Firmware Update Procedure for NL-SW-HSPA Skywire Modems

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1. Introduction

1.1 Overview

As cellular carriers and chipset providers continue to update cellular networks and the devices that operate on them, new features are constantly being added. Accordingly, NimbeLink recommends updating device firmware so that customers can take full advantage of any bug fixes, or improved features that are added with device firmware upgrades.

This document provides instructions on how to update the firmware on NL-SW-HSPA modems with firmware versions that have been approved and released by Telit.

1.2 Orderable Devices

Orderable Device	Description	Carrier	Network Type
NL-SWDK	Skywire Development Kit	Any	Any
NL-SW-HSPA	3G Global HSPA	Any	GSM
NL-SW-HSPA-B	3G Global HSPA	Any	GSM

2. Firmware Update Procedure

2.1 Introduction

The firmware update procedure detailed in this application note utilizes a firmware update tool that is distributed by Telit. This tool, as well as the new firmware file is only available under an NDA.

In order to obtain access to the firmware update tool and the new firmware, please review and complete the following document:

https://nimbelink.com/Documentation/Skywire/1001463_Document-Guide.pdf

Once completed, please include this document in an emailed request for access. Requests can be sent to the following email address:

product.support@nimbelink.com

Furthermore, please note that this firmware update procedure only applies to Windows operating systems. After obtaining access to the the aforementioned files, proceed to Section 2.2.

2.2 Install USB device drivers on a Windows PC

USB drivers for Windows operating systems are available at the following link:

https://nimbelink.com/Documentation/Skywire/Telit_USB_Driver_Win_Desktop.zip

This zip file contains installers for x64 and x86 architectures, as well as a guide for using the installer.

Be sure to install the appropriate drivers before continuing with the firmware update procedure.

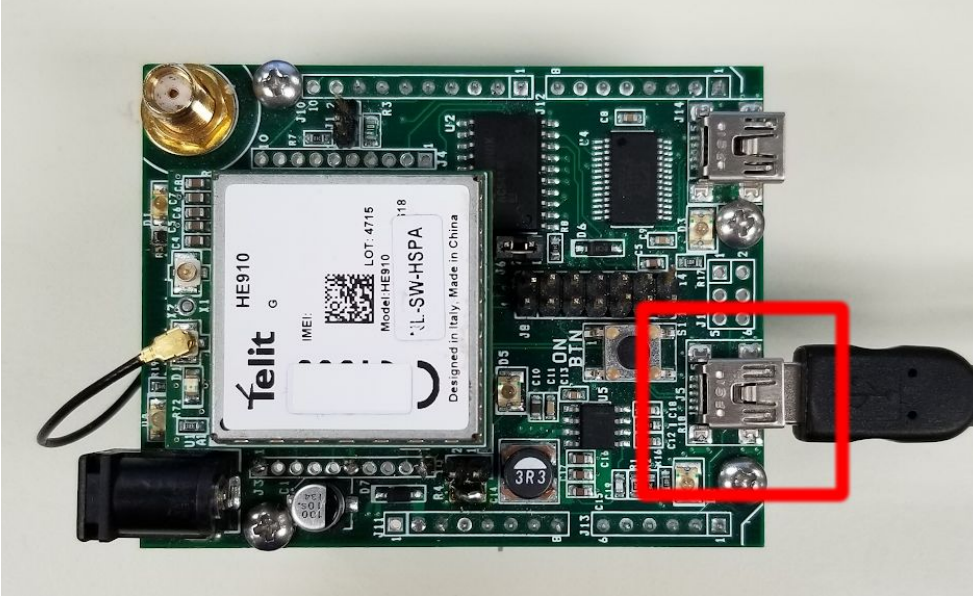
2.3 Plug Modem into Development kit

It is recommended to use an NL-SWDK for the firmware update procedure. Refer to the SWDK user manual for the step-by-step procedure of how to install a Skywire modem into the SWDK.

https://nimbelink.com/Documentation/Development_Kits/NL-SWDK/30005_NL-SWDK_UserManual.pdf

2.4 Connect USB cable from Kit to PC

Connect the USB cable to USB connector J5 and to the PC.



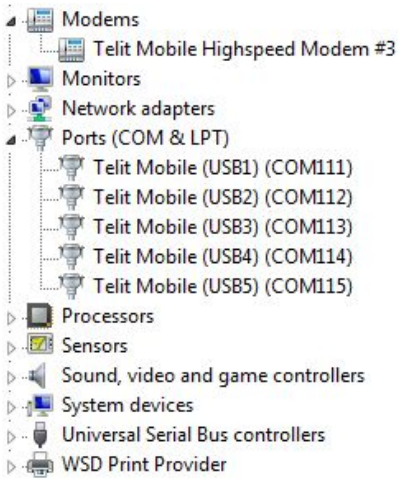
2.5 Apply Power

Plug a compatible power supply into connector/barrel jack J3 and turn on the modem by pressing the ON_BTN for at least 5 seconds.

2.6 Wait for Modem Initialization

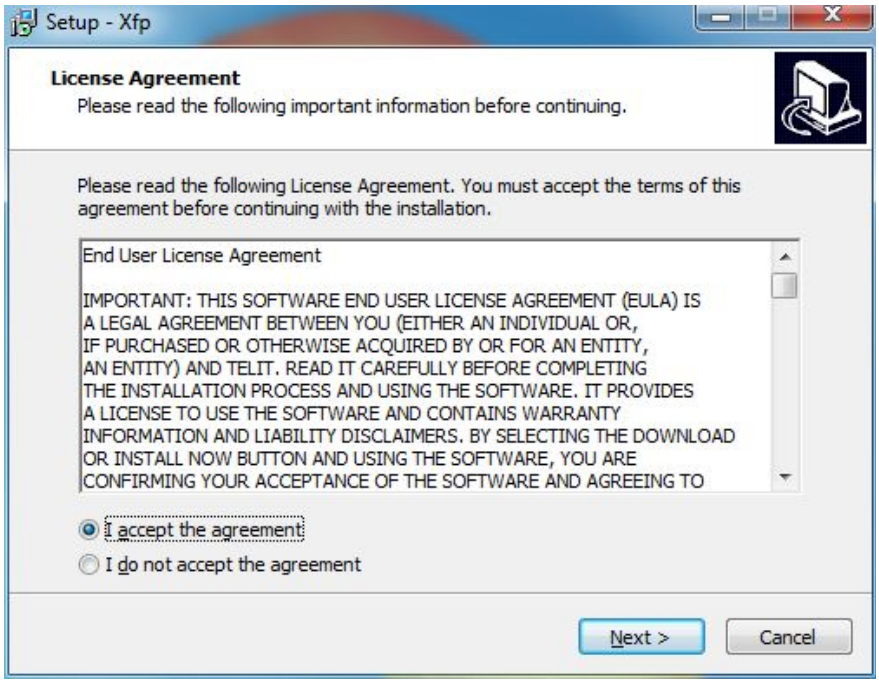
After applying power, it will take 3-5 seconds before the USB ports are initialized and recognized by the operating system. Wait for any drivers to be updated and for the COM ports to fully enumerate.

If desired, use the Windows Device Manager to monitor the modem's connection status as it initializes. Once the modem has been connected properly, the Windows Device Manager window should look something like the image on the next page:

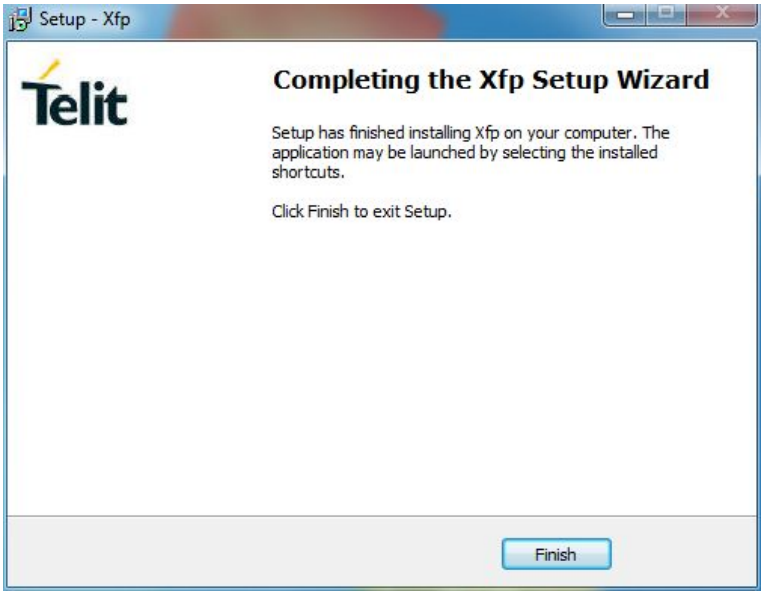


2.7 Install the Update Application

After ensuring that the modem is initialized properly, install Telit's Xfp application. To do so, run the "Xfp Ver_x.y.z.exe" installer. If prompted, enter in administrator credentials, and accept the license agreement. Refer to the image below:

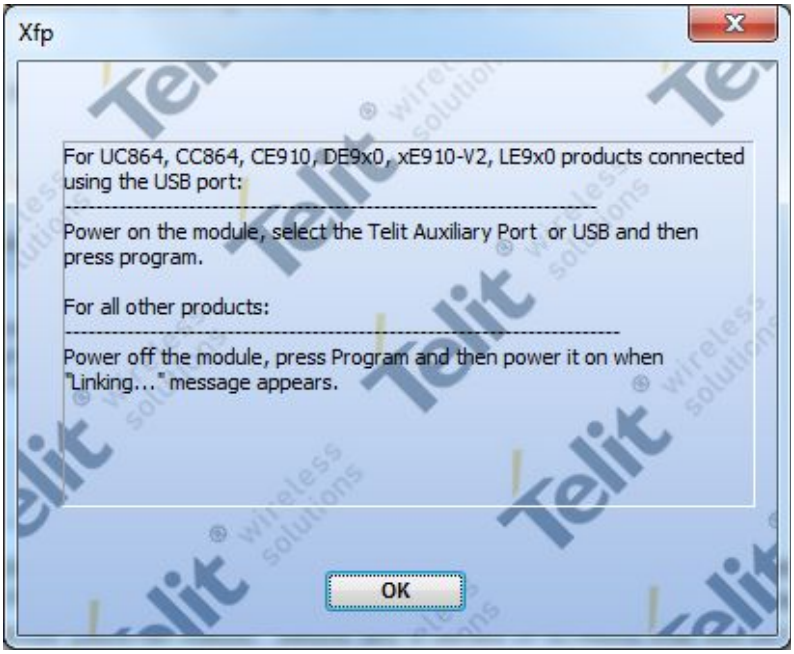


After accepting the license agreement, continue through the other prompts to select an installation folder and start menu folder. The installer will now run for a few brief moments. After the installation is complete, select "Finish" to complete the installation.



2.8 Run and Configure the Xfp Tool

After successfully installing the Xfp tool, run the tool and click "Ok" on the first windows that appears. Refer to the image on the below.

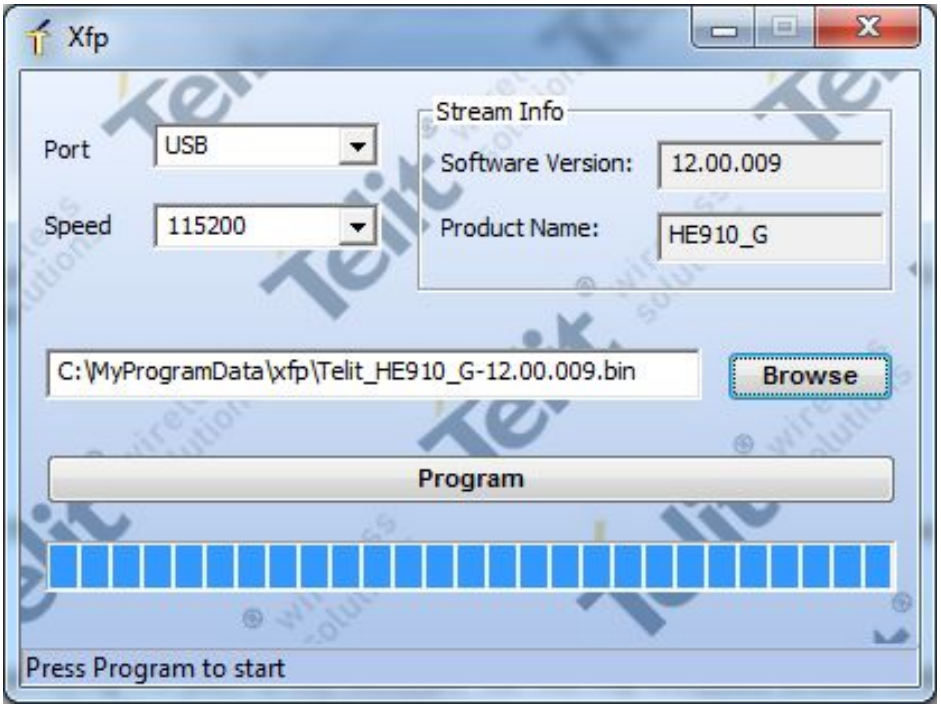


Next, specify the path to the firmware update file. To do this, click on the "Browse" button in the main screen of the Xfp application. In this example, the firmware file was placed at the following path:

```
C:\MyProgramData\xfp\Telit_HE910_G-12.00.009.bin
```

This is the default folder that the Xfp tool opens when pressing the "Browse" button.

After specifying the path to the firmware file, specify the proper baud rate and port. In the drop down menu "Speed" select "115200", and in the "Port" menu select "USB". After doing this, the Xfp window should look like the image below.



The next step is to shut down the modem. To do so, press the ON_BTN on the SWDK for at least 5 seconds. This will shut down the modem gracefully.

After ensuring that the Xfp tool is configured properly, and that the modem is powered down, continue to Section 2.9.

2.9 Install the Update

To install the update, press the "Program" button. Then, quickly hold down the ON_BTN until the Xfp tool displays two messages that state:

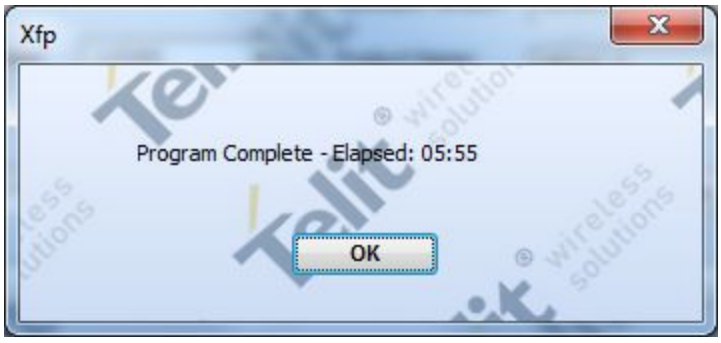
"**`Linking...`**" followed by "**`Programming...`**"

After these messages are presented, the Xfp tool will begin to update the firmware on the device. The update should take around 6 minutes to complete over USB.

Note: it is possible to do the update over UART, with a similar process. Instead of selecting USB, select whichever COM port enumerated for the modem. Then, the rest of the procedure is the same as the procedure for USB.

However, a UART update can take around 20 minutes to complete, so NimbeLink recommends to do the update over USB if possible.

After the update completes, the Xfp program will present a success message. It should look something like this:



If the Xfp tool was successful, the firmware update process is complete.

2.10 Remove Modem

After updating, the modem can be installed back into custom hardware or a NimbeLink development kit. Be sure to properly shut down the modem before removing the power supply from the SWDK.

2.11 Check New Firmware Version

If desired, the success of the firmware version can be further tested. It is recommended to verify that the firmware version has changed after any firmware update on any Skywire modem.

In the case of the NL-SW-HSPA, issue the following command to check the firmware version:

```
AT+CGMR
```

The modem should respond with something similar to:

```
12.00.009
```

If the firmware version has changed, then the update was successful.

