

GE Healthcare

SX-500 Serial Server Firmware Upgrade Instructions

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SX-500 Serial Server
English
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Publication Information

The information in this manual applies only to Silex SX-500 Serial Server Firmware. It does not apply to earlier product versions. Due to continuing product innovation, specifications in this manual are subject to change without notice.

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The document part number and revision are at the bottom of each page. The revision identifies the document's update level. The revision history of this document is summarized in the following table.

Revision	Date	Comments
A	15 October 2012	Initial release of this document

To access other GE Healthcare Diagnostic Cardiology manuals, go to the Common Documentation Library (CDL), located at http://www.gehealthcare.com/usen/service/biomed_tech_selfservice/services_user_doc/products/support.html, and click **Cardiology**.

To access Original Equipment Manufacturer (OEM) manuals, go to the device manufacturer's Web site.

Contents

1	Introduction	
	Manual Information	5
	Intended Audience	5
	Manual Purpose	5
	Document Conventions	5
	Safety Conventions	6
	Additional Assistance.....	7
2	Upgrading the Firmware	
	Preparing for the Upgrade	9
	Components Needed	9
	Before You Begin	10
	Connecting the PC/Laptop to the Device	10
	Connecting the PC/Laptop to the Server.....	11
	Verifying the Connection	12
	Completing the Upgrade.....	12
	Using the Web Interface	12
	Using TFTP PUT From a DOS Window	16

1

Introduction

This chapter provides general information required for the proper use of the system and this manual. Familiarize yourself with this information before using the system.

Manual Information

This section provides information for the correct use of this manual.

Keep this manual with the equipment at all times and periodically review it. You should request training assistance from GE Healthcare, if needed.

Intended Audience

The SX-500 Serial Server Firmware Upgrade Instructions are intended for hospital personnel with networking backgrounds and who are trained to install the MobileLink system.

Manual Purpose

This document describes the steps for upgrading firmware on the Silex SX-500 Serial Server.

Document Conventions

This manual uses the following conventions.

Typographical Conventions

Convention	Description
Bold Text	Indicates keys on the keyboard, text to enter, or hardware items such as buttons or switches on the equipment.
<i>Italicized-Bold Text</i>	Indicates software terms that identify menu items, buttons or options in various windows.
CTRL+ESC	Indicates a keyboard operation. A plus (+) sign between the names of two keys indicates that while holding the first key, you should press and release the second key. For example, Press CTRL+ESC means to press and hold the CTRL key and then press and release the ESC key.

Convention	Description
<space>	Indicates that you must press the spacebar. When instructions are given for typing a precise text string with one or more spaces, the point where you must press the spacebar is indicated as <space>. This ensures that the correct number of spaces is inserted in the correct positions within the literal text string. The purpose of the < > brackets is to distinguish the command from the literal text within the string.
Enter	Indicates that you must press the Enter or Return key on the keyboard. Do not type Enter .
>	The greater than symbol, or right angle bracket, is a concise method to indicate a sequence of menu selections. For example, the statement "From the main menu, select System > Setup > Options to open the Option Activation window" replaces the following: <ol style="list-style-type: none"> 1. From the main menu, select System to open the System menu. 2. From the System menu, select Setup to open the Setup menu. 3. From the Setup menu, select Options to open the Option Activation window.

Illustrations

All illustrations in the manual are provided as examples only. Depending on system configuration, screens in the manual may differ from the screens on your system.

All patient names and data are fictitious. Any similarity to actual persons is coincidental.

Notes

Notes provide application tips or additional information that, while useful, are not essential to the correct operation of the system. They are called out from the body text through a flag word and indentation, as follows:

NOTE:

The tip or additional information is indented below the **NOTE** flag word.

Safety Conventions

A **Hazard** is a source of potential injury to a person, property, or the system.

This manual uses the terms DANGER, WARNING, CAUTION, and NOTICE to point out hazards and to designate a degree or level of seriousness. Familiarize yourself with the following definitions and their significance.

Definitions of Safety Conventions

Safety Convention	Definition
DANGER	Indicates an imminent hazard, which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in death or serious injury.

Definitions of Safety Conventions (cont'd.)

Safety Convention	Definition
CAUTION	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in moderate or minor injury.
NOTICE	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in the loss or destruction of property or data.

Additional Assistance

GE Healthcare maintains a trained staff of application and technical experts to answer questions and respond to issues and problems that may arise during the installation, maintenance, and use of this system.

Contact your local GE Healthcare representative to request additional assistance.

2

Upgrading the Firmware

This section describes the tasks you need to complete before beginning the upgrade process, and provides procedures for completing the upgrade process.

NOTE:

These instructions are based on the default IP address, subnet mask, and password of the serial server. If they were changed at your site, contact the site system administrator for the IP address and password that you need to use to complete the upgrade process.

NOTE:

The firmware may be upgraded using Web Interface and TFTP PUT.

Using TFTP PUT to upgrade will be faster and can be used with units that failed previous upgrades.

NOTE:

Only SX-500 firmware versions approved by GE Healthcare will be allowed on the device after v1.54 has been installed.

Preparing for the Upgrade

Components Needed

The following components are required to perform the firmware upgrade:

- Upgrade Instructions (this document)
- PC/laptop running Windows OS with an unused wired Ethernet port
- One of the following Ethernet cable options (to connect PC/laptop to server):
 - Cross-over Ethernet cable
 - Standard Ethernet capable if PC/laptop is equipped for auto-detect
 - Ethernet hub with 2 standard cables (if PC/laptop is NOT equipped for auto-detect and cross-over cable is not available)
- Firmware upgrade file for new release (loaded onto PC/Laptop) This upgrade file can be obtained from a GE MobileLink CD or other approved source.
- MobileLink Installation manual (This document may be useful for troubleshooting purposes.)

- Paper clip
- One of the following web browsers installed: Google Chrome v22, Mozilla Firefox v15, Internet Explorer v9.

Before You Begin

You need to acquire the following for each Silex server being upgraded:

- Physical access to the Ethernet port (either by removing the server from the cart or by plugging the Ethernet cable into unit while it is still mounted to cart)
- The IP address, subnet mask, and gateway of the server(s).
- The Network Card Access Password for the server(s).
If the default server password (access) was changed, contact the site system administrator for the new password.
- All network configuration information so you can restore the system to its original state.

CAUTION:

LOSS OF CONFIGURATIONS — After updating the SX-500 firmware, if you reset the serial server to the default settings, you lose all other settings and channel configurations.

Ensure you have all of the configuration information and know how to reconfigure the system to the original settings, including selecting the appropriate country channels.

If a country is not listed in the following table, consult with the Hospital IT department to determine the wireless channel range. Most countries use channels 1–13, such as Australia, Austria, and Belgium. Select a country matching the appropriate channel range for your country.

Country	Channel
Canada	1 – 11
Japan	1 – 14
Taiwan	1 – 11
United States	1 – 11

Connecting the PC/Laptop to the Device

Before performing the upgrade on the server, use the following procedure to connect the PC/laptop to the device and allow proper communication.

Connecting the PC/Laptop to the Server

Use the following procedure to connect the PC/laptop to the server.

1. Apply power to the wireless server.

NOTE:

If you have an AC adapter which is compatible with the wireless server, use it to apply power to the device.

If not, power the wireless server through the COM2 port of a cart which is set for serial power always on.

2. Reset the Silex serial server to the default settings by inserting a paper clip into the hole on the bottom of the server.



The default settings are:

- IP address: 192.168.1.3
- Subnet mask: 255.255.255.0
- Server password: access

3. Verify browser LAN settings.
 - a. Open a browser window.
 - b. Select **Tools > Internet Options....**
 - c. Select the **Connections** tab.
 - d. Click **LAN Settings....**
 - e. Verify that none of the three check boxes are checked in the **Local Area Network (LAN) Settings** window.
 - f. Click **OK** twice to save your changes.

NOTE:

If you make any changes to the browser's LAN settings, be sure you return the browser to the original LAN settings after using it to configure the Silex bridge.

4. On the desktop, click **Start > Settings > Network Connections**.
The **Network Connections** window opens.
5. Right-click on **Local Area Connection, Network Cable Unplugged** and select **Properties**.
The **Properties** window opens.

6. On the **General** tab, scroll to the end and highlight **Internet Protocol (TCP/IP)**.
7. Select **Properties**.
8. Select the option button **Use the Following IP Address**.
This enables the field so you may enter a new IP address.
9. Change the IP address to **192.168.1.100** and the subnet mask to **255.255.255.0**.
10. Click **OK** to close the **General** tab, then click **OK** to close the **Properties** window.
11. Connect a cable to the Silex server and then to the PC/laptop using a cross-over cable or a hub.
12. Disable WIFI on the PC/laptop.

NOTE:

Some systems automatically disconnect the wireless service once the cable is connected to the LAN port of the PC/laptop.

Verifying the Connection

GE Healthcare recommends that you verify the connection on the Network Connections window, and further verify the connection with a ping prompt.

Use the following procedures to verify that the connection between the Silex and PC/laptop is complete and working.

1. Open the **Network Connections** window and verify that the **Local Area Connection** is connected.
2. On the PC/Laptop, open a **Command Prompt** window.
 - a. From the Windows desktop, select **Start > Run...**
 - b. In the **Open** field, type **cmd**.
 - c. Click **OK**.
3. In the **Command Prompt** window type **ping <space> 192.168.1.3** and press **Enter**.
4. Confirm that you receive a successful reply from the server.

Completing the Upgrade

There are two methods for performing the upgrade:

- Using the Web Interface (firmware download time is four minutes).
- Using TFTP PUT from DOS window (firmware download time is one minute).

Using the Web Interface

NOTE:

All illustrations in the manual are provided as examples only. Depending on system configuration, screens in the manual may differ from the screens on your system.

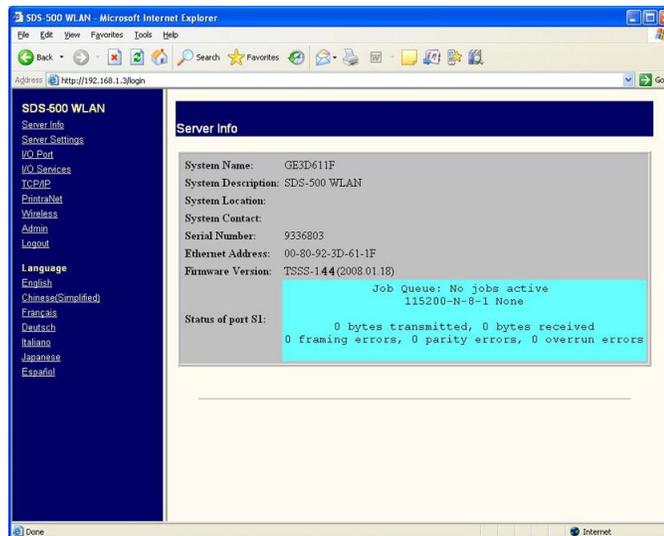
Performing the Firmware Upgrade

1. From the PC/laptop desktop, launch a Web browser window and browse to the address of the server by typing: **http://192.168.1.3**, and pressing **ENTER**.

You may receive the message: **Web page not available offline. Click connect.**

- a. Click **Connect**.
- b. Click **Try again** if the connection fails on the first attempt.

A window similar to the following opens:



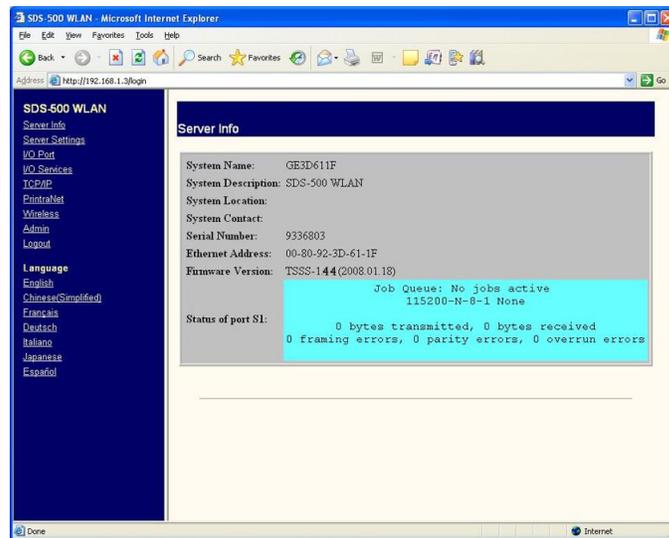
2. In the left panel, click **Login** in the left panel.

The **Network Card Access Password** window opens, prompting you to enter a password.

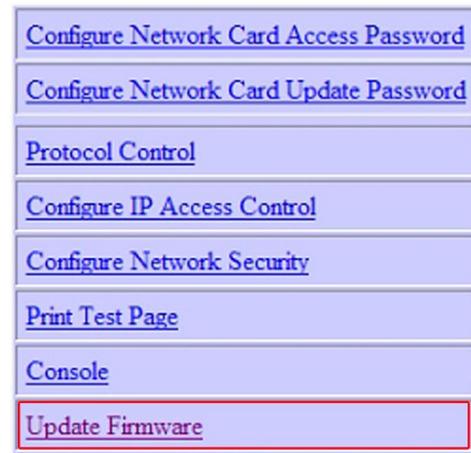
3. Enter the **Network Card Access Password** for the server and click **Submit**.

The default password is **access**. Contact the system administrator for the site if this password was changed.

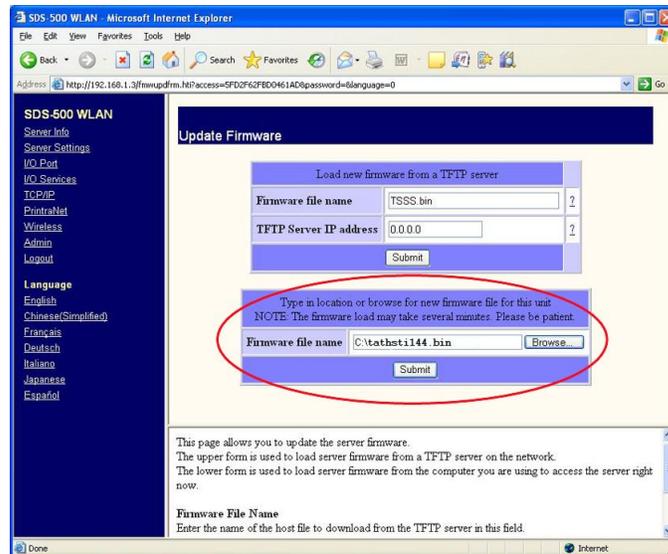
4. Upon successful login, the menu options on the left panel should change to look like the following figure:



5. In the left panel, click **Admin**.
A menu opens.



6. Select **Update Firmware**.
The **Update Firmware** window opens.



7. In the lower **Firmware file name** field, click **Browse** to navigate to the location on the PC/laptop containing the Silex upgrade **.bin** file.
8. Highlight the file and click **Open**.
9. Click **Submit** to begin the upgrade process.

The firmware download and upgrade process from the PC to the server takes approximately four minutes.

CAUTION:

FLASH MEMORY CORRUPTION — Any mouse clicks may result in corrupting the flash memory.

Do not click, refresh, or close the Web browser, or power-cycle the server during this process.

The following occurs during the upgrade process:

- a. The red LED blinks and the status indicator on the Web browser advances.
- b. The red and yellow LEDs illuminate while the flash memory is programmed (a few seconds).
- c. All LEDs illuminate while the server resets (a few seconds).

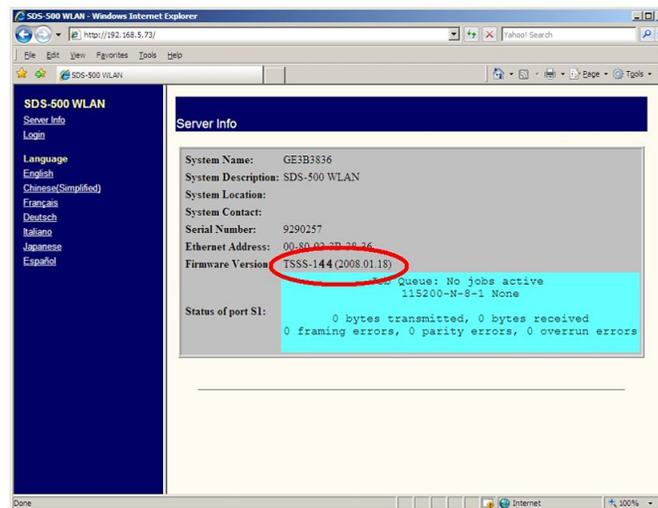
- d. The green and yellow LEDs turn OFF while the red LED blinks ON and OFF.
- e. When the progress bar displays completion status, wait until the red LED on the Silex server is ON solid before continuing.

CAUTION:

FLASH MEMORY CORRUPTION — Any mouse clicks attempted before the waiting period completes may result in a **page not found** error in the browser window.

Do not continue until all of the previous steps are completed (approximately four minutes). Do not refresh or close the Web browser page, or power-cycle the server.

10. When the upgrade process is completed, click the **Server Info** link on the left panel to verify that the firmware version was successfully updated on the server. The firmware version embedded in the **upgrade filename** must match the version embedded in the **Firmware Version** field. (This example shows firmware version 1.44, the actual screen shall show the new version.)



Troubleshooting

If the upgrade did not progress as previously described, or if the previous confirmation is not successful, re-attempt the upgrade using the same or the alternate method described in “Using TFTP PUT From a DOS Window”.

Using TFTP PUT From a DOS Window

Move the **.bin** file to the root directory **c:** of the PC/laptop.

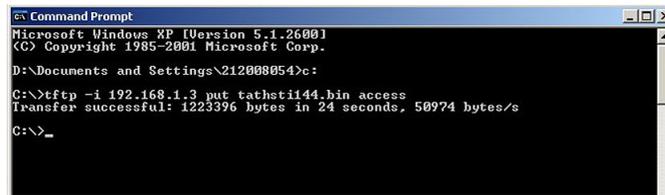
Connect the PC/laptop to the server to establish an Ethernet connection, including the confirmation of a successful ping request. See “Connecting the PC/Laptop to the Server” on page 11.

Performing the Firmware Upgrade

Use the following procedure as another method for performing the upgrade.

1. On the PC/laptop, open a **Command Prompt** window and type: **tftp <space> -i <space> 192.168.1.3 <space> put <space> c:\XXXXXXX###.bin <space>**

access. (This example shows The **.bin** file for firmware version 1.44, the actual screen shall show the new firmware **.bin** file.)



```

Command Prompt
Microsoft Windows XP [Version 5.1.2600.1
(C) Copyright 1985-2001 Microsoft Corp.
D:\Documents and Settings\212008054>c:
C:\>tftp -i 192.168.1.3 put tathst1144.bin access
Transfer successful: 1223396 bytes in 24 seconds, 50974 bytes/s
C:\>_

```

NOTE:

If the server password was changed, contact the site system administrator.

At this point, the firmware download and upgrade process from the PC to the server takes approximately two minutes.

CAUTION:

FLASH MEMORY CORRUPTION — Typing additional commands can corrupt flash memory.

To avoid corrupting the flash memory, do not type additional commands or power-cycle the server during this time.

The following occurs during the upgrade process:

- a. The red LED blinks while the download proceeds for approximately 30 seconds.
- b. The **Transfer Successful** message is displayed below the **tftp** command line.
- c. The red and yellow LEDs illuminate while the flash memory is programmed (a few seconds).
- d. All LEDs illuminate while the server resets (a few seconds).

- e. The green and yellow LEDs turn OFF while the red LED blinks ON and OFF.
- f. When the progress bar displays completion status, wait until the red LED on the Silex server is ON solid before continuing.

CAUTION:

FLASH MEMORY CORRUPTION — Attempting DOS commands before this waiting period can result in errors or flash memory corruption.

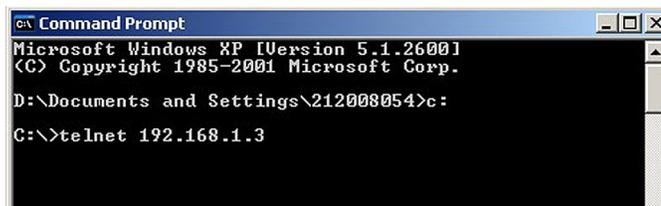
To avoid corrupting the flash memory, do not type additional commands or power-cycle the server during this time.

- 2. After the download completes, perform the following steps to confirm that the firmware upgrade was successful.

NOTE:

You may also use the web-based method for confirmation outlined in step 10.

- a. On the PC/laptop, open a **Command Prompt** window.
- b. Begin a Telnet session by typing: **telnet <space> 192.168.1.3**.



- c. At the **Welcome** message, press **ENTER** to display the **#** prompt.
- d. Type the password **access**.

NOTE:

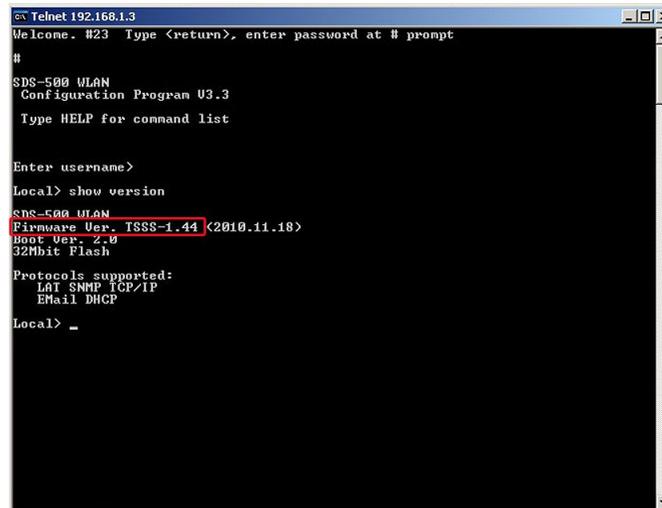
If the password was changed, contact the site system administrator.

The letters do not echo because they are being typed in the **Password** field.

- e. When you receive the **Enter Username>** prompt, press **ENTER** to change to the **Local>** prompt.

- f. Type **show version** and press **ENTER**.
- g. Verify that the **Firmware Version** field is correct.

The firmware version embedded in the **upgrade filename** must match the version embedded in the **Firmware Ver** field. (This example shows firmware version 1.44, the actual screen shall show the new version.)



```

c:\ Telnet 192.168.1.3
Welcome. #23 Type <return>, enter password at # prompt
#
SDS-500 WLAN
Configuration Program V3.3
Type HELP for command list

Enter username>
Local> show version
SDS-500 WLAN
Firmware Ver. TSSS-1.44 <2010.11.18>
Boot Ver. 2.0
32Mbit Flash

Protocols supported:
  LAt SNMP TCP/IP
  Ethall DHCP

Local> _
```

Troubleshooting

If the upgrade did not progress as previously described, or if the firmware version confirmation failed, please re-attempt the upgrade using the method [“Using TFTP PUT From a DOS Window”](#) on page 16.



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