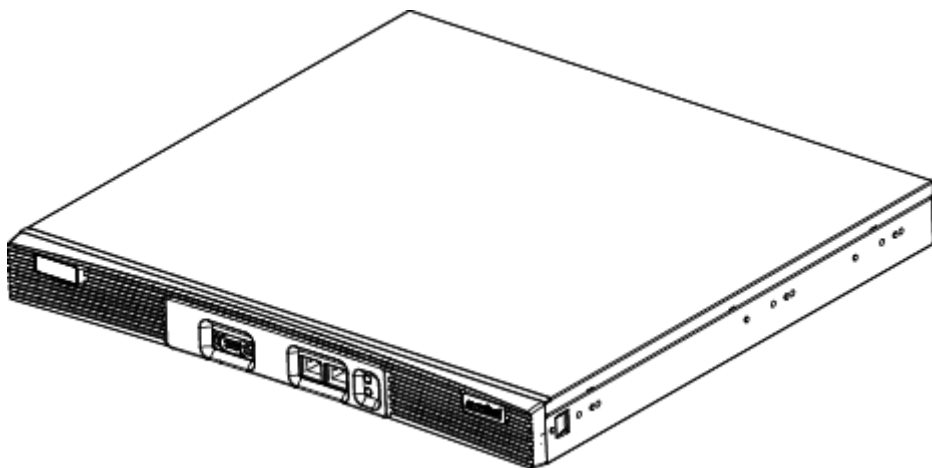


WS5100 Series Switch

INSTALLATION GUIDE



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WS5100 Series, WS5100 Installation Guide

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1 Introduction

The Symbol WS5100 Series Switch is the high-performance member of Symbol's Wireless Switch family. The WS5100 Series Switch provides centralized Wireless LAN (WLAN) configuration and management by coalescing the network "intelligence" that was previously spread across physically distributed access points. By replacing access points with simpler access ports (or "thin" access points), the WS5100 becomes a WLAN's single point of contact, thus reducing wireless networking complexity 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 WS5100 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:

- WS5100 Wireless Switch
- **Installation Guide** (this document)
- Rack-mounting brackets (2)
- Mounting screws (4)
- Console cable

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 the rack is anchored and cannot tip over or break away from its mountings.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify 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 WS5100 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 there is adequate ventilation around the device, and 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 WS5100 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 certified (as appropriate) for the country of operation.

2.2.1 Power Protection

- **If possible, use a circuit 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 WS5100.
- **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 WS5100 to the LAN and the WLAN, you will 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 WS5100 to a computer running a serial terminal emulator program (the “configuration computer”), you need the console cable supplied with the switch.

2.4 LED Codes

The WS5100 has two vertically-stacked LEDs on its front panel. The LEDs display three colors (blue, amber, and red), and three lit states (solid, blinking, and off). The following tables decode 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

2.4.2 Primary

Event	Top LED	Bottom LED
Active (<i>Continually Adopting Access Ports</i>)	Blue blinking	Blue solid
No License to Adopt	Amber blinking	Amber blinking

2.4.3 Standby

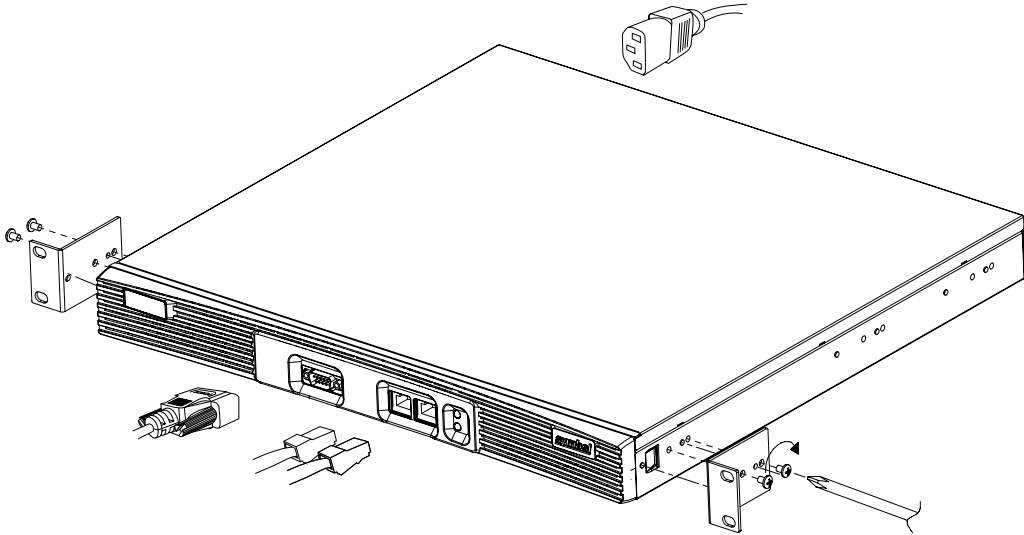
Event	Top LED	Bottom LED
Active (<i>Failed Over and Adopting Ports</i>)	Blue blinking	Blue blinking
Active (<i>Not Failed Over</i>)	Blue blinking	Amber solid

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

3 Hardware Setup

3.1 Installing the WS5100



To install the WS5100 switch in a rack:

1. Attach the rack brackets to the sides of the device. The rack brackets are ambidextrous.
2. Attach the brackets to the rack.

3.2 Adding the WS5100 to the Network

The WS5100 fits in the distribution layer of the existing wired network, and must have OSI Layer 2 or Layer 3 connectivity with the access ports it needs to adopt.

To add the WS5100 to the network and prepare it for initial configuration:

1. Using a Category 6 Ethernet cable, connect a LAN switch to the **Eth1** Ethernet port (the left port) on the front panel of the WS5100.
2. Deploy the required amount of access port(s) to the WLAN.
3. Using a Category 6 Ethernet cable, connect another LAN switch to the **Eth2** Ethernet port (the right port) on the front panel of the WS5100.
4. Using the supplied console cable, connect the WS5100 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 are using.)
Terminal Settings	19200 bps transfer rate 8 data bits no parity 1 stop bit no flow control no hardware compression

The WS5100 does not need to be fully deployed into the wired or wireless network to complete the installation steps outlined in “**Preliminary Switch Configuration**” on page 11.

3.3 Supplying Power to the WS5100

1. Verify the WS5100 power is switched off before connecting the AC power cord.
2. Plug an approved AC power cord into the power connector at the back of the WS5100.
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 WS5100) to the On position.



WARNING! An improper shutdown can render the WS5100 inoperable such that it could require service by Symbol Support. Do not remove AC power or turn off the WS5100 (by toggling the on/off switch on the back of the device) without first following the shutdown procedure described in “**Shutting Down the WS5100**” on page 20. An abrupt loss of power can corrupt the information stored on the device.

3.4 Verifying the Installation

View the LEDs on the front panel of the WS5100 to ensure 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 eventually blink red. If the POST test succeeds, the LEDs will be (momentarily) lit solid blue.
- As the software is initialized, the top LED is solid blue, but the bottom LED is unlit.
- After the software has finished initializing, the top LED is blinking amber and the bottom LED is solid amber. The WS5100 is ready to be configured, as described in the next chapter.

Other LED codes indicate the presence (or absence) of access ports, different standby states, and so on. A guide to the WS5100 LEDs codes is provided in “**LED Codes**” on page 4.

4 Preliminary Configuration through the CLI

Before proceeding with the instructions below, connect a configuration (host) computer to the WS5100, as described in “**Adding the WS5100 to the Network**” on page 7. Keep in mind, the switch does not have to be deployed into the network to perform this initial configuration.

4.1 Logging Into the CLI

After you have connected to the WS5100 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 WS5100 Series user name prompt. Use the name CLI to continue:

```
user name: cli
```



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

Next, you are taken to the CLI login. Log in as **admin** with the password **superuser**:

```
ws5100>
```



NOTE When using the WS5100 CLI, be aware of the inactivity timeout in order to avoid being logged out of your CLI session if the interval is exceeded.

4.2 Configuring the WS5100 IP Address

Before you can set the switch's preliminary configuration using the Web UI, the IP address assigned to the switch must be known. By default the switch uses virtual LAN 1, which is mapped to Ethernet port 2 for the switch default wired LAN management port.

4.2.1 DHCP Configuration

The default setting is to use a DHCP served IP address to access the WS5100 through Ethernet Port 2. No Changes to the configuration are required for this setting.

Use the "show ip interface brief" command to display the IP address assigned to the switch by the DHCP server.

4.2.2 Setting Static IP Information

Setting a fixed IP address for the VLAN 1 interface on the switch will automatically disable DHCP.

To set the IP address for the switch:

```
ws5100>enable
ws5100#configure terminal
Enter configuration commands, one per line. End with CNTL/Z
ws5100(config)#interface vlan 1
ws5100(config-if)#ip address w.x.y.z/24
ws5100(config-if)#exit
ws5100(config)#ip default-gateway w.x.y.n
ws5100(config)#ip name-server x.x.x.x
```

To verify the settings and connection:

```
ws5100(config)#exit
ws5100#ping w.x.y.z
```

To save the settings to be available on the next reboot of the switch:

```
ws5100#write memory
[OK]
```

At this point, the initial configuration of the WS5100 is complete. Continue the configuration through the switch's Web UI, as described in the next section.

5 Preliminary Switch Configuration

To complete a preliminary configuration of the WS5100, several different screens within the Web UI will be referenced. The goal of the initial configuration, is to define settings for the switch to associate to an MU with a minimal level of data protection. For advanced switch configuration, refer to the ***WS5100 Series System Reference Guide***, available on the Symbol Web site.

Using the instructions below, define a WLAN policy and a security policy. Then, apply these policies to the WS5100 switch. After you have created and applied the policies, you should be able to associate and communicate with a properly configured mobile unit. When ready to verify the preliminary configuration described in this section, refer to “**Verifying the Configuration**” on page 19.

5.1 Web UI Requirements

The WS5100 Series Web UI is accessed using Internet Explorer version 5.5 and SUN JRE (Java Runtime Environment) 1.5. (Later versions of IE and the SUN JRE are also supported.) Refer to the Sun Microsystems Web site for information on downloading JRE.

To prepare Internet Explorer to run the **WS5100 Series** Web UI:

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 WS5100 Series Switch Web UI

To display the WS5100 Series Switch Web UI, launch a Web browser on a computer with the capability of accessing the WS5100.



NOTE HTTP access is required to use the WS5100 Web UI.

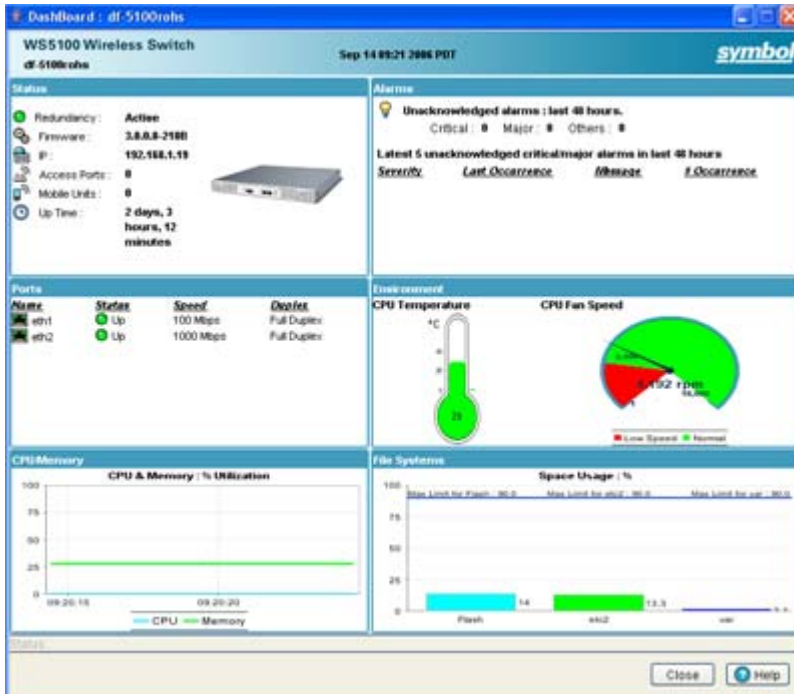
1. Point the browser to the IP address assigned to the wired Ethernet port (port 2). Specify a secure connection using the **https://** protocol.

The WS5100 login screen displays:

The screenshot shows the login interface for the WS5100 Wireless Switch. The page has a blue background. At the top, there is a black header bar with the text 'WS5100' and 'WIRELESS SWITCH' in white. Below the header, there is a white login box with a blue border. Inside the box, the text 'Enter User ID and Password.' is displayed. There are two input fields: 'User ID:' with the value 'admin' and 'Password:' with the value '*****'. A 'Login' button is located below the password field. The 'symbol' logo is visible in the bottom right corner of the page.

2. Enter the User ID **admin**, and Password **superuser**. Both are case-sensitive.

The **Switch** screen displays. Click the **Show Dashboard** button to display an overall indicator of switch health. Once the switch is fully configured, the dashboard is the central display for the user to view the version of firmware running on the switch, quickly assess the last 5 alarms generated by the switch, view the status of the switch's Ethernet connections and view switch CPU and memory utilization statistics.



- Close the WS5100 Series Switch Dashboard.
The WS5100 **Switch** screen displays with the **Configuration** tab selected.

4. Enter a **System Name** for this WS5100 Series Switch. The System Name is helpful in differentiating multiple switches with similar configurations.
5. Use the **Country** drop-down menu to assign the switch a country of operation.
Selecting the country is central to legally operating a WS5100 Series Switch. Each country has its own regulatory restrictions concerning electromagnetic emissions and the maximum RF signal strength that can be transmitted. To ensure compliance with national and local laws, be sure to set the country accurately.



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

6. Optionally specify the switch location and the administrator's email address as a point of contact in case an individual needs to be notified regarding events impacting switch performance.
You are now ready to define a WLAN and configure it with the minimum security required to securely test an MU association.

7. From the main menu, select **Network > Wireless LANs**.

Index	Enabled	ESSID	Name	VLAN / Tunnel	Authentication	Encryption
1	✓	df202	dave3	VLAN 202	None	KeyG
2	✓	df2001	dave2	VLAN 2001	None	KeyG
3	✗	df1	dave1	VLAN 1	None	WEP128,KeyG
4	✗	004	WLAN4	VLAN 1	None	None
5	✗	005	WLAN5	VLAN 1	None	None
6	✗	006	WLAN6	VLAN 1	None	None
7	✗	007	WLAN7	VLAN 1	None	None
8	✗	008	WLAN8	VLAN 1	None	None
9	✗	009	WLAN9	VLAN 1	None	None
10	✗	010	WLAN10	VLAN 1	None	None
11	✗	011	WLAN11	VLAN 1	None	None
12	✗	012	WLAN12	VLAN 1	None	None
13	✗	013	WLAN13	VLAN 1	None	None
14	✗	014	WLAN14	VLAN 1	None	None
15	✗	015	WLAN15	VLAN 1	None	None
16	✗	016	WLAN16	VLAN 1	None	None
17	✗	017	WLAN17	VLAN 1	None	None
18	✗	018	WLAN18	VLAN 1	None	None
19	✗	019	WLAN19	VLAN 1	None	None
20	✗	020	WLAN20	VLAN 1	None	None
21	✗	021	WLAN21	VLAN 1	None	None
22	✗	022	WLAN22	VLAN 1	None	None
23	✗	023	WLAN23	VLAN 1	None	None
24	✗	024	WLAN24	VLAN 1	None	None
25	✗	025	WLAN25	VLAN 1	None	None
26	✗	026	WLAN26	VLAN 1	None	None
27	✗	027	WLAN27	VLAN 1	None	None
28	✗	028	WLAN28	VLAN 1	None	None
29	✗	029	WLAN29	VLAN 1	None	None

The **Wireless LANs** screen displays with existing WLANs appearing within the table. 32 disabled WLANs are available to either use as is, or select, enable and edit to better suit the needs of WS5100 switch-managed network. For the purposes of the preliminary configuration described within this guide, a WLAN will be enabled and edited to configure a secure association with a single MU.



CAUTION The WLANs initially displaying within the Wireless LANs configuration screen have no authentication or encryption scheme assigned. To securely use one of these WLANs, it must be enabled and have a security scheme assigned to it.

8. Highlight a WLAN from those displayed within the table and click the **Enable** button at the bottom of the screen.

A green checkmark within the Enabled column defines the WLAN as enabled. A red "x" within the Enabled column defines the WLAN as disabled.

9. Select the newly enabled WLAN and click the **Edit** button.
The **Wireless LANs Edit** screen displays.

The screenshot shows the 'Wireless LANs Edit' configuration window for WLAN4. The window is titled 'Network > Wireless LANs > Edit' and 'Edit WLAN4'. It is divided into several sections:

- Configuration:** ESSID is '104', Name is 'WLAN4', VLAN ID is '1', Tunnel is '0', Gateway is '0.0.0.0', and Mask is '0.0.0.0'.
- Authentication:** 'No Authentication' is selected.
- Encryption:** 'WEP 128' is selected.
- Advanced:** 'Answer Broadcast ESS' is checked, 'MU to MU Traffic' is set to 'Allow Packets', 'MU Idle Time' is '1800 seconds', 'Access Category' is 'Automatic/WMM', 'MCast Addr 1' is '00-00-00-00-00-00', and 'MCast Addr 2' is '00-00-00-00-00-00'.

Buttons for 'Config...', 'OK', 'Cancel', and 'Help' are visible. A 'Radius Config...' button is also present at the bottom left.

10. Within the **Configuration** field, set the *Extended Services Set Identification* (ESSID) used with the WLAN. The ESSID defined for this WLAN must match the ESSID defined for those MUs intending to use the WLAN for switch-managed network communication. The maximum number of characters that can be used for the ESSID is 32.

Make a note of the ESSID, you will need it later when verifying the configuration

11. Define the **Name** for the WLAN. The name should be logical representation of the WLAN's coverage area (engineering, marketing etc.). The maximum number of characters that can be used for the name is 31.

At this point of the WLAN configuration, a WEP 128 based encryption scheme will be defined to secure the data traffic between the WS5100 and its associated MU(s).



NOTE For the purposes of defining a security scheme for the WLAN (as described within this preliminary configuration discussion), WEP 128 will be used. However, there are many more sophisticated security schemes available to the WS5100 Series Switch. For information on configuring a more robust security scheme, refer to the *WS5100 Series Switch System Reference Guide* available from the Symbol Web site.

12. Within the Encryption field, select the **WEP 128** checkbox and click the **Config** button. The **WEP 128/KeyGuard** screen displays with fields to define the Pass Key used to generate WEP keys. These keys must be the same between the WS5100 and its associated MU to encrypt packets between the two devices.

13. Specify a 4 to 32 character pass key and click the **Generate** button. The pass key can be any alphanumeric string. The WS5100, other proprietary routers and Symbol MUs use the algorithm to convert an ASCII string to the same hexadecimal number. MUs without Symbol adapters need to use WEP keys manually configured as hexadecimal numbers.

14. Use the **Key #1-4** areas to specify key numbers. The key can be either a hexadecimal or ASCII string. For WEP 128 (104-bit key), the keys are 26 hexadecimal characters in length or 13 ASCII characters. Select one of the keys for activation by clicking its radio button.
15. Click **OK** to save the settings within the WEP 128/KeyGuard screen.
16. Click **OK** within the **Wireless LANs Edit** screen to save the changes made within this screen.



NOTE Ensure the ESSID and WEP 128 Key settings defined for the WS5100 have been set identically for the MU used to verify the WS5100 preliminary configuration.

17. Click the **Save** button in the lower left-hand corner of the screen to ensure all changes have been implemented.

6 Verifying the Configuration

The surest way to verify the WLAN's configuration is valid and the switch is operational, is to associate a MU and confirm the MU can communicate with a device on the wired LAN.

To verify the MU's association with the WS5100:

1. Deploy the WS5100 into the wired and wireless networks by connecting the Ethernet cables as described in "**Adding the WS5100 to the Network**" on page 7.
2. Identify (by IP address or host name) a computer the WS5100 can communicate with over the wired LAN. This is the device the MU will try to communicate with later in these instructions.
3. Verify an access port has been adopted by the WS5100.
4. Ensure the target MU has the same ESSID and WEP settings defined for the WS5100 following the instructions in section 5 of this document.
5. Verify the MU has been associated by selecting **Network > Mobile Units** from the main menu. The **Mobile Units** screen should display the MU's MAC address and network address information. If the MU does not display within the Mobile Units screen, verify the MU's ESSID and encryption settings are properly set.
6. If more information is required for the target MU, select the MU from the Mobile Units screen (within the Status tab) and click the **Details** button. The **Details** screen displays everything the WS5100 knows about this specific MU.
7. Finally, verify the WS5100 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 WS5100 is working. If it doesn't respond, make sure the wired device is on, is on the proper LAN, and you are pinging the correct IP address or host name.

7 Shutting Down the WS5100

Mechanisms exist to either shut down the WS5100 from either the switch Web UI or the CLI.



WARNING! An improper shutdown can render the WS5100 inoperable such that it may require service by Symbol Support. Do not remove AC power or turn off the WS5100 (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 stored on the switch.

7.1 Shutting Down From the Switch Web UI

To shut down the switch from the Web UI:

1. Select **Switch** from the WS5100 main menu tree.
2. Select the **Configuration** tab and click the **Shutdown** button.
3. Follow the prompts displayed by the Web UI to safely shutdown the WS5100.

7.2 Shutting Down From the CLI

To shut down the WS5100 from the CLI, issue a **halt** command, as the halt command is now used to shut down the WS5100 Series Switch with the release of the 3.0 version WS5100 baseline:

```
WS5100#halt
Wireless switch will be halted, do you want to continue? (y/n):y
The system is going down NOW !!

% Connection is closed by administrator!
WIOS_SECURITYMGR[395]: DNSALG: Shutting down.
WIOS_SECURITYMGR[395]: FTPALG: Shutting down.
The system is halted.
```



NOTE The WS5100 will power off after issuing a halt command through a software toggle of the power supply. Be sure to flip the power switch to the Off position. If the power cord is removed and reinstalled, or power is lost and restored, the switch will power back on.

8 Regulatory Information



WARNING! This regulatory section applies only to the WS5100. For more information refer to "[Part Numbers, Support, and Sales](#)". 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 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/>

9 Part Numbers, Support, and Sales

Part Numbers (pending)

Description	Part Number
6-port WS5100 Wireless Switch	WS-5100-06-WWR
12-port WS5100 Wireless Switch	WS-5100-12-WWR
18-port WS5100 Wireless Switch	WS-5100-18-WWR
24-port WS5100 Wireless Switch	WS-5100-24-WWR
30-port WS5100 Wireless Switch	WS-5100-30-WWR
36-port WS5100 Wireless Switch	WS-5100-36-WWR
42-port WS5100 Wireless Switch	WS-5100-42-WWR
48-port WS5100 Wireless Switch	WS-5100-48-WWR
Redundant WS5100 Wireless Switch	WS-5100-RS-WWR
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/msc.html>

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

Software Manuals: http://www.symbol.com/legacy_manuals/wire/ws5100.html

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, Inc. 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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