



Implementation Guide



Data Transmission

HeartStart MRx to
HeartStart Telemedicine

PHILIPS

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Medical Device Directive

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U.S. FCC and Industry Canada Radio Compliance:

Contains FCC ID: PQC-WMTS-MODULE

Operation of this equipment requires the prior coordination with a frequency coordinator designated by the FCC for the Wireless Medical Telemetry Service. This device complies with Part 15 of the FCC rules and RSS-210 of Industry Canada. Operation is subject to the following conditions:

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Warning

Radio frequency (RF) interference coming from devices other than the HeartStart MRx may degrade the performance of the HeartStart MRx. Electromagnetic compatibility with surrounding devices should be assessed prior to using the monitor/defibrillator.

Use of supplies or accessories other than those recommended by Philips may compromise product performance.



Conventions Used in This Manual

This guide contains the following conventions:

WARNING: Warning statements describe conditions or actions that can result in personal injury or loss of life.

CAUTION: Caution statements describe conditions or actions that can result in damage to the equipment or loss of data.

NOTE: Notes contain additional information on usage.

TIP: Tips provide hands-on insight into using and servicing this product.

☉ The “bull’s eye” icon indicates a **process** or a **procedure** (a set of steps to achieve a certain goal)

Screen Message Text represents messages that appear on the HeartStart MRx screen and soft key labels that appear on the screen above or below the button to which they correspond.

Computer Screen Text represents messages that appear on the computer screen.

Menu Selection represents GUI actions to navigate the computer software.

On-line Viewing Only

[Hypertext](#) represents hypertext links, which will display as blue; click on the blue link to go to that destination.

🖱 The “mouse” icon indicates a hypertext link. Ignore in printed copies.

Abbreviations

Name	Abbreviation
HeartStart MRx Monitor/Defibrillator device	HeartStart MRx
HeartStart 12-Lead Transfer Station	12-Lead Transfer Station
HeartStart Telemedicine System	HeartStart Telemedicine
Datamed Format Translators	DatamedFT
Dial Up Networking	DUN
Periodic Clinical Data Transmission	PCDT
TraceMasterVue	TraceMaster
Bluetooth wireless technology, cell phone, modem, or receiving Telemedicine Server PC	Bluetooth device

PDF Navigation Tips

This illustration describes only a fraction of PDF navigation techniques. Consult Adobe® help system and documentation for details. Download the latest version of Adobe Reader® free from <http://get.adobe.com/reader>

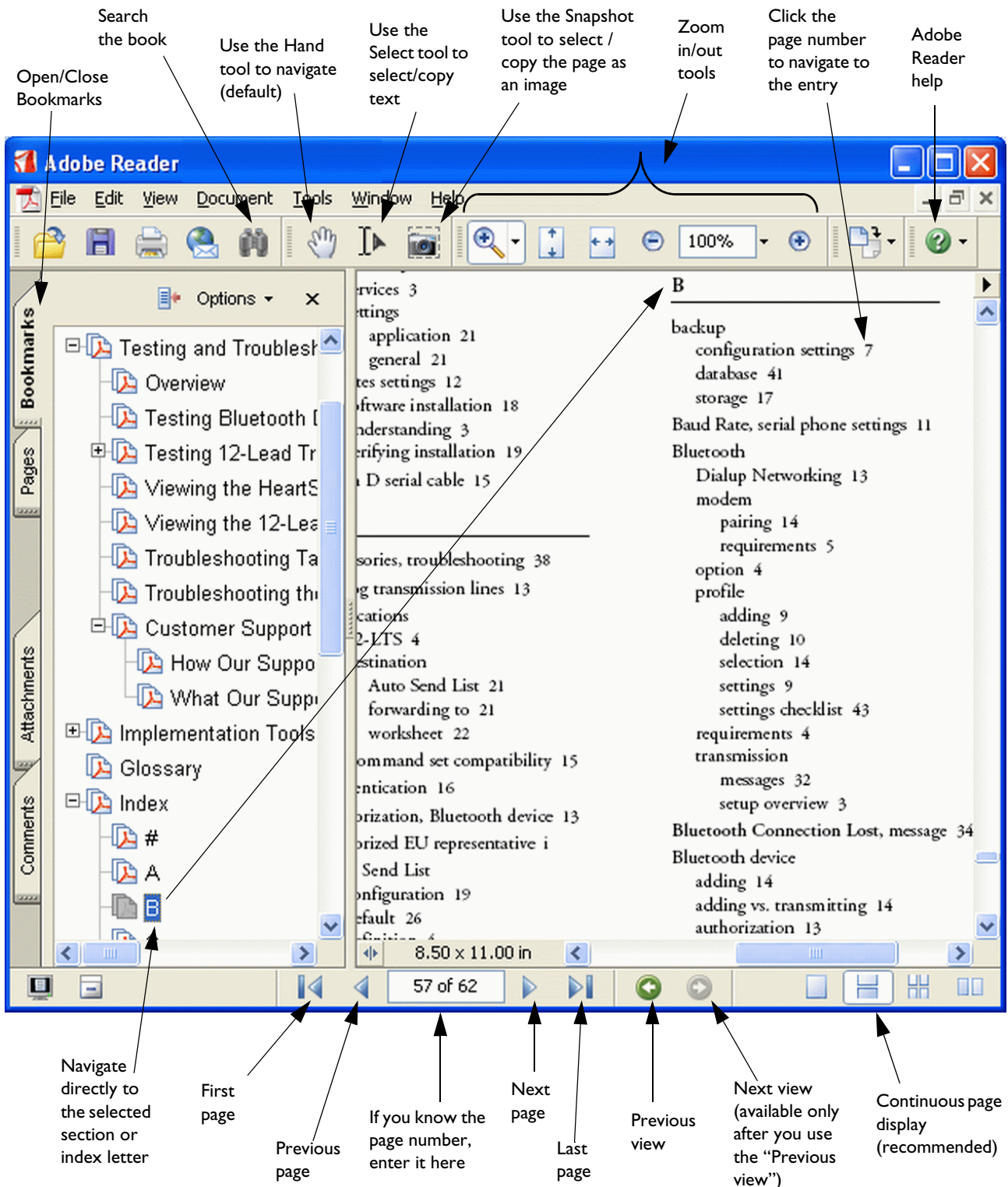


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Getting Started

Overview

HeartStart Telemedicine System (HeartStart Telemedicine) is part of an end-to-end telemedicine solution for communicating patient data from HeartStart MRx monitor/defibrillators (HeartStart MRx) to a viewing and forwarding workflow station.

Most commonly, HeartStart Telemedicine serves EMS agencies sending clinical data from the ambulance to the hospital. HeartStart Telemedicine can also link rural hospitals with metropolitan ones and primary care centers with hospitals. The HeartStart Telemedicine can also aggregate 12-leads and forward them to the cardiology department or ECG database inside a hospital.

HeartStart Telemedicine System consists of software (provided by Philips) and hardware and accessories provided by you, the customer.

On the sending side, HeartStart MRx can be configured to transmit 12-lead ECG reports (12-lead reports) and periodic clinical data such as patient's vitals and waveform data when trigger events occur. A trigger event is an HeartStart MRx event that initiates the transmission.

There are two software options of HeartStart Telemedicine. In HeartStart Telemedicine Classic 12-Lead Edition, HeartStart Telemedicine stores, displays, and forwards only 12-lead reports. In HeartStart Telemedicine Critical Care Edition, HeartStart Telemedicine can store, display, and forward periodic clinical data transmission in addition to 12-lead data.

HeartStart Telemedicine consists of a server component that runs typically in the Information Technology (IT) server room and a viewer component that typically runs in the clinical environment. The server component, HeartStart Telemedicine Server, consists of the application software, the database, Internet access, and the system administration user interface. The viewer component, HeartStart Telemedicine Viewer, allows clinicians to interact with the patient clinical data found in HeartStart Telemedicine Server remotely and perform limited tasks such as forwarding events.

Audience

The audience for this guide are EMS management and hospital IT professionals who have purchased or are considering purchasing the HeartStart MRx with the Data Transmission option (M3801A or 861326).

To understand and implement the Data Transmission, you need to have access to:

- The HeartStart MRx with the Data Transmission option
- *HeartStart MRx Instructions for Use*
- *HeartStart Telemedicine System User Guide*

Introduction

HeartStart Telemedicine enables you to send 12-lead reports from a HeartStart MRx to one or more of the following external destinations:

- 12-Lead Transfer Station application

- TraceMaster ECG Management System (TraceMasterVue) application
- Datamed Format Translators (DatamedFT) software
- HeartStart Telemedicine System (HeartStart Telemedicine) application
- Fax machine, Printer, or Email address

This chapter discusses the components of the Data Transmission option and how you set it up, as well as the roles, responsibilities, and the skill level required to implement each task.

This chapter has the following topics:



Quick Access Table

Understanding the Transmission Options

Bluetooth Transmission Setup Overview

Understanding HeartStart Telemedicine

Providing the HeartStart Telemedicine Web Services

Tasks and Skill Levels

Understanding the Transmission Options

Some HeartStart MRx documentation and *Data Transmission Implementation Guide* refer to HeartStart Telemedicine as a hub. The term “hub”, as used in the documentation, refers to HeartStart Telemedicine as the central point of communication.

Table 1 identifies the HeartStart MRx data transmissions that a HeartStart Telemedicine software can store, display, and forward.

Table 1 **HeartStart MRx Options and Data Transmission**

HeartStart MRx Option ^a	Data	HeartStart Telemedicine Edition
Bluetooth 12-lead Transmission	12-lead reports	HeartStart Telemedicine Classic 12-Lead Edition and HeartStart Telemedicine Critical Care Edition
Bluetooth 12-lead Transmission with ACI-TIPI / TPI		
Periodic Clinical Data Transmission (PCDT)	12-lead reports, trigger event waveforms, and vital trends	HeartStart Telemedicine Critical Care Edition only

- a. 12-lead transmission and PCDT are separate features, because some ambulances are not equipped with 12-lead ECG acquisition, and some may want to transmit only 12-leads.

Understanding 12-Lead Transmission Process

- © The following steps describe 12-lead report transmission process at a high level:
 - 1 The HeartStart MRx acquires a 12-lead ECG.
 - 2 A HeartStart MRx uses Bluetooth[®] wireless technology to communicate through a cellphone or gateway device to reach the Internet.
 - 3 The HeartStart MRx sends the 12-lead report and the designating information through the Internet to HeartStart Telemedicine. HeartStart Telemedicine receives, decrypts, and saves the 12-lead report to the database.

- 4 According to the instructions from the HeartStart MRx, HeartStart Telemedicine emails or sends the 12-lead report to faxes, printers, or other destinations.
If the HeartStart Telemedicine user configured an Auto Send List, then HeartStart Telemedicine sends the 12-lead report simultaneously to all of the destinations on that Auto Send List.
- 5 The HeartStart Telemedicine user can also do the following manually:
 - View and analyze the 12-lead report
 - Forward the selected 12-lead report to another destination
 - Export, print a report, or email the selected 12-lead report

Understanding the Periodic Clinical Data Transmission Process

- © The following steps describe the patient periodic clinical data transmission (PCDT) process at a high level:
- 1 The HeartStart MRx user initiates a transmission session.
 - 2 The HeartStart MRx acquires patient periodic clinical data, which can include a 12-lead report, event waveforms, and vital trends.
 - 3 The HeartStart MRx uses Bluetooth wireless technology to communicate through a cellphone or gateway device to reach the Internet or the HeartStart Telemedicine computer directly.
 - 4 The HeartStart MRx sends the patient periodic clinical data transmission to HeartStart Telemedicine. HeartStart Telemedicine receives, decrypts, and saves the patient data to the database. HeartStart Telemedicine lists the patient transmission details on the **Patients** pane.
 - 5 The HeartStart Telemedicine user can do the following:
 - View and analyze the patient transmission details on the **Patients** workspaces
 - Forward the selected 12-lead report to destinations in an Auto Send List
 - Forward the selected 12-lead report to another destination manually
 - Forward the selected patient, event, or vital trend transmission to another HeartStart Telemedicine application manually
 - Export, print a report, or email the selected patient or periodic clinical data transmission manually

12-Lead Transmission Scenarios

This topic illustrates an example use of HeartStart Telemedicine.

A company has a number of HeartStart MRx monitor/defibrillators. The HeartStart MRx user can use a cell phone or Bluetooth wireless technology to send a 12-lead report across the Internet to a central HeartStart Telemedicine. HeartStart Telemedicine can also receive data from another HeartStart Telemedicine. HeartStart Telemedicine acts as a central point of communication to send the 12-lead reports to the following possible destinations:

- 12-Lead Transfer Station application
- TraceMaster ECG Management System (TraceMasterVue)
- DatamedFT software that supports ECG hosts, such as GE MUSE
- HeartStart Telemedicine application
- Email address, Fax machine, and/or Printer

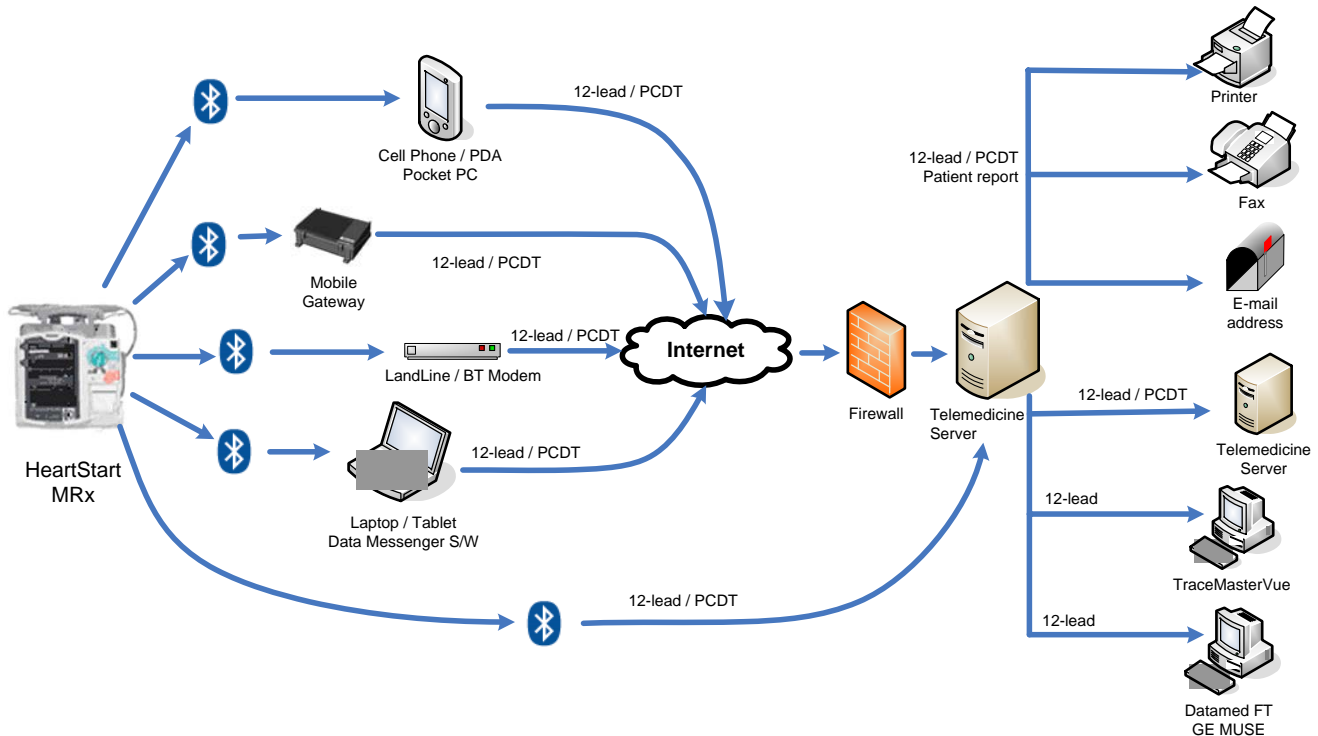
When the destination is a central HeartStart Telemedicine, it can further distribute 12-lead reports automatically or manually to additional destinations. The user can also further distribute patient waveforms and vital trends to another HeartStart Telemedicine application.

The HeartStart MRx can also send 12-lead reports over a 2-way radio using Rosetta-Lt™. This Guide does not discuss this technology in depth. Contact General Devices for details.

Electronic Patient Care Report (ePCR) solutions are available from a number of software providers. The ePCR software can run on a laptop, tablet, or Windows Mobile device that runs HeartStart MRx SDK.

Figure 1 illustrates some Data Transmission scenarios:

Figure 1 **Telemedicine Pathways**



Bluetooth Transmission Setup Overview

Setting up a Bluetooth device for transmission involves the following steps:

- *Gathering Prerequisites:*
 - HeartStart MRx
 - cellular transmission device with an Internet data plan
 - HeartStart Telemedicine Server (formerly 12-Lead Transfer Station)
 - Server station set up with a static IP address
 - 12-Lead Transfer Station or HeartStart Telemedicine System software.
- *Configuring the HeartStart MRx* – You create profiles for the Bluetooth device and configure hub and site settings through the HeartStart MRx Configuration menus. A profile is a list of specifications that define how wireless transmission should work between different Bluetooth devices. You can use the same profile for similar devices.
- *Installation* – Install the HeartStart Telemedicine Server or 12-Lead Transfer Station software.
- *Discovery* – HeartStart MRx searches for any Bluetooth device in the vicinity. The list of discoverable Bluetooth devices is displayed on HeartStart MRx for you to select. The discovery can be done in the HeartStart MRx Monitoring or Manual mode from the 12-Lead or Data Management menu by selecting **Bluetooth**, then **Add Device**.

- *Pairing a Bluetooth Device with HeartStart MRx* (called *bonding* on some Bluetooth devices) – Once you select the discovered Bluetooth device from the list, you pair it with HeartStart MRx. Pairing requires you to enter a pass key on the HeartStart MRx and the Bluetooth devices, but it does not require switching to Configuration Mode and can be done at any moment.

NOTE: You need to discover and pair only when you add a new Bluetooth device. You can have up to 20 Bluetooth devices paired to a HeartStart MRx at any moment (if you add a 21-st device, it replaces the least recently used or added). The HeartStart MRx is not discoverable by other Bluetooth devices and must initiate pairing.

- *Selecting a Bluetooth Profile* – Once you have discovered and paired with the Bluetooth device, you select the profile (Dial-Up or File Transfer).
- *Pairing HeartStart MRx's Bluetooth device to the HeartStart Telemedicine server PC's Bluetooth device* – This step is applicable only if you have selected the FTP profile in the previous step.
- *Testing and Troubleshooting* – Once a profile is selected, HeartStart MRx tests the profile to determine if the Bluetooth device can communicate with HeartStart Telemedicine. If testing is successful, the message **Transmission Test Passed** is displayed and you are ready to transmit. If testing fails, the message **Transmission Test Failed** is displayed along with additional information on where the failure occurred. Use [Table 18 “Bluetooth Transmission Messages”](#) on page 44 to resolve the problem.
- *Sending/Deployment* – Once the profile has been successfully tested, you can transmit the data from the HeartStart MRx to HeartStart Telemedicine System and 12-Lead Transfer Station.

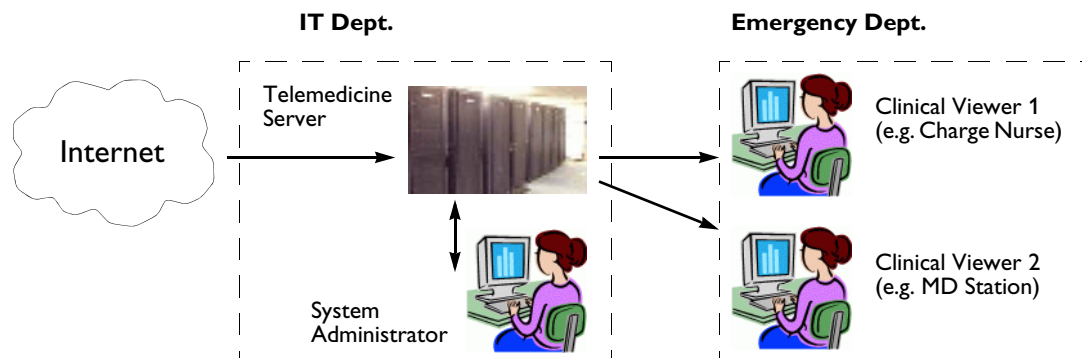
Understanding HeartStart Telemedicine

HeartStart Telemedicine comes in two editions. The *Classic 12-lead ECG Edition* supports receiving, displaying, and printing of 12-lead ECG reports to a Telemedicine System. The new *Critical Care Edition* supports 12-lead ECGs, but can also receive, store, and display periodic clinical data that consist of a Vital Signs trending table, updated as often as every minute, and waveform data including ECG, CO₂, and SpO₂.

HeartStart Telemedicine consists of two components: HeartStart Telemedicine Server and HeartStart Telemedicine Viewer. Philips Healthcare strongly recommends that you install the HeartStart Telemedicine Server software on the Windows 2003 Server (SP 2 or later), and install the HeartStart Telemedicine Viewer software on the Windows XP (SP 3 or later).

[Figure 2](#) illustrates a typical hospital implementation.

Figure 2 Typical HeartStart Telemedicine System Hospital Implementation



HeartStart Telemedicine Viewer connects to the HeartStart Telemedicine database through a local area network (LAN). When you start HeartStart Telemedicine Server, you can configure and manage the HeartStart Telemedicine System. When you start HeartStart Telemedicine Viewer, you can edit patient data, view data, and manually forward data to configured destinations. You cannot change system configurations.

HeartStart Telemedicine Server requires a static IP address that is connected to the Internet and to Internet Information Services (IIS). The connection to the Internet must be on at all times. If you use HeartStart Telemedicine Server to receive connections over the Internet, confirm that IIS is installed, is running, and has an “always on” Internet connection before you install HeartStart Telemedicine. Configure the HeartStart Telemedicine system as an Application Server. The Internet Service Provider (ISP) must allow communication on TCP Port 80.

For more information, see the “Setting up Internet Information Services (IIS)” topic in *HeartStart Telemedicine System User Guide*.

HeartStart MRx uses devices shown in Figure 1 to send a stream of data that contains the 12-lead report and destination information to HeartStart Telemedicine.

Providing the HeartStart Telemedicine Web Services

HeartStart MRx communicates with HeartStart Telemedicine through the Internet. To receive 12-lead reports, ECG waveforms, and vital trends from HeartStart MRx, you need to have a web server. The HeartStart Telemedicine Server machine requires the following services:

- **Internet Service Provider (ISP):** The ISP provides a connection to the Internet. The ISP must supply a static or permanent IP address to support your domain name.
- **Domain Name Service (DNS):** The DNS provides a domain name for the IP address. Many ISPs can obtain and register a domain name for you, or you can do it yourself. For more information, see the Accredited Registrar Directory at the InterNIC Web site (<http://www.internic.net>).
- **Internet Information Services (IIS):** The IIS sends and receives information from the Internet. Although IIS ships with the Windows application, Windows does not automatically install IIS when you install the operating system. You must install IIS separately. The Microsoft Web site at <http://www.microsoft.com/iis> has additional information. For more information, see the “Installing the Operating System” topic in *HeartStart Telemedicine System User Guide*.
- **Simple Mail Transfer Protocol (SMTP):** The SMTP service delivers outgoing email messages. If you want to send patient reports, 12-lead reports, ECG waveform, and vital trends through the Email feature, Philips Healthcare recommends that you name an SMTP address on the **General Configuration** workspace when you configure the HeartStart Telemedicine system. In most cases, you can use the SMTP address supplied by your ISP or network.

If you install SMTP, you must install SMTP separately from the Windows Control Panel. The SMTP installation creates a default SMTP configuration. You can use IIS Manager to customize the SMTP configuration.

For more information, see the “Configuring the System” topic in *HeartStart Telemedicine System User Guide*.

TIP: Microsoft provides an SMTP service. For more information on how to deploy and configure the SMTP service, search for “smtp” on the Microsoft Developer Network (MSDN) Web site at <http://msdn2.microsoft.com/en-us/worldwide/default.aspx>.

Parts of HeartStart Telemedicine

HeartStart Telemedicine Server consists of the following parts:

- 1 HeartStart Telemedicine application** – Displays HeartStart MRx patient data and system log information, which shows all HeartStart Telemedicine activity. The application provides the ability to configure HeartStart Telemedicine to send 12-lead reports automatically and HeartStart MRx patient data manually. HeartStart MRx patient data includes 12-lead reports, trigger events and waveforms, and periodic vital trends.
- 2 PCDT** – The HeartStart MRx option to transmit clinical data from the point of care for a critical care patient to the receiving hospital to facilitate the next level of care. The PCDT option uses Bluetooth wireless technology to automatically transmit periodic vitals and 12-lead reports and waveform data upon a set of trigger events from a clinical mode to HeartStart Telemedicine.
- 3 HTTP service** – IIS hands over the received data from the HeartStart MRx or another HeartStart Telemedicine to the HTTP service. The HTTP service saves the data in the appropriate inbox.
- 4 Inbox Watcher service** – Monitors the HeartStart Telemedicine inboxes. Inbox Watcher Service parses the data into separate files and moves the data from the inbox into the database and Backup folder.
- 5 MSDE 2000** – The database stores the 12-lead report and configuration information.
- 6 Bluetooth Monitor Service** – Enables the Bluetooth Monitor to automatically watch for patient periodic clinical data transmissions that are received from HeartStart MRx. The Bluetooth Monitor stores the data in the specified Bluetooth Exchange Folder location and imports the data into the database. Typically used in emergency departments where HeartStart MRx's are sending 12-lead ECGs locally.

Prerequisites

You will need the following items before you begin:

- *HeartStart MRx Instructions for Use* guide and effective addenda.
- The **Bluetooth option** requires HeartStart MRx Hardware Version B1 and Software Version B.05 or greater
 - **Device's Hardware Version.** Check the Hardware Version label on battery compartment B to see the device's Hardware Version.
 - **Device's Software Version.** See "Printing the Device Info" in the *HeartStart MRx Service Manual* for information on determining the device's Software version. The Service Manual and other documentation can be found on the Philips website at: www.philips.com/productdocumentation.
- A cell phone or a gateway device with a cellular service provider's air card, cell phone data service, and cell phone or other Bluetooth device documentation. See "Configuring a Bluetooth Device Profile" on page 10 for additional information.
- An installed Internet service and documentation for it. In order for HeartStart Telemedicine to receive data from a HeartStart MRx in the field, the HeartStart Telemedicine Server machine must have a static public Internet IP address and adhere to security and anti-virus policies. The HeartStart Telemedicine Server machine must be able to act as a web server and respond to incoming requests.
- A dial-up Internet plan if using a Bluetooth landline modem. This is an uncommon, but effective method for transmitting over analog lines (residential or fax lines in businesses). It also requires a dial-up Internet access provider plan.

- The HeartStart Telemedicine Server machine running Microsoft Windows 2003 Server (SP 2 or later) operating system.
- The HeartStart Telemedicine Viewer machines running Windows XP Professional (SP 3 or later) operating system.
- The HeartStart Telemedicine 4.0 applications and *HeartStart Telemedicine System User Guide*.

The “Glossary” on page 61 defines the terms used in this guide.

The “Configuring HeartStart Telemedicine” topic on page 25 provides worksheets to help you set up HeartStart MRx for use with HeartStart Telemedicine.

The **Implementation Tools** appendix provides additional information to help you set up the transmission options. Philips Healthcare suggests that you refer to the sample implementation plan and fill out the worksheets before beginning the installation.

Tasks and Skill Levels

Table 2 outlines the tasks and skill levels required for the Data Transmission component setup:

Table 2 **Tasks and Skill Levels**

Task	Skill Level
Configuring HeartStart MRx	<ul style="list-style-type: none"> • Knowledge of HeartStart MRx • Ability to determine cell phone or modem settings
Setting up the cell phone or Bluetooth device	Ability to determine cell phone or modem settings
Setting up the hub (machine running HeartStart Telemedicine Server)	If you do not have an Information Technology (IT) professional (or someone with the skills listed below) to install and configure the hub, it is recommended that you purchase a server with the Microsoft operating system pre-installed.
Installing and configuring the HeartStart Telemedicine application on the HeartStart Telemedicine Server and the HeartStart Telemedicine Viewer machines	<p>If you will be installing and configuring the hub and integrating it into an existing network, you should have the following skills:</p> <ul style="list-style-type: none"> • Experience installing the Microsoft operating system that you will be using • Experience setting up an IIS server • Experience addressing security issues, such as firewalls, anti-virus software, authentication, and encryption • Experience installing and configuring a fax modem on a server • Experience setting up networks
Testing and troubleshooting	<ul style="list-style-type: none"> • Knowledge of HeartStart MRx • Knowledge of HeartStart Telemedicine • Experience installing the Microsoft operating system that you will be using • Experience setting up an IIS server • Experience addressing security issues, such as firewalls, anti-virus software, authentication, and encryption • Experience installing and configuring a fax modem on a server • Experience setting up networks

If you need additional help with the HeartStart MRx or HeartStart Telemedicine installations, configuration, and maintenance, please contact Philips customer support. See “Customer Support” on page 53.

Philips customer support cannot help you with cell phones, Internet service, and non-Philips hardware and software questions. See “What Our Support Technicians Do Not Support” on page 53 for details.

Configuration and Setup

Overview

This chapter describes how to configure the HeartStart MRx, set up a cell phone or a Bluetooth device, and install HeartStart Telemedicine. See *HeartStart Telemedicine System User Guide* for HeartStart Telemedicine configuration instructions.

This chapter has the following topics (click to access):

Quick Access Table

[Configuring the HeartStart MRx](#)

[Setting Up the Cell Phone or Bluetooth Device](#)

[Installing HeartStart Telemedicine](#)

[Configuring HeartStart Telemedicine](#)


Configuring the HeartStart MRx

You can customize your HeartStart MRx Data Transmission settings through the Configuration menus. Save configuration settings to a data card for backup purposes and replication on other devices.

TIP: Before starting the configuration, it might be helpful to fill out the HeartStart MRx checklists in “Configuring the HeartStart MRx” on page 9 and HeartStart Telemedicine worksheets in “Configuring HeartStart Telemedicine” on page 25 to ensure that you have all the information you need.


Accessing the Configuration Menu

WARNING: The HeartStart MRx should never be connected to a patient while performing configuration activities.

- Ⓞ To access the Configuration Main menu:
 - 1 Turn the Therapy Knob to **Monitor**.
 - 2 Press the Menu Select  button.
 - 3 Using the Navigation buttons, select **Other** and press the Menu Select button.
 - 4 Using the Navigation buttons, select **Configuration** and press the Menu Select button.
 - 5 Press the Menu Select button again to acknowledge leaving normal operating mode.
 - 6 The Configuration Main menu is displayed, listing sub-menus for each category of configurable parameters. You may use this menu to view or print your device’s configuration, as well as to modify the date and time settings. To modify any other settings, see “Modifying Settings” below.
 - 7 To return to normal operating mode, press the **Exit Config** soft key.

Modifying Settings

When modifying configuration settings, the device should be connected to external power and have a battery with at least 20% capacity installed.

- ⦿ To modify configuration settings, from the Configuration Main menu:
 - 1 Press the **Change Config** soft key.
 - 2 When prompted, enter the configuration password.
 - 3 Press the Menu Select  button. Use the Navigation buttons to select the sub-menu for the category of parameters to be changed. Then press the Menu Select button.
 - 4 Use the **Prev Item** and **Next Item** soft keys to select a parameter.
 - 5 Use the Navigation buttons to highlight the desired choices. Press the Menu Select button to select the highlighted choice.
 - 6 Repeat steps 3, 4, and 5 to select another sub-menu and modify additional settings.
 - 7 Once the desired setting changes have been made, from the Configuration Main screen, press the **Save Changes** soft key, or press the **Cancel Changes** soft key to leave the settings unchanged.
 - 8 Press the **Exit Config** soft key to return to normal operating mode.
If you press **Exit Config** before saving the changes, you are prompted with the message **Configuration Not Saved - Exit Anyway?** Select **No** and press the Menu Select button. Then press the **Save Changes** soft key.

The Tables 3, 4, and 5 on pp. 11 - 14 list configurable parameters for the Data Transmission submenus on the Configuration Main menu. A description of each parameter is provided along with the possible choices for settings. Default settings are in bold type.

Configuring a Bluetooth Device Profile

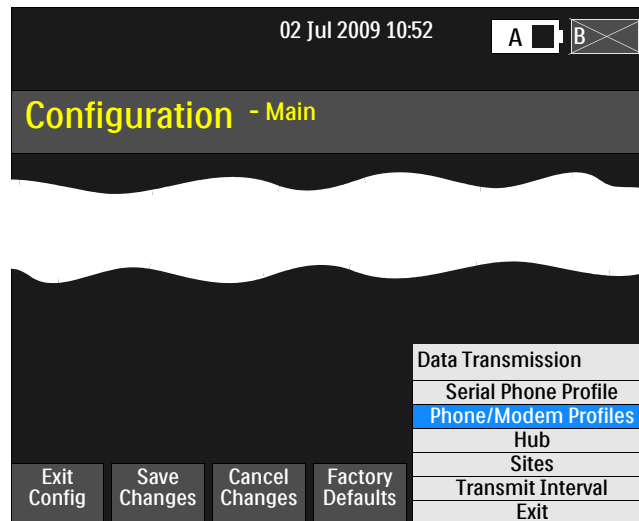
This topic provides instructions for configuring profiles for Bluetooth devices. Phone/Modem Profiles let you set the characteristics for the Bluetooth device you are using. The first time you select **Phone/Modem Profiles**, the **Add Profile** menu is displayed.

Once you have configured Bluetooth devices, a list of up to ten configured Bluetooth profile names is displayed.

When you select Data Transmission from the Main Configuration menu, the menu shown in [Figure 3](#) is displayed if you purchased the Bluetooth option.

NOTE: Add and pair Bluetooth devices and change profiles from the 12-Lead menu. See “[Setting Up the Cell Phone or Bluetooth Device](#)” on page 21 for more information.

Figure 3 Bluetooth and Modem Data Transmission Configuration Menu



Adding a Bluetooth Profile

© To add a Bluetooth profile:


- 1 From the Configuration menu, press the Menu Select  button.
- 2 Use the Navigation buttons to select **Data Transmission**.
- 3 From the **Data Transmission** menu, select **Phone/Modem Profiles**.
- 4 From the Phone/Modem Profiles menu, select **Add Profile**.
The first time you select **Phone/Modem Profiles**, the **Add Profile** menu is displayed automatically.
- 5 Enter the appropriate information, referring to [Table 3](#).
Remember to select **Done** from the menu after you have entered each parameter before moving on to the next one.

Table 3 Phone and Modem Profile Settings

Parameter	Description	Setting Choices
Profile Name	Name of the profile. Associate the profile name with the Auto Send List name (see “ Understanding Auto Send Lists ” on page 25).	up to 20 characters, blank
Configuration String	Available from your cell phone service provider.	up to 45 characters, blank
Landline	Set to “Yes” if you are using a modem.	Yes, No
Dial Prefix	Only configurable if Landline is set to “Yes”. The dial prefix is the number or numbers you dial before the phone number. For example, you may need to dial a 9 for an outside line or an area code in addition to the number.	up to 10 characters, blank
Dial String	Available from your cell phone service provider.	up to 40 characters, blank
Wait for Dial Tone		Yes, No

Table 3 Phone and Modem Profile Settings (Continued)

Parameter	Description	Setting Choices
User Name / Password Config	Available from your cell phone service provider. Per Profile – use to associate a user name and password with this profile. Per Device – use to associate a different user name and password for every device that uses this profile.	Per Profile, Per Device
PPP User Name	Typically not needed, but may be required by some cell phone service providers.	up to 20 characters, blank
PPP Password		up to 40 characters, blank
Static IP Address		15 characters (nnn.nnn.nnn.nnn), blank
Primary DNS		
Secondary DNS		
http Proxy Address		15 characters, blank
http Proxy Port		

Figure 4 shows a typical setting of Phone/Modem profile configuration:

Figure 4 Phone/Modem Profile Configuration Menu

29 Oct 2009 14:42

Configuration - Phone/Modem Profiles

Profile Name : **T610**

Configuration String :
+CGDCONT=3,, "internet2.voicestream.com"

Landline : No

Dial Prefix :

Dial String :
*99***3#

Wait for Dial Tone : No

User Name/Password Config : Per Profile

PPP User Name :

PPP Password :

Static IP Address :

Primary DNS :

Secondary DNS :

http Proxy Address :

http Proxy Port :

Profiles

- T610**
- K700I
- BLUETOOTHMODEM
- V710
- NOKIA6230
- Exit

Main Config Prev Item Next Item Next Screen

Deleting a Bluetooth Profile

- ☉ To delete a Bluetooth profile:
 - 1 From the **Phone/Modem Profiles** menu, select the profile you want to delete.
 - 2 Select **Delete Profile** and acknowledge the confirmation prompt.

Configuring the Hub

Configure the hub for the 12-Lead Transmission only. PCDT does not require the Hub.

A hub is a hardware device that provides the interconnection between networked devices. For Data Transmission, the hub is the machine running the HeartStart Telemedicine Server application. When you select **Hub** from the menu, the Hub screen is displayed, allowing you to configure the HeartStart Telemedicine Server machine URL in Table 4. Work with your ISP to ensure that these HeartStart MRx settings match the settings for the HeartStart Telemedicine Server computer.

Table 4 **Hub Settings**

Parameter	Description	Setting Choices
Server URL	Hub (HeartStart Telemedicine Server machine) address. Available from your ISP. For example, you could enter a domain name, such as <code>www.yahoo.com</code> , or a static IP address, such as <code>211.33.111.1</code> . HeartStart MRx adds the prefix <code>http:\\</code> to the address, but it does not appear on the screen.	up to 40 characters, blank
User Name	HTTP user name.	up to 20 characters, blank
Password	HTTP password.	up to 40 characters, blank

NOTE: HeartStart Telemedicine does not require a user name and password because Data Transmission uses an anonymous (as opposed to authenticated) access.

Configuring Sites

A site is the final destination of a 12-lead report. You can configure up to 20 sites on HeartStart MRx. When you select **Sites** from the menu, the Sites screen is displayed, allowing you to configure the parameters listed in Table 5.

NOTE: In HeartStart Telemedicine, a “site” is called a “destination.”

Table 5 Site Settings

Parameter	Description	Setting Choices
Site Name	This name appears in the Send To menu when initiating a transmission. The name should be easy to recognize.	12-20 characters, blank
Site Type	<p>Indicates the end destination receiving the 12-lead report.</p> <p>NOTE: All 12-lead reports are sent through the hub, regardless of the site type you select. From the hub, 12-lead reports can be forwarded to fax machines, printers, TraceMaster systems, or other HeartStart Telemedicine applications.</p> <ul style="list-style-type: none"> • Select Fax and enter the phone number, if you want to send the 12-lead report to a single fax machine. If you want to send the 12-lead report to multiple fax machines, you must also configure Auto Send Lists in HeartStart Telemedicine. See “Specifying Fax Destinations” on page 29. • Select Printer, if you want to send the 12-lead report to a printer or multiple printers. The printer must be set up in the Windows operating system for the HeartStart Telemedicine Server machine. See “Specifying Printer Destinations” on page 30. • Select 12LTS and enter the URL, if you want to send the 12-lead report to another 12-Lead Transfer Station. If you want to send the 12-lead report to multiple 12-Lead Transfer Station applications, you must also configure Auto Send Lists in HeartStart Telemedicine. See “Specifying Application Destinations” on page 28. • Select Hub, if you want to send the 12-lead report to the destinations on Auto Send Lists in HeartStart Telemedicine. If you use the Hub feature, then coordinate the Auto Send Lists content with the HeartStart Telemedicine system administrator. • Select Telemedicine and enter the URL, if you want to send the PCDT (12-lead report, ECG, waveform, or vital trend) to another HeartStart Telemedicine. You can manually forward data from your HeartStart Telemedicine to another HeartStart Telemedicine. If you want to send the 12-lead report to multiple HeartStart Telemedicine applications, you must also configure Auto Send Lists in HeartStart Telemedicine. See “Specifying Application Destinations” on page 28. 	Fax, Printer, TraceMaster, 12LTS, Hub, HeartStart Telemedicine,
Phone Number	<p>Phone number for fax site type, otherwise blank.</p> <p>NOTE: Check the dialing rules for HeartStart Telemedicine. For example, does HeartStart Telemedicine need to dial a 9 for an outside line or an area code in addition to the number? If it does, the destination number must include these digits.</p>	up to 20 characters, blank
URL	URL for TraceMasterVue or another HeartStart Telemedicine. HeartStart MRx adds the prefix <code>http:\\</code> to the address, but it does not appear on the screen.	up to 30 characters, blank
Use Hub's Routing	Reserved for future use.	Yes, No
Default Site	If Yes , this will be the highlighted site when the Send To menu is displayed. When set to Yes , this field will automatically be set to No for all other sites.	Yes, No

Adding and Deleting a Site

☉ To add a site:

- 1 From the **Data Transmission** Configuration menu, select **Sites**.
A list of configured sites is displayed. If no sites are configured, then the **Sites** screen is displayed; proceed to [Step 3](#). If fewer than 20 sites are configured, **Add Sites** appears on the menu.
- 2 Select **Add Site**.
The **Sites** screen is displayed.
- 3 Enter the site information. See [Table 5 “Site Settings”](#) for more information.

☉ To delete a site:

- 1 From the **Data Transmission** Configuration menu, select **Sites**.
A list of configured sites is displayed.
- 2 Select the site you want to delete.
The site name menu is displayed with **Delete Site** near the top.
- 3 Select **Delete Site** and press the Menu Select button.
The prompt **Delete Site <site name>?** is displayed.
- 4 Select **Yes** to delete the site.
The selected site is deleted from the configuration.

Installing HeartStart Telemedicine

This topic describes how to install and register HeartStart Telemedicine.

CAUTION: You may install another application, such as a web application, on the same machine that runs the HeartStart Telemedicine. Philips Healthcare does not prohibit installing other applications, however, you are responsible for performing and validating any integration testing to ensure that additional applications do not affect the operation of HeartStart Telemedicine.

Depending on your organization's purchase, you will install the HeartStart Telemedicine Server application. You might also install one or more HeartStart Telemedicine Viewer applications. Your Proof of Purchase identifies the software URL, serial number, and license for each application.

Philips recommends that a professional network technician installs and configures HeartStart Telemedicine. HeartStart Telemedicine is a web service. The application requires a static IP address that is connected to the Internet. The connection must be on at all time.

For installation details, refer to the “Installing HeartStart Telemedicine” and “Setting Up the HeartStart Telemedicine Monitoring Service” chapters in *HeartStart Telemedicine System User Guide*.

Before You Begin

Before you install HeartStart Telemedicine, confirm that the following components are set up:

- Confirm that a static IP address is assigned to the HeartStart Telemedicine Server machine and *connected* to the Internet.
- Confirm that the Internet connection is on all the time.
- Confirm that each HeartStart Telemedicine Viewer machine connects to the network.
- Confirm that the HeartStart Telemedicine Server and the HeartStart Telemedicine Viewer machines are set up according to the instructions in *HeartStart Telemedicine System User Guide*.

- Confirm that IIS is installed and running on the HeartStart Telemedicine Server machine.
- If you plan to use the email function, then:
 - confirm that the Simple Mail Transfer Protocol (SMTP) service is set up on the HeartStart Telemedicine Server machine according to the instructions.
 - confirm that the MAPI-compliant email client is set up on each HeartStart Telemedicine Viewer machine according to the instructions.
- Confirm that the Internet Service Provider (ISP) allows inbound communication on TCP port 80 on the HeartStart Telemedicine Server machine.

System Requirements

This section describes the software, hardware, and accessories required for HeartStart Telemedicine installation. Confirm that your facility supports the following minimum system requirements.

Table 6 “System Requirements” has the following sections:

- [SOFTWARE REQUIREMENTS](#)
- [HARDWARE REQUIREMENTS](#)
- [ACCESSORIES](#)

Table 6 **System Requirements**

Component	Requirements
SOFTWARE REQUIREMENTS	
Operating system	For HeartStart Telemedicine Server <i>Required:</i> 32-bit Microsoft® Windows Server 2003 (SP 2 or later)
	For HeartStart Telemedicine Viewer <i>Required:</i> 32-bit Microsoft Windows XP Professional (SP 3 or later)
Server software	For HeartStart Telemedicine Server, to configure the HeartStart Telemedicine system, database, and web service <i>Required:</i> <ul style="list-style-type: none"> • IIS Server 6.0 or later for Windows 2003 server, included with 2003 Server Standard Edition • IIS Server 5.1 or later for Windows XP Pro, included with XP Pro
Browser	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer <i>Recommended:</i> Microsoft Internet Explorer 7.0
SMTP Server	For HeartStart Telemedicine Server to forward emails, such as in an Auto Sent List.

Table 6 System Requirements (Continued)

Component	Requirements
HARDWARE REQUIREMENTS	
Processor speed	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer <i>Minimum:</i> 1 GHZ or higher
Display	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer <i>Minimum:</i> 1024 x 768 <i>Recommended:</i> 1280 x 1024 or higher
Memory	For HeartStart Telemedicine Server <i>Minimum:</i> 2 GB For HeartStart Telemedicine Viewer <i>Minimum:</i> 1 GB
Disk storage space	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer: <i>Required:</i> 2 GB of available disk space for database storage Hard disk space requirements vary depending on usage. Variables affecting disk space requirements include the number of HeartStart MRx patient cases archived and the number of years to store data. Philips Healthcare recommends to back up your data and store the data at an off-site location. See the “Storage Requirements” topic in <i>HeartStart Telemedicine System User Guide</i> for more information.
CD-ROM drive	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer <i>Required</i>
Internet connection	For HeartStart Telemedicine Server: <ul style="list-style-type: none"> • To activate the application software • To forward patient transmissions to destinations • To receive software updates and send email • To connect with HeartStart MRx and to HeartStart Telemedicine Server on the local area network (LAN) For HeartStart Telemedicine Viewer: <ul style="list-style-type: none"> • To activate the application software • To forward patient transmissions to destinations • To receive software updates and send email • To send email • To connect to the HeartStart Telemedicine Server machines
Telephone line	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer, to fax patient data to destinations and dial in to the Internet <i>Required:</i> 1 analogue telephone line for each machine
Pointing device	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer, to navigate throughout the application; for example: a mouse or tablet stylus <i>Required</i>

Table 6 System Requirements (Continued)

Component	Requirements
ACCESSORIES	
PDF Reader	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer, to view <i>HeartStart Telemedicine System User Guide</i> and <i>HeartStart Telemedicine Implementation Guide</i> . <i>Recommended:</i> Adobe Reader latest version, available from www.adobe.com
Back up and restore tool	For the HeartStart Telemedicine Server, to prevent data loss. Follow your organization's back-up policies.
Email application	For HeartStart Telemedicine Server, to send email through an Auto Send List <i>Recommended:</i> SMTP server or relay To activate the software or to send patient data using email, configure an email client: <i>Required:</i> MAPI-compliance
	For HeartStart Telemedicine Viewer, to activate the software or to send patient data using email, configure an email client: <i>Required:</i> MAPI-compliance
Fax modem	For HeartStart Telemedicine Server and HeartStart Telemedicine Viewer, to fax patient data to destinations: <i>Recommended</i>
Printer	For the HeartStart Telemedicine Server and HeartStart Telemedicine Viewer, to print 12-lead and periodic vitals reports <i>Required</i>
Bluetooth adapter	For HeartStart Telemedicine Server, to transfer HeartStart MRx patient data using Bluetooth wireless transfer <i>Required</i> ^a
Bluetooth stack	For HeartStart Telemedicine Server: To transfer patient data from HeartStart MRx to your HeartStart Telemedicine Server machine <i>Required</i> ^a To transfer HeartStart MRx patient periodic clinical data <i>Required:</i> <ul style="list-style-type: none"> • Bluetooth Version: 1.1 or higher • Windows 2003 Server (SP 2 or later) • Windows XP: Widcomm Bluetooth stack 5.1, Toshiba, IVT, or Blue Soleil Typically deployed in close proximity to HeartStart MRx devices, (e.g. emergency-departments-only environment). Bluetooth Class 1 maximum transmission range: 100 meters, approximately 300 feet. The transmission range is dependent upon the transmission range of the lowest class Bluetooth device. Most Bluetooth devices are Class II with a maximum transmissions range of up to 10 meters, approximately 33 feet.

- a. Required only if you do not use the Internet and transfer 12-leads locally using Bluetooth wireless technology. This use case is more common in hospital emergency departments, where the HeartStart MRx is used as a bedside or hallway monitor.

Philips recommends that you store backup information at a separate location on an installed tape or other backup device. You should have a plan for recovering information in the case of a software or hardware failure.

Storage Requirements

Storage requirements depend on the volume and frequency of patient transmissions, and on the type of data you send to HeartStart Telemedicine.

The MSDE 2000 is the default database that stores the demographic patient information, 12-lead reports, events, periodic vital trends, and configuration information. It can store up to 2 GB of data.

NOTE: Philips Healthcare recommends that you adjust the number of days that HeartStart Telemedicine stores data on the **General Configuration** workspace based on your network traffic.

- HeartStart Telemedicine Classic 12-Lead Edition – Storage requirements depend on the volume of 12-lead reports you send to HeartStart Telemedicine. If you assume that an average 12-lead report is approximately 60 KB, the MSDE database can store approximately 30,000 12-lead reports (2 GB/60 KB =30,000, approximately).
- HeartStart Telemedicine Critical Care Edition – Storage requirements depend on the frequency of patient transmissions and the type of data you send to HeartStart Telemedicine. [Table 7](#) provides an estimate of the storage required for one month and one year per HeartStart MRx monitor/defibrillator. Multiple the estimated storage required for the transmission data type and interval by the number of HeartStart MRx units used.

Table 7 **Storage Requirements**

Data to Transmit	Data in KB	Transmission Interval for One HeartStart MRx	Approximate Storage Required	
			per Year	per Month
Periodic vital trends	5 KB	1-minute interval	2.63 GB	.22 GB
	1 KB	5-minute intervals	.53 GB	.04 GB
Events and periodic vital trends	15 KB	1-minute interval	7.9 GB	.66 GB
	3 KB	5-minute intervals	1.58 GB	.13 GB
12-lead reports, events, and periodic vital trends	45 KB	1-minute interval	23.65 GB	2 GB
	9 KB	5-minute intervals	4.73 GB	.4 GB

Downloading the Application

You can download the application that you purchase or receive from your sales representative. Use the instructions that you receive to download the application from the Internet. Save the application file to your computer.

When you download HeartStart Telemedicine, save the application on the HeartStart Telemedicine machine. You can also save the application on a CD, DVD, or other media such as a USB memory stick or secure digital (SD) data card.

CAUTION: You cannot run 12-Lead Transfer Station 3.0 and HeartStart Telemedicine 4.0 on the same machine. Install HeartStart Telemedicine on a machine other than the machine with 12-Lead Transfer Station 3.0 installed.

© **To download the application:**

- 1 Close all currently running programs, including virus checkers.
- 2 Start Windows.

- 3 Start Internet Explorer.
- 4 Navigate to the URL provided in your Proof of Purchase or by your sales representative.
- 5 On the left pane, select the product.
- 6 On the right pane, click the link in **Software Download**.
- 7 Navigate to the download link.
- 8 Save the installation file to your machine. You can also save the file to a CD, DVD, or other media such as a USB memory stick or secure digital (SD) data card.

Installing HeartStart Telemedicine

HeartStart Telemedicine saves Auto Send Lists from 12-Lead Transfer Station 3.0. The default Auto Send List also remains as the default Auto Send List in HeartStart Telemedicine System 4.0.

Typically, you install the HeartStart Telemedicine software from URL provided in your Proof of Purchase or by your sales representative.

☉ To install HeartStart Telemedicine from a storage medium:

- 1 Navigate to the directory where you saved the downloaded installation file.
- 2 Double-click the installation file.
- 3 Read the on-screen messages. Follow the on-screen instructions.

By default, HeartStart Telemedicine Service Manager starts after HeartStart Telemedicine Server starts. HeartStart Telemedicine Service Manager can also run as a window service. For more information, see the “Running HeartStart Telemedicine Service Manager as a Service” topic in *HeartStart Telemedicine System User Guide*.

For information on how to activate, register, and configure HeartStart Telemedicine, see *HeartStart Telemedicine System User Guide*.

Verifying the Installation

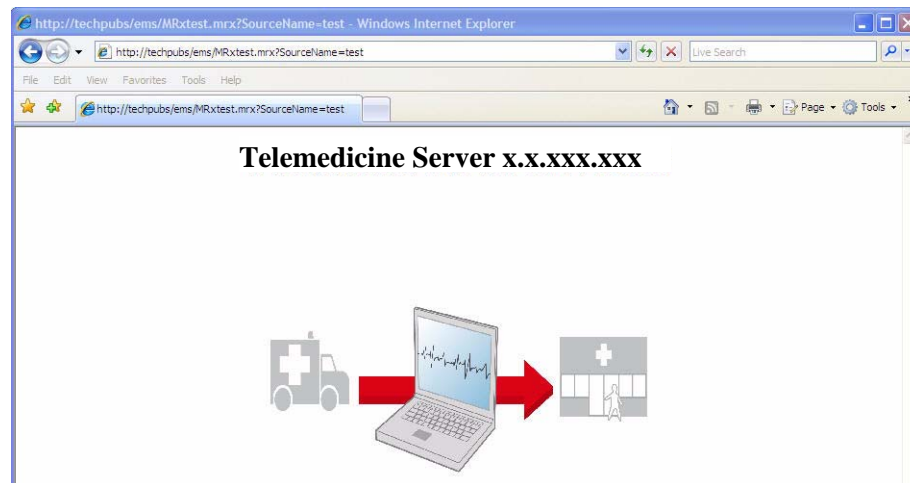
To ensure that the HeartStart MRx can connect to HeartStart Telemedicine from outside of the firewall, run this test on a machine outside the firewall that protects the HeartStart Telemedicine.

☉ To verify the installation:

- 1 Type the following URL in the browser:
 - For a test from the Internet:
`http://<IP_addr_or_Domain_name>/ems/MRxtest.mrx?SourceName=test`
 - For a test from within the firewall:
`http://<IP_addr_or_Domain_name>/ems/MRxtest.mrx?SourceName=test` or
`http://<Telemed_machine_name>/ems/MRxtest.mrx?SourceName=test`

If you see a similar window as shown in [Figure 5](#), the operating system, IIS, and the HeartStart Telemedicine are installed correctly.

Figure 5 HeartStart Telemedicine Window



If this window does not appear, make sure that IIS is running. If not, restart IIS or check the IIS log to make sure it is configured properly.

- 2 Make sure that the HeartStart Telemedicine Server application is running on the machine. The automatic services provided by HeartStart Telemedicine are only active while the application is running and do not restart automatically. Thus, if there is a power outage you must restart the HeartStart Telemedicine application on the server.

For information on how to configure Transfer Station Service Manager, see *HeartStart Telemedicine System User Guide*.

Setting Up the Cell Phone or Bluetooth Device

There is a number of ways in which the HeartStart MRx can transmit data to the Internet via Bluetooth and an intermediary device (see [Figure 1](#) on page 4). Each of the methods have different configuration requirements (see below), but all of them must:

- Support the Bluetooth wireless technology version 1.1 or greater standard.

Cellular Handset or Ambulance Broadband Gateway with an Air Card

To send data through a simple cellular phone or ambulance broadband gateway with an air card, your device must:

- Have a data plan that supports tethered data (i.e., use the phone as a modem for a PC, contact your cellular service provider for details).
- Support Bluetooth Dial Up Networking (DUN) profile.

PC or Windows Mobile-based Smartphone for Forwarding to Internet

- PC must have an air card or Smartphone must have an Internet data plan.
- Must support Bluetooth FTP Server (HeartStart MRx initiates *file push* to the receiving device).

Bluetooth-to-Landline Modem

This method allows HeartStart MRx to send data through an analog phone line or a business fax line.

- Must have a dial-up Internet service plan

Bluetooth Device Transmission Range

The class of a Bluetooth device is a definition of the maximum range of transmission. HeartStart MRx is a Bluetooth Class I device. This means that it is possible for the HeartStart MRx to communicate with a Bluetooth device within a maximum distance of 100 meters (300 feet). However, the maximum communication distance between two Bluetooth devices depends upon the device with the lowest class. See the your Bluetooth device's documentation for more information on Bluetooth classes.

Additional Bluetooth Device Information

Keep the following points in mind when working with Bluetooth devices:

- Many Bluetooth devices are not discoverable by default. Check your device's documentation to see if you need to enable discovery.
- As a general security practice, you should not leave your Bluetooth device in discovery mode.
- Some devices require that you turn on the Bluetooth functionality.
- Some devices may prompt you to authorize each time. Check your device's documentation to see if you can configure it to always communicate with HeartStart MRx.
- Give your Bluetooth device an easily recognizable name as this is the name that appears on HeartStart MRx menus. The name should be no more than 15 characters in order to display properly on HeartStart MRx.
- Bluetooth modems and fax machines use analog lines to transmit data. If you are transmitting using a Bluetooth modem, plug it into the analog line used by the fax machine.

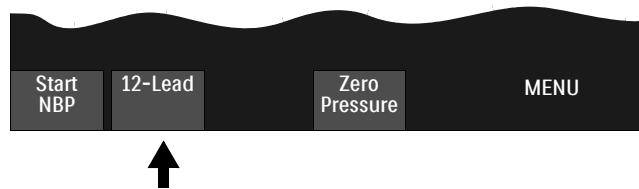
Adding Bluetooth Devices to the HeartStart MRx

Up to 20 Bluetooth devices can be configured for use. Adding a twenty-first device replaces the device used least recently. You cannot add or modify Bluetooth devices during 12-Lead transmission. Similarly, you cannot transmit a 12-lead report during Bluetooth device configuration.

🎯 To add a Bluetooth device to HeartStart MRx:

- 1 Press the **12-Lead** softkey to enter the 12-Lead Mode, as shown in [Figure 6](#):

Figure 6 Entering 12-Lead Mode



- 2 From the 12-Lead Main Menu, select **Bluetooth Devices**.
- 3 Select **Add Device** and press the Menu Select button.
- 4 The message **Searching for Bluetooth** devices is displayed.

If the message **No Bluetooth Profiles Configured** is displayed, then see “[Configuring a Bluetooth Device Profile](#)” on page 10.

- 5 From the **Add Device** menu, select the desired device.
- 6 Pair the device with the HeartStart MRx, as described in the next topic.

NOTE: Bluetooth devices within the specified range are discovered by HeartStart MRx and are displayed on the **Add Device** menu, even if you have already paired with the device. If the device you are searching for does not appear on the Add Device list, select **Search Again**.

Pairing a Bluetooth Device with HeartStart MRx

After you have added a Bluetooth device to the HeartStart MRx, you are prompted to enter a passkey to pair (also called bonding on some devices) the Bluetooth device with the HeartStart MRx. The passkey is a user-defined character sequence, such as 000, or 1234, etc. You must ensure that you enter the same passkey on both the Bluetooth device and HeartStart MRx.

If you are pairing with a Bluetooth modem, refer to the device's documentation to determine the passkey you should enter.

TIP: Some Bluetooth devices only allow pairing for 30 seconds, so be ready to enter the passkey:

☉ To pair a Bluetooth device with the HeartStart MRx:

- 1 Use the Navigation buttons to enter the passkey on the HeartStart MRx and select **Done**. The Bluetooth device prompts you for a passkey.
- 2 Enter the same passkey on your Bluetooth device. See the documentation that came with your Bluetooth device for instructions.

Once the Bluetooth device has been paired with the HeartStart MRx, you are prompted to select a profile. See “[Bluetooth Profile](#)” below.

Bluetooth Profile

After you have paired the Bluetooth device with the HeartStart MRx, a list of configured profiles is displayed. Select the profile you want to use with that Bluetooth device to transmit the 12-lead report.

☉ To select a Bluetooth profile:

- 1 Use the Navigation buttons to select the profile from the list of configured profiles. The HeartStart MRx tests the profile to determine if the Bluetooth device can communicate with HeartStart Telemedicine.
- 2 If your HeartStart MRx is enabled for both Dial-up Network (DUN) and File Transfer profiles (FTP), make an appropriate selection when prompted.
- 3 Progress messages, such as: **Transmission Test, Connecting to Device, Dialing..., Connecting to Network, and Connecting to Server** are displayed during the testing.

If the test passes, the message **Transmission Test Passed** is displayed.

If the test fails, the message **Transmission Test Failed** is displayed along with additional information on where the failure occurred. Refer to [Table 18](#) on page 44 to troubleshoot.

NOTE: No files are transferred during the test.

☉ To change a Bluetooth profile:

- 1 From the 12-Lead menu, select **Bluetooth Devices**. A list of paired Bluetooth devices is displayed.
- 2 Use the Menu Select button to select a device.
- 3 Select **Change Profile**.

A list of configured profiles is displayed, with the currently associated profile highlighted.

- 4 Select the profile you want to use with that Bluetooth device to transmit 12-lead report.
The HeartStart MRx tests the profile to determine if the Bluetooth device can communicate with HeartStart Telemedicine.
- 5 Progress messages, such as: **Transmission Test, Connecting to Device, Dialing..., Connecting to Network,** and **Connecting to Server** are displayed during the testing.
If the test passes, the message **Transmission Test Passed** is displayed.
If the test fails, the message **Transmission Test Failed** is displayed along with additional information on where the failure occurred. Refer to [Table 18](#) on page 44 to troubleshoot.

NOTE: No files are transferred during the test.

Setting Up the HeartStart Telemedicine Web Services

HeartStart Telemedicine uses Internet Information Services (IIS) to send and receive information from the Internet. Although IIS ships with the Windows application, Windows does not automatically install IIS when you install the operating system.

In order for the HeartStart Telemedicine to receive data from a HeartStart MRx in the field, the HeartStart Telemedicine Server machine must have a public Internet address. The HeartStart Telemedicine Server machine must be able to act as a web server and respond to incoming requests.

Refer to the “Setting up Internet Information Services (IIS)” and “Providing the HeartStart Telemedicine Web Service” topics in *HeartStart Telemedicine System User Guide*.

Configuring Microsoft Fax Console

Fax users should configure the Microsoft Fax Console for landscape printing.

Configure Microsoft Fax Console for the same account that runs the HeartStart Telemedicine service.

- If you run HeartStart Telemedicine as a service, this “account” must configure the Fax Console.
- If you run HeartStart Telemedicine as a console application, the user who is logged on must configure the fax printer.

For more information, see *HeartStart Telemedicine System User Guide*.

Configure Microsoft Fax Console for each HeartStart Telemedicine Server and HeartStart Telemedicine Viewer machine. You might need the operating system installation CD.

The Microsoft Fax Console configuration process depends on your Windows version, therefore research Microsoft Help for instructions on how to configure Fax Console. For example, you may consult:

- [How to enable and configure the fax service in Windows XP](http://support.microsoft.com/kb/306550) (<http://support.microsoft.com/kb/306550>)
- [How to Configure Outlook 2000 or a MAPI E-mail Client to Receive Windows 2000 Fax Service Messages](http://support.microsoft.com/kb/246151) (<http://support.microsoft.com/kb/246151>)

If the fax printer clips portions of the 12-lead report, consult your fax machine user’s manual for the subject “Reducing Faxes to Fit,” “Image Resizing,” or “Scaling.” This item is most often located in the menu under Fax options, Incoming faxes.

Configuring HeartStart Telemedicine

You can configure HeartStart Telemedicine to serve one EMS dispatch center, or one or more hospitals, or an entire regional STEMI or Critical Care Transport Network involving several agencies and hospitals. Configuration of HeartStart Telemedicine is performed on the HeartStart Telemedicine Server machine.

The primary function of HeartStart Telemedicine is to send 12-Lead transmissions (12-lead ECG reports) and from the HeartStart MRx to one or more external destinations.

Auto Send Lists allow you to build distribution lists on the HeartStart Telemedicine Server to send 12-lead ECG reports to multiple destinations at once. On the HeartStart MRx side, you can have up to 20 different hospitals or receiving Sites. When a site is configured as a hub, and the spelling matches an Auto Send List on HeartStart Telemedicine, sending to this site will result in sending to all the destinations on that Auto Send List at once.

Use the worksheets in this chapter when you configure how the HeartStart MRx sends 12-lead reports to HeartStart Telemedicine. In HeartStart Telemedicine, use the worksheets when you complete the features that are available on the **Administration** navigation pane. For information on how to configure HeartStart Telemedicine, see the “Configuring HeartStart Telemedicine System” and “Managing Patient Data and Destinations” chapters in *HeartStart Telemedicine System User Guide*.

Understanding Auto Send Lists

You can configure up to 20 Auto Send Lists per HeartStart Telemedicine System, and each Auto Send List can have up to 10 destinations. For example: an Auto Send List could consist of only one destination; and the same destination could also appear on 19 other Auto Send Lists.

You configure a destination individually and then assign it to an Auto Send List. During the Auto Send List configuration process, you can select one list to be the default Auto Send List. HeartStart Telemedicine sends the 12-lead report to the default Auto Send List when the site name for the HeartStart MRx hub does not match the name of a configured Auto Send List. For more information, see the “Sending a 12-Lead Report Automatically” topic in *HeartStart Telemedicine System User Guide*.

Sending a 12-Lead Report Automatically

An Auto Send List can automatically send a 12-lead report to any combination of the following types of destinations:

- 12-Lead Transfer Station application
- TraceMasterVue application
- DatamedFT software
- HeartStart Telemedicine application
- Fax machine, Printer, Email address

NOTE: You can process and store 12-lead reports from 12-Lead Transfer Station 3.0 or the current version of HeartStart Telemedicine. However, you can only send encrypted 12-lead reports to the current version of HeartStart Telemedicine.

If you do not configure a default Auto Send List, and the HeartStart MRx hub does not match the configured Auto Send List, HeartStart Telemedicine adds the 12-lead report to the database. You can then send the 12-lead report manually.

Sending a 12-Lead Report Manually

You can also manually send a selected 12-lead report simultaneously to any combination of the following types of destinations:

- Auto Send List

- Any destination listed in “[Sending a 12-Lead Report Automatically](#)” above

Use the **Forward Selected 12-Lead** menu option on the File menu to send a selected 12-lead report to one of the configured Auto Send Lists or destinations.

Use the **Fax 12-Lead**, **Print Report**, and **Email PDF** options on the File menu to send a selected 12-lead report to a fax machine, printer, or email address that is not configured as a destination HeartStart Telemedicine. You can also use the **Print Report** option on the File menu or toolbar button to print a report of the selected patient transmission, or a single selected transmission to the same printers set up for the HeartStart Telemedicine Server machine.

Specifying General Settings

Before you can process, store, and send 12-lead reports, you must specify how to store, fax, print, and email 12-lead reports. The installation process automatically installs the database server on the HeartStart Telemedicine Server machine for you.

By default, HeartStart Telemedicine formats 12-lead reports with grids and in the time-sequential format, and saves 12-lead reports in the database for 30 days. You can change these settings. You can also specify how to email 12-lead reports.

General HeartStart Telemedicine Settings

In HeartStart Telemedicine, the general settings listed in [Table 8](#) appear on the **General Configuration** workspace:

Table 8 General Settings

Field Label	Description	Settings
HeartStart Telemedicine Server Name	Name of the database for HeartStart Telemedicine Server machine that manages the database.	
Print with grid	How HeartStart Telemedicine prints 12-lead reports. Select the check box to print reports with grid lines. Clear the check box to print reports without grid lines.	<input type="checkbox"/> Select the box <input type="checkbox"/> Clear the box
12-lead layout	How the HeartStart Telemedicine faxes or prints 12-lead reports. Select the format from the drop-down list.	<input type="checkbox"/> Simultaneous <input type="checkbox"/> Time sequential
Previous history	The number of days HeartStart Telemedicine saves reports in the database. The default is 30. The minimum is 1.	
SMTP server name	The IP address or name of the email server.	
Reply email address	Email address that receives an email when an email destination sends a reply. Used when emailing 12-lead reports through an Auto Send List.	
Password protect attachment	Select the check box to password protect a 12-lead report attachment. Used when emailing 12-lead reports from the File menu.	<input type="checkbox"/> Select the box <input type="checkbox"/> Clear the box
Bluetooth Exchange Folder (for in-hospital use only)	Specify the location of the Bluetooth Exchange Folder to watch for patient periodic clinical data transmissions automatically. The default Bluetooth Exchange Folder location is C:\Documents and Settings\ <i>user name</i> \My Documents\Bluetooth Exchange Folder. For more information on the Bluetooth Monitor feature, see the “Using the Bluetooth Monitor Feature” topic in <i>HeartStart Telemedicine System User Guide</i> .	

Specifying Application Destinations

In HeartStart Telemedicine, you can send patient 12-lead reports from HeartStart MRx to one or more application destinations automatically through an Auto Send List or manually from the **Forward Selected 12-Lead** option on the File menu.

You configure a destination from the **Application Destinations** workspace on the **Administration** navigation pane.

Application Settings

HeartStart Telemedicine uses the following fields to specify application destinations:

Table 9 **Application Destination Settings**

Field Label	Description
Name	A name that you provide for the application.
Description	(Optional) A brief description that describes the use of the application.
Location type	The type of application: 12-Lead Transfer Station, TraceMasterVue, DatamedFT, or HeartStart Telemedicine.
URL or Location	The URL or path identifying where the application is installed. DatamedFT requires the location of the DatamedFT Inbox, for example C:\DatamedFT\Inbox

Application Destination Worksheet

Copy the following worksheet for each application destination used in HeartStart Telemedicine:

Table 10 **Application Destination Worksheet**

Application Destination	Setting
Name	
Description (Optional)	
Location type for the application, select one:	<input type="checkbox"/> 12-Lead Transfer Station <input type="checkbox"/> TraceMasterVue <input type="checkbox"/> DatamedFT <input type="checkbox"/> HeartStart Telemedicine
URL or Location (For DatamedFT only: specify the location of the DatamedFT Inbox)	

Specifying Fax Destinations

In HeartStart Telemedicine, you can fax 12-lead reports from HeartStart MRx to one or more of the fax destinations automatically through an Auto Send List or manually from the **Forward Selected 12-Lead** option on the File menu.

You configure a fax destination from the **Fax Destinations** workspace on the **Administration** navigation pane.

HeartStart Telemedicine also sends a 12-lead report to any fax number that is specified in HeartStart MRx.

Fax Requirements

To use the Fax feature in HeartStart Telemedicine, complete the following tasks:

- Connect HeartStart Telemedicine to a fax modem.
- Install Microsoft Fax Service on the HeartStart Telemedicine machine.
- Configure the retry settings in the Microsoft Fax Console window.
- Complete the fax settings using the **Fax Destinations** workspace.

For information on configuring the Microsoft Fax Console, see the “Setting up Fax Destinations” topic in *HeartStart Telemedicine System User Guide*.

Fax Settings

HeartStart Telemedicine uses the following fields to specify fax destinations:

Table 11 **Fax Destination Settings**

Field Label	Description
Name	A name that you provide for the fax number.
Description	(Optional) A brief description that describes the use of the fax.
Fax number	The numeric telephone number of the fax device. Include the required numbers for the dialing plan.

Fax Destination Worksheet

Copy the following worksheet for each fax destination used in HeartStart Telemedicine. In the worksheet, you do not have to add any fax number that is specified in the HeartStart MRx.

Table 12 **Fax Destination Worksheet**

Fax Destination	Setting
Name	
Description (Optional)	
Fax number	

Specifying Printer Destinations

In HeartStart Telemedicine, you can print 12-lead reports from the HeartStart MRx to one or more of the printer destinations automatically through an Auto Send List, and manually from the **Forward Selected 12-Lead** and **Print Report** options on the **File** menu.

You select a printer destination from the **Auto Send Lists** workspace while you configure an Auto Send List. You can also print reports for selected patient records, waveforms, and vital trends manually.

You set up the default printer in Windows.

Printer Option Requirements

All printers must be on the same network as the HeartStart Telemedicine Server machine. You must define each printer in Windows.

For each HeartStart Telemedicine Viewer machine, you must set up the same printers as for the HeartStart Telemedicine Server machine.

Printer Destination Worksheet

Copy the following worksheet and enter the printer name and location for each printer used in HeartStart Telemedicine. When you click **Quick Print** on the Reports toolbar, HeartStart Telemedicine sends the report to the default printer.

Table 13 **Printer Destination Worksheet**

Printer Name	HeartStart Telemedicine Default Printer (select one for each installation)	Location

Specifying Email Destinations

In HeartStart Telemedicine, you can email 12-lead reports from HeartStart MRx to one or more email destinations automatically through an Auto Send List or manually from the **Forward Selected 12-Lead** option.

Configure an email destination from the **Email Destinations** workspace on the **Administration** navigation pane. You can also email a selected patient record, 12-lead report, waveform, or periodic vital trending from the **Email PDF** option on the File menu.

Email Requirements

To use the Email feature in HeartStart Telemedicine, complete the following tasks:

- Install the email application on the HeartStart Telemedicine Server machine. HeartStart Telemedicine uses the email client application to email the 12-lead report when you select **Email PDF** from the File menu. For more information, see the instructions for your email application.
- Install the SMTP server for use with IIS, if you want to email 12-lead reports through an Auto Send List. For more information, see the “Setting Up Email Address Destinations” topic in *HeartStart Telemedicine System User Guide*.
- Configure the email settings in HeartStart Telemedicine. For more information, see the “Setting Up Email Destinations” topic in *HeartStart Telemedicine System User Guide*.

Email Settings

HeartStart Telemedicine uses the email destination settings to specify email destinations for use with Auto Send Lists and the **Forward Selected 12-Lead** and **Email PDF** options on the File menu:

Table 14 **Email Destination Settings**

Field Label	Description
Name	A name that you provide for the email address.
Description (optional)	A brief description that describes the use of the email address.
Add an email address	The alphanumeric email address for the recipient.
Password for attachment (optional)	Select to password-protect the email attachment. The password that the recipient will enter to open the 12-lead report attachment.

Email Destination Worksheet

Copy the following worksheet for each email address destination used in HeartStart Telemedicine.

Table 15 **Email Destination Worksheet**

Fax Destination	Setting
Name	
Description (optional)	
Fax number	
Password for attachment (optional)	<input type="checkbox"/> Select the box; Password: _____ <input type="checkbox"/> Clear the box

Specifying Auto Send Lists

In HeartStart Telemedicine, you can configure an Auto Send List to send 12-lead report to as many as 10 destinations on the **Auto Send Lists** workspace on the **Administration** navigation pane. You can also configure as many as 20 auto send lists on one HeartStart Telemedicine. For example: One auto send list can consist of only one destination. And, the same destination can also appear on 19 other auto send lists.

You configure destinations individually. During the auto send list configuration process, you select the destinations for the auto send list that are listed in **Destinations** on the **Auto Send List** workspace. You can also select one list to be the default Auto Send List.

Auto Send List Settings

HeartStart Telemedicine uses the fields in [Table 16](#) to specify auto send lists.

TIP: Use the individual destination worksheets to specify settings for the applications, faxes, printers, and email address that you add to an Auto Send List.

Table 16 Auto Send List Destination Settings

Field Label	Description
Name	A name that you provide for the Auto Send List.
Description	(Optional) A brief description that describes the use of the Auto Send List.
Set as the default Auto Send List	Identifies the Auto Send List as the Auto Send List used to send 12-lead reports when the site name for the HeartStart MRx hub does not match the name of a configured Auto Send List.
Destinations	The destinations for the applications, faxes, printers, and email addresses that will automatically receive the 12-lead report transmitted by the HeartStart MRx.

Auto Send List Destination Worksheet

Copy the following worksheet for each Auto Send List used in HeartStart Telemedicine. The maximum number is 20.

Table 17 **Auto Send List Destination Worksheet**

Auto Send List		Setting
Name		
Description (optional)		
Set as the default Auto Send List ^a		<input type="checkbox"/> Select the box <input type="checkbox"/> Clear the box
Destination names (10 maximum):		
Application	12-Lead Transfer Station	
	TraceMasterVue	
	DatamedFT	
	HeartStart Telemedicine	
Fax number		
Printer name		
Email address		

- a. The default Auto Send List applies to all incoming transmissions *except* those intended to another (designated) Auto Send List. Designated Auto Send Lists override the default Auto Send List. If you do not set the default Auto Send List, the HeartStart Telemedicine will have no default Auto Send List.

Testing and Troubleshooting

Overview

This chapter provides information on testing and troubleshooting the Data Transmission option. The first topic discusses testing Bluetooth devices when adding them to the HeartStart MRx. The next topic provides test scenarios to help you verify the initial installation and troubleshooting procedures. The remaining topics provide information to help you narrow down any issues.

This chapter has the following topics:



Quick Access Table

Testing Bluetooth Devices

Testing Data Transmission

Viewing the HeartStart MRx Logs

Viewing the HeartStart Telemedicine System Log

Troubleshooting Tables

Troubleshooting the Accessories

Customer Support

Testing Bluetooth Devices

After you have added and paired a Bluetooth device to the HeartStart MRx and selected a profile, the HeartStart MRx checks that it can communicate with the Bluetooth device, connect to the network, and connect to the HeartStart Telemedicine. This test occurs automatically whenever you change a profile for the Bluetooth device.

© To manually test a profile of a previously paired Bluetooth device:

- 1 From the HeartStart MRx 12-Lead menu, select **Bluetooth Devices**.

A list of configured Bluetooth devices is displayed.

- 2 Use the Menu Select button to select a Bluetooth device.

- 3 Select **Change Profile**.

A menu of configured profiles for that Bluetooth device is displayed, with the currently associated profile highlighted.

- 4 Select the profile you want the Bluetooth device to use to transmit 12-lead reports.

HeartStart MRx tests the profile to determine if the Bluetooth device can communicate with HeartStart Telemedicine. Progress messages, such as **Transmission Test**, **Connecting to Device**, **Connecting to Network**, **Dialing**, and **Connecting to Server** are displayed during the testing. If the test completes

successfully, the message **Transmission Test Passed** is displayed. If the test fails, the message **Transmission Test Failed** is displayed, along with more detailed information on the failure. See [Table 18 “Bluetooth Transmission Messages”](#) on page 44 for messages and suggested solutions.

NOTE: No files are transferred during the test.

Testing Data Transmission

Once all of the pieces of the Data Transmission option are installed and configured, you can test the entire Data Transmission option using the follow scenarios.

- Scenario 1 — From a HeartStart MRx, manually send a 12-lead report to HeartStart Telemedicine using a cell phone. This tests the following components:
 - HeartStart MRx and the cell phone are configured correctly
 - HeartStart Telemedicine can receive HeartStart MRx data

NOTE: Use Bluetooth wireless technology instead of cell phones for in-hospital deployments in proximity to the HeartStart MRx devices.

- Scenario 2 — From HeartStart Telemedicine manually forward a 12-lead report to a fax machine. This tests that HeartStart Telemedicine and the Windows fax component are installed and configured correctly.
- Scenario 3 — From a HeartStart MRx, send a 12-lead report from HeartStart MRx to a HeartStart MRx-designated fax machine. This tests the following components:
 - HeartStart Telemedicine and the Windows fax component are installed and configured correctly
 - HeartStart MRx and the cell phone are configured correctly
 - HeartStart MRx can communicate with HeartStart Telemedicine
- Scenario 4 — From a HeartStart MRx, send a 12-lead report to multiple destinations all at once. This tests the following components:
 - HeartStart Telemedicine and the Windows fax component are installed and configured correctly
 - HeartStart Telemedicine default Auto Send List is configured correctly
- Scenario 5 — From a HeartStart MRx, send patient periodic clinical data to HeartStart Telemedicine. This tests the following components:
 - HeartStart MRx PCDT option
 - HeartStart Telemedicine Critical Care Edition

Scenario 1 – Manually send a 12-lead report from HeartStart MRx to HeartStart Telemedicine using a cell phone

- 1 From the HeartStart MRx, send a 12-lead report to HeartStart Telemedicine Server.
Use a simulator to acquire a 12-lead report. See *HeartStart MRx Instructions for Use* for information on acquiring 12-lead reports.
 - a Upon acquisition of the 12-lead ECG, HeartStart MRx displays the 12-lead report view.
 - b Press the Menu Select button.
 - c Select **Send** from **12-Lead Main Menu** and press the Menu Select button.
 - d Select **Site Name** from the list of configured sites.
 - e Press the Menu Select button to complete the selection.
 - f Select the device from the Transmission Devices menu.
 - g Watch the **Connecting to Device, Dialing..., Connecting to Network, Connecting to Server, Sending, __% Complete** messages on the HeartStart MRx screen.
- 2 Confirm that the 12-lead report was sent to the designated HeartStart Telemedicine Server. If not, begin troubleshooting.

Troubleshooting when HeartStart MRx fails to send a 12-lead report or a PCDT to a designated HeartStart Telemedicine

- 1 Check the HeartStart MRx screen and status log for error messages.
If an error message appears, use [Table 19 on page 48](#) to understand and correct the problem.
- 2 Did you enter the HeartStart Telemedicine Server machine URL correctly from the HeartStart MRx?

Confirm that the URL was entered correctly on the HeartStart MRx.
- 3 Did HeartStart Telemedicine receive the file?

To confirm that HeartStart Telemedicine received the file:
 - a Click the **Patients** navigation button.
 - b On the **Patients** navigation pane, click **View All Patients** or **View Latest Patient**.
For more information, see the “View All Patients” and “Viewing Patient Detail” topics in *HeartStart Telemedicine System User Guide*.
 - c Depending on your choice in [Step b](#):
 - On the **View All Patients** workspace, double-click the **12-Lead Report**, or **Trigger Events**, or **Vital Trends**, or specific PCDT, or
 - On the **View Latest Patient** workspace, click the **12-Lead Report**, or **Trigger Events**, or **Vital Trends**, or specific PCDT
 - d Verify that a corresponding report is displayed on the respective pane.
For more information, see the “Viewing Patient Detail” topic in *HeartStart Telemedicine System User Guide*.
 - e Click the **Administration** navigation button.
 - f On the **Administration** navigation pane, click **System Log** to use the system log.
The log should display an information message indicating that the 12-lead transmission was saved.
 - g If the 12-lead report was received, check to see if there are error messages for the transmission.
See *HeartStart Telemedicine System User Guide* to understand and correct the problem.

- 4 Confirm that HeartStart Telemedicine Server machine is installed at the HeartStart MRx receiving end. Type in the following URL in the browser:
`http://<IP address or domain name>/ems/MRxtest.mrx?SourceName=test`


If you see the “HeartStart Telemedicine” window shown in [Figure 5](#) on page 21, the operating system, IIS, and HeartStart Telemedicine are installed correctly.

If this window does not appear, make sure that IIS is running. If not, restart IIS or check the IIS log to make sure it is configured properly.

- 5 Confirm that HeartStart Telemedicine is running:
 - a From the Windows Start menu, click **All Programs**.
 - b Then click **Philips HeartStart Telemedicine System 4.0**.
 - c Next, click **Telemedicine**.

For more information, see *HeartStart Telemedicine System User Guide*.

Scenario 2 – Manually send a 12-lead report from HeartStart Telemedicine to a fax machine

- 1 Start HeartStart Telemedicine.
- 2 Click the **Patients** navigation button.
- 3 Use one of the following methods to select a 12-lead report:
 - Display the **View All Patients** workspace. For more information, see the “Viewing All Patients” topic in *HeartStart Telemedicine System User Guide*.
 - Display the **View Patient** workspace. For more information, see the topic “Viewing Patient Transmission Details” topic in *HeartStart Telemedicine System User Guide*.
- 4 If you are using the **View All Patients** workspace, select a patient record and click the **Expand**  button to the left of the row.
- 5 Select a 12-lead transmission.
- 6 On the File menu, click **Fax 12-Lead**. HeartStart Telemedicine might display the Send Fax Wizard window. Follow the on-screen instructions.

Troubleshooting when a 12-lead report fails to fax:

- 1 Is the fax set up in Windows Fax Console and ready to receive?
 - Confirm that the fax is set up in Windows Fax Console.
 - Confirm that the fax number of retries and amount of time between retries is a low number, such as 2 and 0.
 - Confirm that paper orientation of the fax service is set to **Landscape** orientation.
 - Confirm with the receiving site that the fax is ready to receive.
 - Confirm that the fax is plugged in and has paper.
- 2 Follow Microsoft Windows Fax troubleshooting procedures for additional information.

Scenario 3 – Sending a 12-lead report to a HeartStart MRx-designated fax machine

- 1 From the HeartStart MRx, send a 12-lead report to the designated fax.
Use a simulator to acquire a 12-lead report. See *HeartStart MRx Instructions for Use* for information on acquiring 12-lead reports.
 - a Upon acquisition of the 12-lead ECG, the 12-lead report View is displayed.
 - b Press the Menu Select button.
 - c Select **Send** from 12-Lead Main Menu and press the Menu Select button.
 - d Select **Fax** as the Site Type.
 - e Enter the fax number.
 - f Press the Menu Select button to complete the selection.
 - g If you are transmitting using a Bluetooth phone or modem, select the device from the Transmission Devices menu.
- 2 Confirm that the 12-lead report was sent to the designated fax machine. If not, begin troubleshooting.

Troubleshooting when a 12-lead report fails to fax to a HeartStart MRx-designated fax

- 1 Check the HeartStart MRx screen and status log for error messages.
If an error message appears, use [Table 18 “Bluetooth Transmission Messages”](#) on page 44 to understand and correct the problem.
- 2 Did you enter the fax number correctly from the HeartStart MRx?
Confirm that the fax number was entered correctly on HeartStart MRx, using the dialing rules for HeartStart Telemedicine. For example, you may need to dial a 9 for an outside line or an area code in addition to the number.
- 3 Did HeartStart Telemedicine receive the file?
To confirm that HeartStart Telemedicine received the file:
 - a Click the **Patients** navigation button.
 - b On the **Patients** navigation pane, click **View All Patients** or **View Latest Patient**. For more information, see the “View All Patients” and “Viewing Patient Detail” topic in *HeartStart Telemedicine System User Guide*.
 - c Depending on your choice in [Step b](#), perform one of the following steps:
 - On the **View All Patients** workspace, double-click the **12-lead** report,
 - On the **View Latest Patient** workspace, click the **12-lead** report
 - d Verify that a 12-lead report displays on the **12-Lead** pane.
For more information, see the “Viewing Patient Detail” topic in *HeartStart Telemedicine System User Guide*.
 - e Click the **Administration** navigation button.
 - f On the **Administration** navigation pane, click **System Log** to use the system log.
The log should display an information message indicating that the 12-lead transmission was saved.
 - g If the 12-lead report was received, check to see if there are error message for the transmission. See *HeartStart Telemedicine System User Guide* to understand and correct the problem.

- 4 Confirm the HeartStart Telemedicine installation.
Type in the following URL in the browser:
`http://<IP address or domain name>/ems/MRxtest.mrx?SourceName=test`
If you see the “HeartStart Telemedicine” window shown in [Figure 5 on page 21](#), the operating system, IIS, and HeartStart Telemedicine are installed correctly.
If this window does not appear, make sure that IIS is running. If not, restart IIS or check the IIS log to make sure it is configured properly.
- 5 Make sure that the HeartStart Telemedicine software is running.
The automatic services provided by HeartStart Telemedicine might be active while the application is running and did not restart automatically. If the HeartStart Telemedicine Server machine restarts, you must restart the HeartStart Telemedicine application.
 - a From the Windows Start menu, click **All Programs**.
 - b Click **Philips HeartStart Telemedicine System 4.0**.
 - c Click **Telemedicine**.For more information, see *HeartStart Telemedicine System User Guide*.
- 6 Is the fax set up in the Windows Fax Console and ready to receive?
 - Confirm that the fax is set up in Windows Fax Console.
 - Confirm that the fax number of retries and time between retries is a low number, such as 2 and 0.
 - Confirm that paper orientation of the fax service is set to **Landscape** orientation.
 - Confirm with the receiving site that the fax is ready to receive.
 - Confirm that the fax is plugged in and has paper.

Scenario 4 – Sending a 12-lead report to multiple fax machines

- 1 On the **Administration** navigation pane, click **Fax Destinations**.
- 2 Configure fax destinations.
For more information, see the “Setting Up Fax Destinations” topic in *HeartStart Telemedicine System User Guide*.
- 3 Assign fax destinations to an Auto Send List in HeartStart Telemedicine.
 - a On the HeartStart Telemedicine navigation pane, click **Administration**.
 - b On the **Administration** navigation pane, click **Auto Send Lists**.
 - c In **Destinations**, select the name for the fax machine.For more information, see the “Sending 12-lead reports to Fax Machines” topic in *HeartStart Telemedicine System User Guide*.
- 4 Send a 12-lead report from the HeartStart MRx to the designated fax through an Auto Send List.
Use a simulator to acquire a 12-lead report. See *HeartStart MRx Instructions for Use* for information on acquiring 12-lead reports.

Upon acquisition of the 12-lead ECG, the 12-lead report View is displayed.

- a Press the Menu Select button.
 - b Select **Send** from the **12 Lead** Main Menu and press the Menu Select button.
 - c Select **Fax** as the **Site Type**.
 - d Enter the fax number.
 - e Press the Menu Select button to complete the selection.
 - f If you are transmitting using a Bluetooth device, select the device from the Transmission Devices menu.
- 5 Confirm that the 12-lead report was sent to the designated fax machine and the fax machines on the Auto Send List.
- If not, begin troubleshooting.

Troubleshooting when a 12-lead report fails to fax to multiple fax machines

- 1 Check the HeartStart MRx screen for error messages.
If an error message appears, use [Table 18 “Bluetooth Transmission Messages”](#) on page 44 to understand and correct the problem.
- 2 Are there any fax destinations in the Auto Send List?
 - a On the HeartStart Telemedicine navigation pane, click **Administration**.
 - b On the **Administration** navigation pane, click **Auto Send Lists**.
 - c In **Destinations**, is the fax machine listed? If not, create a fax destination using the fax number. For more information, see the “Setting Up Fax Destinations” topic in *HeartStart Telemedicine System User Guide*.
 - d In **Destinations**, is there a check mark next to the fax machine?
For more information, see the “Creating an Auto Send List” topic in *HeartStart Telemedicine System User Guide*.
- 3 Follow the steps of “[Troubleshooting when a 12-lead report fails to fax to a HeartStart MRx-designated fax](#)” on page 39 to complete the troubleshooting.

Scenario 5 – Sending Patient PCDT to HeartStart Telemedicine

(if the HeartStart MRx is enabled with PCDT, and the HeartStart Telemedicine uses the Critical Care edition)

Introduction of PCDT and the Critical Care Edition of HeartStart Telemedicine make possible to send more data more often for more types of critical care patients. It also introduces a new use model, where clinical users may monitor inbound patients on a display screen rather than view printer or fax output. This live monitored use model means that the viewer client software runs on a nurses workstation rather than in the IT server room.

- 1 From the HeartStart MRx, configure a HeartStart Telemedicine application as a site. For more information, see the “Setting Up Application Destinations” topic in *HeartStart Telemedicine System User Guide*.
- 2 Send a patient transmission that includes one or more PCDT to HeartStart Telemedicine.
- 3 Confirm that the stream of data transmissions was sent to the designated HeartStart Telemedicine application. If not, begin troubleshooting.
The data can include 12-lead reports, event waveforms, or vital trends.

Troubleshooting when a PCDT fails to be sent to a HeartStart Telemedicine

- 1 Follow the steps in “Troubleshooting when HeartStart MRx fails to send a 12-lead report or a PCDT to a designated HeartStart Telemedicine” on page 37.
- 2 Follow the “Periodic Clinical Data Transmission” recommendations of the “HeartStart MRx Release F.xx Troubleshooting” section of “HeartStart MRx Release F.01” Service Manual Addendum to complete the troubleshooting.

Running HeartStart Telemedicine as a Service

If you need to receive 12-Lead reports or other clinical data on a 24 hour/7 days schedule regardless if a user is logged on, you must set up HeartStart Telemedicine Service Manager to start up automatically. You can configure the service from Windows. When the HeartStart Telemedicine Server machine restarts, Windows starts HeartStart Telemedicine Service Manager automatically.

For more information, see the “Running HeartStart Telemedicine Service Manager as a Service” topic in *HeartStart Telemedicine System User Guide*.

Viewing the HeartStart MRx Logs

WARNING: The HeartStart MRx should never be connected to a patient while performing any activities in Service Mode.

NOTE: Make sure that you insert a battery charged to at least 20% into the device or connect external power when you are performing functions in Service Mode.

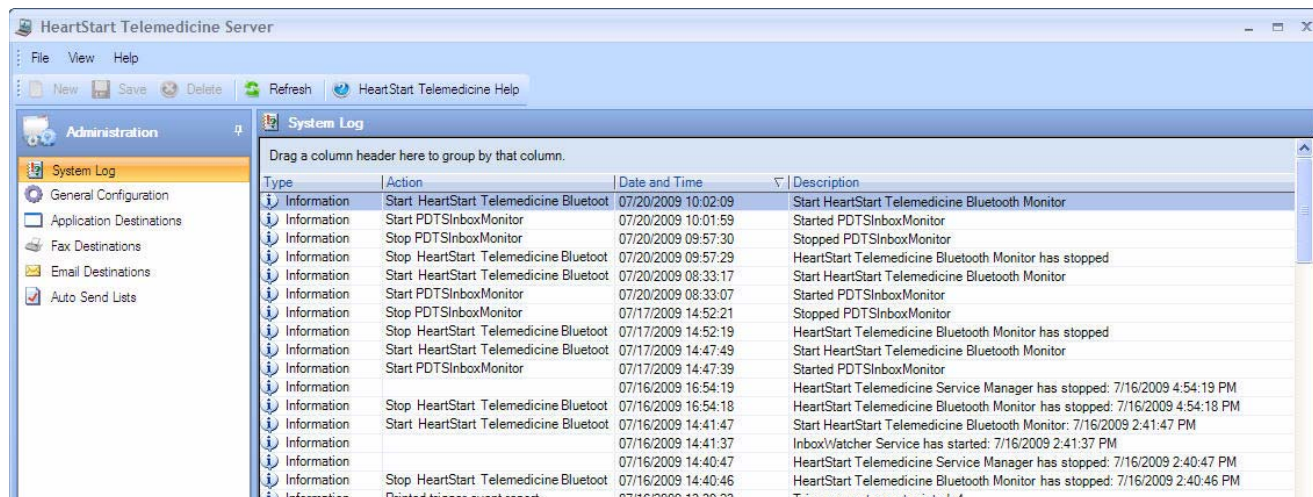
⦿ To view the HeartStart MRx Status Logs:

- 1 Access Service Mode:
 - a Turn the Therapy Knob to **Monitor**.
 - b Press the Menu Select button to display the Main menu.
 - c Select **Other**.
 - d From the **Other** menu select **Service**.
The message **Leaving Normal Operating Mode. Patient Monitoring Is Off. To Return To Normal Operating Mode, Press The Exit Softkey.** appears.
 - e Press the Menu Select button to acknowledge the message.
You are prompted to enter a password.
 - f Enter the password (**27689**) by scrolling through the list until the desired number is highlighted.
- 2 From the Service Mode Main menu, select **Status Log** and press the Menu Select button.
- 3 To view the device status log, select **Device Status Log** from the **Status Log** menu, and press the Menu Select button.
Press the **Print Log** soft key to print the log.
- 4 To view the PCDT status log, select **Per Data Tx Log** from the **Status Log** menu, and press the Menu Select button.

Viewing the HeartStart Telemedicine System Log

- ☉ To view the HeartStart Telemedicine system log:
 - 1 On the navigation pane, click the **Administration** navigation button.
 - 2 On the Administration navigation pane, click **System Log**.
HeartStart Telemedicine displays the system log. A screen similar to the one shown on [Figure 7](#) appears.

Figure 7 HeartStart Telemedicine System Log Screen



For information on how to use the system log, see the “Working with the System Log” topic in *HeartStart Telemedicine System User Guide*.

Troubleshooting Tables

The tables in this topic provide information on messages and common troubleshooting issues for HeartStart MRx. For information on how to use the system log, see *HeartStart Telemedicine System User Guide*.

[Table 18](#) provides information on the Bluetooth messages that are displayed on HeartStart MRx and in the Status log. These messages can occur during the Bluetooth device testing phase as well as during transmission of 12-lead reports. Errors that occur during the testing phase include the word “Test” in the message. For example, **Transmission Test Failed. Cannot Reach Server** is displayed when the HeartStart MRx is testing the connection. The possible causes and solutions are the same for both testing and normal operation.

[Table 19](#) provides information on the messages that are displayed on HeartStart Telemedicine system log. These messages can occur while using the HeartStart Telemedicine software.

Table 18 **Bluetooth Transmission Messages**

User Message	Status/PCDT Log Error	Possible Causes	Possible Solutions
BLUETOOTH DEVICE			
Bluetooth Malfunction	No/Bad Bluetooth Card	HeartStart MRx does not have a Bluetooth card.	Check to see if the Bluetooth card is installed in the PCMCIA slot. See the Repair chapter of the Service Manual.
	Bluetooth Communication Failure	<ul style="list-style-type: none"> The Bluetooth card is incompatible. The Bluetooth card is corrupt. 	Replace the Bluetooth card. Use Philips Bluetooth cards only.
Not available at this time	None	You cannot perform multiple actions with the Bluetooth card. For example, you cannot add a device or pair while transmitting a 12-lead report.	Wait until one action is complete before starting another.
BLUETOOTH DEVICE DISCOVERY			
No Bluetooth Profiles Configured	<ul style="list-style-type: none"> No Bluetooth Profiles – 12LXmit Config No Bluetooth Devices – 12LXmit Device 	There are no profiles configured for the Bluetooth device.	Create a profile for the Bluetooth device. See “Configuring a Bluetooth Device Profile” on page 10 for more information.
No Bluetooth Devices Detected	None	HeartStart MRx could not discover the Bluetooth device.	Try searching again for Bluetooth devices.
		The Bluetooth device is not turned on.	Make sure the Bluetooth device is turned on.
		The Bluetooth device is not authorized to pair with the HeartStart MRx.	See the Bluetooth device’s documentation to set authorization.
		The Bluetooth device is not within range.	Move the Bluetooth device closer to the HeartStart MRx, within the transmitting range. See “Configuring a Bluetooth Device Profile” on page 10 for information.
		The Bluetooth card is corrupt.	Replace the Bluetooth card.

Table 18 **Bluetooth Transmission Messages (Continued)**

User Message	Status/PCDT Log Error	Possible Causes	Possible Solutions
BLUETOOTH DEVICE PAIRING			
Bluetooth Device Pairing Failed	None.	The wrong pass key was entered on the Bluetooth device.	Check the pass key. Select the device from the HeartStart MRx Add Devices list and pair again.
		The pairing process timed out.	Try pairing again.
		The Bluetooth card is corrupt.	Replace the Bluetooth card.
SENDING			
Transmission Settings Have Not Been Configured	Missing settings – 12LXmit Config	The Hub information settings are not correct.	Modify the Hub Configuration settings on HeartStart MRx as needed.
No Bluetooth Devices Configured	No Bluetooth Devices – 12LXmit Device	The Bluetooth device has not been paired with HeartStart MRx.	Pair the Bluetooth device with HeartStart MRx.
CONNECTING TO DEVICE			
No transmission devices detected	No response – 12LXmit Device	The Bluetooth device is not turned on.	Make sure the Bluetooth device is turned on.
	Connection failed – 12LXmit Device	The Bluetooth device is not within range.	Move the Bluetooth device closer to HeartStart MRx, within the transmitting range. (See “Configuring a Bluetooth Device Profile” on page 10.)
		The Bluetooth device is not authorized to pair with HeartStart MRx.	See the Bluetooth device’s documentation to set authorization.
		The Bluetooth pairing information has been lost.	Pair the Bluetooth device with HeartStart MRx.
		The Bluetooth card is corrupt.	Replace the Bluetooth card.
Transmission Failed. Error configuring transmission device	Configure Failed – 12LXmit Device	The wrong Bluetooth Profile was selected.	Check the profile to ensure it is the correct one for that Bluetooth device.
		The Configuration String under the Phone Profile settings is not correct.	Work with your cell phone provider to correct the Configuration String.
Bluetooth Connection Lost (can occur during any phase)	Bluetooth Connection Lost – 12LXmit Device	The Bluetooth device is not within range.	Move the Bluetooth device closer to HeartStart MRx, within the transmitting range. (See “Configuring a Bluetooth Device Profile” on page 10.)

Table 18 Bluetooth Transmission Messages (Continued)

User Message	Status/PCDT Log Error	Possible Causes	Possible Solutions
DIALING			
Transmission Failed. No Dial Tone	No Dial tone – 12LXmit Dialing	Cell phone service is unavailable.	Check that the cellular signal strength is sufficient.
		The Bluetooth modem connection is not secure.	Check that the connection between the Bluetooth modem and analog line is secure.
		The connection you are using does not provide dial tones.	Set the “Wait for Dial Tone” configuration parameter to No . See the “Configuring a Bluetooth Device Profile” on page 10.
Transmission Failed. Connection Failed	<ul style="list-style-type: none"> Connect Failed – 12LXmit Dialing Disconnect Failed – 12LXmit Dialing 	The wrong Bluetooth Profile was selected.	Check the profile to ensure it is the correct one for that Bluetooth device.
		The Dial String under the Phone Profile settings is incorrect.	Work with your cell phone provider to ensure that the Dial string is correct.
		Data transfer service is unavailable on the phone.	Work with your cell phone provider to ensure that your cell phone plan has data transfer capability.
		Wrong number.	Check the number and re-send.
CONNECTING TO NETWORK			
Invalid Password	User/pw failure – 12LXmit Network	The wrong Bluetooth Profile was selected.	Check the profile to ensure it is the correct one for that Bluetooth device.
		The PPP User Name or PPP Password under the Profile Phone settings is incorrect.	Modify the Phone Profile setting as needed.
	User/pw failure – 12LXmit Server	The server User Name or Password is incorrect.	Modify the Hub settings as needed.
CONNECTING TO SERVER			
Transmission Failed. Cannot Reach Server	Unreachable – 12LXmit Server	No server or the connection has been lost.	Re-send the 12-lead report.
Transmission Failed. Server unknown	DNS query failure – 12LXmit Server	The DNS has timed out or there has been a failure in the DNS.	Work with your ISP to ensure the Serial Phone Profile and Hub settings are correct.
Transmission Failed. Settings Configured Incorrectly	<ul style="list-style-type: none"> Bad URL Format – 12LXmit Server Bad proxy settings – 12LXmit Server Bad user/pw settings – 12LXmit Server 	There is a problem with the Server URL, Proxy user name, Proxy password	Work with your ISP to ensure the Phone Profile and Hub settings are correct.

Table 18 Bluetooth Transmission Messages (Continued)

User Message	Status/PCDT Log Error	Possible Causes	Possible Solutions
None	Response message not received	Failure to transmit data due to timeout or HTTP Error. Data messenger server ^a may be down.	Contact the Network Administrator.
	Unable to connect to the destination server	Failure to login to data messenger server ^a due to timeout or HTTP error.	
		Misconfigured data messenger server. ^a	Check Configuration > Data Transmission > Sites are correct.
	Unable to detect Bluetooth device for FTP	Failure to connect to the Bluetooth device.	Replace the Bluetooth device.
	Unable to detect Bluetooth device for DUN		
	Unable to send message, connection not valid	Failure to transmit data due to timeout or FTP Error	Data Messenger server ^a is down. Contact the Network Administrator.
		Loss of Bluetooth connection during transfer	
		HeartStart MRx is too far from the Bluetooth device.	Move closer to the Bluetooth device.
Radio-frequency interference			
TRANSMITTING			
Transmission Failed. Connection Interrupted.	Modem Connection Lost – 12LXmit Network	The network is down	Check that the cellular signal strength is sufficient.
		The Bluetooth device is not within range.	<ul style="list-style-type: none"> Re-send the 12-lead report. Move the Bluetooth device closer to HeartStart MRx, within the transmitting range. (See “Configuring a Bluetooth Device Profile” on page 10.)
Transmission Failed	PPP Attach Timeout – 12LXmit Network	The network is down.	Check with your ISP to see if your service is down.
	Request Timeout – 12LXmit Server	The server connection has timed out.	Re-send the 12-lead report.
	Invalid request – 12L Transmit	TCP/IP Failure	Re-send the 12-lead report. If still unsuccessful, check the HeartStart MRx configuration settings.
	HTTP client error – 12L Transmit	HeartStart Telemedicine has rejected the data.	Check HeartStart MRx and HeartStart Telemedicine to ensure that the correct product versions are installed.

a. Data messenger server is scheduled to be released in 2010.

HeartStart Telemedicine displays messages on the system log. Table 19 lists the messages that you might see while using the HeartStart Telemedicine software. The possible issues and solutions are the same for both testing and normal operations.

Table 19 **HeartStart Telemedicine Messages**

Log Type	Action	Description	Possible Issues and Solutions
Information	Delete patient record	Deleted patient record for Patient ID: <i>{Incident ID}</i>	All received data for the patient was successfully deleted.
Error	Delete patient record	Failed to delete patient record for Patient ID: <i>{Incident ID}</i>	Delete request failed. Possible reasons for failure might be: <ul style="list-style-type: none"> • Database connection failure • Another user might have already deleted the patient record Click Refresh .
Information	Email 12-Lead	Emailed 12-lead report for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to email address: <i>{email address}</i> , file name: <i>{file name}</i>	The 12-lead report was successfully sent to the email queue. Check the queue for the email client or the SMTP server for blocked transmissions.
Error	Email 12-Lead	Failed to email 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to email address: <i>{email address}</i> , file name: <i>{file name}</i>	Invalid 12-lead report. Possible reasons for failure might be: <ul style="list-style-type: none"> • SMTP is not set up • Invalid 12-lead data • Missing Incident ID • Missing acquired date and time
Information	Email trigger event report	Emailed trigger event report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	The trigger event report was successfully sent to the email queue. Check the queue for the email client or the SMTP server for blocked transmissions.
Error	Email trigger event report	Failed to email trigger event report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	The email client or SMTP server is not set up.
Information	Email patient record	Emailed patient report for Patient ID: <i>{Incident ID}</i> , file name: <i>{file name}</i>	The patient report was successfully sent to the email queue. Check the queue for the email client or SMTP server for blocked transmissions.
Error	Email patient record	Failed to email patient report for Patient ID: <i>{Incident ID}</i> , file name: <i>{file name}</i>	The email client or SMTP server is not set up.
Information	Email vital trends report	Emailed vital trends report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	The patient vital trends report was successfully sent to the email queue. Check the queue for the email client or the SMTP server for blocked transmissions.
Error	Email vital trends report	Failed to email Vital trends report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	The email client or SMTP server is not set up.

Table 19 HeartStart Telemedicine Messages (Continued)

Log Type	Action	Description	Possible Issues and Solutions
Information	Export trigger event report	Exported trigger event report. Patient ID: <i>{Incident ID}</i> transmission ID: <i>{transmission ID}</i> , file name: <i>{file name}</i>	The trigger event report successfully saved in PDF format.
Error	Export patient report	Failed to export patient report for Patient ID: <i>{Incident ID}</i> , file name: <i>c</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • Patient report failed to save. • The disk is full. • The path is no longer available. • The path does not have write permission.
Information	Export trigger event report	Exported trigger event report for Patient ID: <i>{Incident ID}</i> transmission ID: <i>{transmission ID}</i> , file name: <i>{file name}</i>	The trigger event report was successfully saved in PDF format.
Error	Export trigger event report	Failed to export trigger event report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{transmission ID}</i> , file name: <i>{file name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The trigger event report failed to save. • The disk is full. • The path is no longer available. • The path does not have write permission.
Information	Export vital trends report	Exported vital trends report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	Successfully saved the patient vital trends report in PDF format.
Error	Export vital trends report	Failed to export vital trends report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> , file name: <i>{file name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The disk is full. • The path is no longer available. • The path does not have write permission.
Information	Fax 12-Lead	Faxed 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to fax number: <i>{Fax number}</i>	The 12-lead report was successfully sent to the FAX queue. Check the queue in FAX Console for blocked transmissions.
Error	Fax 12-Lead	Failed to fax for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to fax number: <i>{Fax number}</i>	Invalid 12-lead data. Possible reasons for failure might be: <ul style="list-style-type: none"> • Missing Incident ID • Missing acquired date and time
Information	Print 12-Lead	Printed 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to printer name: <i>{printer name}</i>	The 12-lead report was successfully sent to the printer queue. Check the queue for blocked printer jobs.
Error	Print 12-Lead	Failed to print 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{date and time}</i> to printer name: <i>{printer name}</i>	Invalid 12-lead data. Possible reasons for failure might be: <ul style="list-style-type: none"> • Missing Incident ID • Missing acquired date and time
Information	Print patient report	Printed patient report for Patient ID: <i>{Incident ID}</i> to printer name: <i>{printer name}</i>	The patient report was successfully sent to the printer queue. Check the queue for blocked printer jobs.
Error	Print patient report	Failed to print patient report for Patient ID: <i>{Incident ID}</i> to printer name: <i>{printer name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • Invalid patient data • Missing Incident ID

Table 19 HeartStart Telemedicine Messages (Continued)

Log Type	Action	Description	Possible Issues and Solutions
Information	Print trigger event report	Printed trigger event report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> to printer name: <i>{printer name}</i>	The trigger event report was successfully sent to the printer queue. Check the queue for blocked printer jobs.
Error	Print trigger event report	Failed to print trigger event report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> to printer name: <i>{printer name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • Invalid patient data • Missing Incident ID
Information	Print vitals trend report	Printed vitals trend report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> to printer name: <i>{printer name}</i>	The patient vital trends report was successfully sent to the printer queue. Check the queue for blocked printer jobs.
Error	Print vitals trend report	Failed to print vitals trend report for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i> to printer name: <i>{printer name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • Invalid patient vitals data • Missing Incident ID
Information	Save 12-Lead	Saved 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and time}</i> imported from <i>{Source}</i> file name: <i>{File name}</i>	The 12-lead report was successfully saved to database. NOTE: HeartStart Telemedicine System uses Incident ID, Patient ID and acquired date and time to identify a duplicate ECG. If the 12-lead reports are duplicates, the newly arrived 12-lead report overwrites the older 12-lead report.
Error	Save 12-Lead	Failed to save 12-Lead. Missing Patient ID: <i>{Incident ID}</i> , imported from file name: <i>{File name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The 12-lead report is invalid. • The 12-lead report is missing an Incident ID. NOTE: All MRx 12-lead reports contain a valid Incident ID, but 12-lead reports from other devices might not. Incident ID is required field for use in HeartStart Telemedicine System.
Error	Save 12-Lead	Failed to save 12-Lead. Missing recorded time: <i>{Data and time}</i> imported from file name: <i>{File name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The 12-lead report is invalid. • The 12-lead or missing the date and time that 12-lead report was acquired.
Error	Save patient data	Failed to save the periodic clinical data transmission.	HeartStart Telemedicine Classic 12-Lead Edition does not support periodic clinical data transmissions.
Information	Save trigger event	Saved trigger event for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i>	The trigger event and associated ECG were successfully saved to database.
Error	Save trigger event	Failed to save trigger event for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The trigger event might be corrupted. • The trigger event is missing the Incident ID or Transmission ID.

Table 19 HeartStart Telemedicine Messages (Continued)

Log Type	Action	Description	Possible Issues and Solutions
Error	Save trigger event	Failed to save trigger event, unsupported MRx version: <i>{version number}</i> imported from file name: <i>{File name}</i>	The trigger event might be generated from MRx version that is not supported by HeartStart Telemedicine System.
Information	Save vital	Saved vital for Patient ID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i>	The patient vitals were successfully saved to the database.
Error	Save vital	Failed to save vital for IncidentID: <i>{Incident ID}</i> , transmission ID: <i>{Transmission ID}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The patient vitals might be corrupted. • The patient record might be missing the Incident ID or Transmission ID.
Information	Send 12-Lead	Sent 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and Time}</i> to application name: <i>{folder name}</i>	The 12-lead report was successfully saved to the destination folder.
Error	Send 12-Lead	Failed to send 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and Time}</i> to application name: <i>{folder name}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The disk is full. • The target folder is not accessible or does not have write permission.
Information	Send 12-Lead	Sent 12-Lead for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and Time}</i> to application name: <i>{URL}</i>	The 12-lead report was sent successfully to the destination URL.
Error	Send 12-Lead	Failed to connect to application name: <i>{URL}</i> for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and Time}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The sender cannot access the internet. • The destination URL is not ready to receive data. • If destination is either HeartStart 12-Lead Transfer Station or HeartStart Telemedicine, check the test page: <a href="http://<DN>/ems/MRxPost.mrx?SourceName=test">http://<DN>/ems/MRxPost.mrx?SourceName=test where <DN> is the destination URL. If the image shows, the destination is ready.
Error	Send 12-Lead	Rejected by application name: <i>{URL}</i> for Patient ID: <i>{Incident ID}</i> with recorded time: <i>{Date and Time}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • TraceMasterVue rejected the 12-lead report because the schema validation failed. • Updated TraceMasterVue software might be required to support newer 12-lead report schema.
Information	Send patient data	Sent patient data for Patient ID: <i>{Incident ID}</i> to application name: <i>{URL}</i>	Successfully sent patient data to another Event Review 3.5
Error	Send patient data	Failed to send patient data for Patient ID: <i>{Incident ID}</i> to application name: <i>{URL}</i>	Possible reasons for failure might be: <ul style="list-style-type: none"> • The sender cannot access the internet. • The destination is not ready to receive data. • Check the test page: <a href="http://<DN>/ems/MRxPost.mrx?SourceName=test">http://<DN>/ems/MRxPost.mrx?SourceName=test where <DN> is the destination URL. If image shows, the destination is ready.

Table 19 HeartStart Telemedicine Messages (Continued)

Log Type	Action	Description	Possible Issues and Solutions
Information	Start Event Review Bluetooth Monitor	Started Event Review Bluetooth Monitor	Event Review successfully started Event Review Bluetooth Monitor.
Information	Stop Event Review Bluetooth Monitor	Stopped Event Review Bluetooth Monitor	Event Review successfully stopped Event Review Bluetooth Monitor.
Information	Start Event Review Service Manager	Started Event Review Service Manager	Windows successfully started Event Review Service Manager.
Information	Stop Event Review Service Manager	Stopped Event Review Service Manager	Windows successfully stopped Event Review Service Manager.
Information	Start PDTSInboxMonitor	Started PDTSInboxMonitor	Event Review or Windows successfully started PDTSInboxMonitor.
Information	StopPDTSInboxMonitor	Stopped PDTSInboxMonitor	Event Review or Windows successfully stopped PDTSInboxMonitor.

Troubleshooting the Accessories

This topic provides some guidance on troubleshooting the printer, fax, and modem. The hardware manufacturer is the ultimate authority on its devices; contact the manufacturer if these recommendations do not help.

Printer

Check the print queue for printing status.

- ☉ To view the print queue:
 - ▶ Select Printers/Faxes from the Windows Control Panel.

Fax

- Make sure that HeartStart Telemedicine has the latest fax drivers installed. See the Microsoft web site at: <http://www.microsoft.com> for additional information.
- Check the fax console for fax status. Select Printers/Faxes from the Windows control panel to view the fax console queue.
- If the 12-lead report is printing on multiple pages or is getting clipped, send a test page from another application, such as Microsoft Word. If that page is also not printing correctly, it could be the fax machine.

Modem

Check that the modem is configured correctly. Select the phone and modem icons from the Windows Control Panel.

Customer Support

At Philips, we strive to provide you with excellent customer service and technical support. For telephone assistance, call the Response Center nearest to you, or visit our web site at <http://www.healthcare.philips.com/main/support/>

Download the latest documentation from <http://www.healthcare.philips.com/main/support/ProductDocumentation/>

Our InCenter, the eSupport solution for Philips customers is located at <http://incenter.medical.philips.com/>

Supported Help

Customer support technicians provide help by explaining the proper use, installation, and maintenance of HeartStart Telemedicine and answering questions about the HeartStart Telemedicine database.

Before You Call

You can help our technicians to give you good support by following these steps:

- Call from a phone near your computer.
- Have HeartStart Telemedicine started.
- Have the following information:
 - Windows version
 - HeartStart Telemedicine version number

Click **About** from the **Help** menu to find the version numbers.

How Our Support Technicians Provide Help

- Explaining the proper use of the HeartStart MRx and HeartStart Telemedicine features and answering your questions about how the product works.
- Explaining the proper installation, configuration and maintenance of HeartStart MRx and HeartStart Telemedicine.
- Helping you to determine if the problem is not with the HeartStart MRx or HeartStart Telemedicine and directing you to the possible causes.

What Our Support Technicians Do Not Support

- Server hardware and software support. The support technicians cannot help you fix problems with the server hardware or operating system. Contact your hardware and software provider.
- Cell phone and serial cable support. The support technicians cannot help you with cell phone or serial cable issues. Contact your cell phone provider.
- ISP support. The support technicians cannot help you with Internet issues. Contact your ISP.
- Troubleshooting defibrillators. Contact your Philips Customer Support and ask for defibrillator support.

Customer Support Centers

Please contact your regional support center as listed in [Table 20](#):

Table 20 Customer Support Centers

Region	Address	Phone
United States	Philips Healthcare 2301 Fifth Avenue, Suite 200 Seattle, WA USA 98121	24/7 support 800-722-9377. Press 3 for Patient Monitoring and Defibrillators, then press 1 for Technical Support.
Canada	Philips Healthcare 281 Hillmount Road Markham, Ontario, Canada L6C 2S3	800-291-6743
Europe (Authorized EU Representative), Middle East, and Africa	Philips Medizin Systeme Böblingen GmbH Cardiac and Monitoring Systems Hewlett-Packard Strasse 2 71034 Böblingen, Germany	(+49) 7031 463-2254
Latin America	Philips Medical Systems 2020 NW 150 Avenue, Suite 300 Pembroke Pines, FL USA 33028	954-628-1022
Asia Pacific	Philips Electronics Hong Kong Ltd. 30th Floor, Hopewell Centre, 12, Kennedy Road, Wanchai, Hong Kong	(+852) 2821 5888

Implementation Tools

Overview

This chapter provides additional information that you might need to set up the Data Transmission option. There is also a sample implementation plan that lists the required tasks and their estimated durations.

Frequently Asked Questions

Q: Can we use a TCP/IP port other than port 80?

A: No, the HeartStart MRx must use port 80.

Q: How can we limit access to the server?

A: To limit access to the server:

- a** In the IIS Manager, right-click the EMS web site name, and then click **Properties**.
- b** On the **Directory Security** tab, select **IP Address and Domain Name Restrictions**.
- c** Set the default incoming connections to be allowed or denied, and set a list of exceptions.

For example, if you know that your cell provider uses a range of dynamic IP addresses 213.158.167.0 – 213.158.167.255, you can set the default to allow only that range of incoming IP addresses. Any IP address outside that range will be denied.

Q: Does the HeartStart Telemedicine System require a Public IP address?

A: Yes, transmissions come directly from the cellular provider that the HeartStart MRx is using to transmit data from their network to yours. Therefore it is required to have a Public IP address as you are hosting a service for your EMS Agency. This is similar to email or a Website.

Q: How do we back up the database?

A: The HeartStart Telemedicine database is low-maintenance compared to many other databases. Nonetheless, attention to routine maintenance tasks will help to ensure database integrity. It is the database administrator's responsibility to set up appropriate database management tools and to check that they execute successfully.

HeartStart Telemedicine uses the MSDE database, which is a subset of Microsoft's SQL Server. In HeartStart Telemedicine, you can manage the database using the same tools that you use to manage SQL Server. For example, you can use Enterprise Manager. Microsoft also offers a free tool called Microsoft SQL Server Management Studio Express. You can use this tool back up and restore the HeartStart Telemedicine database.

Alternately, you can use 3rd-party tools at no cost or at a small cost to perform the same functions. For example, you can use an Internet search engine to find references to “backup MSDE database.” The search returns references to a wide range of available database backup software.

Q: On the HeartStart MRx, I see **User Name** and **Password** fields in the Hub configuration. Can those be used to make the transmission more secure?

A: You can use the **User Name** and **Password** fields in the HeartStart MRx to authenticate specific users. However, the use of these fields does not increase the security of the ECG transmission between the HeartStart MRx and HeartStart Telemedicine.

According to Microsoft, when you use the Basic Authentication method instead of the default anonymous access:

“The authentication option you have selected results in passwords being transmitted over the network without data encryption. Someone attempting to compromise your system security could use a protocol analyzer to examine user passwords during the authentication process.”

Philips Medical Systems recommends that you use the anonymous access method with the HeartStart MRx encrypted data transmission. All file operations in IIS and the HeartStart Telemedicine application are set to use least-privileged access to minimize security risks.

Q: How many locations can HeartStart Telemedicine System transmit to?

A: You can configure an Auto Send List to send 12-lead reports to as many as 10 destinations. You can also configure as many as 20 Auto Send Lists on one HeartStart Telemedicine.

Q: What types of destinations can HeartStart Telemedicine System send to?

A: HeartStart Telemedicine can transfer incoming 12-lead reports automatically to the following destinations:

- To a network or local printer
- To a fax machine
- Via email
- To another 12-Lead Transfer Station
- To TraceMaster/TraceMasterVue
- To DataMed FT (GE Muse Translator)

See “[Configuring HeartStart Telemedicine](#)” on page 25.

Q: What are the system requirements for HeartStart Telemedicine System?

A: See “[System Requirements](#)” on page 16.

Q: How does the HeartStart Telemedicine System use printing and fax machines from the software?

A: HeartStart Telemedicine uses a service account to interact with the printing profiles. To modify the properties for the automatic transfer, you must log into the service account and modify the printer/fax properties there.

For example, if you want to print your 12-Leads in landscape format, you must login as the service account, and change the fax printer property to print in landscape format.

Q: Are my transmissions secured?

A: We encrypt your Data Transmission using a 64-bit blowfish algorithm before transmission, and they are stored in the local database on our HeartStart Telemedicine encrypted as well.

Q: What type of cellular devices do I need to be able to transmit?

A: You must have a Bluetooth Dial Up Networking (DUN) capable phone and a data package with tethering; or you may have a cellular mobile gateway.

Q: Do you support VMWare or another virtual machine technology?

A: Unfortunately, VMWare and other virtual machine (VM) technologies do not support fax modems. You may use a VM if you do not intend to use the fax feature of HeartStart Telemedicine, but Philips Healthcare does not recommend this technology.

Q: Is the HeartStart Telemedicine System HIPAA-compliant?

A: A HIPAA-compliant system is one that combines technical, physical, and administrative (through policies) attributes that protect patient's security and privacy. The HeartStart Telemedicine System is a device and, as any device, cannot be HIPAA-compliant by itself. However, HeartStart Telemedicine has several features that facilitate a successful HIPAA-compliant implementation.

For example, 12-lead ECGs that are transmitted from the patient's side to the HeartStart Telemedicine are encrypted and cannot be read even if the transmission is intercepted. The HeartStart Telemedicine software allows the viewing of 12-lead, and as such it should be implemented in an environment where only the authorized personnel have access protected by the computer's login ID and password. The fax and printer output should also be in a physical location where only clinical personnel involved in processing cardiac patients can see the printouts. The email feature of HeartStart Telemedicine includes a password option to protect the PDF attachment.

Q: How does Philips Healthcare support the HeartStart Telemedicine System customers?

A: See "Customer Support" on page 53.

Checklists

Bluetooth Device Profile Settings

Bluetooth Device Profile Parameters	Setting Choices
Profile Name	
Configuration String	
Landline	
Dial Prefix	
Dial String	
Wait for Dial Tone	
PPP User Name	
PPP Password	
Static IP Address	
Primary DNS	
Secondary DNS	
http Proxy Address	
http Proxy Port	
Hub Parameters	Setting Choices
HeartStart Telemedicine Server machine URL	

Bluetooth Device Profile Parameters	Setting Choices
User Name	<i>Not used in HeartStart Telemedicine.</i>
Password	<i>Not used in HeartStart Telemedicine.</i>
Site ^a Parameters	Setting Choices
Site Label	
Site Type	
Phone number	
URL	
Default Site	

a. The HeartStart Telemedicine documentation uses “destination” rather than “site.”

Cell Phone, Modem, Service Plan, and Dial-Up Account Checklists

Bluetooth Device

- Does the device support the Bluetooth wireless technology version 1.1 or greater standard?
- Does the device support the Bluetooth Dial-Up Networking (DUN) profile?
- Is the device compatible with the AT command set standards, such as ETSI TS 100916 and ITU-T V.250?

Cell Phone Service Plan

- Does the cell phone service plan have an Internet/data plan?

Dial-Up Internet Plan

- Does the dial-up account support PPP with PAP or MD5 CHAP?

ISP Checklist

- Does the ISP support local web hosting?
- Does the ISP support static IP addresses?
- If using a domain name, can the ISP obtain and register a domain name for you or will you do it yourself?

HeartStart Telemedicine Machine Checklist

- For the HeartStart Telemedicine Server machine, make sure your operating system is Microsoft Windows Server 2003 Server Standard Edition (SP 2 or later), running IIS 6.0 or later.
- For the HeartStart Telemedicine Viewer machine, make sure your operating system is Microsoft either Windows XP Professional (SP 3 or later), running IIS 5.1 or later.
- Configure the HeartStart Telemedicine Server machine as an Application Server.
- For the HeartStart Telemedicine Server machine, do not delete or rename the IIS default web site page.

- For the HeartStart Telemedicine Server machine, do not install Active Directory service, DHCP server, DNS server, Front Page extensions, or ASP.
- For each machine, make sure that the following is installed:
 - Microsoft Internet Explorer 7.0 or later
 - The latest security patches, updates, and fax drivers for the operating system.

For more information, see “Installing HeartStart Telemedicine” on page 20.

HeartStart Telemedicine Applications

- Confirm that IIS is installed and running on the HeartStart Telemedicine Server machine.
- Review the ReadMe file on HeartStart Telemedicine installation disk.
- Make sure that you register each HeartStart Telemedicine Server and HeartStart Telemedicine Viewer application.
- Make sure that the HeartStart Telemedicine Server and HeartStart Telemedicine Viewer applications are running.

Sample Implementation Plan

The following sample implementation plan provides information on the tasks required to set up the Data Transmission option and the estimated amount of time it takes.

Table 21 **Sample Implementation Plan**

Step	Task	Time Frame
1	Purchase cell phone or Bluetooth device and cell phone service. Modify cell phone or Bluetooth settings, as needed.	2 days
2	Configure the HeartStart MRx for 12-lead transmission.	30 minutes
3	Prepare hardware and physical location for the HeartStart Telemedicine installation. For example: <ul style="list-style-type: none"> • Determine if the HeartStart Telemedicine Server machine will be located in a locked room, how many data ports are needed, and whether you need an uninterrupted power source. • Determine the location of each HeartStart Telemedicine Viewer machine. • Determine the total number of network connections needed for the HeartStart Telemedicine machines. 	2 days
4	Set up ISP. (Provider lead times and availability could take 2 to 3 weeks and involve telephone or cable company, ISP, domain name registrar, and physical wiring to be installed at the site.)	1 day
5	If using Bluetooth modem, set up dial-up Internet account. (Provider lead times and availability could take 2 to 3 weeks and involve telephone or cable company.)	1 day
6	Set up dedicated analog phone line for fax. (Provider lead times and availability could take up to 1 week and involve telephone or cable company.)	1 day

Table 21 **Sample Implementation Plan (Continued)**

Step	Task	Time Frame
7	Set up and test each HeartStart Telemedicine machine operating system.	2 days
8	Install and configure each HeartStart Telemedicine application.	1 hour per machine
9	Test and verify end-to-end 12-lead and PCDT transmissions from the HeartStart MRx to destination.	2 day

Glossary

- 12-lead report** Abbreviation for 12-lead ECG strip. A diagnostic test that helps identify various pathologic conditions. The 12-lead report provides 12 views of the heart's electrical activity. The 12 leads include: three unipolar augmented limb leads (aV_P, aV_T and aV_F), six unipolar precordial or chest leads (V₁, V₂, V₃, V₄, V₅, and V₆), and six limb leads. Each waveform reflects the orientation of a lead to the wave of depolarization passing through the myocardium.
- ACI-TIPI** Acronym for Acute Cardiac Ischemia Time-Insensitive Predictive Instrument. A Philips software tool that can provide a second opinion and decrease the time between the onset of a patient's acute cardiac ischemia (ACI) symptoms and the treatment of interventional cardiology. The ACI-TIPI feature computes a patient's likelihood of having an ACI based on the patient's age, gender, chest pain status, and acquired 12-lead ECG. When the monitor/defibrillator runs the ACI-TIPI analysis, the interpretative block on the 12-lead report includes ACI-TIPI data.
- Auto Send List** The lists configured on the **Auto Send Lists** workspace. An **Auto Send List** designates the destinations that receive 12-lead ECG 12-lead reports automatically.
- baud** Units of information transmitted per second. Baud is used as a means of matching transmission and receiving speeds. Baud is not necessarily the same as bits per second, especially at higher speeds, although the terms are often used interchangeably. Baud is the number of signal level changes per second in a line, regardless of the information content of those signals.
- baud rate** Signaling rate (not necessarily the same as bits per second), that is, the number of signaling elements transmitted each second. *See also* bits per second (bps).
- bit, byte** The basic units of computer information. A bit (from **binary digit**) is equivalent to the result of a choice between two alternatives (as yes or no, on or off). A byte is a group of adjacent binary digits that a computer processes as a unit; the size of a byte in practically all modern systems is eight bits.
- bits per second** Bits per second (bps) is the rate of transfer of information bits.
- Bluetooth®** A short-range wireless technology that uses radio links between a devices such as HeartStart MRx defibrillators, and computers, mobile computers, mobile phones, and other portable devices.
- bps** See "bits per second."
- data bits** Data bits are transmitted "upside down and backwards." That is, inverted logic is used and the order of transmission is from least significant bit (LSB) to most significant bit (MSB).

5: Glossary

data encryption Encrypting data is accomplished by applying a special scrambling code that makes the data unreadable to anyone who does not have a decryption key. Authorized personnel with access to this key can unscramble it.

destination The intended recipient of a 12-lead report. The destination can be a 12-Lead Transfer Station application, a TraceMasterVue system, DatamedFT software, a HeartStart Telemedicine application, an email address, a printer, and a fax machine.

DNS See “Domain Name Service.”

domain A domain is a group of computers and devices on a network that are administered as a unit with common rules and procedures. Within the Internet, domains are defined by the IP address. All devices sharing a common part of the IP address are said to be in the same domain.

domain name An address of a network connection in the format that identifies the owner of that address in a hierarchical format: server.organization.type. For example, www.whitehouse.gov identifies the Web server at the White House, which is part of the U.S. government.

domain name address The address of a device connected to the Internet or any other TCP/IP network, in the hierarchical system that uses words to identify servers, organizations, and types, such as www.logos.net. See also TCP/IP.

Domain Name Service The Internet utility (called DNS) that implements the domain name addresses (such as bluestem.prairienet.org) and IP addresses (such as 192.17.3.4). DNS servers access and maintain databases that contain IP addresses. The domain name address is used by human users. It is automatically translated into the numerical IP address, which is used by the packet-routing software.

ECG Acronym for electrocardiogram. The electrical rhythm of the heart as detected through defibrillator pads.

ePCR Electronic Patient Care 12-lead report

fax modem A modem that sends (and possibly receives) data encoded in a fax format, which a fax machine or another modem decodes and converts to an image. Fax modems might be internal or external and might combine fax and conventional modem capabilities.

flow control The process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all of the incoming *data*. This is particularly important where the sending device is capable of sending data much faster than the receiving device can receive it. There are many flow control mechanisms. One of the most common flow control protocols for asynchronous communication is called *xon-xoff*. In this case, the receiving device sends an *xoff* message to the sending device when its buffer is full. The sending device then stops sending data. When the receiving device is ready to receive more data, it sends an *xon* signal. Flow control can be implemented in hardware or software, or a combination of both.

- HeartStart Telemedicine Classic 12-Lead Edition** A HeartStart Telemedicine software option that receives HeartStart MRx 12-lead report transmissions.
- HeartStart Telemedicine Critical Care Edition** A HeartStart Telemedicine software option that receives HeartStart MRx data transmissions. Data can include 12-lead reports, trigger events and waveforms, and periodic vital trends. See also *PCDT*.
- HTTP** Hypertext Transfer Protocol (HTTP) is the set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.
- hub** A hardware device providing the interconnection between networked devices. It is called a hub because the network wiring can be sketched like a spoked wheel with the hub at the center. For 12-lead transmission, the hub is the machine running HeartStart Telemedicine.
- IIS** Acronym for Internet Information Service. Microsoft's brand of Web server software, utilizing Hypertext Transfer Protocol to deliver World Wide Web documents. It incorporates various functions for security, allows for CGI programs, and provides for Gopher and FTP servers.
- IP** Acronym for Internet Protocol. The protocol within TCP/IP that governs the breakup of data messages into packets, the routing of the packets from sender to destination network and station, and the reassembly of the packets into the original data messages at the destination. IP corresponds to the network layer in the ISO/OSI model.
- IP address** An Internet address or IP address is a unique computer (host) location on the Internet (expressed either as a unique string of numbers or as its associated domain name). Computers use IP addresses to locate and talk to each other on the Internet, much the same way people use phone numbers to locate and talk to one another on the telephone.
- MD5 CHAP** Acronym for MD5 Challenge Handshake Authentication Protocol. A type of authentication in which the authentication agent (typically a server) sends the client a random value and an ID value. These values are used to create a hash value (a number generated from a string of text) on the client. The client encrypts the hash value, and sends it with the user's name and password over a network. The server then decrypts both the message and the hash, produces another hash, and compares the two. If they are the same, the client is authenticated.
- Microsoft Fax Console** The user interface for Microsoft Fax Service.
- Microsoft Fax Service** A system service that provides fax services to local and remote network clients. Fax services include receiving faxes and faxing documents, fax wizard messages, and email messages.
- MSDE 2000** The database that stores the 12-lead 12-lead report and configuration information.

5: Glossary

- PAP** Acronym for Password Authentication Protocol. A basic form of authentication in which a user's name and password are transmitted over a network and compared to a table of name-password pairs.
- Patients** A feature set that allows HeartStart Telemedicine users to view the list of available patient data records that are stored in the HeartStart Telemedicine database.
- PCDT** Acronym for Periodic Clinical Data Transmission. An HeartStart MRx data transmission option. Data can include 12-lead reports, events, and periodic vital trends.
- periodic vitals** A HeartStart MRx option that records patient vitals in 1-minute to 60-minute intervals and sends the patient vitals to HeartStart Telemedicine in 1-minute to 5-minute intervals. HeartStart MRx records the time and date of patient vitals, such as: pulse, heart rate, airway respiration rate, EtCO₂, invasive pressure values, and temperature.
- PPP** Acronym for Point-to-Point Protocol. Provides a method for transmitting data over serial point-to-point links.
- profile** A list of specifications that define how wireless transmission should work between different Bluetooth devices. For example, you create a profile on HeartStart MRx that defines how the Bluetooth device communicates with HeartStart MRx.
- protocol** The special set of rules of communication that the terminals or nodes (and related software) in a telecommunication connection use when they send signals back and forth.
- proxy** A computer program that acts as an intermediary between a web browser and a server. To give users rapid access to popular web destinations, Internet Service Providers use proxy servers as "holding bins" to store frequently requested pages, rather than going out and fetching them repeatedly from the Internet.
- proxy server** A firewall component that manages Internet traffic to and from a local area network (LAN) and can provide other features, such as document caching and access control. A proxy server can improve performance by supplying frequently requested data, such as a popular Web page, and can filter and discard requests that the owner does not consider appropriate, such as requests for unauthorized access to proprietary files. See also firewall.
- RS-232** A standard developed by the Electronic Industries Association (EIA) and other interested parties specifying the serial interface between Data Terminal Equipment (DTE) and Data Communication Equipment (DCE.) No longer used in Philips HeartStart Monitor/Defibrillator Data Transmission.
- SDK** Acronym for Software Development Kit. HeartStart Data SDK is a set of tools to help software developers create applications that map data from your HeartStart MRx monitor/defibrillators.
- serial** Serial transfer is the sequential transmission of the eight bit-voltages that constitute a byte. A transmitter breaks each byte into bits, then sends the bits one after another; the receiver cooperates by reassembling the set of bits into a single byte.

- simultaneous 12-lead ECG 12-lead report** An ECG 12-lead report that shows a 2.5 second simultaneous segment of ECG data for each lead, as well as the full ten seconds of captured data for a single lead. The 12-lead report presents data for each lead that was taken at exactly the same instant in time. A simultaneous 12-lead ECG 12-lead report marks each segment with double vertical lines. It is the preferred format in Europe.
- static IP address** A static IP address is a number (in the form of a dotted quad) that is assigned to a computer by an Internet service provider (ISP) to be its permanent address on the Internet. A dot address (sometimes known as a dotted quad address) refers to the notation that expresses the four-byte (32-bit) IP address as a sequence of four decimal numbers separated by dots. Each number represents the binary value of one of four bytes.
- status log** The HeartStart MRx status log includes entries for all errors logged during normal operating mode, Automated tests, Service and Configuration Mode, and Operational Checks. It is accessed from Service Mode.
- system log** The log of HeartStart Telemedicine activity. The system log is available on the **Administration** navigation pane.
- TCP/IP** Acronym for Transmission Control Protocol over Internet Protocol. The TCP/IP protocol defines how data can be transmitted in a secure manner between networks. TCP/IP is the most widely used communications standard and is the basis for the Internet.
- time sequential ECG 12-lead report** An ECG 12-lead report that shows a sequential sample of 2.5 seconds of ECG data from each of the twelve channels. The format has three rows of four channels of data, with a single channel at the bottom of the page. Each successive channel has the next 2.5 seconds of data of the total of 10 seconds of data. A time sequential ECG 12-lead report marks each segment with a single vertical line. It is the preferred format in the United States.
- TPI** Acronym for Thrombolytic Predictive Instrument. A Philips software tool that can help physicians make thrombolytic therapy (TT) decisions when treating acute myocardial infarction (AMI). The TIPI algorithm generates a predictive probability score of a patient's outcome with or without thrombolytic therapy. The TIPI algorithm is based on demographic patient data applied to the acquired 12-lead ECG. Demographic patient data includes information such as the patient's age, gender, blood pressure, weight, and history of diabetes and hypertension. When the defibrillator runs the TPI analysis, the interpretative block on the 12-lead report includes TPI data.
- TT** Acronym for Thrombolytic Therapy. The use of drugs to break up or dissolve blood clots, which are the main cause of both heart attacks and stroke.
- trigger event** A HeartStart MRx event that initiates the transmission to Event Review.
- URL** Acronym for Uniform Resource Locator. The addressing system used in the World Wide Web and other Internet resources. The URL contains information about the method of access, the server to be accessed and the path of any file to be accessed.

5: Glossary

- vital trends** The HeartStart Telemedicine option that displays tabulated HeartStart MRx measurements for the recorded patient periodic vitals. Vital trends are available for 12 hours at 1-minute to 60-minute resolutions and display in descending order. HeartStart Telemedicine displays the vital trends in a tabular or chart format.
- workspace** The right pane of the HeartStart Telemedicine window.

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