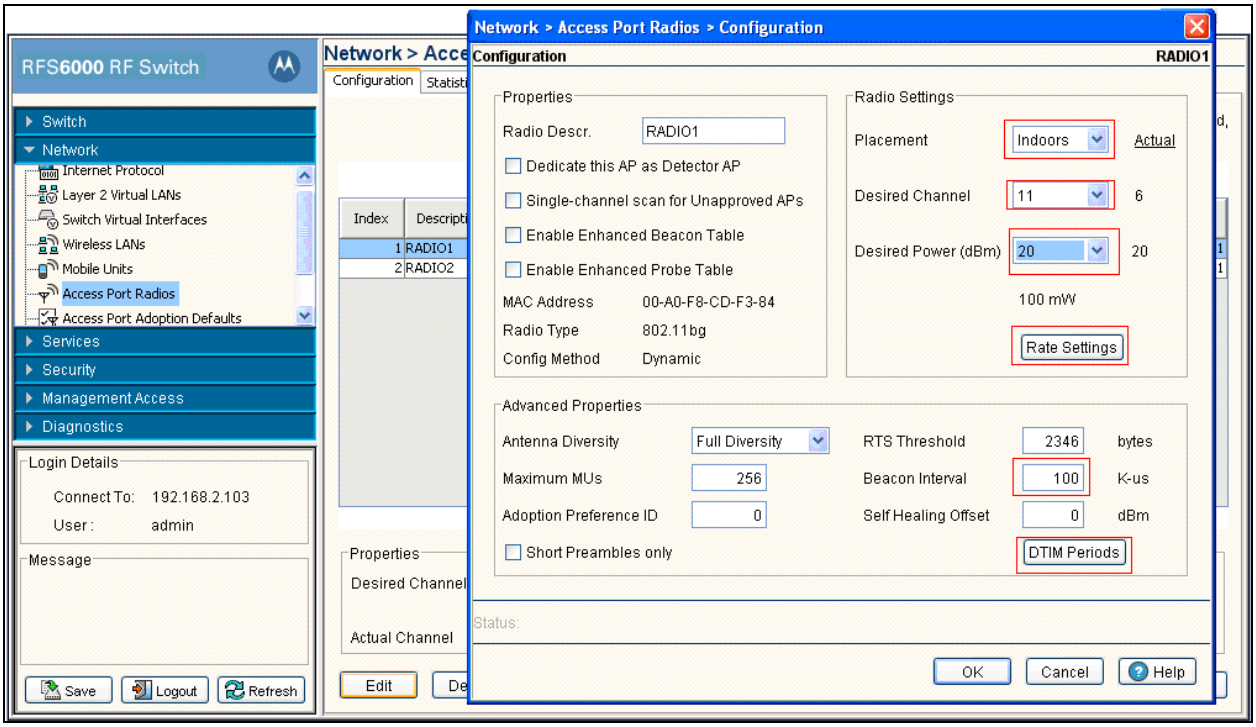
For additional details on RF deployment please see the *Deploying Enterprise-Grade Wi-Fi Telephony* white paper and the *Best Practices Guide for Deploying SpectraLink 8020/8030 Wireless Telephones*.

Configuring radio settings through the Web interface

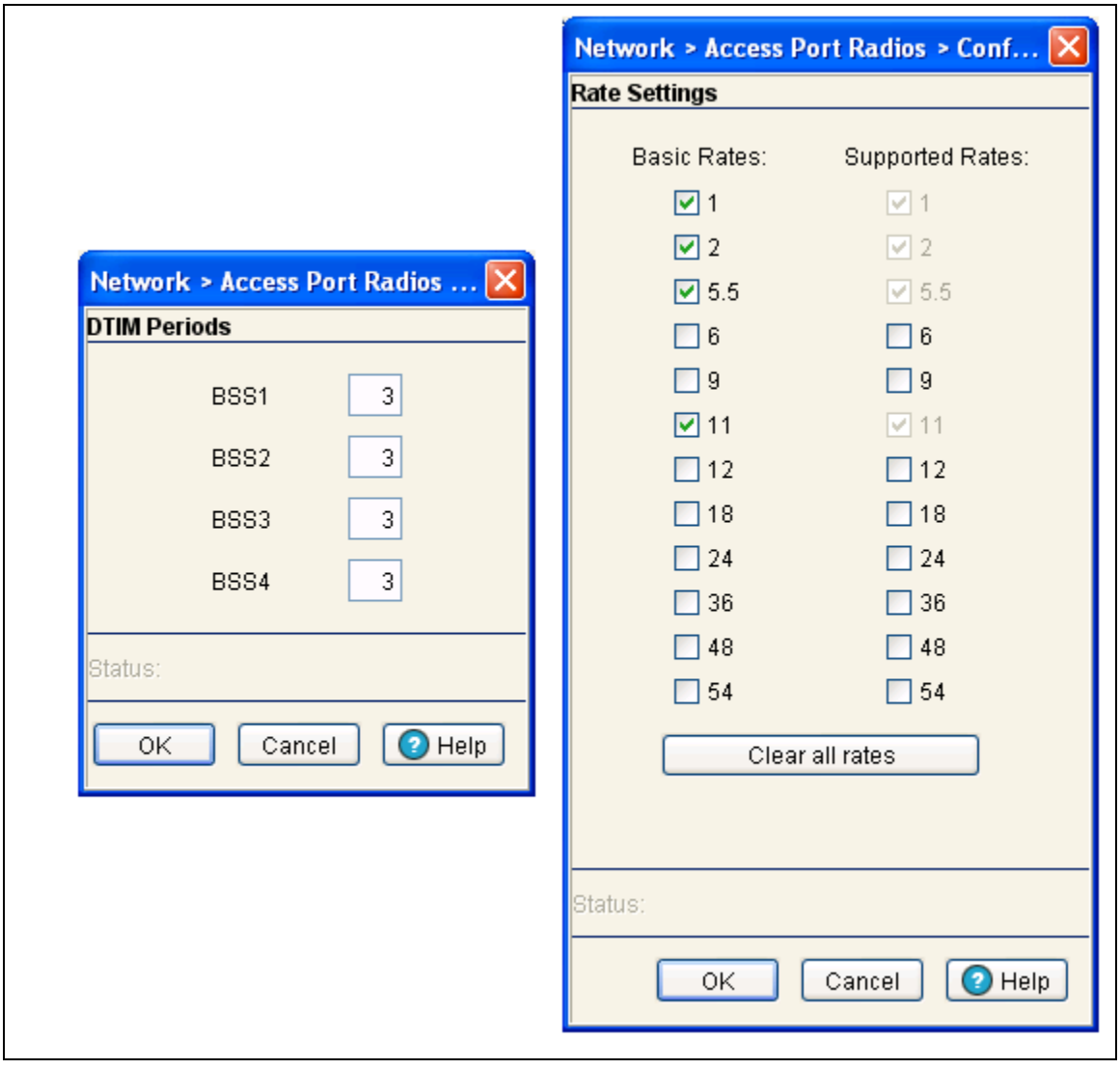
1. Open the RFS6000 applet by entering the IP address of the wireless switch: http://192.168.2.103
2. In the navigation pane under **Network**, click **Access Port Radios**.
3. In the **Configuration** screen, click the **Add** button.
4. In the **Add Radio** dialog box, set the **AP MAC Address** (same for 802.11a and 802.11bg).
5. Select the appropriate **Radio Setting** to match the radio setting on the SpectraLink Wireless Telephones:
   a. Select the **802.11a** check box if the handsets are configured for 802.11a.
   b. Select the **802.11bg** check box if the handsets are configured for 802.11g only or 802.11b & b/g mixed mode.
6. Click **OK**.



7. Once the APs are adopted they should appear in the **Access Port Radios** screen in the **Configuration** tab.
8. Select the appropriate radio (**Radio1** for 802.11b/g or **Radio2** for 802.11a).
9. Click the **Edit** button.
10. In the **Configuration** dialog box, select the **Placement**, **Desired Channel**, **Desired Power** and **Beacon Interval** settings from the drop-down lists.



11. Click the **Rate Settings** button.
12. In the Rate settings dialog box, set the desired **Basic** and **Supported Rates**. Click **OK**.
13. Click the **DTIM Periods** button.
14. In the **DTIM Periods** dialog box, set each value to **3**. Click **OK**.



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	-47 dBm	54 Mb/s
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	-45 dBm	54 Mb/s

For additional details on RF deployment please see the *Deploying Enterprise-Grade Wi-Fi Telephony* white paper and the *Best Practices Guide for Deploying SpectraLink 8020/8030 Wireless Telephones*.

SSID, QoS and Security Settings

Configuring SSID, QoS and security settings through the CLI

Configure the SSID, QoS and security (WPA-PSK) settings of the wireless switch using the following commands:

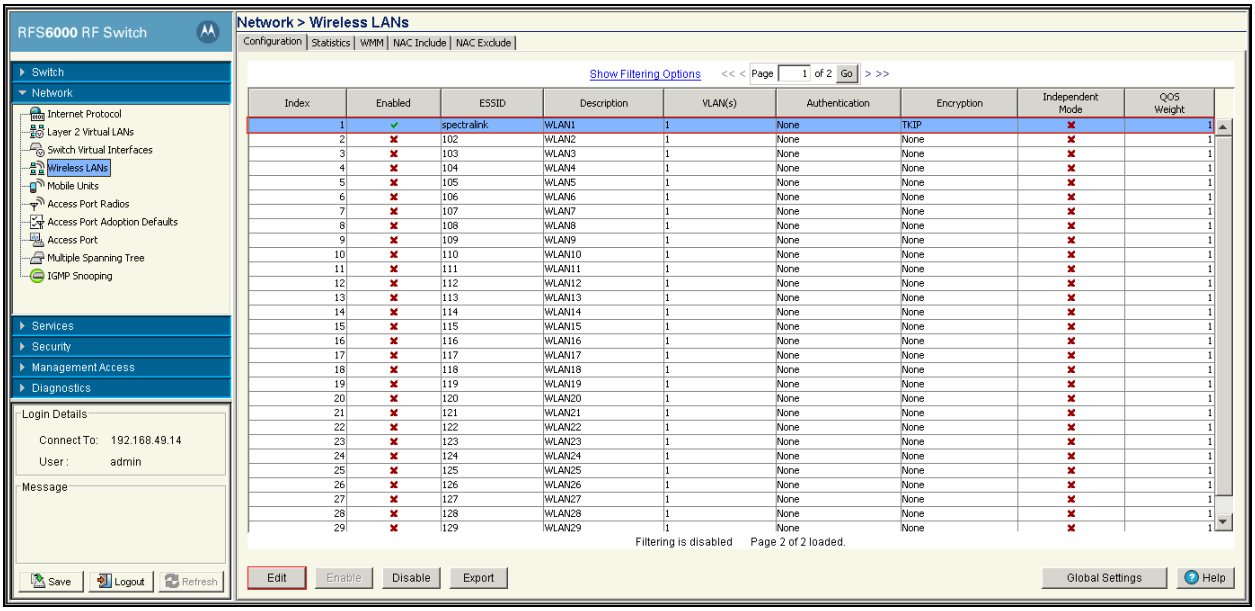
```
RFS6000>en
RFS6000#conf t
RFS6000(config)#wireless
RFS6000(config-wireless)#wlan 1 enable
RFS6000(config-wireless)#wlan 1 ssid spectralink
RFS6000(config-wireless)#wlan 1 qos svp enable
RFS6000(config-wireless)#wlan 1 qos classification low
RFS6000(config-wireless)#wlan 1 encryption-type tkip
RFS6000(config-wireless)#wlan 1 dot11i phrase 0 12345678
```

To configure WPA2-PSK replace the last two lines in the above command sequence with the following:

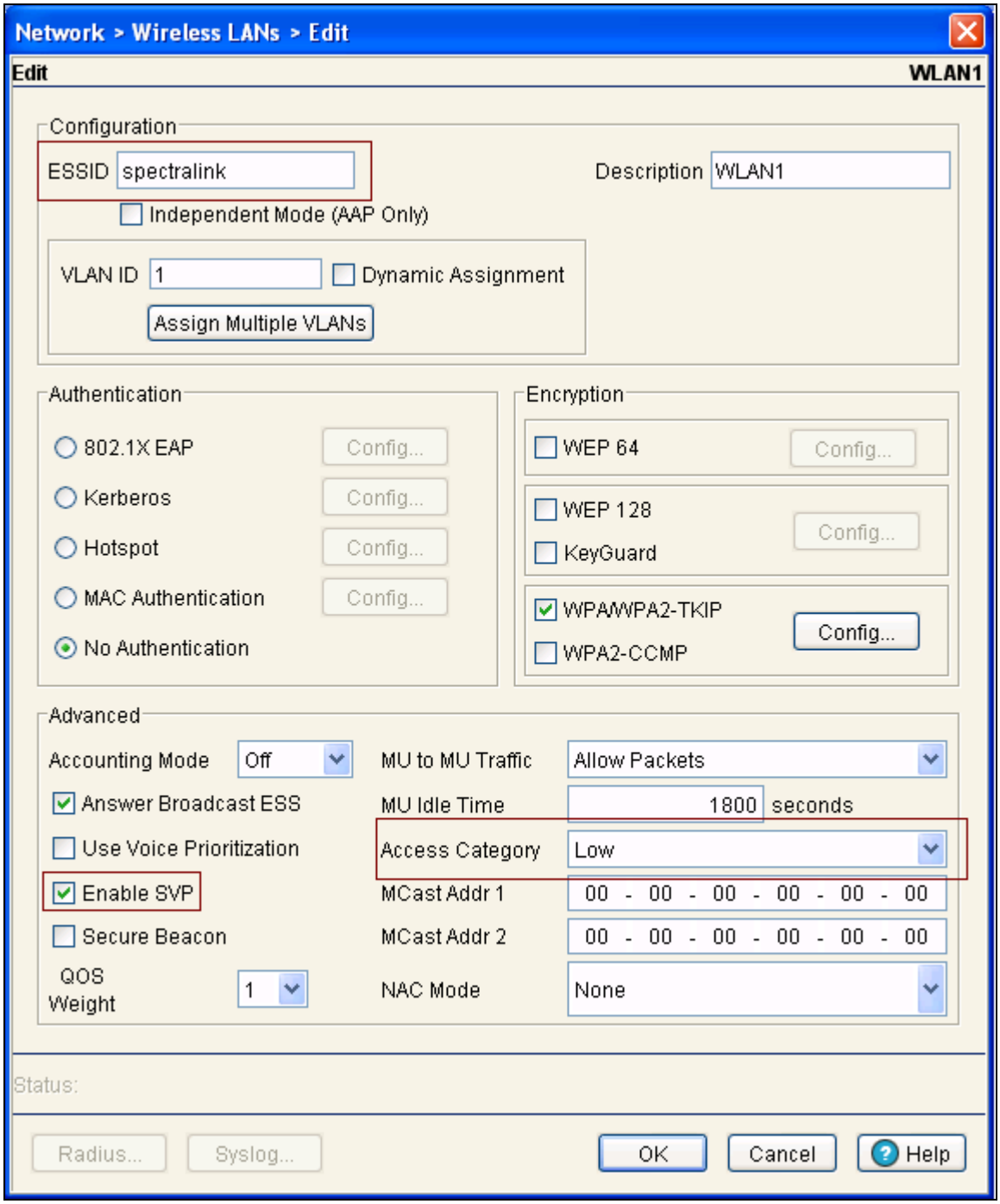
```
RFS6000(config-wireless)#wlan 1 encryption-type ccmp
RFS6000(config-wireless)#wlan 1 dot11i phrase 0 12345678
```

Configuring SSID, QoS and security settings through the Web interface

1. Open the RFS6000 applet by entering the IP address of the wireless switch: http://192.168.2.103
2. In the navigation pane under **Network**, click **Wireless LANs**.
3. In the **Configuration** tab screen, select **WLAN1** and click the **Enable** button.
4. After enabling WLAN1 click the **Edit** button.



5. To configure SSID, enter `spectralink` in the **ESSID** field.
6. To configure QoS, select the **Enable SVP** checkbox. This will prioritize voice packets as instructed by the SVP protocol.
7. Select **Low** from the **Access Category** drop-down list. This will cause all non-voice packets to get lower priority.



8. To configure security, in the **Encryption** section select the **WPA/WPA2-TKIP** check box.
9. Click the **Config** button. The dialog box shown below will appear.
10. In the **Key Settings** section, enter `12345678` under **ASCII Passphrase**.
11. Click **OK**.