

# Skywire<sup>®</sup> LTE CAT1 Release 2 Firmware Update

NimbeLink Corp

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# 1. Introduction

## 1.1 Overview

This document outlines the steps for updating the firmware on the Skywire® LTE CAT1 modem.

## 1.2 Orderable Parts

Orderable Device	Description	Manufacturer
NL-SW-LTE-GELS3	Skywire 4G LTE CAT1 Modem	NimbeLink
NL-SW-LTE-GELS3-B	Skywire 4G LTE CAT1 Modem	NimbeLink
NL-SW-LTE-GELS3-C	Skywire 4G LTE CAT1 Modem	NimbeLink
NL-SW-LTE-GELS3-D	Skywire 4G LTE CAT1 Modem	NimbeLink
NL-SW-SWDK	Skywire Development Kit	NimbeLink

## 1.3 Firmware Numbers

Below is a table of the firmware versions shipped with each Skywire model:

Skywire	Firmware Version	A-REVISION
NL-SW-LTE-GELS3	4.3.1.0c	n/a
NL-SW-LTE-GELS3-B	4.3.2.0	25132/25421
NL-SW-LTE-GELS3-C	4.3.3.0	29632/29979
NL-SW-LTE-GELS3-D	4.3.3.0	36343

To check your firmware version:

### NL-SW-LTE-GELS3

Connect to your Skywire modem using a terminal program such as TeraTerm or PuTTY, and issue:

**ATI**

### NL-SW-LTE-GELS3-B, -C, or -D

Connect to your Skywire modem using a terminal program such as TeraTerm or PuTTY, and issue:

## ATI1

Note the version on the line:

A-REVISION 4.3.2.0-2xxxx

where 2xxxx is your specific firmware version.

## 1.4 Before You Begin

Before you begin, please read and reread these instructions before you attempt them. There is chance that if these instructions are not followed exactly that the modem will be damaged and unrecoverable. **If your modem is rendered unusable because of an improper firmware update attempt, it is not covered under warranty.**

Note: We recommend you contact NimbeLink at [product.support@nimbelink.com](mailto:product.support@nimbelink.com) BEFORE updating the firmware on your CAT1 Skywire modem. In addition, if after reading this guide you are not comfortable with completing this firmware update, please contact NimbeLink at [product.support@nimbelink.com](mailto:product.support@nimbelink.com) for your options.

Note: Any settings you have made will be overwritten with this update. Take note of settings you have made before updating the firmware.

## 1.5 Hardware and Software

This procedure has been tested on Windows 7, which is the Windows version we recommended. It may be possible to use the procedure on Windows 8.1 or 10, but it has not been tested and is not supported or recommended.

## 1.6 Procedure

If you are using the following Skywire:

**NL-SW-LTE-GELS3**

with firmware version:

**4.3.1.0c**

follow the procedure outlined in Section 2: NL-SW-LTE-GELS3 Firmware Update.

If you are using the following Skywires:

**NL-SW-LTE-GELS3-B**

**NL-SW-LTE-GELS3-C**

**NL-SW-LTE-GELS3-D**

and/or your Skywire has one of the following firmware versions:

**4.3.2.0**

**4.3.3.0**

or higher, follow the procedure outlined in Section 3: NL-SW-LTE-GELS3-B, -C, -D Firmware Update.

**Note: If you want to upgrade your NL-SW-LTE-GELS3 firmware to NL-SW-LTE-GELS3-D firmware, you must follow Section 2 to first upgrade to NL-SW-LTE-GELS3-B firmware, and then follow Section 3 to upgrade to NL-SW-LTE-GELS3-D firmware.**

## 2. NL-SW-LTE-GELS3 Firmware Update

### 2.1 Connect the Skywire to your computer

Insert your Skywire modem in your Skywire Development Kit and connect apply power to the board. Hold the button labeled "ON BTN" for 1 to 2 seconds, and then wait 30 seconds for the modem to initialize.

Connect the Skywire Development Kit to your computer using a USB cable connected to Port J5 on the board.

### 2.2 Download the Update ZIP File

Download the file at the following link:

[http://nimbelink.com/Documentation/Skywire/4G\\_LTE\\_Cat\\_1/NL-SW-LTE-GELS3\\_Firmware\\_25421.zip](http://nimbelink.com/Documentation/Skywire/4G_LTE_Cat_1/NL-SW-LTE-GELS3_Firmware_25421.zip)

and unzip it to a known location (such as your Desktop).

Verify that you have the following files:

default.fw

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.2.0-25421-UE4.3.2.0.kernel.ras  
t

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.2.0-25421-UE4.3.2.0.squashfs

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.2.0-25421-UE4.3.2.0.usf

Gemalto\_LR4.3.2.0-25421-UE4.3.2.0.exe

gWinSwup.exe

sfu\_1.0-117.exe

sqn\_setup\_LR4.3.2.0-25421-UE4.3.2.0-host-only.exe

And the following directory:

USB Driver

glinswup

If you do not have all of the above files, please redownload the zip file, or contact us at [product.support@nimbelink.com](mailto:product.support@nimbelink.com).

### 2.3 Install the Required Drivers

You may need to install the Windows 7 drivers for your Skywire modem. Open your Device Manager, and verify that you have two listings:

Under **Network adapters**:

GTOusbV Device #xxx

Under **Ports (COM & LPT)**:

Gemalto CDC/ACM USB COM Port (COMyy)

Where xxx and yy are specific numbers for you computer.

If you have these listings, continue to Section 2.4. If you do not have these two listings, you will have two listings under **Other Devices**. Right-click on each device, and click “Update Driver Software...”. Click “Browse my computer for driver software”, and then click “Browse...”. Navigate to the folder you downloaded the CAT1 Skywire Driver Update ZIP file to and select the “USB Driver” folder. Verify that the “Include subfolders” checkbox is checked, and click next. Windows will automatically find the driver and install it.

Reboot your Windows workstation when both drivers are installed.

## 2.4 Install the Required Software

Install the following files:

sqn\_setup\_LR4.3.2.0-25421-UE4.3.2.0-host-only.exe

Gemalto\_LR4.3.2.0-25421-UE4.3.2.0.exe

sfu\_1.0-117.exe

Reboot your Windows workstation when complete.

Note: You may get a notification about a “.rc” file missing or needing to be checked. This is normal, and can be ignored.

## 2.5 Copy Files

For this step, you need to copy three files to two different locations.

To begin, make the following directory:

C:\Program Files (x86)\Sequans Communications\Firmwares

Then, copy the file:

default.fw

to:

C:\Program Files (x86)\Sequans Communications\Firmwares\

Next, copy the following two files:

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.2.0-25421-UE4.3.2.0.kernel.ras  
t

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.2.0-25421-UE4.3.2.0.squashfs

to:

```
C:\Program Files (x86)\Sequans Communications\SFU\
```

## 2.6 Check and Note Your Skywire's Firmware

Connect to your Skywire modem using a terminal program such as TeraTerm or PuTTY, and check the firmware version of your Skywire using the following command:

**ATI**

If your Skywire returns version 4.3.1.0c, note this version and continue to Step 2.5. However, if your Skywire returns version 4.3.2.0, issue the command:

**ATI1**

Note the version on the line:

```
A-REVISION 4.3.2.0-2xxxx
```

where 2xxxx is your specific firmware version.

## 2.7 Upgrade the Bootrom

**Note: For Steps 2.7 and 2.8, it is recommended that you DO NOT copy and paste the commands from this manual. Type out the commands manually to avoid formatting errors.**

Open up the Windows command prompt **with administrator privileges** and navigate to:

```
C:\Program Files (x86)\Sequans Communications\SFU\
```

Once there, issue the following commands:

```
sfu.exe bootrom 192.168.15 root --gui --bootrom-failsafe --ffh  
--usb-id 1e2d 00a0
```

The SFU.exe program will open up, detect the Skywire modem, and begin the update process for the Bootrom.

**Warning: Do not power cycle the modem or issue AT commands at this point.**

Once the firmware update completes, close SFU.exe.

**Note: If the upgrade process fails, close SFU.exe, verify that the command was typed correctly, power cycle the modem, and try again.**

## 2.8 Update the Firmware

Next, update the firmware on the Skywire modem.

Hint: Tab completion is very helpful here.

Issue:

```
sfu.exe  
ELS31-V_M2M-GEMALTO-VERIZON_LR4.3.2.0-25421-UE4.3.2.0.kernel.ras  
t ELS31-V_M2M-GEMALTO-VERIZON_LR4.3.2.0-25421-UE4.3.2.0.squashfs  
192.168.15.1 !6#473MwC --gui --ffh
```

**Warning: Do not power cycle the modem or issue any AT commands at this point.**

**Note: If the upgrade process fails, close SFU.exe, verify that the command was typed correctly, power cycle the modem, and try again.**

## 2.9 Power Cycle and Verify Firmware Update

Once the update is complete, remove power from the NimbeLink Development Kit, close SFU.exe, and wait about thirty (30) seconds. Reapply power, and using your Terminal program, connect to the modem and send the following AT command to check the firmware:

### **ATI1**

Verify that the version is 4.3.2.0-25421

If it is not, retry this firmware upgrade process.

If the firmware update was successful, issue:

### **AT+CFUN=1**

to enable the cellular functionality.

# 3. NL-SW-LTE-GELS3-B, -C, -D Firmware Update

## 3.1 Overview

Updating a NL-SW-LTE-GELS3-B, -C, and -D is the same procedure apart from the file that you download. This section provides an overview of performing the update.

**Note: If you want to upgrade your NL-SW-LTE-GELS3-B firmware to the latest NL-SW-LTE-GELS3-D firmware, first follow this section to upgrade to firmware 29979, then repeat the procedure to upgrade to firmware 35577, and then repeat this section to upgrade to firmware 36343. If you do not complete the firmware upgrade in this manner, you may damage your modem.**

If you are unsure what modem firmware version you have, or have any questions about the upgrade process, please email:

[product.support@nimbelink.com](mailto:product.support@nimbelink.com)

before you attempt the upgrade.

**Note: If you encounter issues or if the update process fails, please consult Section 4: Troubleshooting.**

## 3.2 Connect the Skywire to your computer

Insert your Skywire modem in your Skywire Development Kit and connect apply power to the board. Hold the button labeled "ON BTN" for 1 to 2 seconds, and then wait 30 seconds for the modem to initialize.

Connect the Skywire Development Kit to your computer using a USB cable connected to Port J5 on the board.

## 3.3 Download the Update ZIP File - Firmware 29979

To update to Firmware 29979, download the file at the following link:

[http://nimbelink.com/Documentation/Skywire/4G\\_LTE\\_Cat\\_1/NL-SW-LTE-GELS3\\_Firmware\\_29979.zip](http://nimbelink.com/Documentation/Skywire/4G_LTE_Cat_1/NL-SW-LTE-GELS3_Firmware_29979.zip)

and unzip it to a known location (such as your Desktop).

Verify that you have the following files:

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-29979-UE4.3.2.0.usf

Gemalto\_LR4.3.2.0-29979-UE4.3.2.0.exe

gWinSwup\_v2.1.0.7.exe

sqn\_setup\_LR4.3.2.0-29979-UE4.3.2.0-host-only.exe

And the following directories:

USB Driver

glinswup

If you do not have all of the above files, please redownload the zip file, or contact us at [product.support@nimbelink.com](mailto:product.support@nimbelink.com).

### 3.4 Download the Update ZIP File - Firmware 35577

To update to Firmware 35577, download the file at the following link:

[http://nimbelink.com/Documentation/Skywire/4G\\_LTE\\_Cat\\_1/NL-SW-LTE-GELS3\\_Firmware\\_35577.zip](http://nimbelink.com/Documentation/Skywire/4G_LTE_Cat_1/NL-SW-LTE-GELS3_Firmware_35577.zip)

and unzip it to a known location (such as your Desktop).

Verify that you have the following files:

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-35577-UE4.3.3.0.usf

gWinSwup\_v2.1.0.7.exe

And the following directories:

USB Driver

glinswup

If you do not have all of the above files, please redownload the zip file, or contact us at [product.support@nimbelink.com](mailto:product.support@nimbelink.com).

### 3.5 Download the Update ZIP File - Firmware 36343

To update to Firmware 36343, download the file at the following link:

[http://nimbelink.com/Documentation/Skywire/4G\\_LTE\\_Cat\\_1/NL-SW-LTE-GELS3\\_Firmware\\_36343.zip](http://nimbelink.com/Documentation/Skywire/4G_LTE_Cat_1/NL-SW-LTE-GELS3_Firmware_36343.zip)

and unzip it to a known location (such as your Desktop).

Verify that you have the following files:

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-36343-UE4.3.3.0c.usf

gWinSwup\_v2.1.0.7.exe

And the following directories:

USB Driver

glinswup

If you do not have all of the above files, please redownload the zip file, or contact us at [product.support@nimbelink.com](mailto:product.support@nimbelink.com).

## 3.6 Install the Required Drivers

You may need to install the Windows 7 drivers for your Skywire modem. Open your Device Manager, and verify that you have two listings:

Under **Network adapters**:

```
GTOusbV Device #xxx
```

Under **Ports (COM & LPT)**:

```
Gemalto CDC/ACM USB COM Port (COMyy)
```

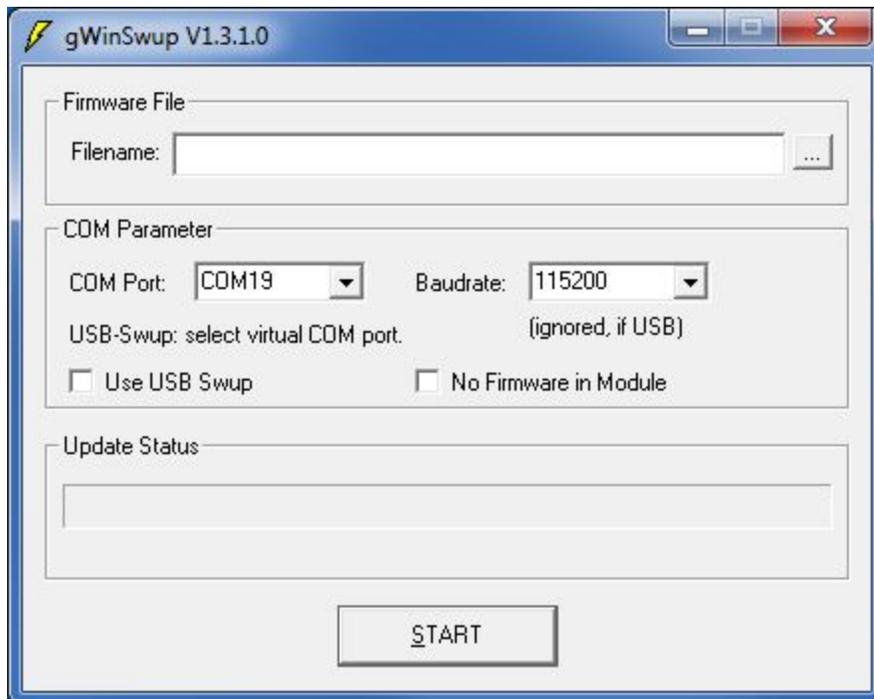
Where xxx and yy are specific numbers for you computer.

If you have these listings, continue to Section 3.7. If you do not have these two listings, you will have two listings under **Other Devices**. Right-click on each device, and click “Update Driver Software...”. Click “Browse my computer for driver software”, and then click “Browse...”. Navigate to the folder you downloaded the CAT1 Skywire Driver Update ZIP file to and select the “USB Driver” folder. Verify that the “Include subfolders” checkbox is checked, and click next. Windows will automatically find the driver and install it.

Reboot your Windows workstation when both drivers are installed.

## 3.7 Run the gWinSwup Executable

Double-click the `gWinSwup.exe` executable, and you will see a screen similar to this:



Note: you may have a newer version that what is shown above.

## 3.8 Configure Settings

Select the firmware file you want to upload to the modem by clicking the "..." button and selecting:

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-29979-UE4.3.2.0.usf

or

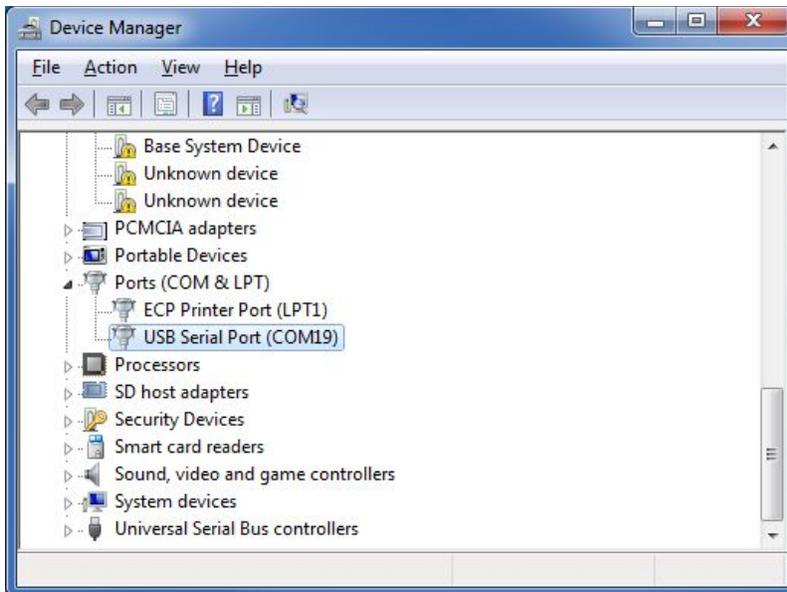
ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-35577-UE4.3.3.0.usf

or

ELS31-V\_M2M-GEMALTO-VERIZON\_LR4.3.3.0-36343-UE4.3.3.0c.usf

depending on the firmware you'd like to upgrade to.

Select the COM port that is being used for the Skywire modem. This port can be found by opening Device Manager and looking under the "Ports (COM & LPT)" section as shown below:

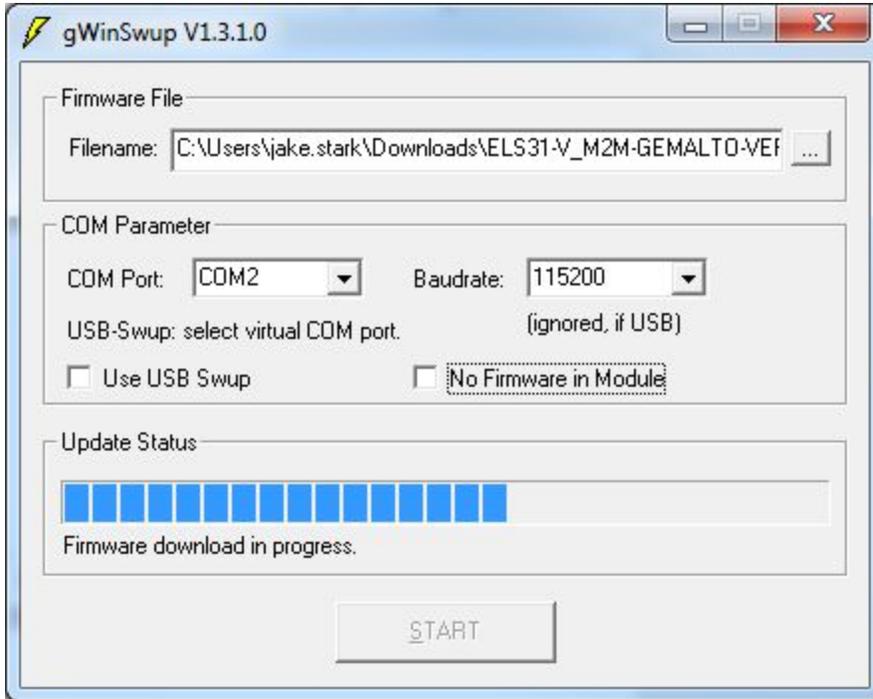


In this example, the modem is connected on COM19.

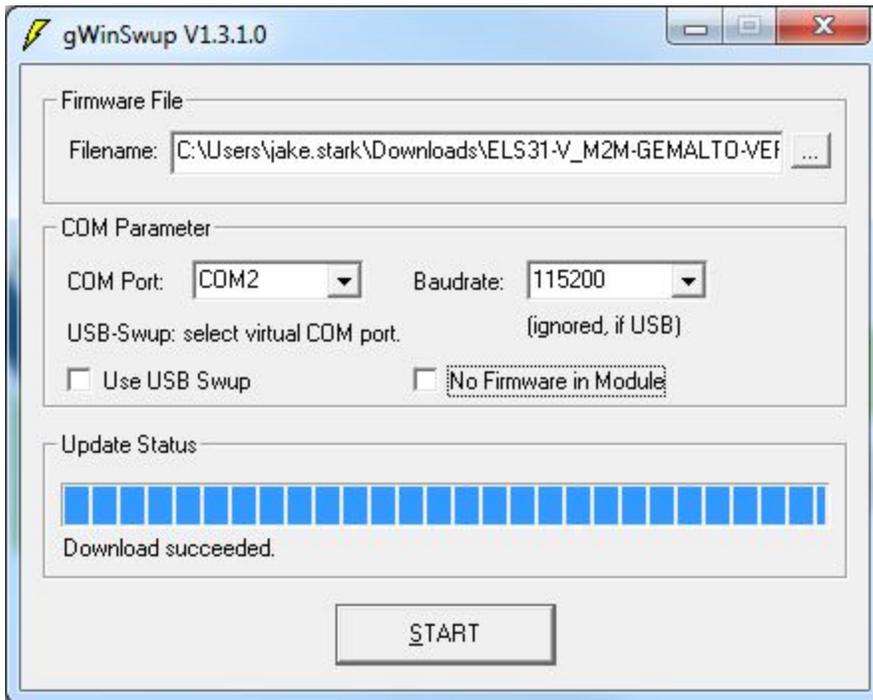
Finally, select the baud rate of your modem. The default is 115200, so if you haven't changed this setting on your modem you can leave this option as is.

### 3.9 Upload the Firmware

Click on the "START" button to begin the upload process. The process will take several minutes to complete.



You will see the progress bar fill as the firmware is updated.



Once the firmware is uploaded, gWinSwup will reboot the Skywire. Once rebooted, the uploader will show the "Download Succeeded" message. Close the gWinSwup utility, remove power and USB from the modem, and wait for 30 seconds to allow the modem to dissipate.

### 3.10 Verify the Firmware Version

Apply power and USB to the modem, press the ON\_BTN for 1-2 seconds, and wait 30 seconds for the modem to initialize. Once the modem has booted, you can verify the firmware version by querying the modem.

Open TeraTerm (or your preferred terminal program) and open a serial connection to the modem on the COM port being used.

Send the command:

**ATI1**

to the modem. Verify that the version is 4.3.3.0-29979, 4.3.3.0-35577, or 4.3.3.0-36343, depending on the firmware you'd like to upgrade to.

If it is not, retry this firmware upgrade process.

### 3.11 Enable Cellular Functionality

If the firmware update was successful, issue the command:

**AT^SCFG?**

and look for the line that contains:

**^SCFG: "MEopMode/CFUN", "x", "y"**

where "x" and "y" are either "0" or "1".

If "x" is set to "1", issue:

**AT^SCFG="MEopMode/CFUN","0"**

Issue:

**AT+CFUN=1,1**

to reboot the Skywire and enable the cellular functionality.

## 4. Troubleshooting

### 4.1 Update Fails

If the update fails when you run the program, perform the following process:

- Issue **AT^RESET** or **AT+CFUN=1,1** to reset the Skywire
- Wait for the modem to reset and you can issue AT commands again
- Restart the update process

**Note: If the update fails the Skywire must be reset, failing to reset the Skywire may permanently damage the Skywire.**

### 4.2 Firmware Update Completes but Querying Shows Old Firmware

When upgrading to firmware 35577, the update tool may report that the update was successful and the new firmware was applied. However upon querying the firmware version in the AT command interface, the GELS3 reports that it is still on the starting firmware.

Run the firmware update utility again, and the firmware should update on the second try.