

Skywire[®] 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-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	25421
NL-SW-LTE-GELS3-C	4.3.3.0	29632/29979

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 and NL-SW-LTE-GELS3-C

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 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 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

Note: Throughout this guide, firmware versions are referred to as

2xxxx.

At each step throughout the process, replace this with the firmware version you are trying to update to. For instance, if you are updating a NL-SW-LTE-GELS3 to NL-SW-LTE-GELS3-B firmware, replace:

2xxxx

with

25421.

If you are using the following Skywire:

NL-SW-LTE-GELS3

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

Follow the procedure outlined in Section 3: NL-SW-LTE-GELS3-B & -C Firmware Update.

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.

Note: If you want to upgrade your NL-SW-LTE-GELS3 firmware to NL-SW-LTE-GELS3-C 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-C firmware.

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

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.

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 2.3. 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 based on your modem's version from Step 2.6:

If your Skywire modem has version 4.3.2.0-23617 or later, issue:

```
sfu.exe bootrom 192.168.15 !6#473MwC --gui --bootrom-failsafe  
--ffh --usb-id 1e2d 00a0
```

Otherwise, issue:

```
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.

If your Skywire modem has version 4.3.2.0-23617 or later, 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
```

Otherwise, 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:

AT+I1

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 Firmware Update

3.1 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.

3.2 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_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_v2.1.0.5.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.

3.3 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)

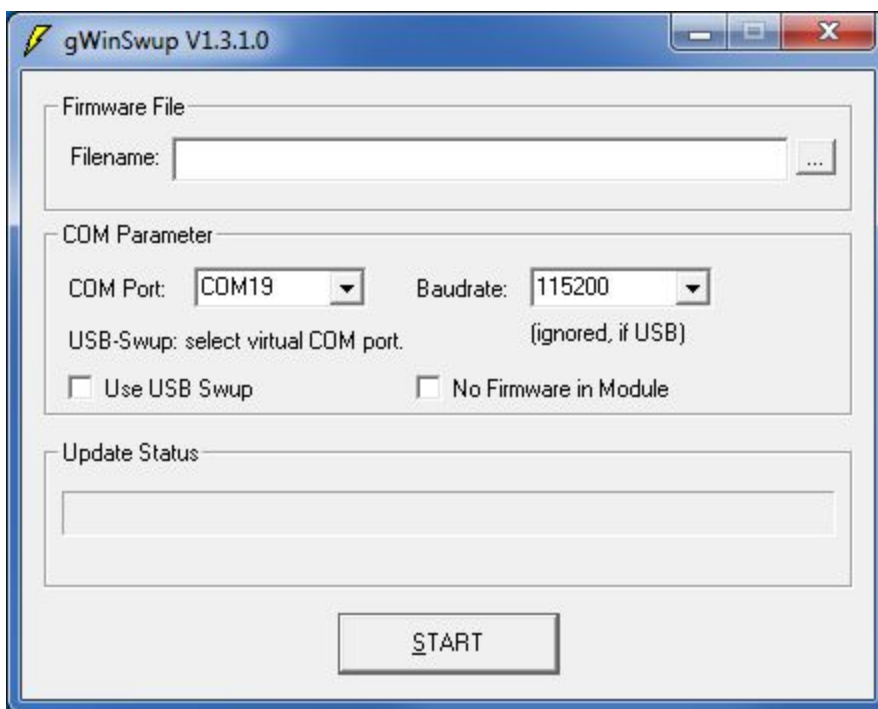
Where xxx and yy are specific numbers for you computer.

If you have these listings, continue to Section 2.3. 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.

3.4 Run the gWinSwup Executable

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



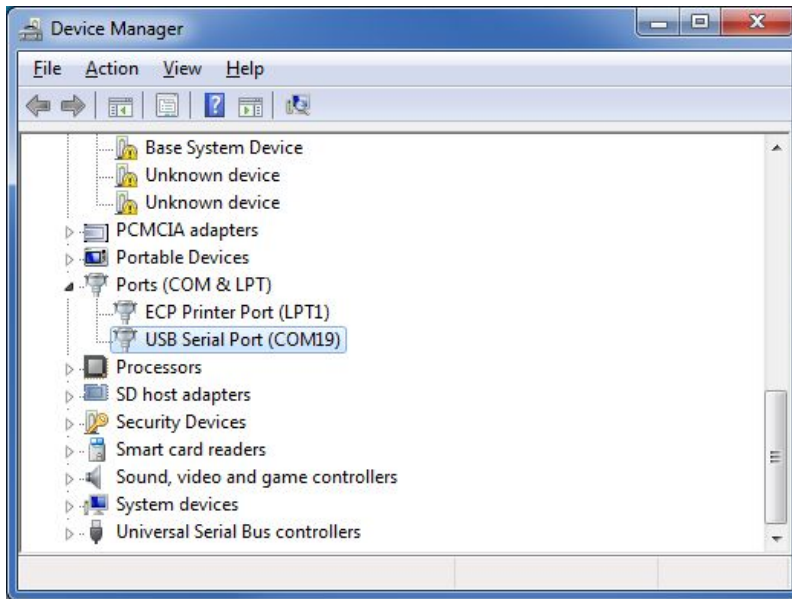
Note: you may have a newer version that what is shown above.

3.5 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
```

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:

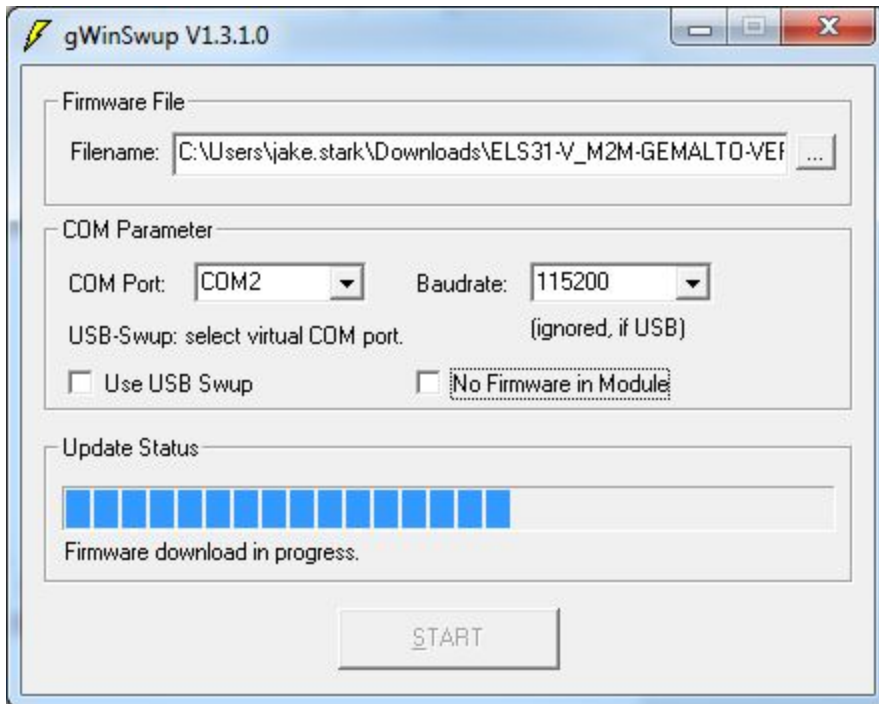


In this example, the modem is connected on COM19.

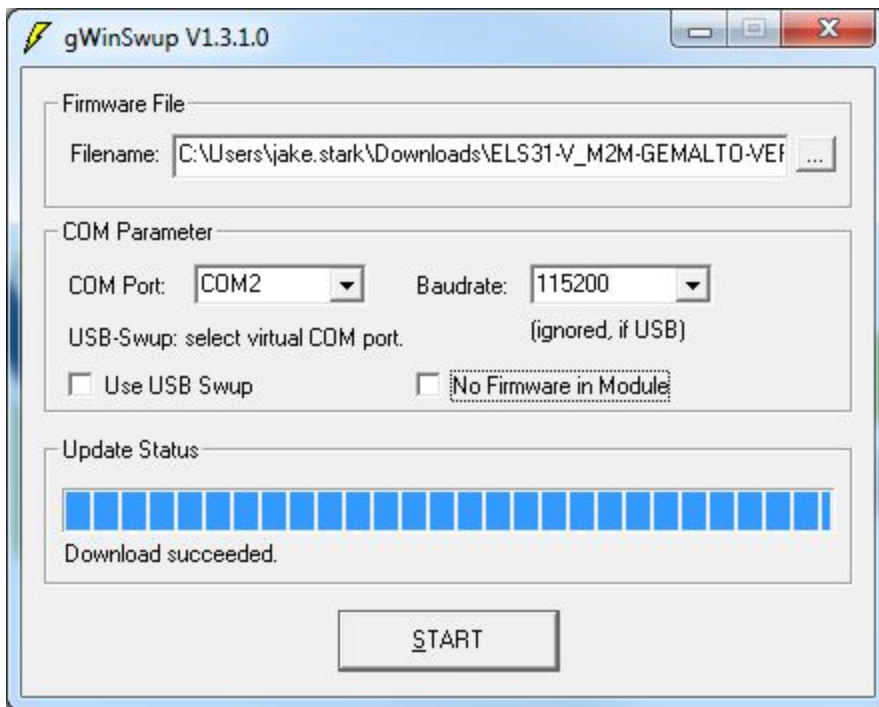
Finally, select the baud rate of your modem. The default is 115200, so if you haven't changed this setting on your modem you can leave this option as is.

3.6 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.

3.7 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 you 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.

If it is not, retry this firmware upgrade process.

3.8 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"

AT+CFUN=1

to enable the cellular functionality.