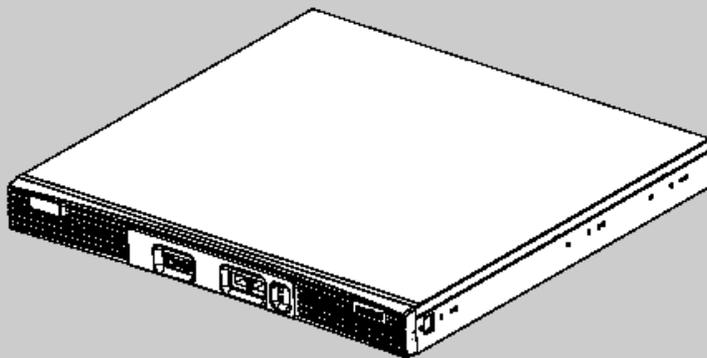


Wireless Switch

WS 5000 Series

WS 5100 Installation Guide



WS 5000 Series, WS 5100 Installation Guide

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1 Introduction

The Symbol **WS 5100** Wireless Switch is a high-performance member of Symbol's **WS 5000 Series** family. The WS 5100 (built on the same award-winning hardware and software architecture as the WS 5000) provides centralized Wireless LAN (WLAN) configuration and management by merging network “intelligence” previously spread across physically distributed access points. By replacing access points with simpler access ports (or “thin” access points), the WS 5100 becomes the single point of contact with the WLAN, thus reducing the complexity of wireless networking by moving management out of the ceiling and into the wiring closet. In addition, through the use of Symbol's patented Virtual AP architecture, the WS 5100 lets you create multiple WLANs without changing or adding to the existing wired network infrastructure.

This document is written for the network device installer.

1.1 Package Contents

Inspect the package contents and report any missing or damaged items to your sales representative. The package should contain the following:

- WS 5100 Wireless Switch
- **WS 5100 Installation Guide** (this document)
- Rack-mounting brackets (2)
- Mounting screws (4)
- Console cable
- WS 5100 product CD

1.2 Document Conventions

The following graphical alerts are used in this document to indicate notable situations:



NOTE Tips, hints, or special requirements that you should take note of.



CAUTION Care is required. Disregarding a caution can result in data loss or equipment malfunction.



WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

1.3 Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the system to its power source.
- Remove jewelry and watches before installing this equipment.
- Install the equipment in a rack with adequate dimensions and weight allowances.
- Verify that the rack is anchored and cannot tip over or break away from its mountings.
- Verify that the unit is grounded before connecting it to the power source.
- Verify that any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify that the electrical circuits have appropriate overload protection.
- Attach only approved power cords to the device.
- Symbol Technologies strongly recommends the use of an Uninterruptible Power Supply (UPS) that supports the WS 5100 power rating. Not using a UPS can result in data loss or equipment damage due to a power surge or power failure.
- Verify that the power connector and socket are accessible at all times during the operation of the equipment.
- Do not work with power circuits in dimly lit spaces.
- Do not install this equipment or work with its power circuits during thunderstorms or other weather conditions that could cause a power surge.
- Verify that there is adequate ventilation around the device, and that ambient temperatures meet equipment operation specifications.

1.4 Site Preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, port capacity, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify where all installed components are located.
- Verify appropriate rack mounting requirements.
- Provide a sufficient number of power drops for your equipment.
- Ensure adequate, dust-free ventilation to all installed equipment.
- Identify and prepare Ethernet and console port connections.
- Verify that cable lengths are within the maximum allowable distances for optimal signal transmission.
- Verify that the WS 5100 is powered through an Uninterruptible Power Supply (UPS).

2 Specifications

2.1 Physical Specifications

Width	48.1 cm / 18.93 in. (with mounting brackets) 42.9 cm / 16.89 in. (without mounting brackets)
Height	4.39 cm / 1.73 in.
Depth	40.46 cm / 15.93 in.
Weight	6.25 kg / 13.75 lbs.
Max Power Consumption	100 VAC, 50/60 Hz, 3A 240 VAC, 50/60 Hz, 1.5A
Operating Temperature	10°C - 35°C / 50°F - 95°F
Operating Humidity	5% - 85% without condensation

2.2 Power Cord Specifications

A power cord is not supplied with the device. Use only a correctly rated power cord that's certified, as appropriate, for the country of operation.

2.2.1 Power Protection

- **If possible, use a circuit that is dedicated to data processing equipment.** Commercial electrical contractors are familiar with wiring for data processing equipment and can help with the load balancing of these circuits.
- **Install surge protection.** Be sure to use a surge protection device between the electricity source and the WS 5100.
- **Install an Uninterruptible Power Supply (UPS).** A UPS provides continuous power during a power outage. Some UPS devices have integral surge protection. UPS equipment requires periodic maintenance to ensure reliability. A UPS of the proper capacity for the data processing equipment must be purchased.

2.3 Cable Requirements

To connect the WS 5100 to the LAN and the WLAN, you'll need two Category 6 Ethernet cables (not supplied), one for each of the two Ethernet ports on the front panel of the device.

To connect the WS 5100 to a computer that's running a serial terminal emulator program (the "configuration computer"), you need the console cable that's supplied with the device. You'll use the terminal emulator program to access the switch's Command Line Interface (CLI) through which you'll perform initial configuration (as described in "Preliminary Configuration through the CLI" on page 12).

2.4 LED Codes

The WS 5100 has two vertically-stacked LEDs on its front panel. The LEDs display three colors (blue, amber, and red), and three operating states (solid, blinking, and off). The following tables define the combinations of LED colors and states.

2.4.1 Start Up

Event	Top LED	Bottom LED
Power off	Off	Off
Power On Self Test (POST) running	All colors in rotation	All colors in rotation
POST succeeded	Blue solid	Blue solid
Software initializing	Blue solid	Off
Software initialized	Blue blinking	Off

2.4.2 Configured as a Primary Switch

Event	Top LED	Bottom LED
Active	Blue blinking	Blue solid
Monitoring	Blue blinking	Amber solid
Standby missing or not enabled	Blue blinking	Off
Inactive	Amber blinking	Blue blinking

2.4.3 Configured as a Standby Switch

Event	Top LED	Bottom LED
Active (acting as primary)	Blue blinking	Blue blinking
Monitoring	Blue blinking	Amber solid

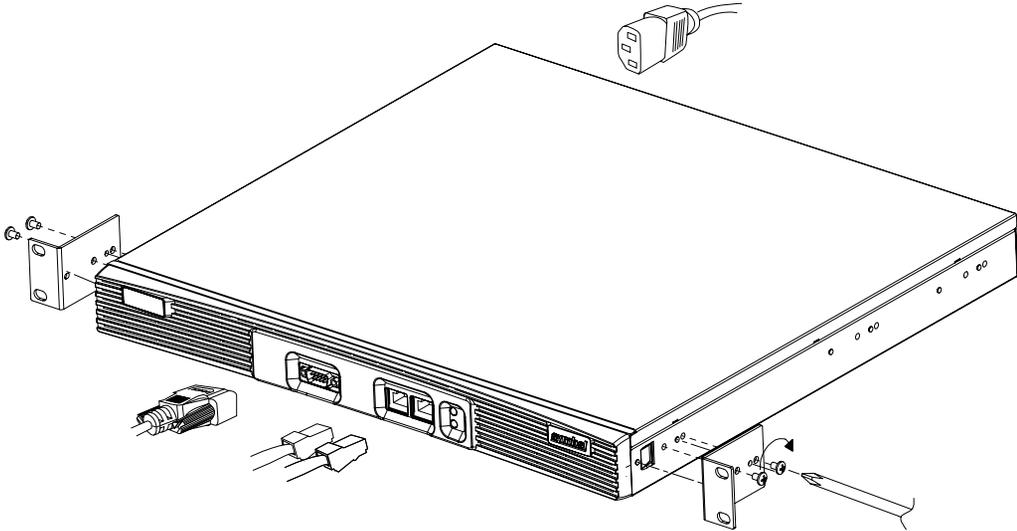
Event	Top LED	Bottom LED
Standby not enabled	Blue blinking	Off
Inactive	Amber blinking	Amber blinking

2.4.4 Error Codes

Event	Top LED	Bottom LED
POST failed (critical error)	Red blinking	Red blinking
Software initialization failed	Amber solid	Off
Country code not configured. Note: <i>During first time setup, the LEDs will remain in this state until the country code is configured.</i>	Amber solid	Amber blinking
No access ports have been adopted	Blue blinking	Amber blinking
Primary inactive or failed	Amber blinking	Blue blinking

3 Hardware Setup

3.1 Installing the WS 5100

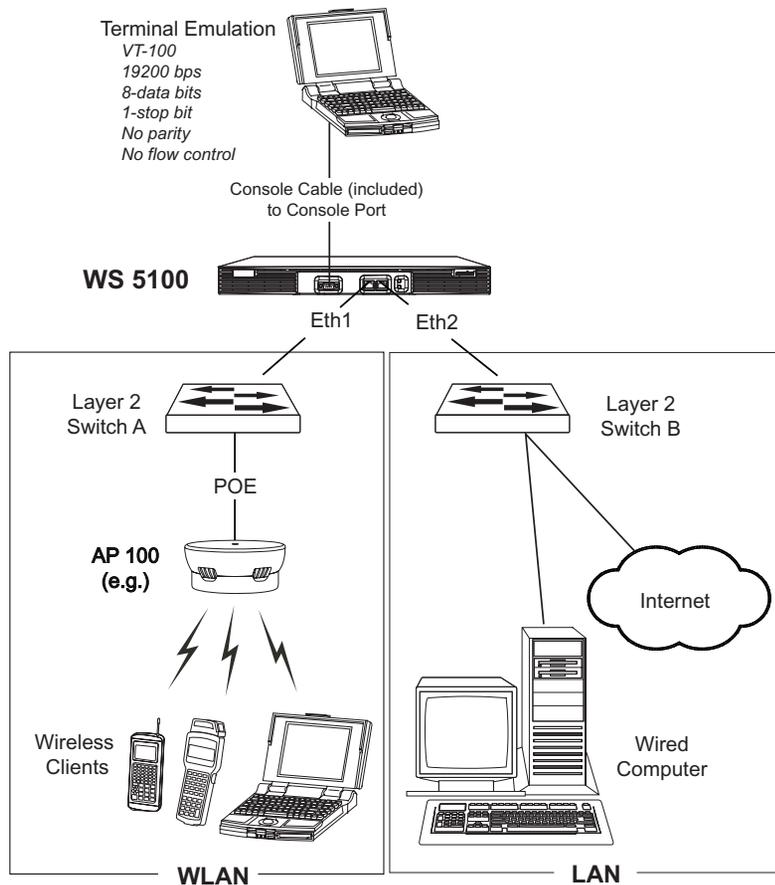


To install the WS 5100 switch in a rack:

1. Attach the rack brackets to the sides of the device.
2. Attach the brackets to the rack.

3.2 Adding the WS 5100 to the Network

The WS 5100 fits in the distribution layer of the existing wired network, and must have OSI Layer 2 connectivity with the access ports that it needs to adopt. The following illustration shows the major components of a WS 5100 network deployment.



As shown in the illustration, all wireless devices are connected to the WS 5100 through **Switch A** and all wired devices are connected through **Switch B**.

To add the WS 5100 to the wired and wireless networks, and prepare it for initial configuration:

1. Using a Category 6 Ethernet cable, connect a LAN switch (**Switch A**) to the **Eth1** Ethernet port (the left port) on the front panel of the WS 5100.
2. Add your access port(s) to the WLAN.
3. Using a Category 6 Ethernet cable, connect another LAN switch (**Switch B**) to the **Eth2** Ethernet port (the right port) on the front panel of the WS 5100.

4. Using the supplied console cable, connect the WS 5100 serial port to an RS-232 (DB-9) serial port on a separate computer (the “configuration computer”).
5. On the configuration computer, configure a terminal emulation application (such as **HyperTerminal**) as follows:

Terminal Type	VT-100
Port	COM 1-4 (depending on which COM port you’re using.)
Terminal Settings	19200 bps transfer rate 8 data bits no parity 1 stop bit no flow control no hardware compression

The WS 5100 does not need to be fully deployed into the wired or wireless networks to complete the installation steps outlined in “**Preliminary Configuration through the CLI**” on page 12.

3.3 Supplying Power to the WS 5100

1. Verify the WS 5100 power switch is off before connecting the AC power cord.
2. Plug an approved AC power cord into the power connector at the back of the WS 5100.
3. Plug the cord into a standard AC outlet with a voltage range of 100 to 240 VAC.
4. Toggle the power switch (at the back of the WS 5100) to the on position.



WARNING! An improper shutdown can render the WS 5100 inoperable such that it may require service by Symbol Support. Please do not remove AC power or turn off the WS 5100 (by toggling the on/off switch on the back of the device) without first following the shutdown procedure described in “**Shutting Down the WS 5100**” on page 23. An abrupt loss of power can corrupt the information stored on the device.

3.4 Verifying the Installation

Watch the LEDs on the front panel of the WS 5100 to ensure that the device is functioning properly. The normal LED pattern follows this path:

- During the Power On Self Test (POST), the two LEDs cycle through all three colors (blue, amber, red).
- If the POST test fails, both LEDs will eventually blink red. If the POST test succeeds, the LEDs will be (momentarily) lit solid blue.
- As the software is initialized, the top LED will be solid blue, and the bottom LED will be unlit.
- After the software has finished initializing, the top LED will be solid amber, and the bottom LED will blink amber. The WS 5100 is ready to be configured, as described in the next chapter.

Other LED codes indicate the presence (or absence) of access ports, the different standby states, and so on. A guide to the WS 5100 LEDs codes is provided in “**LED Codes**” on page 6.

4 Preliminary Configuration through the CLI

Most of the practical configuration of the WS 5100 can be performed through the **Quick Start View** applet. However, to access the applet you first have to use the Command Line Interface (CLI) to configure the Ethernet port that connects the switch to the wired LAN.

Before proceeding with the CLI steps described below, you have to connect a configuration computer to the WS 5100, as described in “**Adding the WS 5100 to the Network**” on page 8. Keep in mind that the switch doesn’t have to be deployed into the network to perform this initial configuration.

4.1 Typographical Conventions

The following typographical conventions apply to the CLI examples:

- The CLI prompt and output are shown as unbolded.
- Text that you enter verbatim is **bold**.
- Values that you “make up” (as command parameters) are in *bold italics*.

For example:

```
ws5000.(Cfg).Ethernet.[2]>set gateway w.x.y.z
```

Here, everything up to and including the “>” is part of the CLI prompt; **set gateway** is a CLI command; *w.x.y.z* is a value that you create (or otherwise obtain) as appropriate for your network.

4.2 Logging Into the CLI

After you have connected the WS 5100 through the serial port and powered on the switch, the terminal emulation window displays a series of diagnostic messages (which you can ignore), after which it displays the WS 5000 Series user name prompt.

Type the **cli** command to continue:

```
user name: cli
```



NOTE If the user name prompt isn’t displayed, press **Enter** until it appears.

Next, you’ll be taken to the CLI login. Log in as **admin** with the password **symbol1**:

```
Symbol Wireless Switch WS 5000 Series.
Please enter your username and password...
```

```
userid: admin
password: symbol
```

After you've logged in, the terminal will display a table of system information followed by the CLI prompt:

```
Welcome...
```

```
Creating the Event list...
System information...
```

```
System Name           : WS5000
Description           : WS5000 Wireless Network
Switch Location       :
Software Ver.         : 1.x.y.z-nnnA
...etc...
```

```
ws5000>
```

Compare the value of the “**Software Ver.**” field to the value on the Symbol Website at:

http://www.symbol.com/services/downloads/download_switchwireless.html

If the Website software is newer (if the *x.y.z-*nnnA** number on the Website is alphanumerically greater than your version), download and install the newer version by following the instructions on the Website.

4.3 Disable DHCP on the Wired LAN Port

Connect to the LAN through either Ethernet port; by convention, and as used throughout this document, Ethernet port 2 is used as the wired LAN port.

By default, DHCP is enabled on Ethernet port 2. You disable DHCP on this port by entering the **Ethernet.[2]** context and issuing the **set dhcp disable** command:

```
WS5000>cfg ethernet 2
WS5000.(Cfg).Ethernet.[2]>set dhcp disable
```

After you disable DHCP, information about Ethernet port 2 is listed. In this listing, **DHCP Status** should be given as **Disable**:

```
Configuring IP address of Ethernet 2...Status: Success.  
Name                       : Ethernet 2  
Network Interface Card #   : 2  
...  
DHCP status                 : Disable  
...  
ws5000.(Cfg).Ethernet.[2]>
```

4.4 Set Static IP Information on the Wired LAN Port

Within the **Ethernet.[2]** context, use the **ipaddress** command to set the static IP address and subnet mask (in that order):

```
WS5000.(Cfg).Ethernet.[2]>ipaddress w.x.y.z 255.x.y.z
```

Next, set the gateway and DNS server addresses:

```
WS5000.(Cfg).Ethernet.[2]>set gateway w.x.y.z  
WS5000.(Cfg).Ethernet.[2]>set dns w.x.y.z
```

After each of these commands, information about the context is displayed. Check the IP address settings to make sure they're correct.

At this point, the initial configuration of the WS 5100 will be complete. You'll continue the configuration through the switch's Web-based applet interface, as described in the next section.

5 Further Configuration through the Quick Start View

To complete the initial configuration of the WS 5100, we'll use the **Quick Start View**. The Quick Start View is part of the **WS 5000 Series** applet, a Web-based tool that lets you configure your WS 5100 switch through an intuitive graphical interface. The Quick Start View portion of the applet is designed to take a factory-fresh switch and bring it up to a minimal working configuration. For advanced switch configuration, refer to the *WS 5000 Series System Reference*, which you'll find on the product CD.

In the instructions below, you'll create a WLAN policy and a security policy. You'll then apply these policies to the WS 5100 switch policy. After you've created and applied the policies, you should be able to adopt and communicate with properly configured mobile units, as described in “**Verifying the Configuration**” on page 21.

5.1 Applet Requirements

The WS 5000 Series applet is accessed through Internet Explorer version 5.5 using the SUN JRE (Java Runtime Environment) 1.4.2_06. (Later versions of IE and the SUN JRE are also supported.) A copy of the SUN JRE is provided with your WS 5100 product CD. To install the JRE, insert the CD, wait for the Flash menu to appear, and then select **Install the SUN JRE**.

To prepare Internet Explorer to run the **WS 5000 Series** applet:

1. Open IE's **Tools > Internet Options** panel and select the **Advanced** tab.
2. Uncheck the following checkboxes:
 - **Use HTTP 1.1**
 - **Java console enabled (requires restart)**
 - **Java logging enabled**
 - **JIT compiler for virtual enabled (requires restart)**

5.2 Launching the Quick Start View

To use the Quick Start View, launch a Web browser on a computer that can access your WS 5100.

1. Point the browser to the IP address that you assigned to the wired Ethernet port (port 2) in “**Set Static IP Information on the Wired LAN Port**” on page 14. You must specify a secure connection by using the `https://` protocol.

The WS 5000 login screen is displayed:



2. Enter the User ID **admin**, and Password **symbol1**. Both are case-sensitive.
3. Click **Login**. The **WS 5000 Switch Policy** window appears.

4. From the main menu, select **View > Quick Start**. The **WS5000 Quick Start View** window appears. It's in this window that you'll create your WLAN policy and apply it to the WS 5100.

The screenshot shows the 'WS 5000 Series Wireless Switch' Quick Start View. The window title is 'WS 5000 Series Wireless Switch' with the 'symbol' logo. The menu bar includes 'View', 'Create', 'Modify', 'System Settings', 'Run', and 'Help'. The main heading is 'WS5000 Quick Start View'. Below this is a descriptive text: 'Configure a basic Switch Policy with up to four WLANs, one security type per WLAN, and other common settings in this view. To configure advanced features and options or to view your existing configuration, please use the "Policy" view.'

The 'Switch Settings' section contains the following fields:

- Country: None (dropdown)
- Date: 2004/12/07 (YYYY/MM/DD)
- Time: 11:37 AM (HH:MM)
- Warm Standby: Primary (dropdown)
- Time Zone: (GMT -08:00) Pacific Time (US & Canada); Tijuana (dropdown)
- Daylight Saving Time Setting: USA (dropdown)

Below the Switch Settings is a section for configuring up to four WLANs (WLAN #1 to WLAN #4). The visible fields for WLAN #1 are:

- ESSID: (text input)
- Bandwidth: (text input) %
- LAN: Ethernet 2 (dropdown)

The 'Encryption' and 'Authentication' sections are visible with the following options:

- Encryption:
 - None
 - Keyguard (with 'Configure' button)
 - WEP (with 'Configure' button)
 - WPA/TKIP (with 'Configure' button)
 - WPA2/CCMP (with 'Configure' button)
- Authentication:
 - None
 - Pre-Shared Key
 - Kerberos (with 'Configure' button)
 - 802.1x EAP (with 'Configure' button)

At the bottom right of the configuration area are buttons for 'Undo', 'Apply', 'Help', and 'Logout'. The status bar at the bottom shows 'Connected', signal strength indicators, the time '11:38 AM PST', and system icons.

5. In the **Switch Settings** form, set the **Country** to the country that the switch is operating in, leave **Warm Standby** as **Primary**, and set the various date and time parameters.

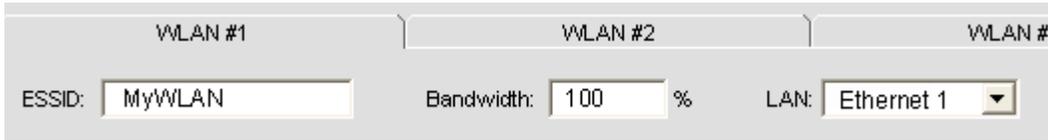
This is a close-up of the 'Switch Settings' form from the previous screenshot. It shows the following configuration:

- Country: None (dropdown)
- Date: 2004/12/07 (YYYY/MM/DD)
- Time: 11:37 AM (HH:MM)
- Warm Standby: Primary (dropdown)
- Time Zone: (GMT -08:00) Pacific Time (US & Canada); Tijuana (dropdown)
- Daylight Saving Time Setting: USA (dropdown)



CAUTION The switch can't adopt access ports until the country code is set. Failure to set the proper country could violate regulatory laws.

- In the **WLAN #1** form (in the lower half of the window), set the **ESSID** to a unique value (**MyWLAN** in the example), set the **Bandwidth** to **100**, and set the **LAN** to **Ethernet 1**.



The screenshot shows a configuration window with three tabs: WLAN #1, WLAN #2, and WLAN #. The WLAN #1 tab is active. It contains three fields: 'ESSID:' with a text box containing 'MyWLAN', 'Bandwidth:' with a numeric box containing '100' and a '%' symbol, and 'LAN:' with a dropdown menu showing 'Ethernet 1'.

Make a note of the ESSID value, you'll need it later when you verify the configuration.

- In the lower part of the **WLAN #1** form, set **Encryption:** to **WEP**, set **Authentication:** to **Pre-Shared Key**.



The screenshot shows two sections: 'Encryption:' and 'Authentication:'. Under 'Encryption:', there are five radio buttons: 'None', 'Keyguard', 'WEP' (selected), 'WPA/TKIP', and 'WPA 2/CCMD'. Each radio button has a 'Configure' button next to it. Under 'Authentication:', there are four radio buttons: 'None', 'Pre-Shared Key' (selected), 'Kerberos', and '802.1x EAP'. Each radio button has a 'Configure' button next to it.

- Click the **Configure** button next to the **WEP** radio button. The **WEP Encryption Key Settings** dialogue panel is displayed.



9. Enter a (different) 13-character ASCII or a 26-character hexadecimal value in each of the four **Key #N** fields. Make a note of the key values that you've supplied here—you'll need them to configure your mobile devices.



CAUTION Don't use the values that are shown in the illustration.

10. After you've recorded your key values, click **Save** at the bottom of the dialogue.

11. Back in the **WS5000 Quick Start View** window, click **Apply** to save the configuration.

The screenshot shows the WS 5000 Wireless Switch configuration interface. The title bar reads "WS 5000 Wireless Switch" with the Symbol logo. The main window is titled "WS5000 Quick Start View".

Switch Settings:

- Country: United States
- Date: 2004/06/08 (YYYY/MM/DD)
- Time: 10:36 PM (HH:MM)
- Warm Standby: Primary
- Time Zone: (GMT -08:00) Pacific Time (US & Canada); Tijuana
- Adjust for Daylight Saving Time

WLAN #1:

- ESSID: MyWLAN
- Bandwidth: 100 %
- LAN: Ethernet 1

Encryption:

- None
- Keyguard
- WEP
- WPA/TKIP
- WPA/TKIP

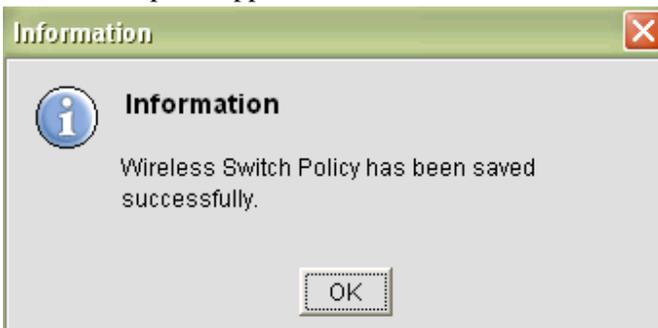
Authentication:

- None
- Pre-Shared Key
- Kerberos
- 802.1x EAP

At the bottom right of the configuration area, there are three buttons: **Undo**, **Apply**, and **Help**. The **Apply** button is highlighted with a yellow box, and a pink arrow points to it. Below these buttons are smaller versions of the same buttons.

The status bar at the bottom shows "Connected", a signal strength indicator, and the time "10:57 PM PDT".

12. An information panel appears; click **OK**.



NOTE Your new configuration is not displayed in the **Quick Start View**. To view the policy you just created, you have to go to the **View > Policy** window. The policy is given a default name that corresponds to WLAN #1.

6 Verifying the Configuration

The surest way to verify that your WLAN configuration is valid and that the switch is fully operational, is to associate a mobile unit (MU) and confirm that the MU can communicate with a device on the wired LAN. Follow these steps:

1. Deploy your WS 5100 into the wired and wireless networks by connecting the Ethernet cables as described in “**Adding the WS 5100 to the Network**” on page 8.
2. Identify, by IP address or host name, a computer that the WS 5100 can communicate with over the wired LAN. This is the device that the MU will try to communicate with later in these instructions.
3. Make sure an access port has been adopted by the WS 5100.
4. Configure the MU with the same ESSID (**MyWLAN**) and WEP encryption settings that you used in the Quick Start View configuration.
5. After you’ve configured the MU, verify that it has been associated by the returning to the **Policy View** screen and clicking **Mobile Units**. The **MU View** should have an entry that identifies your mobile unit and shows the **RF State** as **Associated**. If it doesn’t, check that the ESSID and encryption settings are properly set on the MU.

MU View

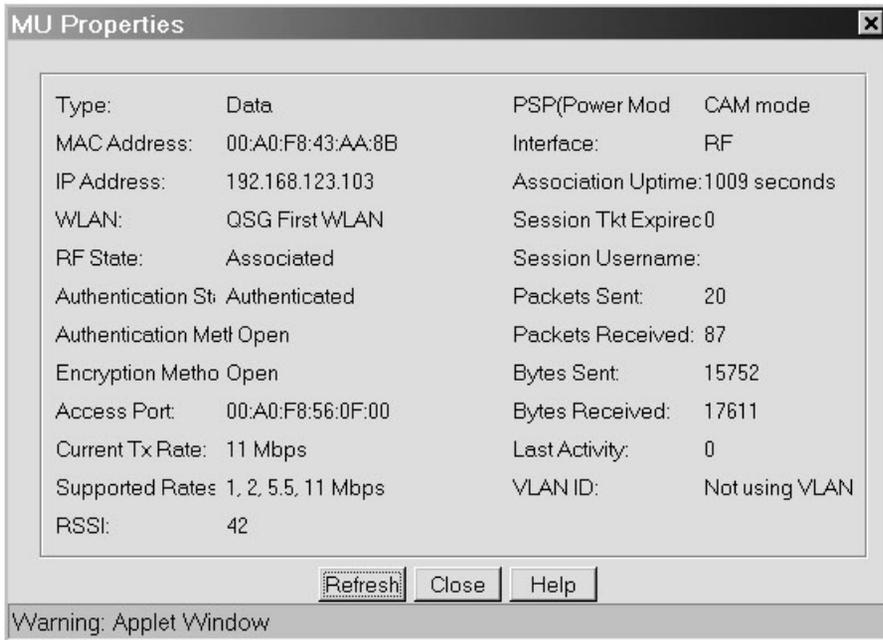
MU Details

WLAN: All WLANs Include MUs which are Away

Type	MAC Address	IP Address	WLAN	RF State	Authentication State
	00:A0:F8:A7:44:DE	2.2.2.211	QIWLAN01	Associated	Authenticated

MU Count: 1

6. If you want more information, select the mobile unit and click **Properties**. The **MU Properties** dialogue displays everything the switch knows about your mobile unit



7. Verify the WS 5100 is fully operational on both sides of the network (wired and wireless) by pinging the device on the wired LAN from the MU. If the wired device responds, the switch is working.
- If it does not respond, verify the wired device is on, it is on the proper LAN and you are pinging the correct IP address or host name.

7 Shutting Down the WS 5100

To gracefully shutdown the WS 5100, issue the **shutdown** command from the **configure** context in the CLI:

```
ws5000.(Cfg)> shutdown
```

This command will halt the system.

A manual power cycle will be required to re-start the switch.

Do you want to proceed (yes/no) : **yes**

System shut down might take a few mins....

Shutting down snmpd agent.....done.

Shutting down apache server...done.

Shutting down cell controller.....done.

Shutting down database main thread...done.

Shutting down the switch...

Please wait 10 secs before turning off power.

As directed, wait 10 seconds and then turn off the device by toggling the power switch.



WARNING! An improper shutdown can render the WS 5100 inoperable such that it may require service by Symbol Support. Please do not remove AC power or turn off the WS 5100 (by toggling the on/off switch on the back of the device) without first following the shutdown procedure outlined above. An abrupt loss of power can corrupt the information that's stored on the device.

8 Further CLI Information

8.1 CLI Contexts

At each step of the configuration, you'll be asked to invoke CLI commands within a particular "context." To enter the main "configuration" context, you type **configure** at the top-level CLI prompt. Note that the prompt changes when you change contexts:

```
ws5000> configure
ws5000.(Cfg)>
```

All of the contexts that we'll visit in the following instructions are "subcontexts" of the **configure** context. For example, to get to the WLAN context you would type **wlan** within the **configure** context:

```
ws5000.(Cfg)> wlan
ws5000.(Cfg).WLAN>
```

As a shortcut, you can jump directly to a configuration subcontext through the "**configure subcontext**" command:

```
ws5000> configure wlan
ws5000.(Cfg).WLAN>
```

As a further shortcut, the CLI performs silent auto-completion of unambiguous commands. As an example, "**conf**" is a sufficient abbreviation for "**configure**". If you enter an abbreviated command that isn't unambiguous (i.e. that can resolve to more than one command), you'll be presented with a list of command completions.



NOTE All CLI commands are case-insensitive. All user-created data (the name that you give a policy that you create, for example) is case-sensitive.

8.2 Common CLI Commands

Within any context, you can:

- List all the available commands by typing **help** or **?**
- Show the current configuration settings by typing **show**.
- Bump up one configuration context level by typing **..** (two periods).
- Get back to the top-level context by typing "**exit**".

9 Regulatory Information



WARNING! This regulatory section applies only to the WS 5100 device (WS-5100-Rxx-xxx-WWW). All Symbol devices are designed to be compliant with rules and regulations of locations they are sold in and are labeled as required.

Any changes or modifications to Symbol Technologies equipment that are not expressly approved by Symbol Technologies are possibly unsafe and could render the equipment inoperable.



CAUTION This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Radio Frequency Interference Requirements - USA

This equipment has been tested and found to comply with the limits for a Class A 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 at his own expense.

Radio Frequency Interference Requirements - Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Marking and European Economic Area (EEA)



Statement of Compliance

Symbol Technologies, Inc., hereby declares that this device is in compliance with all the applicable Directives, 89/336/EEC, 73/23/EEC. A Declaration of Conformity may be obtained from:

<http://www2.symbol.com/doc/>

10 Part Numbers, Support, and Sales

Part Numbers

Description	Part Number
6-port WS 5100 Wireless Switch	WS-5100-R140-06-WW
12-port WS 5100 Wireless Switch	WS-5100-R140-12-WW
18-port WS 5100 Wireless Switch	WS-5100-R140-18-WW
24-port WS 5100 Wireless Switch	WS-5100-R140-24-WW
30-port WS 5100 Wireless Switch	WS-5100-R140-30-WW
Redundant WS 5100 Wireless Switch	WS-5100-R140-RS-WW
6-port Upgrade	WS-5100-UC-WW

Symbol Support Center

Use the **Symbol Support Center** as the primary contact for any technical problem, question, or support issue involving Symbol products. Symbol Support Center responds to calls by email, telephone or fax within the time limits set forth in individual contractual agreements:

Telephone (North America): 1-800-653-5350

Telephone (International): +1-631-738-6213

Fax: (631) 738-5410

Email: support@symbol.com

When contacting Symbol Support Center, please provide the following information:

- Serial number of the unit (this is the same as the MAC of NIC 1).
- Model number or product name.
- Software type and version number.

Customer Support Web Sites

Comprehensive on-line support is available at the **MySymbolCare** Web site. Registration is free and a variety of services can be linked through this web portal.

MySymbolCare: <http://www.symbol.com/services/msc>

Symbol Services Homepage: <http://www.symbol.com/services>

Symbol Software Updates: <http://www.symbol.com/services/downloads>

Symbol Developer Program Web Site: <http://devzone.symbol.com>

Product Sales and Product Information

North America	International
Symbol Technologies, Inc. One Symbol Plaza Holtsville, New York 11742-1300 Tel: 1-631-738-2400 or 1-800-722-6234 Fax: 1-631-738-5990	Symbol Technologies Symbol Place Winnersh Triangle, Berkshire, RG41 5TP United Kingdom Tel: 0800-328-2424 (Inside UK) +44 118 945 7529 (Outside UK)

Other Sales Offices

For other sales offices visit the **Symbol Services** Web site:

http://www.symbol.com/services/howto/howto_contact_us.html

General Information

For general information, contact Symbol at:

Telephone (North America): 1-800-722-6234

Telephone (International): +1-631-738-5200

Website: <http://www.symbol.com>



CAUTION This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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