

# RuggedWireless™ RS900W Family

## Wireless Firmware Upgrade Guide



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## Federal Communications Commission Radio Frequency Interference Statement

*This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference on his own expense.*

*Warning: Changes or modifications not expressly approved by RuggedCom Inc. could void the user's authority to operate the equipment.*

### Caution

*Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. This product contains no user serviceable parts. Attempted service by unauthorized personnel shall render all warranties null and void.*

*Should this device require service see the "Warranty" section of this installation guide.*

### Important

*The RS900W family of products should be installed in a restricted access location where access can only be gained by service personnel or users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken; and access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.*

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# 1 Software Upgrade

## 1.1 Overview

The following instructions are meant to guide the user through the software upgrade and (example) configuration procedure for the RuggedWireless™ RS900W family of industrially hardened, fully managed IEEE 802.11g Access Points, Client / Bridge and Client / IP Bridges with integrated Ethernet switching.

All of the instructions in the guide are given from the perspective of the RS900W product User-Interface. In fact, the procedure of upgrading and configuring ANY of the RuggedWireless™ products (e.g. RS910W, RS930W etc.) will be substantially the same, and the same set of instructions can be successfully applied to all of the models in this family.

There are two software components which can be upgraded in the RS900W units: the main control firmware (ROS) and the firmware which executes on the (wireless) daughter-card itself, to provide the IEEE 802.11 wireless interface. This document is intended to guide the user through the procedure required to upgrade the wireless firmware used on the daughter-card component in the RuggedWireless™ family of products.

## 1.2 Assumptions

- 1- A TFTP server (application) must be configured and running on your PC. This TFTP server must know the location of the firmware image files to be uploaded to the RS900W.
- 2- Both the RS900W switch(es) and your PC (which is running the TFTP server) are expected to reside on the same IP subnet such as 192.168.0.0/255.255.255.0

## 1.3 Software upgrade procedure

### 1.3.1 Step 1: File unpack and preparation

There are two files associated with this upgrade: **<wlan1.bin>** and **<wlan2.bin>**. Files **<wlan1.bin>** and **<wlan2.bin>** are the latest wireless firmware version binary files which contain both Access Point and Client/Bridge functionality.

### 1.3.2 Step 2: File location

Copy binary files **<wlan1.bin>** and **<wlan2.bin>** to the TFTP server configured directory.

### 1.3.3 Step 3: Verify the ROS Software version

- a- Login as “**admin**”

- b- Enter **<CTRL+S>** to access the ROS shell prompt
- c- Type "**version**" command and you should see something like "ROS v3.5.0" (or higher) reported to the display.

#### 1.3.4 **Step 4: Disable RSTP:**

- a- Goto Main Menu
- b- Ensure that **Spanning Tree -> Configure Bridge RSTP Parameters -> State -> Disabled** is selected.
- c- Save the setting by pressing **<CTRL+A>**

#### 1.3.5 **Step 5: Upgrade the IEEE 802.11 (Wireless) daughter-card firmware on RS900W switch(es):**

- a- Goto "**Main Menu**"
- b- Verify that the wireless interface and TFTP server reside on the same IP subnet. **WLAN Interface -> Addressing Parameters -> IP Address**
- c- Ensure that **WLAN Interface -> Miscellaneous Parameters -> TFTP Server Address -> Enter IP address of TFTP server** is configured
- d- Ensure that **WLAN Interface -> Miscellaneous Parameters -> Software Upgrade -> Select Start** is selected.
- e- Save the setting by **<CTRL+A>**
- f- At this point the IEEE 802.11 (Wireless) daughter-card firmware upgrade will start. Check **WLAN Interface -> Miscellaneous Parameters -> Software Upgrade Status** to see the firmware upgrade status information.
- g- **Please note that it will take up to 15 minutes to complete.**

#### 1.3.6 **Step 6: Reset the RS900W switch(es)**

#### 1.3.7 **Step 7: Login to the ROS console**

- a- Login as an "**admin**"
- b- Enter **<CTRL+S>** to access the ROS shell prompt

#### 1.3.8 **Step 8: Verify the IEEE 802.11 (Wireless) daughter-card firmware version:**

- a- Wait until wireless interface is up and running by monitoring the Port 9 LED on the front panel. When the LED is lit, the wireless interface is available.
- b- Select **WLAN Interface -> Miscellaneous Parameters -> Version**
- c- You should see something like "WLAN-FS.1.6-APP.1.6" reported to the display.

## 2 Example RS900W configurations

### 2.1 Configuration for WPA2 enabled “Access Point” operation

- a- Remove any previous configuration on the RS900W: Ensure that **Diagnostics -> Load Factory Default Configuration -> Yes** is selected.
- b- Set the IP address of RS900W: Ensure that **Administration -> Configure IP Interfaces -> IP Address** is configured.
- c- Set the IP subnet mask of RS900W: Ensure that **Administration -> Configure IP Interfaces -> Subnet** is configured.
- d- Disabled RSTP: Ensure that **Spanning Tree -> Configure Bridge RSTP Parameters -> State -> Disabled** is selected.
- e- Set IP address of wireless interface: Ensure that **WLAN Interface -> Addressing Parameters -> IP Address** is configured.
- f- Set IP subnet mask of wireless interface: Ensure that **WLAN Interface -> Addressing Parameters -> Subnet Mask** is configured.
- g- Set SSID: Ensure that **WLAN Interface -> Network Parameters -> Network Name [SSID] -> RUGGEDTEST** is configured.
- h- Set Authentication Mode: Ensure that **WLAN Interface -> Security Parameters -> Authentication Mode -> wpa2-psk** is selected.
- i- Set Encryption Algorithm: Ensure that **WLAN Interface -> Security Parameters -> Encryption Algorithm -> aes** is selected.
- j- Set Passphrase [WPA,WPA2]: Ensure that **WLAN Interface -> Security Parameters -> Passphrase [WPA,WPA2] -> testing1234** is configured.
- k- Soft reset the wireless interface: Ensure that **WLAN Interface -> Miscellaneous Parameters -> WLAN Reset -> Quick reset** is selected.
- l- After a ‘Quick reset’ has been executed, the RS900W unit will be configured for AP operation with WPA2 (802.11i) security enabled.

### 2.2 Configure the RS900W for “Client / Bridge” operation

- a- Remove any previous configuration on the RS900W: Ensure that **Diagnostics -> Load Factory Default Configuration -> Yes** is selected.
- b- Set the IP address of RS900W: Ensure that **Administration -> Configure IP Interfaces -> IP Address** is configured.
- c- Set the IP subnet mask of RS900W: Ensure that **Administration -> Configure IP Interfaces -> Subnet** is configured.
- d- Disabled RSTP: Ensure that **Spanning Tree -> Configure Bridge RSTP Parameters -> State -> Disabled** is configured.
- e- Set wireless interface operation mode to Client Bridge: Ensure that **WLAN Interface -> Addressing Parameters -> Operational Mode -> Client Bridge** is selected.
- f- Set IP address of wireless interface: Ensure that **WLAN Interface -> Addressing Parameters -> IP Address** is configured.
- g- Set IP subnet mask of wireless interface: Ensure that **WLAN Interface -> Addressing Parameters -> Subnet Mask** is configured.

- h- Set SSID: Ensure that **WLAN Interface -> Network Parameters -> Network Name [SSID] -> RUGGEDTEST** is configured.
- i- Set Authentication Mode: Ensure that **WLAN Interface -> Security Parameters -> Authentication Mode -> wpa2-psk** is selected.
- j- Set Encryption Algorithm: Ensure that **WLAN Interface -> Security Parameters -> Encryption Algorithm -> aes** is selected.
- k- Set Passphrase [WPA,WPA2]: Ensure that **WLAN Interface -> Security Parameters -> Passphrase [WPA,WPA2] -> testing1234** is configured.
- l- Soft reset the wireless interface: Ensure that **WLAN Interface -> Miscellaneous Parameters -> WLAN Reset -> Quick reset** is selected.
- m- After a 'Quick reset' has been executed, the RS900W unit will be configured for Client/Bridge operation with WPA2 (802.11i) security enabled. After this step, the Client/Bridge unit will associate with the similarly configured AP and a 'ping' test should work at this point

### **2.3 Configure the RS900W for "Client / IP Bridge" operation**

The only difference between the configuration of "Client / IP Bridge" and "Client / Bridge" is the selection of "Operational Mode" in Section 2.2 Step (e). Instead of setting "Client Bridge" option you will set "Client IP Bridge" option in the "Operational Mode".