

# Setting Up a Wireless Network for the M-Turbo® or S Series™ Ultrasound System

## Introduction

To archive wirelessly from the M-Turbo® or S Series™ ultrasound system, SonoSite supports the network setup described in this document. Use the setup instructions from the router manufacturer for general information only.

After connecting the ultrasound system, you need to configure a location through the Connectivity setup page on the ultrasound system and to connect the wireless USB dongle. For instructions to configure a location, see one of the following:

- *DICOM for M-Turbo or S Series Ultrasound System User Guide*
- *SiteLink™ Image Manager 4.1.0 User Guide and Supplement P08168-01*

For more information about the ultrasound system, see the ultrasound system user guide.

Additional copies of these documents are available on SonoSite's Web site at [www.sonosite.com](http://www.sonosite.com).

**WARNING:** The wireless USB dongle is a radio transmitter designed for use as a mobile device as defined by the Federal Communications Commission (FCC). Do not place the transmitter on a patient's or user's body. Ensure that the transmitter is located at least 20 cm (8 in) from a patient's or user's body. Locating the transmitter closer than 20 cm (8 in) to a person's body voids the user's FCC authority to operate the equipment.

**Caution:** Operating the wireless USB dongle without a regulatory label or the correct country stamp is illegal. See the documentation from the manufacturer of the wireless USB dongle.

To avoid damage to the wireless USB dongle when using the MDSm or MDS Lite II, remove or insert the USB dongle only when the system is in the stand.

For environmental operating and storage specifications, see the operating instructions from the router manufacturer.

## System and hardware requirements

- M-Turbo or S Series ultrasound system (1.2 or later)
- SparkLAN Wireless 802.11g USB Dongle

Additional hardware requirements for SiteLink™ Image Manager:

- LinkSys WRT54GS Wireless-G Broadband Router
- Web browser on the PC (for example, Internet Explorer)

## Connecting the ultrasound system

To archive wirelessly, you can connect the ultrasound system in one of two ways:

- To an existing wireless network
- To the router, which is connected to the PC

If connecting to an existing wireless network (the typical setup for DICOM users), you do not need the router. DICOM setup requires a wireless access point on an existing wireless network with a DICOM server. See your network administrator.

### To connect and configure the router

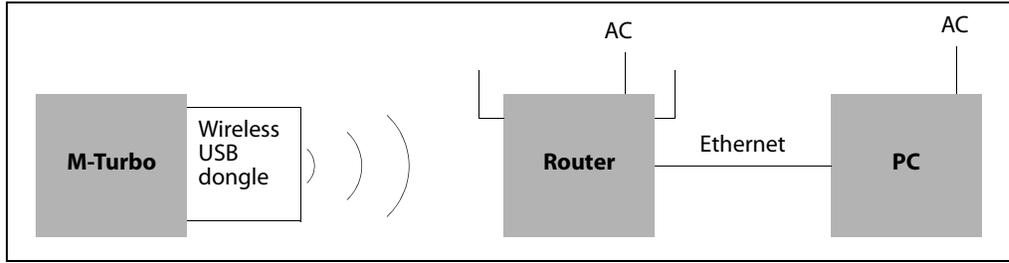


Figure 1 The ultrasound system connects to the router, which is connected to the PC

*Note: Note the information entered when configuring the router. You need the same information to configure the ultrasound system.*

- 1 Turn off the PC and the ultrasound system.
- 2 Remove the sticker from the back of the router, and connect the Ethernet cable to port 1, 2, 3, or 4 (See [Figure 2](#)) and to an Ethernet port on the PC. (Do not connect the Ethernet cable to the Internet port on the router.)
- 3 Connect the power adapter to the Power port on the back of the router, and connect to an outlet. The power LCD and the Ethernet LCD on the front of the router light up.

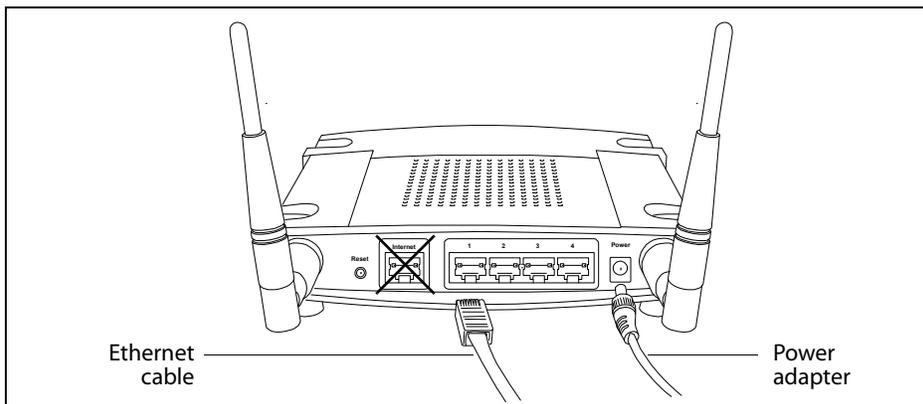


Figure 2 Router Ethernet ports and Power port

- 4 Turn on the PC, and start a Web browser (for example, Internet Explorer).
- 5 In the address box at the top of the browser, type `http://192.168.1.1` and then press the ENTER key.
- 6 In the dialog box that appears, type `admin` in the **Password** field. (The **Username** field is empty.)
- 7 Click **OK**. The Linksys setup wizard starts.

8 In the **Network Setup** section, select **Disable** for **DHCP Server**. See [Figure 3](#).

The screenshot shows the 'Network Setup' section of a router configuration page. The 'Internet Setup' section is at the top, with 'Internet Connection Type' set to 'Automatic Configuration - DHCP'. Below this, fields for Router Name (WRT54GS), Host Name, Domain Name, MTU (Auto), and Size (1500) are visible. The 'Network Setup' section contains 'Router IP' settings: Local IP Address (192.168.1.1) and Subnet Mask (255.255.255.0). The 'DHCP Server' section is circled in black, showing 'DHCP Server' set to 'Disable' (radio button selected), 'Starting IP Address' (192.168.1.100), 'Maximum Number of DHCP Users' (50), and 'Client Lease Time' (0 minutes). Below these are fields for Static DNS 1, 2, and 3, and WINS.

Figure 3 Network setup for the router

9 Make sure that the **Time Zone** setting is correct.

10 Click **Save Settings**.

11 Click **Continue**

12 Click the **Wireless** tab.

The Wireless page appears. See [Figure 4](#).

The screenshot shows the 'Wireless' tab selected in the router configuration interface. The 'Wireless Network' section is visible, with 'Wireless Network Mode' set to 'Mixed', 'Wireless Network Name (SSID)' set to 'UserA', and 'Wireless Channel' set to '2-2.417GHz'. The 'Wireless SSID Broadcast' is set to 'Disable'. Below these settings is a green wireless signal icon and the text 'Status : SES Inactive'. A 'Reset Security' button is located below the status. At the bottom of the page, there are 'Save Settings' and 'Cancel Changes' buttons.

Figure 4 Wireless Network Mode and Name (SSID)

**13** In the **Wireless Network Mode** list, select **Mixed**.

**14** For **Wireless Network Name (SSID)**, type a unique name of up to 32 characters.

This field is case-sensitive and allows numbers. You will need this name later when configuring the ultrasound system.

**15** Select a setting from the **Wireless Channel** list.

**16** Click **Save Settings**.

**17** Click **Continue**.

**18** Click **Wireless Security**.

**19** Set up the security policy. For example:

- a** For **Security Mode**, select the **WPA Personal**. See [Figure 5](#).
- b** For **WPA Algorithms**, select **TKIP**.
- c** Enter a WPA shared key. (The Wi-Fi Protected Access encrypted key protects against unauthorized network access. You will need this key later when configuring the ultrasound system.)
- d** Type a value for **Group Key Renewal** (or keep the default setting).

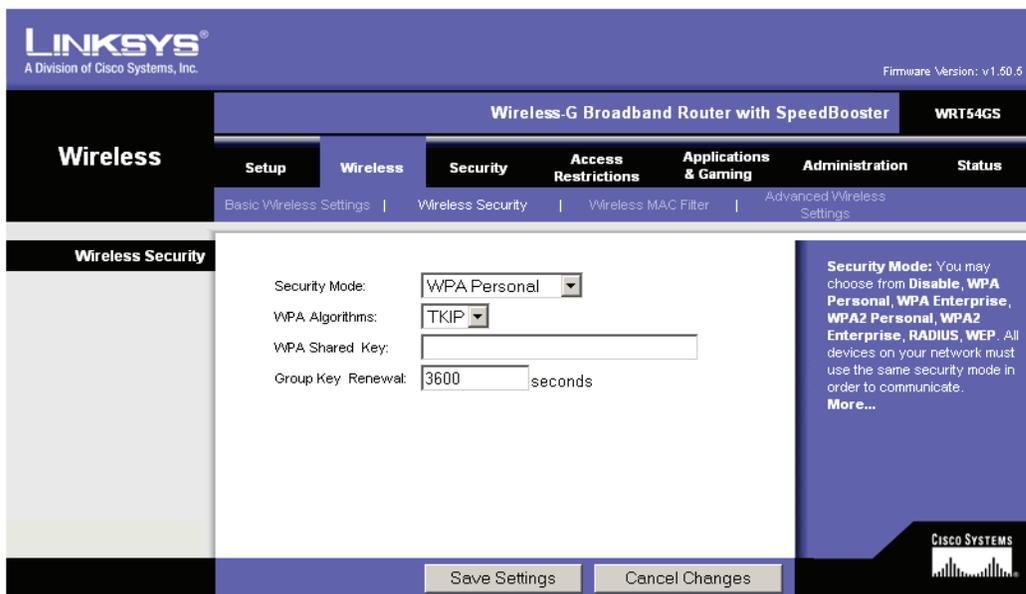


Figure 5 Set up the security policy

**20** Click **Save Settings**.

The setup is complete. You can now import client certificates and configure a location on the ultrasound system. See the *SiteLink Image Manager 4.1.0 User Guide* and *Supplement P08168-01*.

For security, change the router password (on the Administration tab) after configuring the ultrasound system.

## Client certificates

Although you can connect without client certificates, they help to ensure network security.

### To import or delete wireless certificates

The system supports Base64 and DER encoded format and the following file types: CER, PFX, and PVK.

**1** On the Connectivity setup page, select **Wireless Certificates**.

A list of certificates on the system appears.

**2** Do one of the following:

- **Import certificates:** Insert the USB storage device that contains the certificates. Verify that the certificates on the system plus those on the USB storage device do not exceed 20 certificates or 200K of memory. Delete certificates if necessary. Then select **Import** on-screen.
- **Delete certificates:** Select the certificates to delete, and select **Delete**.

*Note: You can obtain certificates from your network administrator.*

**3** Select **Back** on-screen.

**4** Select **Done** on-screen.

**5** Restart the system.

## Connecting the wireless USB dongle

After you connect and configure the router (if applicable) and configure a location on the ultrasound system, connect the wireless USB dongle, which transmits the signal from the ultrasound system to the network.

### To connect the wireless USB dongle

❖ Insert the wireless USB dongle into the following USB port:

- (S Series) The USB port on the side of the ultrasound system.
- (M-Turbo) Any USB port on the ultrasound system.

The system automatically detects the device. (Drivers are already installed.)

## Troubleshooting

If you have trouble connecting the ultrasound system to the wireless network, see [Table 1, “Troubleshooting”](#) on page 6 for suggestions. If the trouble continues, contact SonoSite:

### SonoSite Technical Support

Phone (US or Canada): 877-657-8118

Phone (Outside US and Canada): 425-951-1330  
Or call your local representative.

Fax: 425-951-6700

E-mail: [service@sonosite.com](mailto:service@sonosite.com)

Web site: [www.sonosite.com](http://www.sonosite.com) (Click Resources > Support & Service)

### Europe Service Center

Phone: +44-(0)1462-444-800

E-mail: [uk.service@sonosite.com](mailto:uk.service@sonosite.com)

**Table 1: Troubleshooting**

Symptom	Solution
The ultrasound system does not connect.	<ul style="list-style-type: none"> <li>❖ Do any of the following for information about the network:               <ul style="list-style-type: none"> <li>• Make sure that the following icons appear in the system status area on the ultrasound system screen:                   <ul style="list-style-type: none"> <li>• Wireless </li> <li>• Ultrasound-connected </li> </ul> </li> <li>• On the ultrasound system, display the Network Status setup page. The page displays three lines of general information about the connection and five additional lines about the wireless connection (if present).</li> </ul> </li> </ul>
The ultrasound system does not authenticate, and the wireless icon does not appear on-screen.	<ul style="list-style-type: none"> <li>❖ Do any of the following               <ul style="list-style-type: none"> <li>• Make sure that the system is communicating with your access point: Make sure that the network name on the system is the same as the network name (SSID) of the access point. The default network name is SONOSITE. The network name is case sensitive.</li> <li>• If you use WEP or WPA-PSK, make sure that your WEP keys or WPA Pre-Shared key match between the access point and ultrasound system. These keys are case sensitive.  The Network Status setup page may show that you associated successfully, but you are unable to get a DHCP address because the WEP key is set incorrectly.</li> <li>• If you select the 802.1x RADIUS security option, make sure that the access point is turned on and properly configured with 802.1x enabled and that the Shared Secret key between the access point and authentication server match.  Use the PING utility from the server to make sure that the authentication server is active and can communicate with the access point.</li> </ul> </li> </ul>
The system does not display the wireless icon after you select a valid location.	<ol style="list-style-type: none"> <li><b>1</b> Remove the wireless USB dongle.</li> <li><b>2</b> Verify the following:           <ul style="list-style-type: none"> <li>• All wireless settings for the selected location are valid.</li> <li>• The selected wireless certificate is in Base64 format.</li> <li>• The system date and time are correct.</li> </ul> </li> <li><b>3</b> Insert the wireless USB dongle, and restart the system.</li> </ol>
The system displays the wireless icon but does not communicate with DICOM.	<ul style="list-style-type: none"> <li>❖ Make sure that the DICOM setup is correct. See <i>DICOM for M-Turbo and S Series User Guide</i>.</li> </ul>
You cannot import wireless certificates.	<ul style="list-style-type: none"> <li>❖ Make sure that the USB storage device contains wireless certificates by viewing its contents on a PC.</li> </ul>



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DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

The SonoSite product(s) referenced in this document may be covered by one or more of the following U.S. patents: 5722412, 5817024, 5893363, 6135961, 6203498, 6364839, 6371918, 6383139, 6416475, 6447451, 6471651, 6569101, 6648826, 6575908, 6604630, 6817982, 6835177, 6962566, 7169108, 7449640, D456509, D461895, D509900, D538432, D544962, D558351, D559390, and by the following counterpart foreign patents: AU727381, AU730822, CA2373065, CN98106133.8, CN98108973.9, DE60021552.0, DE60029777.2, DE60034670.6, DE69730563.5, DE6980539.6, DE69831698.3, FR0875203, FR0881492, FR0815793, FR1180970, FR1175713, GB0875203, GB0881492, GB0815793, GB1180970, GB1180971, GB1175713, IT0881492, IT0815793, IT1175713, KR532359, KR528102, NO326202, NZ542968, RCD000897368-0001, SP0881492, SP0815793. Patents pending.

**Caution:**

Federal (United States) law restricts this device to sale by or on the order of a physician.

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