

How to upgrade Geophex GEM-System

This document describes how to update GEM console firmware, android phone GEMex app, and GEMExport for the GEM2 7 series which includes all 700s, 7000s, and High-Power units.

GEMExport:

Windows application. Installation is provided in "GemExport Installation" folder. Runs setup.exe or double click on Gem2Exporter.msi Windows File Manager.

Android phone AGEMex app:

- Application image is located in "AGEMex Installation" folder under the name "ACGEMex-full_vXXXc.apk". There are few options to copy the apk file to the phone. You may consider googling some other way. Here are some:
 1. Copy the .apk file to a micro sd card and insert into phone.
 2. Establish a USB connection to phone and download/upload installation .apk file
 3. Connect the phone to wifi and use the onboard browser to go to the Geophex website and download the file that way
- From where you downloaded the apk file in android, such as the Downloads folder, run the installation. You will be prompted to allow installation from non-app store location. Allow and continue. Follow the remainder of android's recommendations

GEM-console/Firmware update:

This is the critical part of the update procedure for Geophex GEM2 and GEM2H series of instruments. Follow these instructions closely. Procedure is semi-automated but requires providing some basic keying decisions.

1. Copy "FWUpdater.zip" and extract it to an external memory stick or WindowsPC folder, e.g. "C:\tmp\gemupdate or anywhere you have edit access using "File Explorer".
2. Connect console via serial cable to your PC (you need either a USB-RS232 adapter or you can use a built-in RS232 DB-9 connector on your Windows PC).
3. Find out COM-number of your connected DB-9 port provided by Windows if you can.
4. Power on GEM

```
C:\WINDOWS\system32\cmd. X + v
.....
Steps for updating GEM2/GEM2H Firmware
.....
1 - Connect GEM using DB9-serial cable to PC
2 - Findout Windows COM port number associated with PC PORT
3 - Power on GEM
4 - enter port number when asked / follow instructions
5 - continue
.....
Press any key to continue . . .
Updater Ver:32.03
WcGemDll Ver: WGEMLIB.1.4 [built: Oct 14 2025, 15:26:09]

COM-number: For Available/Installed ports
  5      : For COM5-Prolific USB-to-Serial Comm Port
 10     : For COM10-USB-SERIAL CH340
  4     : For COM4-USB Serial Port
Enter a COM-number to connect to: 5
```

- From “FWUpdater-230101.XX”, run “RunUpdater.bat” (by double clicking) following the utility instructions to enter COM-number. If you do not know which COM number, the program will error and exit. You can run the updater again to try another COM number.

```
Enter a COM-number to connect to: 5
GPSCOM-ERR(1):Initialize - port
>:Searching for available GEM..
Found ID: 1
Current (old) firmware version for Sensor ID1 : ARMEN.230101.38
homedir:

Press X to exit...
Press F to update firmware...
```

- Press F to start the update. If update went OK the screen will look like the next picture. If it does not, go to step 8.

```
Press X to exit...
Press F to update firmware...

Loading GemFW_ti.ARMEN.img ...

Updating Finished OK.
Powering down GEM and Exiting...
All Done.
Press any key to continue . . .
```

- Unplug the console from the PC and cycle power on the unit. Make sure that your phone is Bluetooth paired with your GEM before starting GEMex app. Congratulations, you are done. Skip all further steps.

```

Enter a COM-number to connect to:
5
GPSCOM-ERR(1):Initialize - port
>:Searching for available GEM..
In Booting mode!
homedir:

!! NOTE: GEM is in Flashing Mode!!
choose X - to exit, then repower GEM and restart app..
choose R - To start reflashing (keeping settings)
choose N - To flash a New board (!!board reformat!!)

```

8. If step 6 gives you response as shown in the picture, the flash memory is likely corrupt, and you will need to re-flash the system. You will need to load the original settings which came on the flash drive with your system in a folder named "G2-000-7xxx". Copy this folder to the directory of the firmware update software. If you do not have this folder or if you would like help with the steps below - contact Geophex technical support.
9. Press R and follow the instructions for uploading GEM2 or GEM2H.
10. Once re-flashing is finished the GEM will be set with only one 990Hz frequency. You will need to upload factory configurations. Run the firmware update software again. This time it will give you options 'L' for Loading Settings. Press L.

```

Enter a COM-number to connect to: 8
>:Searching for available GEM..
Found ID: 1
Current (old) firware version for Sensor ID1 : ARMEN.230101.38
homedir:

Press X to exit...
Press F to update firmware...

Enter factory settings folder-name supplied: (eg.G2-000-7087, GH-000-016L):

```

11. Type in the name of the folder you copied in step 8 that contains the original settings for your GEM. In the pictured example, G2-596-773.

```

>:Searching for available GEM..
Found ID: 1
Current (old) firware version for Sensor ID1 : ARMEN.230101.38
homedir:

Press X to exit...
Press F to update firmware...

Enter factory settings folder-name supplied: (eg.G2-000-7087, GH-000-016L):
G2-596-773
Updating GEM from file:G2-596-773\G773-calfac.txt
Updating GEM from file:G2-596-773\G773-cal.txt
Updating GEM from file:G2-596-773\G773-alt.txt
Updating GEM from file:G2-596-773\G773-fact1.txt
Updating GEM from file:G2-596-773\G773-fact2.txt
Updating GEM from file:G2-596-773\G773-fact.txt
Updating GEM from file:G2-596-773\G773-def.txt

Press X to exit...
Press F to update firmware...

Press any key to continue . . . |

```

12. The software will automatically update the system configurations back to the original settings for your GEM. Unplug the console from the PC and cycle power on the unit. Make sure that your phone is Bluetooth paired with your GEM before starting GEMex app. Congratulations, you are done.