

# Procedure for flashing the firmware in ELGI Gateway

## Prerequisites:

1. Elgi Gateway and antenna
2. Sierra SIM
3. SMPS (5V DC O/P)
4. Micro USB type B Cable
5. RS485 cables
6. Connection wires

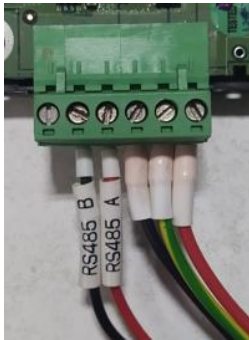
## Wiring:

- A 5 Volt DC output SMPS is required to power the ELGI Gateway. Images illustrating the connections of the SMPS and Gateway wires are provided below for your reference.



- **230 Volt SMPS input wires**
  1. Blue – Neutral
  2. Red – Line
- **5 Volt SMPS Output Wires**
  1. Red – Positive
  2. Black – Negative

- **ELGI Gateway input connections image**



1. Red – Positive wire (+5V dc)
  2. Green with Yellow – Earth wire
  3. Black – Negative wire (0V dc)
  4. Red – RS485 A (optional)
  5. Black – RS485 B (optional)
- The red (positive) wire of the Gateway input should be connected to the positive terminal (+ve) of the SMPS, and the black (negative) wire should be connected to the negative terminal (-ve) of the SMPS.

### Required Software's:

1. Sierra Wireless driver is required to connect to Sierra Gateway. The installation file is available with Product Excellence and Innovation team. Please contact us for any support.

Source files Link – [source.sierrawireless.com/resources/legato/drivers-for-wp75xx\\_wp76xx\\_wp8548-series-modules---latest-release/#sthash.nRFBYld.dpbs](http://source.sierrawireless.com/resources/legato/drivers-for-wp75xx_wp76xx_wp8548-series-modules---latest-release/#sthash.nRFBYld.dpbs)  
 Alternate link - [Gateway Generic driver.zip](#)

2. Putty.exe must be installed in the PC/laptop. This can be downloaded latest version and installed from the below link current version is 0.81.

Link – <https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>

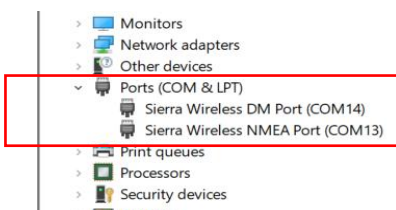
3. Flashing software and resource files named swiflash.zip must be collected from Product Excellence and Innovation team.

Link - [Swiflash 1.zip](#)

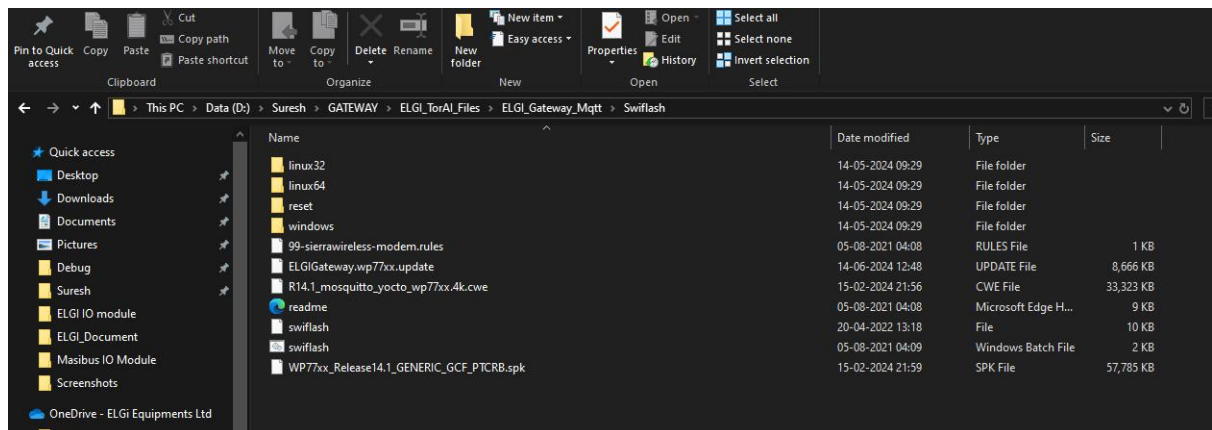
4. The user required a Micro USB type B cable to connect between ELGi Gateway and PC/laptop.
5. You may require IT support to install above tools.

### Updating Process:

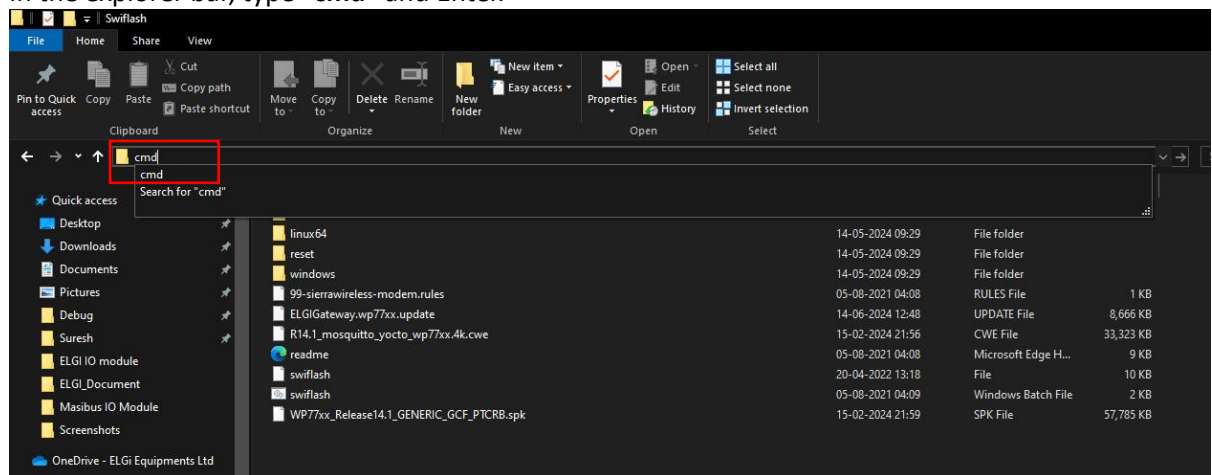
Before starting ensure gateway is powered ON and micro USB type B cable connected between PC and gateway. Check Sierra comm port detected or not from system device manager.



1. Download the file from the one drive and Unzip the file swiflash\_1.zip to the preferred local location.
2. Open the unzipped folder location in the windows explorer. The content of the folder is given below:



3. In the explorer bar, type “cmd” and Enter.



4. A command terminal will open in the specific location path as below:

```
Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4412]
(c) Microsoft Corporation. All rights reserved.

D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>
```

5. Issue the below command to install the firmware file  
**swiflash -m "wp77xx" -i WP77xx\_Release14.1\_GENERIC\_GCF\_PTCRB.spk**

```
Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4412]
(c) Microsoft Corporation. All rights reserved.

D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>swiflash -m "wp77xx" -i WP77xx_Release14.1_GENERIC_GCF_PTCRB.spk
```

6. You will see the below screen once it is flashed. **Press Enter to continue.**

```
D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash\WINDOWS\fdt2.exe
FDT version: 1.0.1902.1
Awaiting suitable port or adapter ...
Switching to boot & hold mode ...
Disabling selective suspend ...
Awaiting download port ...
Switching to streaming mode ...
Downloading images ...
Writing image |
Flashing image |
Awaiting adapter ...
Checking update status ...
Enabling selective suspend ...
Firmware image download succeeded.
Final Firmware update succeeded.

Preexisting images information:
    Current:
        Firmware:
            ImageId: 001.071_001
            BuildId: 02.36.06.00_GENERIC
        Configuration:
            ImageId: 001.071_001
            BuildId: 02.36.06.00_GENERIC
Final images information:
    Current:
        Firmware:
            ImageId: 001.071_001
            BuildId: 02.36.06.00_GENERIC
        Configuration:
            ImageId: 001.071_001
            BuildId: 02.36.06.00_GENERIC

OEM PRI: 9908741 002.001

IMEI: 352653091039271

Total time elapsed: 121656 ms.

Time to switch to boot mode: 26828 ms.

Images downloaded:
    Image ID: 001.071_001
    Build ID: 02.36.06.00_GENERIC
        write time: 22469 ms
        additional flash time: 17703 ms

Time to reset to application mode: 51000 ms.

Press Enter to continue ...
```

7. Issue the below command to install the Linux file  
**swiflash -m "wp77xx" -i R14.1\_mosquitto\_yocto\_wp77xx.4k.cwe**

```
Administrator: C:\Windows\System32\cmd.exe
(c) Microsoft Corporation. All rights reserved.

D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>swiflash -m "wp77xx" -i WP77xx_Release14.1_GENERIC_GCF_PTCRB.spk
Checking image: WP77xx_Release14.1_GENERIC_GCF_PTCRB.spk

D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>swiflash -m "wp77xx" -i R14.1_mosquitto_yocto_wp77xx.4k.cwe
```

8. You will see a screen as in step 6, once it gets flashed. Press Enter to continue.
9. Open the file from **C:\Users\"username"\.ssh\known\_hosts** with notepad and Delete the content of file in the and save it. Example In my pc, my username is kalimuthu.
10. Copy the update program into gateway using the below command.

**scp ELGIGateway.wp77xx.update root@192.168.2.2:/home/root/**

```
D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>scp ELGIGateway.wp77xx.update root@192.168.2.2:/home/root/
```

If above command has problem means use the below command

**scp -O -o HostKeyAlgorithms=+ssh-rsa ELGIGateway.wp77xx.update root@192.168.2.2:/home/root/**

If the files are not deleted in the step 9, it may throw a warning as below. After deletion of content, it will continue and ask yes or no as shown below. By typing "yes" and press enter it will proceed to copy the file.

```
Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4412]
(c) Microsoft Corporation. All rights reserved.

D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>scp ELGIGateway.wp77xx.update root@192.168.2.2:/home/root/

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@    WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!                                @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle attack)!
It is also possible that a host key has just been changed.
The fingerprint for the RSA key sent by the remote host is
SHA256:Dv8lj5g71aL30x/BLZm7x/WGYlVgpliwmCMBGhA8ff8.
Please contact your system administrator.
Add correct host key in C:\Users\sureshkumarv/.ssh/known_hosts to get rid of this message.
Offending RSA key in C:\Users\sureshkumarv/.ssh/known_hosts:1
RSA host key for 192.168.2.2 has changed and you have requested strict checking.
Host key verification failed.
lost connection

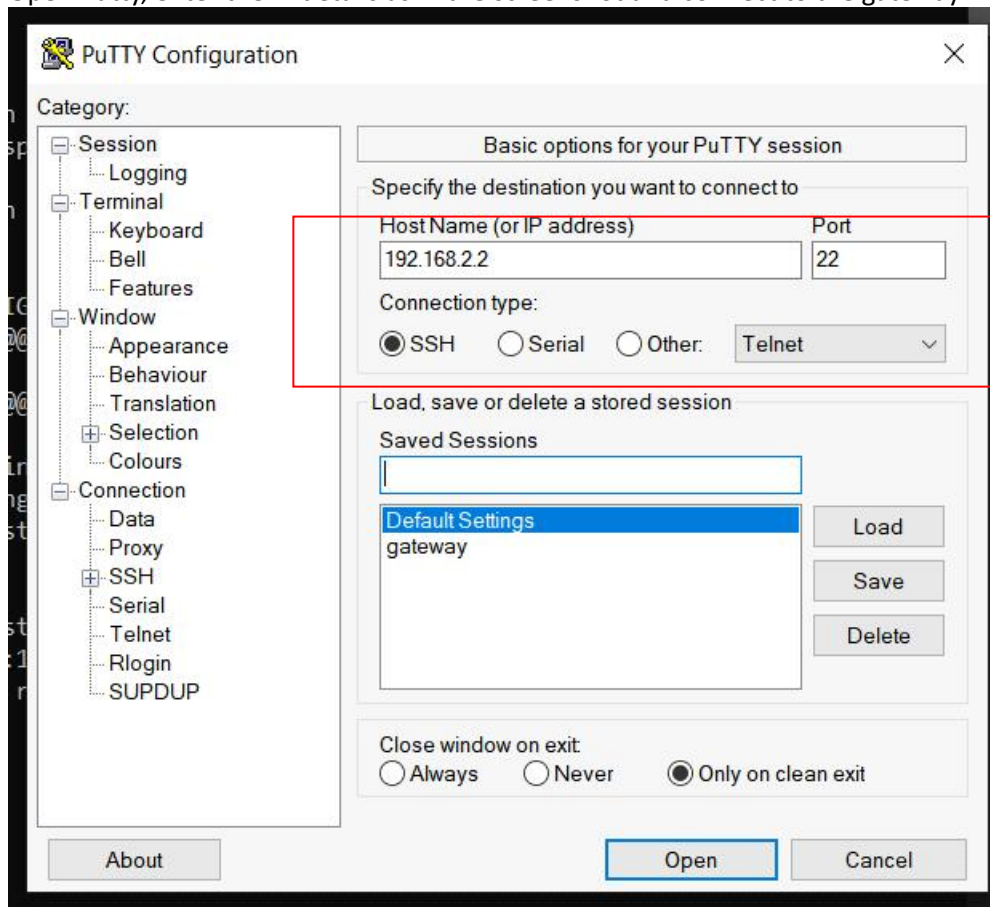
D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>scp ELGIGateway.wp77xx.update root@192.168.2.2:/home/root/

The authenticity of host '192.168.2.2 (192.168.2.2)' can't be established.
RSA key fingerprint is SHA256:Dv8lj5g71aL30x/BLZm7x/WGYlVgpliwmCMBGhA8ff8.
Are you sure you want to continue connecting (yes/no/[fingerprint])?
Warning: Permanently added '192.168.2.2' (RSA) to the list of known hosts.
ELGIGateway.wp77xx.update                                     100% 8666KB   1.1MB/s   00:07

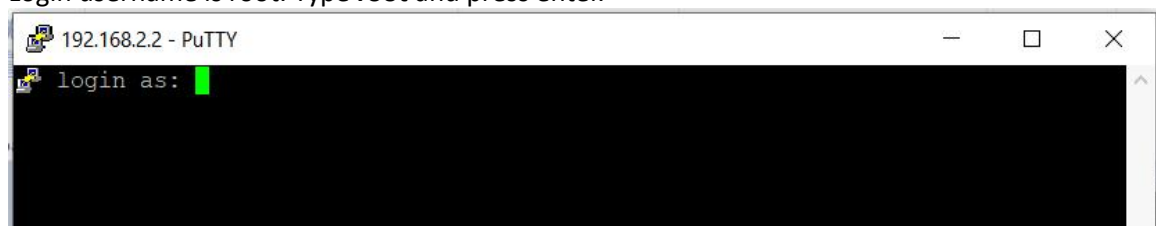
D:\Suresh\GATEWAY\ELGI_TorAI_Files\ELGI_Gateway_Mqtt\Swiflash>
```



11. Open Putty, enter the IP details as in the screenshot and connect to the gateway.



12. Login username is root. Type **root** and press enter.



13. If asks for option 1 and 2. press “ctrl+C” button. At last it will land in the screen as below. You can check the contents by issuing command as below:

**ls -l**

192.168.2.2 - PuTTY

```
login as: root
root@swi-mdm9x28-wp:~# ls -l
drwxr-xr-x  2 root  root           792 Jan  6  1980 ConfigFiles
-rw-r--r--  1 root  root          1354 Jul 23  2020 DisableUsbSleep.sh
-rw-r--r--  1 root  root      8873542 Jun 17 19:03 ELGIGateway.wp77xx.update
te
drwxr-xr-x  2 root  root           160 May 28 11:16 FirmwareDownload
drwx----- 2 root  root           320 May 24 15:26 MessageStore
drwxr-xr-x  2 root  root           304 Jun 17 18:35 ModbusConfigurator
-rw-r--r--  1 root  root       319852 May 10 14:44 V2.1_devicelog.log
-rw-----  1 root  root      1443956 Jun 17 19:21 agent.log
-rw-----  1 root  root     2000066 Jun 17 18:05 agent1.log
-rw-----  1 root  root     2000098 Jun 17 06:17 agent10.log
-rw-----  1 root  root     2000014 Jun 17 04:59 agent11.log
-rw-----  1 root  root     2000027 Jun 17 03:41 agent12.log
-rw-----  1 root  root     2000080 Jun 17 02:23 agent13.log
-rw-----  1 root  root     2000021 Jun 17 01:04 agent14.log
-rw-----  1 root  root     2000016 Jun 17 16:47 agent2.log
-rw-----  1 root  root     2000091 Jun 17 15:29 agent3.log
-rw-----  1 root  root     2000005 Jun 17 14:05 agent4.log
-rw-----  1 root  root     2000065 Jun 17 12:47 agent5.log
-rw-----  1 root  root     2000016 Jun 17 11:29 agent6.log
-rw-----  1 root  root     2000014 Jun 17 10:11 agent7.log
-rw-----  1 root  root     2000070 Jun 17 08:53 agent8.log
-rw-----  1 root  root     2000028 Jun 17 07:35 agent9.log
-rw-r--r--  1 root  root         200 Feb 20  2023 apn_update.sh
drwx----- 2 root  root           160 Jan  6  1980 data_logs
-rw-r--r--  1 root  root     1376235 Mar 24  2023 devMode.wp77xx.update
-rw-----  1 root  root         16 Jun 17 19:20 deviceIMEI.txt
-rw-----  1 root  root         85 May 28 12:52 httpsFotaURL.txt
drwx----- 2 root  root           264 May 28 12:52 staging
-rw-r--r--  1 root  root     2600876 May 10 15:06 v2.1_devicelog.log
root@swi-mdm9x28-wp:~#
```

14. Use the below command to update the program. This command must be executed in the gateway.  
**update ELGIGateway.wp77xx.update**

```
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
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Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Unpacking package: 100% ++++++  
Applying update:      0%  
***Error: Internal error during update. See log for details.  
FAILED
```

15. If status is "failure" repeat the above step 14 again until success

```
root@swi-mdm9x28-wp:~# update ELGIGateway.wp77xx.update
Unpacking package: 100% ++++++
Applying update: 100% ++++++
SUCCESS
root@swi-mdm9x28-wp:~#
```

16. Use below command for mqtt update verification. It will show the version number of mosquitto.  
**mosquitto**

```
root@swi-mdm9x28-wp:~# mosquitto
1718682579: mosquitto version 1.4.14 (build date 2024-02-15 16:24:46+0000) starting
1718682579: Using default config.
1718682579: Opening ipv6 listen socket on port 1883.
1718682579: Opening ipv4 listen socket on port 1883.
1718682579: Error: Invalid user 'mosquitto'.
root@swi-mdm9x28-wp:~#
```



17. Use `cm data` command to check the connection is establishment. If connection established, it would show the current dynamic IP addresses. Ensure that SIM card inserted and Antenna connected, to have a network connection.

**cm data**

```
root@swi-mdm9x28-wp:~# cm data
Index:                1
APN:                  lp.swir
PDP Type:             IPV4V6
Connected:            yes
Interface:            rmnet_data0
Family[IPv4]:         inet
IP[IPv4]:             100.79.45.227
Gateway[IPv4]:        100.79.45.228
Dns1[IPv4]:           8.8.8.8
Dns2[IPv4]:           4.2.2.2
root@swi-mdm9x28-wp:~#
```

18. If the above data connection not worked for more than 30 mins after step-15, follow the below command.

**cm radio off**

```
192.168.2.2 - PuTTY
login as: root
root@swi-mdm9x28-wp:~# cm radio off
root@swi-mdm9x28-wp:~#
```

Then put below command,

**cm radio rat GSM**

```
root@swi-mdm9x28-wp:~# cm radio rat GSM
root@swi-mdm9x28-wp:~#
```

Then Enable the radio again by below command.

**cm radio on**

After 3 minutes delay, try step-17 to check the data connection established or not.