

This CD configures the Spot Vital Signs LXi Radio to a local network. Your system must meet the recommended requirements to function properly. Please review the following operating environment requirements before attempting the configuration.

Computer		Spot Vital Signs LXi
Intel® Pentium® Processor	32 MB of RAM (64 MB recommended)	USB/Serial Cable Kit - Welch Allyn part number 4500-927 or Cable for USB Conn, Keyspan - Welch Allyn Part Number 4500-926
60 MB of available hard-disk space	Autorun enabled	Spot LXi AC power transformer
Monitor set to at least 800 x 600 and 16-bit color	USB Port	Welch Allyn 802.11b radio kit part number 4500-920 or a 802.11a/b/g radio kit part number 4500-922
If configuring a Spot Vital Signs LXi via a Comm Port (optional), use Welch Allyn part number 4500-927. If a Comm Port is not available, use Welch Allyn part number 4500-926.		Spot LXi Radio Configuration CD, part number 4500-906
Microsoft Windows® XP SP2		



USB



Serial

Note A single LXi cannot be used to configure multiple 802.11a/b/g radios. Each radio must be configured with the LXi with which it will operate. The Configuration Tool also sets the LXi ports to the necessary 60 second time-out.

Installing the Spot LXi Radio Configuration software

Note This section contains common steps for the two supported Radios; p/n 4500-920 (802.11b radio) or p/n 4500-922 (802.11a/b/g radio).

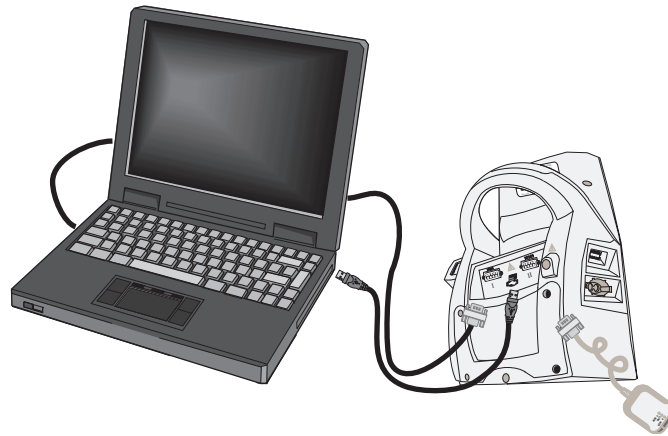
Before performing the Spot Vital Signs LXi Radio configuration, install the software on your computer.

1. Insert the Spot Vital Signs LXi Radio Configuration CD into the computer. The CD auto launches.
2. Respond to the installation queries as necessary and re-boot the computer after the installation.
3. Locate the MAC address on the back of each Spot Vital Signs LXi Wireless Radio and provide the information to the IT person to configure the access point to accept the Spot Vital Signs LXi Wireless Radio(s). Collect the security key, SSID, security mode, and pass phrase to continue.
4. Configure your wireless router to the settings acquired in [Step 3](#).
5. Power the Spot Vital Signs LXi off and connect the AC transformer to the Spot Vital Signs LXi and wall outlet.
6. Press the **Select** and **Power** buttons simultaneously. This powers the Spot Vital Signs LXi on in the Internal Configuration Mode.
7. Use the **Navigation** buttons to move through the menu to External Devices and press the **Select** button. The Spot Vital Signs LXi displays the External Devices Menu screen. Use the **Navigation** and **Select** buttons to update the screen settings to:

Information System	Off
Barcode Patient ID	Off
Barcode Clinician ID	Off
Weight Scale	Off
Wireless Module	None
Printer	Off

8. Open the Spot Vital Signs LXi Radio Configuration Utility on the computer. Click **Start>All Programs>Welch Allyn>Spot LXi Radio Configuration>Spot LXi Radio Config**.
9. Connect a null modem to the Spot Vital Signs LXi Port 1. Connect a serial cable to the PC and the null modem.

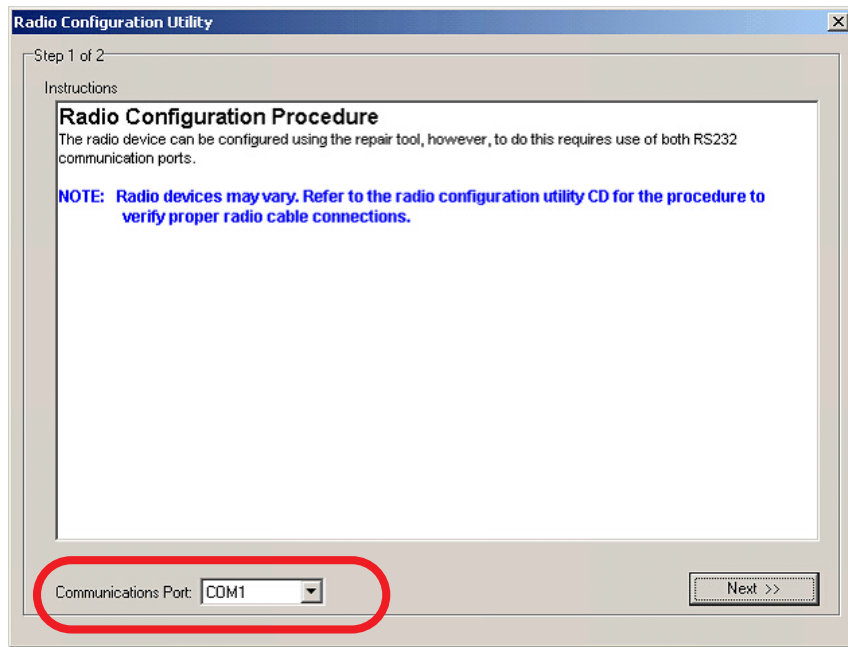
For 802.11b Radio Configurations:	For 802.11a/b/g Radio Configurations:
10. Connect the other null modem to Spot Vital Signs LXi Port 2. Connect the Radio to the null modem. Connect the USB cable to the USB port on both the PC and the Spot Vital Signs LXi.	10. Connect the 802.11a/b/g radio to Spot Vital Signs LXi Port 2. Connect the USB cable to the USB port on both the PC and the Spot Vital Signs LXi. Note No null modem needed for this radio.



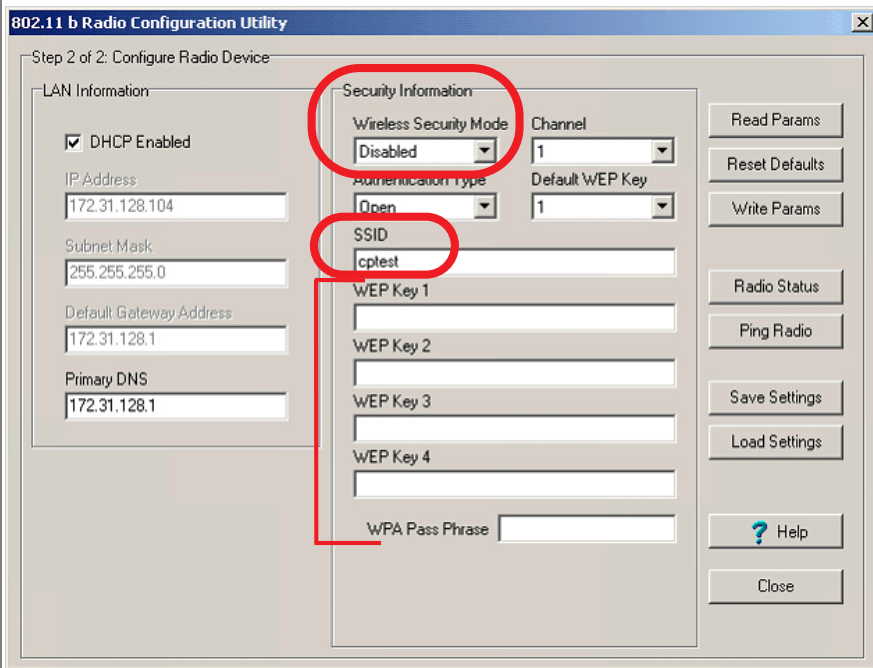
11. Test the USB port: click **Tools/Options>USBO>Test>OK>OK**.
12. Select **Unit>Configure Radio Accessory**.
If using the Key Span Adapter, get the Comm Port number: click **Start>Control Panel>System> Hardware>Device Manager**. Expand the **Ports** for Key Span Adapter (port number).
13. Select the PC communications port from the drop down list and click **Next**.

Note There is approximately a 60 second delay for the radio to boot up.

For 802.11b Radio Configurations:	For 802.11a/b/g Radio Configurations:
14. Update the Radio Configuration Utility screen with the security key (WPA and WEP), security mode, SSID.	14. Update the Radio Configuration Utility screen with the Radio Band, security type, PSK Format, and SSID. WEP-64 / WEP-128: Default WEP Key, WEP Key 1, WEP Key 2, WEP Key 3 and WEP Key 4. WPA2-PSK: WPA2 Security, WPA2 key and PSK format. WPA2-AES: WPA2 Security, EAP Type, EAP Identity, EAP Password.



For 802.11b Radio Configuration only:
Select the Wireless Security Mode, the Security Key (WPA and WEP), and SSID

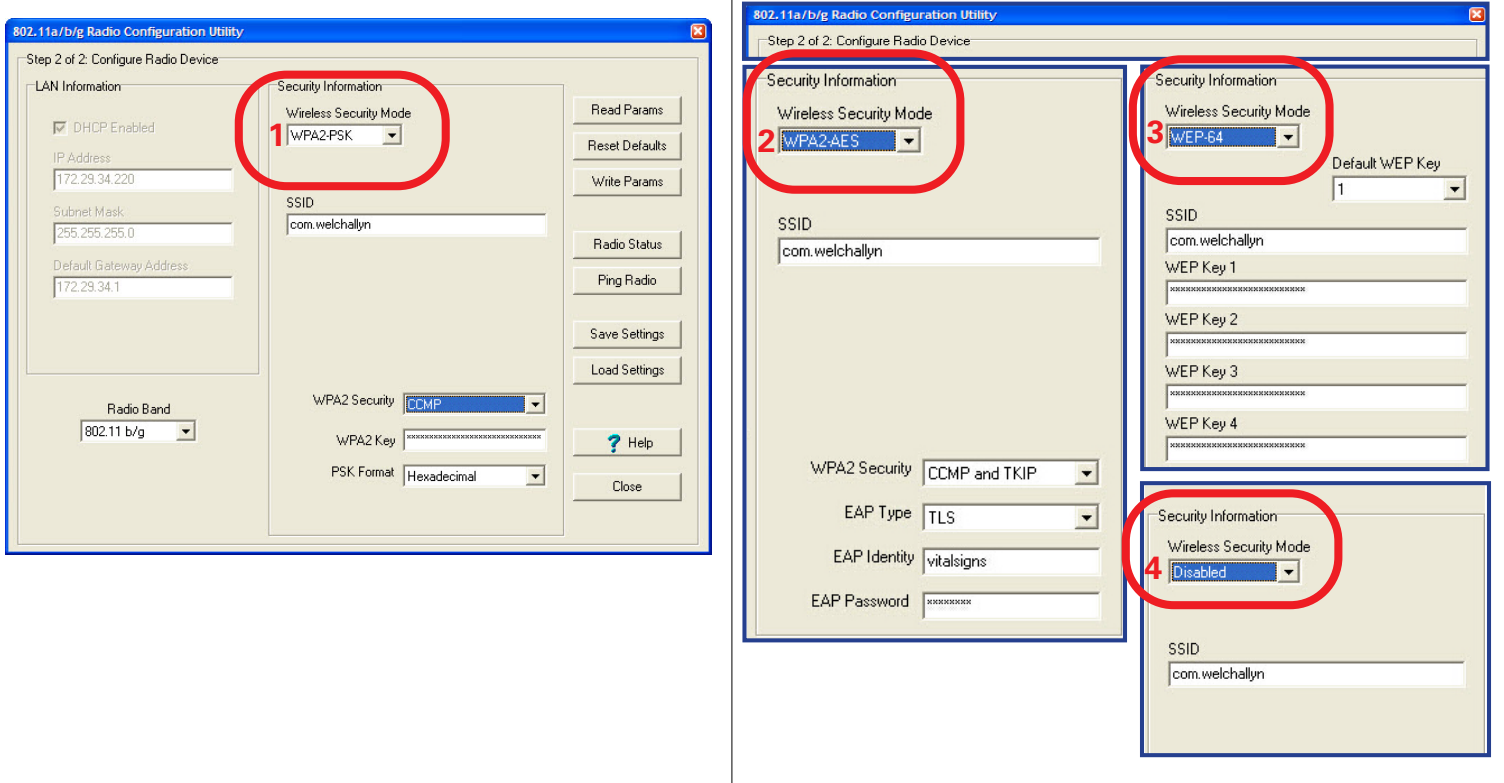


For 802.11a/b/g Radio Configuration only:

Select the Wireless Security Mode

Note The Security parameters differ based on the Security Mode selected. The screen examples below represent the differences.

The WPA2-PSK is the default setting



15. Click **Save Settings**; the default location is C: \program files\welchallyn\Spot LXi radio configuration. Type a file name in the text box. The filename extension is *.lxi*.

16. Click **Write Params**. Proceed to "To configure additional radios with the same settings".

To configure additional radios with the same settings

1. Disconnect the current radio from the null modem on Port 2 of the Spot Vital Signs LXI.
2. Connect a new Radio to the Spot Vital Signs LXI.
3. Click **Load Settings**. Click **File** and select file from [Step 15](#).

Note If DHCP is disabled and the radio has assigned an IP address, change to the IP address in the appropriate field.

Each LXI needs to be configured with new parameters using this tool.

4. Click **Write Params**.
5. Repeat Step 1 through Step 4 as necessary.

Confirming Radio configuration

1. Verify the connection on the Spot LXi to the Radio as in [Step 9](#) and [Step 10](#).

Note Step 2 applies to the 802.11b radio only.

2. Verify the Radio light status (Power = green, Link = green, Comm = red). If the radio lights do not match after approximately 1 minute, verify the radio configuration and wireless router settings.

LED	LED Color	Function
Power	Off	Bridge is not receiving power.
	Red	Bridge failed its Power On Self Test (POST) and is not configured for wireless communication.
	Amber	Bridge passed its POST but is not configured for wireless communication.
	Green	Bridge passed its POST and is configured for wireless communication.
Link	Off	Bridge is not receiving power.
	Red	Bridge is searching for an Access Point.
	Green	Wireless network and MAC have associated with an Access Point.
Comm	Off	No power or no wireless TCP session is established and no physical serial connection is detected.
	Red	No wireless TCP session is established; a physical connection is detected.
	Blinking Red	A physical serial connection was detected and there is serial traffic present on that connection, but no wireless TCP session is established.
	Amber	A wireless TCP connection is established but no physical serial connection is detected (i.e. no serial cable is attached to the Bridge).
	Blinking Green	A wireless TCP session is established, a physical serial connection is detected, and the Bridge is transmitting or receiving data across the wired serial port.
	Green	A wireless TCP session is established, a physical serial connection is detected, but there is no active data movement across the wired serial port.

3. From the Spot Vital Signs LXi radio configuration tool click **Ping Radio**.

4. Verify the statistics.

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\>ping 10.19.36.237
Pinging 10.19.36.237 with 32 bytes of data:
Reply from 10.19.36.237: bytes=32 time=1ms TTL=127
Reply from 10.19.36.237: bytes=32 time=1ms TTL=127
Ping statistics for 10.19.36.237:
    Packets: Sent = 2, Received = 2, Lost = 0 (0%
    loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
C:\>
```

Sample Screen Capture

Acceptable packets lost = 0 Any lost packets require you to check the configurations.

5. Click **OK**, click **Close**. Then click **OK**.
6. Click on the printer icon and make 2 copies of the form within the configuration tool. Give one copy to the customer and the other goes into the Connex installation package for Welch Allyn, if applicable.

To configure 802.11a/b/g radio for WPA2-AES and download client certificates

1. Set up a local AP as “open” with desired SSID.
2. Connect Spot LXi and Radio as described in 802.11a/b/g Radio Configuration section above, and open the LXi Radio Configuration Utility. Set Wireless Security Mode to “Disabled” and then input SSID used on the AP.
3. Click on **Ping Radio** and get the radio IP address.
4. Open up Internet Explorer and input the radio's IP address in the address bar and press Enter Key. This will open a web page using the IP address of the radio.
5. Login as admin with password webpassword1234.
6. Navigate to the **Auth-> Certificate Status and Configuration** page.
7. Click on “**Upload Customer Device Certificate and Key**” and follow instructions.
8. Navigate back to **Webadmin-> EAP parameters**. Make the desired selection. Select **Submit**.
9. Navigate back to **Webadmin ->Authentication and Encryption**. Select **WPA2-AES** and select **Submit**.
10. Verify that the network infrastructure is in place for WPA2-AES and power cycle the LXI.
11. LXI should authenticate using WPA2- AES and be able to send data to the network.

Prepare the Spot Vital Signs LXi for patient use

1. Remove null modem and serial cable from Port 1 and connect the bar code reader to Port 1.
2. Re-configure the Spot Vital Signs LXi (see “[Installing the Spot LXi Radio Configuration software](#)” Step 6 and Step 7). Change the External Devices menu screen settings to the following:

Information System	On
Barcode Patient ID	On
Barcode Clinician ID	Off
Weight Scale	Off
Wireless Module	DPAC
Printer	Off

3. Press the **Power** button to turn the Spot Vital Signs LXi off.

Troubleshooting

Errors	Possible Solution
Request time out	Recheck the IP address. Check the configuration of the Wireless Radio and/or the access point. Check the cable and null modem connections for tightness and correctness. Bad radio.
Destination net unreachable	Recheck the IP address. Check the configuration of the Wireless Radio and/or the access point. Check the cable and null modem connections for tightness and correctness. Bad radio.
Lost packets	Recheck the IP address. Check the configuration of the Wireless Radio and/or the access point. Check the cable and null modem connections for tightness and correctness. Bad radio.

Radio configuration parameters summary

This form lists the required security parameters to configure the Welch Allyn Spot Vital Signs LXi radio for your facility's network. Use this form during the radio configuration process and store it at your site. Welch allyn does not store any copies.

Hospital contact for radio configuration

Name:

Phone:

Date:

LAN information

DHCP Enabled Yes No

IP address

Subnet Mask

Default Gateway Address

Primary DNS

Security information

Radio Band 802.11 a b/g **Note** p/n 4500-920 is 802.11b only

Wireless Security Mode Disabled WEP 64-bit WEP 128-bit WPA2-PSK WPA2-AES

WPA2 Security CCMP CCMP and TKIP
(WPA2-PSK and WPA2-AES only)

EAP Settings (WPA2-AES only)
EAP Type TLS TTLS PEAP Auto
EAP Identity
EAP Password

Channel

Authentication Type Open Shared Auto

Default WEP Key 1 2 3 4

SSID

WEP Key 1

WEP Key 2

WEP Key 3

WEP Key 4

WPA Pass Phrase

WPA2 Pass Phrase PSK Format Hexadecimal ASCII

Record the MAC Address of the configured radios. (Attach sheets if necessary).

MAC Address, Radio -1:	MAC Address, Radio -11:
MAC Address, Radio -2:	MAC Address, Radio -12:
MAC Address, Radio -3:	MAC Address, Radio -13:
MAC Address, Radio -4:	MAC Address, Radio -14:
MAC Address, Radio -5:	MAC Address, Radio -15:
MAC Address, Radio -6:	MAC Address, Radio -16:
MAC Address, Radio -7:	MAC Address, Radio -17:
MAC Address, Radio -8:	MAC Address, Radio -18:
MAC Address, Radio -9:	MAC Address, Radio -19:
MAC Address, Radio -10:	MAC Address, Radio -20: