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GE Healthcare

Silex SD-320AN-06 Serial Server

Firmware Upgrade Instructions

2106794-001-D



Silex SD-320AN-06 Serial Server
English

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Publication Information

The information in this manual applies only to Silex SD-320AN-06 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 on each page of the document. The revision identifies the document's update level. The revision history of this document is summarized in the following table.

Revision	Date	Comments
A	31 October 2017	Initial release of this document
B	31 May 2018	Updated for firmware v1.14 release
C	22 October 2019	Updated for V1.16 firmware release
D	06 July 2022	Updated for V1.17 firmware release

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To access Original Equipment Manufacturer (OEM) documents, go to the device manufacturer's website.

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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.

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

Intended Audience

The SD-320AN-06 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 SD-320AN-06 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 .
>	<p>The greater than symbol, or right-angle bracket, is a concise method to indicate a sequence of menu selections.</p> <p>For example, the statement "From the main menu, select System > Setup > Options to open the Option Activation window" replaces the following:</p> <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.

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. These instructions are to upgrade the previous version of firmware (V1.02, V1.10, V1.12 V1.14, or V1.16) to V1.17.

Version 1.10 or higher requires a User ID and Password:

- Default User ID: `admin`
- Default Password: `access`

Version 1.02 only requires a Password.

Version 1.02 uses two MAC address: one for WiFi and one for LAN. After upgrading to Version 1.10 or higher, the Silex SD-320AN serial server uses only the LAN MAC address. The LAN MAC address overwrites the WiFi MAC address, which means the MAC address has to be changed from WiFi to Lan MAC address.

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.

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
- Standard Ethernet capable (straight-through cable) if PC/laptop is equipped for auto-detect

- 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.

NOTE:

To access the most recent GE Healthcare certified firmware and firmware upgrade instructions, go to <http://www.silexamerica.com/geh320an/> or <http://silextechnology.com/geh320an/>. Contact GE Healthcare Technical Support if you have any questions.

- MobileLink Installation manual (This document may be useful for troubleshooting purposes.)
- Paper clip
- One of the following web browsers installed: Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer/Edge.

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.

NOTE:

V1.10 or higher software requires both a User ID and a Password.

- Default User ID: `admin`
- Password: `access`

V1.02 does not require a User ID. It only requires a password.

- All network configuration information so you can restore the system to its original state.

If a country is not listed in the following table, consult with the Hospital IT department to determine the wireless channel range.

NOTE:

Select DE (Germany) for your country prior to upgrading the firmware. After upgrading, you will make your actual country selection.

Country/Area	Part Number	2.4GHz	5GHz
United States	GEH-SD-320AN-XX-US	1–11	36–165
Canada	GEH-SD-320AN-XX-EU	1–11	36–112, 116, 132–165

Europe		1-13	36, 40, 44, 48-52, 56, 60, 64, 100, 104, 108, 112-116, 120, 124, 128, 132, 136, 140, 149-165
Country/Area	Part Number	2.4GHz	5GHz
Saudi Arabia		1-13	36, 40, 44, 48, 52, 56, 60, 64, 149-165
Vietnam		1-13	36, 40, 44, 48, 52, 56, 60, 64, 149-165
Australia/New Zealand		1-13	34-112, 116, 132-165
Japan		1-14	36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149-165

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.

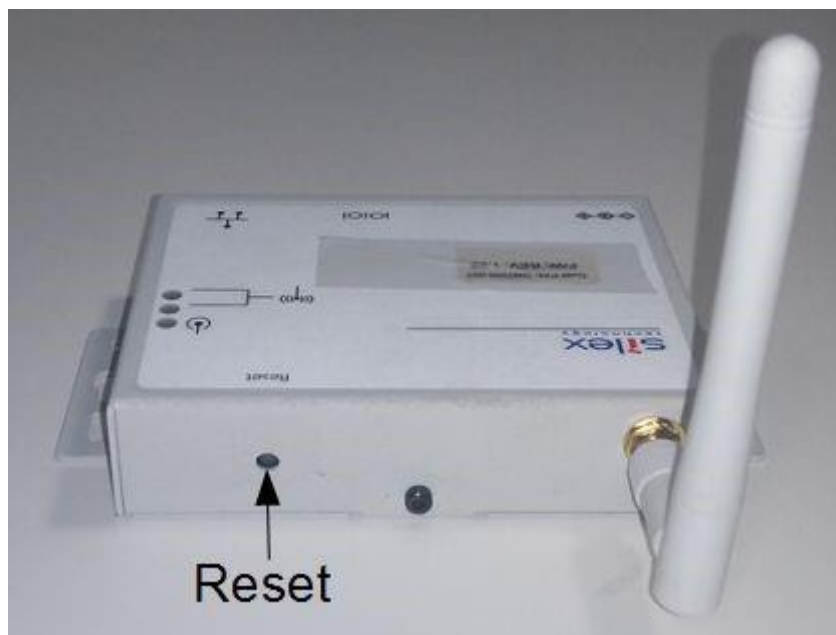
1. Apply power to the wireless server.

NOTE:

If you have an AC adapter that 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 that is set for serial power always on. You can access this option under **System Setup>Miscellaneous Setup**

2. Reset the Silex serial server to the default settings by pressing the reset button. You can access the reset button by inserting a paper clip into the hole on the side of the server. Press the Reset button continuously minimum 10 seconds.



3. Navigate to **System Set Up>Miscellaneous Set Up**, For V1.10 or higher, the default settings are:
 - IP address: 192.168.1.3
 - Subnet mask: 255.255.255.0
 - User ID: admin
 - Server password: access
 For V1.02, the default settings are:
 - IP address: 192.168.1.3
 - Subnet mask: 255.255.255.0
 - Server password: access
4. 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 Sillex Serial Server.

5. On the desktop, click **Start > Settings > Network Connections**. The **Network Connections** window opens.
6. Right-click on **Local Area Connection, Network Cable Unplugged** and select **Properties**.
The **Properties** window opens.
7. On the **General** tab, scroll to the end and highlight **Internet Protocol (TCP/IP)**.
8. Select **Properties**.
9. Select the option button **Use the Following IP Address**.
This enables the field so you may enter a new IP address.
10. Change the IP address to **192.168.1.100** and the subnet mask to **255.255.255.0**.
11. Click **OK** to close the **General** tab, then click **OK** to close the **Properties** window.
12. Connect a cable to the Silex server and then to the PC/laptop using a cross-over cable or a hub.
13. 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

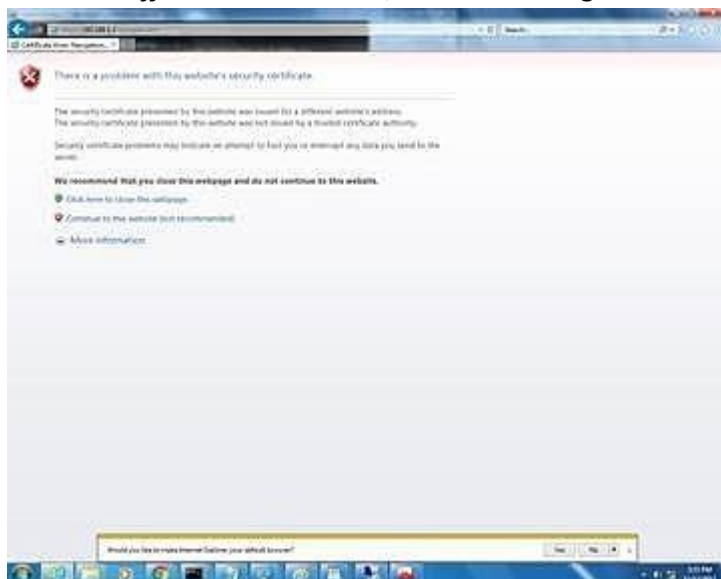
NOTE:

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

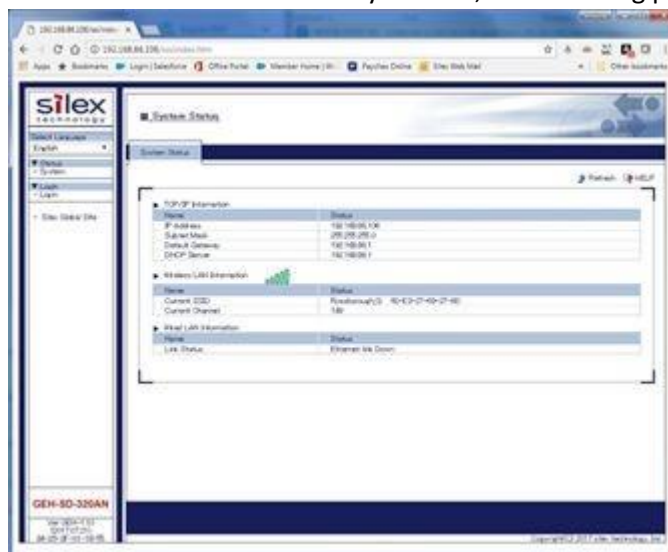
1. From the PC/laptop desktop, launch a Web browser window and browse.
2. In the browser address input field, type **http://192.168.1.3** as the address of the server and press **ENTER**.

If you receive the message (as shown on the following screen) **Web page not available offline. Click connect.**, do the following:



- a. Click **Connect to this website** to continue to the website.
- b. If the connection fails on the first attempt. click **Try again**.

When the server is successfully located, the following page opens:



The **System Status** page shows the current status of the server. It provides an option to log into the server and reconfigure it.

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



After logging in, the following page opens:



4. Enter the **User ID** and **Password** and click **Submit**.

The defaults are:

• **User ID:** admin •

Password: access

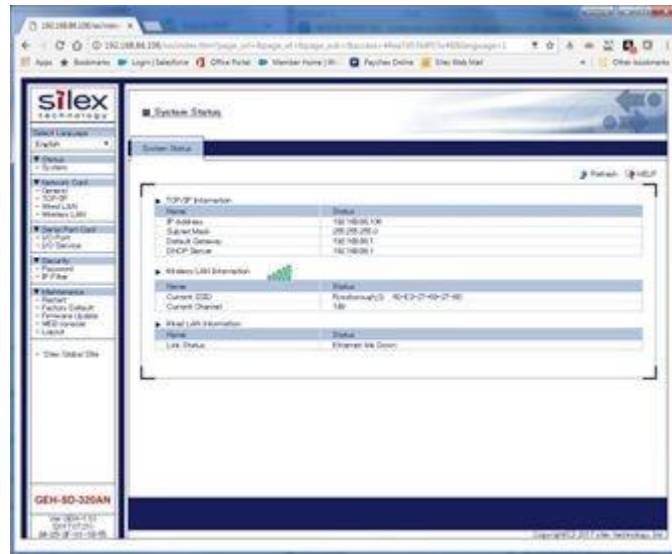
NOTE:

The User ID field is only available in the firmware version V1.10 and later. This field is not available in V1.02 or earlier.

If the incorrect credentials are entered, the following message is displayed: **Error: Verification failed.**

Click **Back to the previous page** and retry logging in.

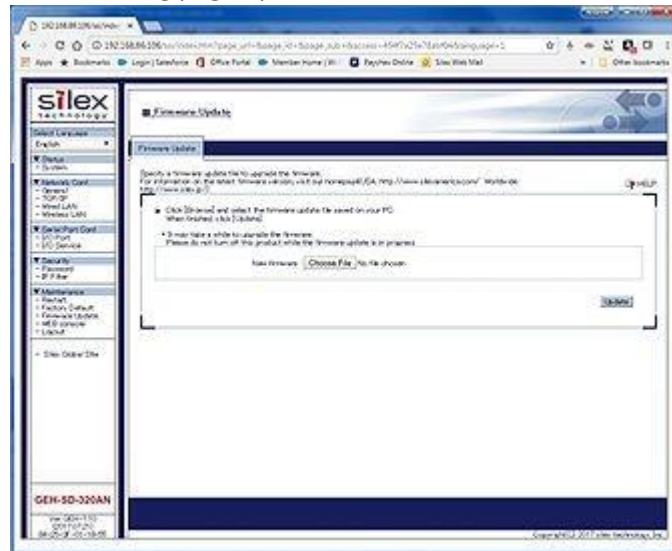
When the correct credentials are entered, the following page opens:



5. In the left panel, click **Firmware Update**.

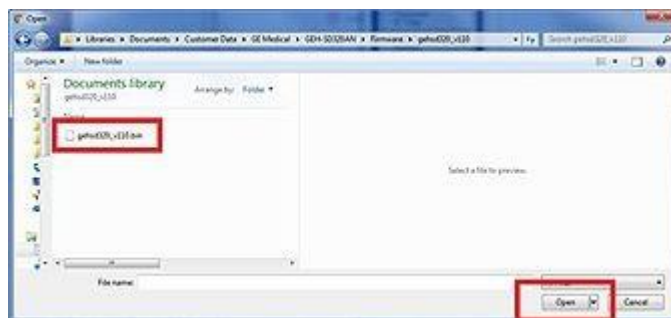


The following page opens:

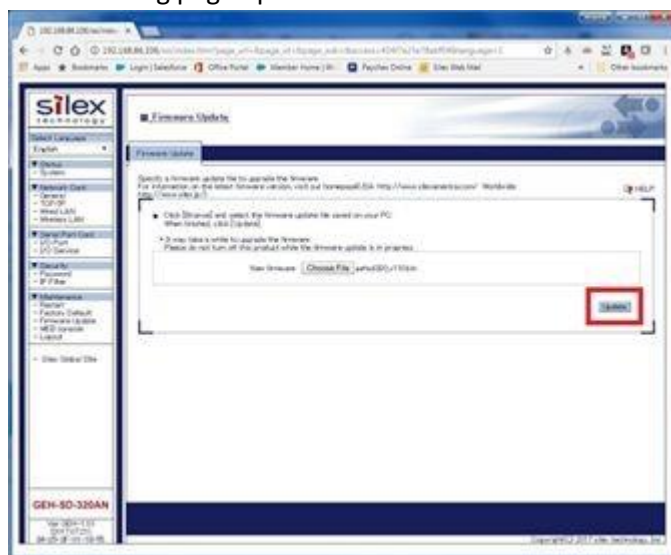


6. Click **Choose File**.

The following window opens:

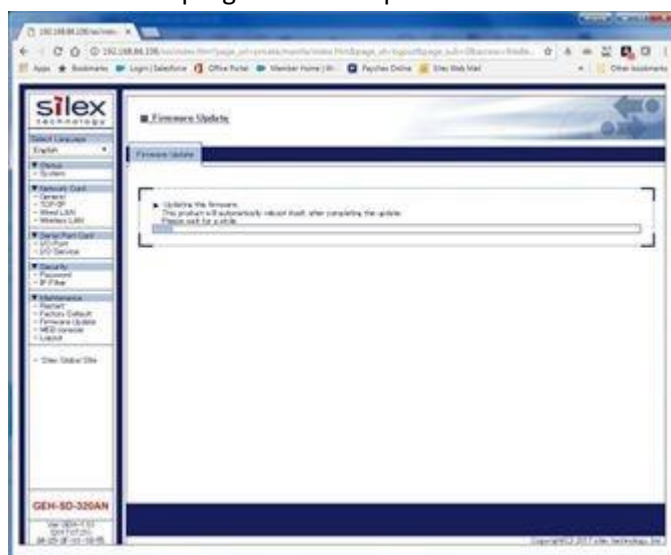


7. Locate and select the target firmware update file. Click **Open**.
The following page opens.



8. The following message is displayed: **Are you sure you want to update the firmware?** Click **OK**.

The firmware update progress begins and the following page opens. The progress bar tracks the progress of the update.



CAUTION:

EQUIPMENT DAMAGE Do not remove power during the update process. Removal of power may cause FLASH corruption and render the unit unusable.

When upgrade completes successful, the unit will restart. The upgrade should not be interrupted and is not complete until the following things occur:

1. The red power LED blinks while the firmware file is uploaded to the unit.
 2. The red power LED flashes red while the device firmware is being updated.
 3. The LEDs flash OFF when the unit restarts.
 4. When the red power LED is solid RED, the unit has restarted and the device can be accessed.
9. When the red power LED is solid RED, repeat steps 1 through 4 to access the device.
 10. Verify the firmware has been updated by reviewing the information displayed in the left panel of the **System Status** page. The current version of the firmware is displayed.

The following graphic is for representation only.



Troubleshooting

If the upgrade did not progress as previously described, or if the previous confirmation is not successful, reattempt 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

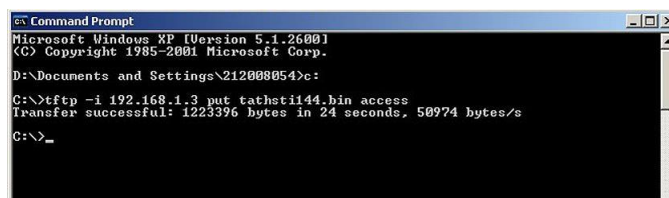
Move the **.bin** file to the root directory **c:** of the PC/laptop.

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:\XXXXXXXXX###.bin <space> access.** (This example shows The **.bin** file for firmware version 1.44, the actual screen shall show the new firmware **.bin** file.)



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
D:\Documents and Settings\212008054>c:
C:\>tftp -i 192.168.1.3 put tathstii44.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 downloads 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:

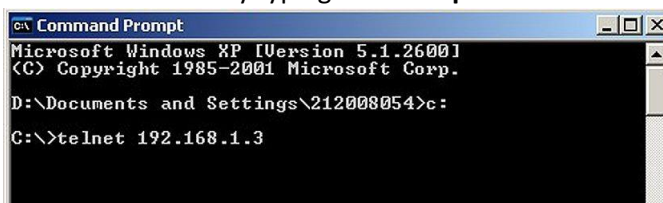
FLASH MEMORY CORRUPTION — Attempting DOS commands before this waiting period can result in errors or flash memory corruption. To avoid corrupting the flash memory, do not type additional commands or power-cycle the server during this time.

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 .

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



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
D:\Documents and Settings\212008054>c:
C:\>telnet 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.

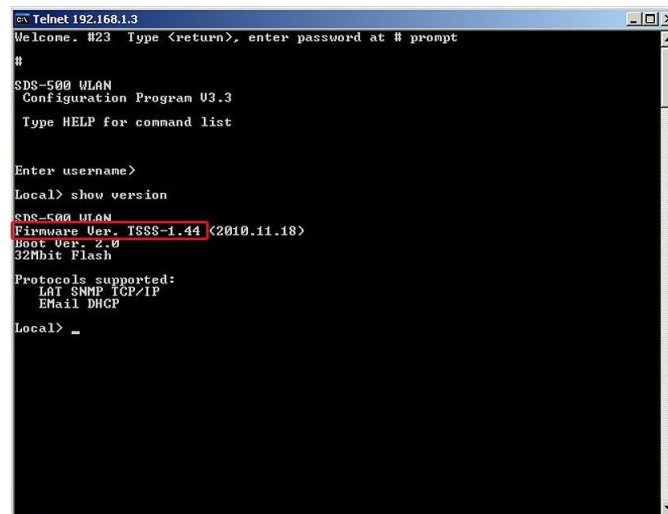
The letters do not echo because they are being typed in the **Password** field.

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.)



```
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
  Email 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 19.

Configuring NTP on the GEH-SD-320AN Serial Server

NOTE:

The network time sync feature works with the Silex GEH-SD-320AN Serial Server firmware version 1.10 and later.

1. Log on to the bridge with the wireless IP address.
2. Navigate to **Maintenance>WEB console** and enter **SET NTP SERVER <ntp-server-URL>**,

NOTE:

This setting allows the NTP server to be changed from the default, ***pool.ntp.org***.

3. Navigate to ***WEB console*** and enter **SAVE** or **EXIT** to save the configuration to ***NVRAM***.
4. Navigate to ***Maintenance>Restart*** to restart the wireless bridge to complete the configuration.

NOTE:

Sometimes, a manual restart of the ECG cart is required for the wireless bridge to initiate the wireless connection after the configuration is complete.



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