



# **Technical Service Bulletin**

## **Monitoring Products**

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- Subject:** TSB – Flexnet Radio SW 2.30.03 for CVSM/CWIS/Spot LXi
- Distribution Scope:** WA Internal  
WA Technical Support, Product Service, & International Service Centers
- Product(s) Referenced:** Connex Vital Signs Monitor (CVSM) and Connex Integrated Wall System (CIWS) with the radio option; 406187 PLAT. RADIO, PROV. SPI,802.11A/B/G or 408472 PLAT. RADIO 2.30, PROV. SPI,802.11A/B/G. 4500-922; KIT,802.11 A/B/G RADIO, SPOT LXI radios.
- Summary:** The release of radio SW version 2.30.03 will correct a re-authentication issue with the same AP and a communication issue with Connex VM 2.0 that can cause the CVSM or CIWS to display a wrench error #0000001
- Issue:** Radio SW version 2.30.03 address the following issues:
- **Extended Radio 'authenticating / sleep' state when re-authenticating to Mixed Mode PSK network.**  
When a radio configured in mixed mode PSK, de-authenticates from a particular access point it may fail to re-authenticate to that same access point. This may happen if the radio is moved out of range or if the radio is de-authenticated by the access point, and tries to re-authenticate with the same access point. This issue is not seen when re-authenticating to a different access point.
  - **Radio Abort causes CVSM/CIWS wrench while sending records.**  
When the radio sends a WACP rendezvous request to the Connex VM 2.0 server and the server fails to respond the radio terminates the WACP connection attempt internally. Five seconds after the WACP connection is abandoned, the error is induced in a radio support library. The radio support library attempts to allocate memory, but after five

seconds it times out and a NULL pointer is returned. The software does not expect this pointer to be NULL, and tries to use this as valid memory causing the CVSM wrench #0000001 error.

**Action:**

Use the procedure described in this TSB to upgrade the radio software

**CAUTION: This procedure may disable the radio if the upgrade is interrupted when the files are being written to flash. Before starting the upgrade ensure the device battery is fully charged and/or connected to AC power.**

CVSM and CIWS with host SW version 1.50.02 or older will need to be upgraded to host version 1.70.00 to support the radio 2.30.03 SW.

**Note** – The CVSM/CIWS should not be upgraded beyond 1.50.02 if it will be used with Connex VM 1.0 or 1.1 without the customers consent. CVSM/CIWS version 1.70.00 does not support the patient query function when used with Connex VM 1.0 or 1.1.

**Reference to Standards:**

- 21 CFR Part 820, ISO 13485, MPD SOP-0002

**Reference**

- 802.11a/b/g SW version 2.30.03 Software Release Notes 60043709

**Service Strategy:**

**Spot LXi**

For the customer's convenience, the 4500-922 – 802.11 a/b/g radio software will not be delivered as a field upgrade but the 4500-922 radio will be replaced.

If a customer experiences dropped connectivity with the 4500-922 802.11 a/b/g radio, a replacement 4500-922 radio will be provided that incorporates the 2.30.03 software. Welch Allyn will not require or request the old radio to be returned. It is important that the notification be linked to the Equipment Record of the radio 4500-922, not the Spot LXi.

The Equipment Record for the radio being **replaced** shall be updated to record that it has been replaced and is no longer in service. This information shall include the Service Notification number and the customer requiring the upgrade.

Customers upgrading from SW version 2.20.00 to add the security options available in 2.30.xx will be required to purchase a new 4500-922 radio to gain the new features. These customers should be referred to sales or the product manager.

**CVSM/CIWS**

Upgrades may be delivered onsite by field service or the customer may be offered the opportunity to perform the upgrade themselves on an as needed basis as determined below.

Customers who call with radio connectivity issues will be evaluated by Technical Support. If the issue cannot be resolved, it will be escalated to Service Engineering. Service Engineering will work with the radio team to determine if an upgrade will resolve the issue and how it will be deployed.

If an on-site upgrade is needed, Field Service will be requested to assist. In the event Field Service is unable to make an onsite visit within the customer's time frame, the customer will be offered the option of performing the upgrade themselves or returning the device to a service center.

Customers opting to perform the upgrade will receive instructions for performing the upgrade along with the upgrade software via PartnerConnect. Warranty coverage will remain in effect for any damage to the radio resulting from the customer's attempt at upgrading the radio software, provided the case was not opened and no modifications were made to the hardware. In the event the customer is unable to complete the upgrade the device may be returned to product service for repair.

Service centers will continue the policy of upgrading device host software to current levels. CVSM/CIWS host software 1.70.00 or later is required to support Flexnet radio software version 2.30.03. See CVSM Minimum Hardware/Software Level Requirement (DIR 20012631) for current software levels. Upgrade the radio SW to the current version to address any issues corrected in an updated release. The upgrade is provided at no charge for those customers needing the upgrade to address issues corrected in a later release.

When issuing an RMA the service representative will need to ask the customer if the device is being used with Connex VM 1.x. *Inform the customer there is a known issue with the patient query when running SW 1.70.00 with Connex VM 1.x. Any customer using Connex VM 1.x should continue to use the host software version 1.50.02. In this case, indicate on the RMA the host SW must not be upgraded above version 1.50.02, and the radio SW must remain at SW version 2.20.00. If the customer understands the issue but wishes to have the device upgraded indicate on the RMA that the customer was informed of the patient query issue, but requested the device be upgraded with the understanding the patient query feature would no longer be available.*

Customers shall be notified the upgrade may return the radio configuration to default settings.

See the Procedure section below for details on performing the CVSM/CIWS radio upgrade.

## Required Training:

Ensure training records for the following documents are updated, as applicable, for employees engaged in service and repair of the products referenced in this bulletin.

- 20012792 ver A, TSB – Flexnet Radio SW 2.30.03 for CVSM/CWIS/Spot LXi

**Required Tools:**                   **Spot LXi** - Tools required for configuring an 802.11 a/b/g radio containing 2.30.xx software.

- Spot LXi Radio Configuration Tool – part number 4500-906 (SWF SLXI RADIO CONFIG V4.1)
- 80012309E Spot LXi Radio Configuration Procedure

**CVSM /CIWS**– Tools required for upgrading the radio SW

- 408308, Welch Allyn Service Tool 1.5.0.0
- 4500-925, USB 2.0/5-pin type A to mini-B cable, gold, 6 ft.
- 660-0138-00, Cable, patch 5' RJ45, T568B\*
- Wireless router 802.11 a/b/g\*
- Windows PC with Windows XP SP3 or Windows 7, Internet Explorer 7 or 8, and Internet access to connect to PartnerConnect

\* if a wireless network is unavailable

**Required Materials:**           **CVSM/CIWS**

DIR 50010764 , SWF: PLFM Radio 2.30.03, SPI

You will need the following four files from DIR 50010764:

1. NK\_4\_1\_31.bin
2. nk\_4\_1\_31.sha1.txt
3. Lamarr2\_SPI.cab
4. Lamarr2\_SPI.sha1.txt

**Procedure:**    **CVSM/CIWS Upgrade Overview**

The upgrade process will take approximately 15 to 20 minutes to complete.

To access the radio's configuration web page, the PC running the service tool must be able to connect to the wireless subnet the radio is connected to. If the radio is already connected to a network accessible to the PC, verify the RSSI value is between 0 dBm to -60 dBm, and proceed to **Access the radio's web interface**.

If the radio is not configured to a network or the network is inaccessible to the PC you may setup a simple wireless network with a wireless router to communicate between the device's radio and the PC. See **Wireless network setup**.

### **Wireless network setup**

Follow these instructions to setup a simple network with a wireless router to communicate between the radio and the PC. To setup the device to communicate with the router, follow the manufacturer's instructions to connect the PC to the router and logon to the router.

1. Configure the following wireless settings on the router:
  - Name (SSID)
  - Radio band (mode) a or b/g
  - Security: none, WPA2-AES or, WPA2-PSK
  - DHCP Server (CVSM/CIWS can only receive an IP from DHCP)
2. Configure the radio settings on the device to match the router settings.  
To access the radio configuration on the device:
  - a) Touch the *Settings* tab
  - b) Touch *Advanced* tab
  - c) Enter the access code '6345' and touch *OK*.
  - d) Touch *Network* tab
  - e) Touch *Radio* tab
  - f) Enter the *SSID*
  - g) Select the *radio band*
  - h) If you are using security configure the *Authentication type* to match the router settings. If not set the *Authentication type* to *Open*.
  - i) Touch *Configure radio* button
  - j) Touch the *Status* tab, and wait for the radio to associate with the router. Radio, network, and session information are displayed in the *Status* screen to assist you in troubleshooting any connection issues.
  - k) In the right hand *Session* pane check the *RSSI* value is between 0 dBm and -60 dBm (-50 dBm is better than -60dBm).

Note: If the device is in the same room with the router and the *RSSI* value is still too low consult the service manual to trouble shoot the radio.

### **Access the radio's web interface**

1. Connect the device to the PC running the service tool with the USB cable
2. Launch the service tool and logon
3. In the service tool select the device to be upgraded to open the Welch Allyn Connex Device tab

4. In the service tool verify there is a Radio IP address in the device information pane (this is the area just below the device tab).
  - If you see a Radio IP address, continue with step 5
  - If you do not see a Radio IP address, go to the section titled, “**Wireless network setup**”, above.
5. Select the *Configure* tab
6. Select the *Change* button in the current settings pane
7. Select the *Radio* tab
8. Follow the onscreen prompt and click *Configure*. The Welch Allyn Software Tool connects you to the radio manufacturer's configuration web page. Proceed to:  
**Update the radio software**

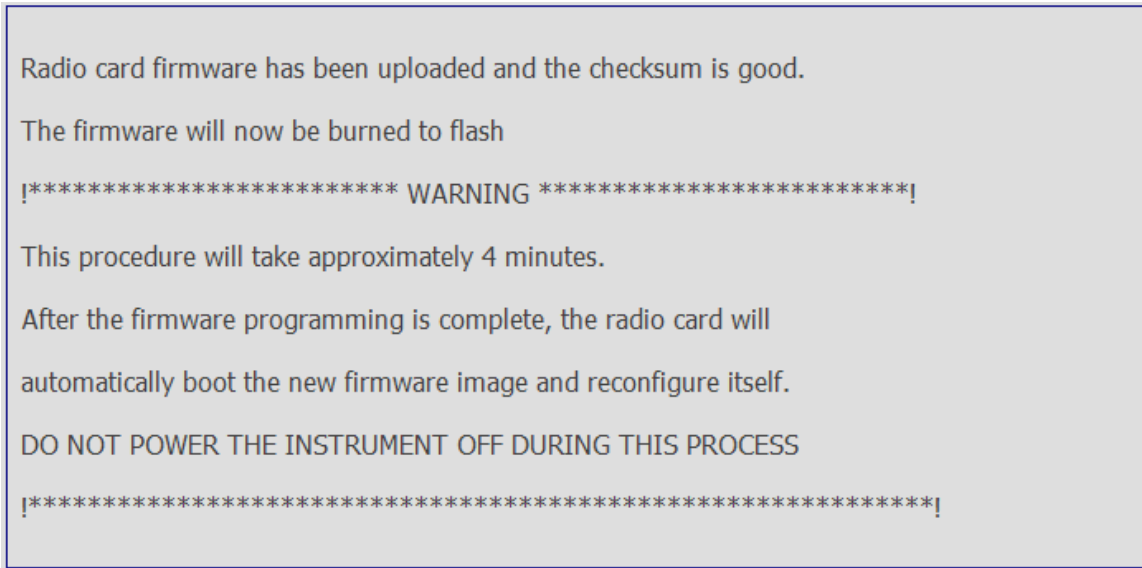
### **Update the radio software**

If the radio's web interface is not open; launch the radios web page as described in, “**Access the radio's web interface**”

1. In the Web Admin menu, select, *Radio card firmware Upload*
2. Click on the *browse* button and navigate to the directory containing the upgrade files and select the nk\_4\_1\_31.bin file
3. Launch Windows Explorer and browse to the same location as the nk\_4\_1\_31.bin file and open nk\_4\_1\_31.txt sha1 file (right click and open with Notepad)
4. Select and copy all text characters in the first line up to (but not including) “ \*nk bin”
5. Paste copied text into SHA1 checksum box on the radio card firmware upload page
6. Click *Apply* to begin the upgrade. This whole process will take 10-20 minutes (depending on network speed). An information message is displayed on the monitor; “Radio Software upgrade in progress. Do not shut down”.

Note: The status string in the radio frame displays the file loading and the percentage complete.

7. When the files have been transferred and a checksum is complete, the software will then be written to the radios memory. At this point, the Web page changes to show the following message:



8. Wait approximately 4 minutes for the task to complete. While the software is being burned to flash the status string and information message advises, “Radio card rebooting; please wait.” When the flash process is complete the information message should change to “Advanced settings.” If the information message displays “Advanced settings”, proceed to step 10.
9. If after 10 minutes the information message has not changed to “Advanced settings”, refresh the screen as follows; touch the power button to place the device in standby mode, touch the display to wake the device.
10. Reboot the device as follows:
  - a) From Advanced settings touch Exit
  - b) Touch Settings
  - c) Touch Device
  - d) Touch Power down
  - e) Push the power button to restart the monitor.

11. Verify radio settings. Navigate to the advanced settings, Radio tab as follows:
  - a. Touch *Settings*
  - b. Touch *Advanced*
  - c. Enter *6345* and touch *OK*
  - d. Touch *Network*
  - e. Touch *Radio*

If the SSID and Authentication settings have been reset to factory defaults it will be necessary to reconfigure the radio as described in the **Wireless network setup**, step 2.

If the radio settings have not changed touch the Status tab and wait for the radio to initialize, associate and receive an IP address.

12. When the radio has initialized and received an IP address, return to the Web Admin page. If the radio settings were reset it may be necessary to restart the radio's web interface as described in, "**Access the radio's web interface.**"
13. In the Web Admin menu, select "Load cab file"
14. In the Cab file text box, click *browse* and navigate to the directory containing the Lamarr2\_SPI.cab file, and select it
15. Use the Windows Explorer to browse to the same location as the CAB file and open the associated Lamarr2\_SPI.sha1 (text document) (right click and open with Notepad).
16. Select and copy all text characters up to (but not including); *"\*Lamarr2\_SPI.cab"*
17. Paste the text into the SHA1 checksum box on the Load CAB file page
18. Click the *Apply* button to begin Lamarr2\_SPI.cab file download and flash writing. This process will take approximately 1-2 minutes. An information message is displayed on the monitor; "Radio Software upgrade in progress. Do not shut down". While the software is being updated the status string displays the percentage complete of the file download, then advises, "Radio card rebooting; please wait." When the flash process is complete the information message changes to "Advanced settings"
19. The Web page will display the following message: "Radio Card is rebooting now"
20. Wait at least 2 minutes for the radio to reboot and do post-update configuration
21. Return to the radio web page in the Windows Browser and confirm the Device Information section of the web page shows the new SW versions. The version information may alternately be confirmed on the Network Status tab on the device.
22. This completes the radio update



- 23. Close the browser
- 24. Return to the service tool. In the Change device configuration settings box click the *save or cancel* button to close the Change the device configuration settings dialog box.
- 25. In the service tool close the device tab. This allows PartnerConnect data to be updated.
- 26. End of procedure

**Quality Documents:**      **All service centers using SAP to record service transactions:** For each monitor serviced, record the service activity in SAP.  
**All other service centers and Field Service:** For each monitor serviced, complete and file a service report and attach to the service DHR.

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**Notes:**

- 1. Contact the Welch Allyn Complaints Department to initiate or process a medical device complaint resulting from this or other issues.
- 2. Drawings, illustrations, and part numbers in this document are for reference purposes only and subject to change.

**End of Bulletin**

<b>Revision History</b>					
<b>Version</b>	<b>Description</b>	<b>Change #</b>	<b>Init</b>	<b>Release Date</b>	<b>Appr</b>
A	Initial Release	D*	CB	D*	D*
D* - Refer to SAP DIR digital signature log for approval details.					