Digi Transport® WR11, WR21, and WR31 Telit Modem Firmware Update - Verizon

Update Guide

Revision history—90002340

Revision	Date	Description
A	February 2019	Initial release.
B	February 2019	Additional edits.

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Contents

Verizon network changes: Digi Transport WR11, WR21, and WR31

This document describes how to update cellular modem firmware to comply with Verizon network changes occurring on March 30th, 2019.

It applies to Digi TransPort routers containing one of these LTE modems:

- Telit LE910-NAv2 (single SKU, AT&T and Verizon)

- Telit LE910-NA1 (single SKU, AT&T and Verizon)

The affected and correct firmware versions are as follows:

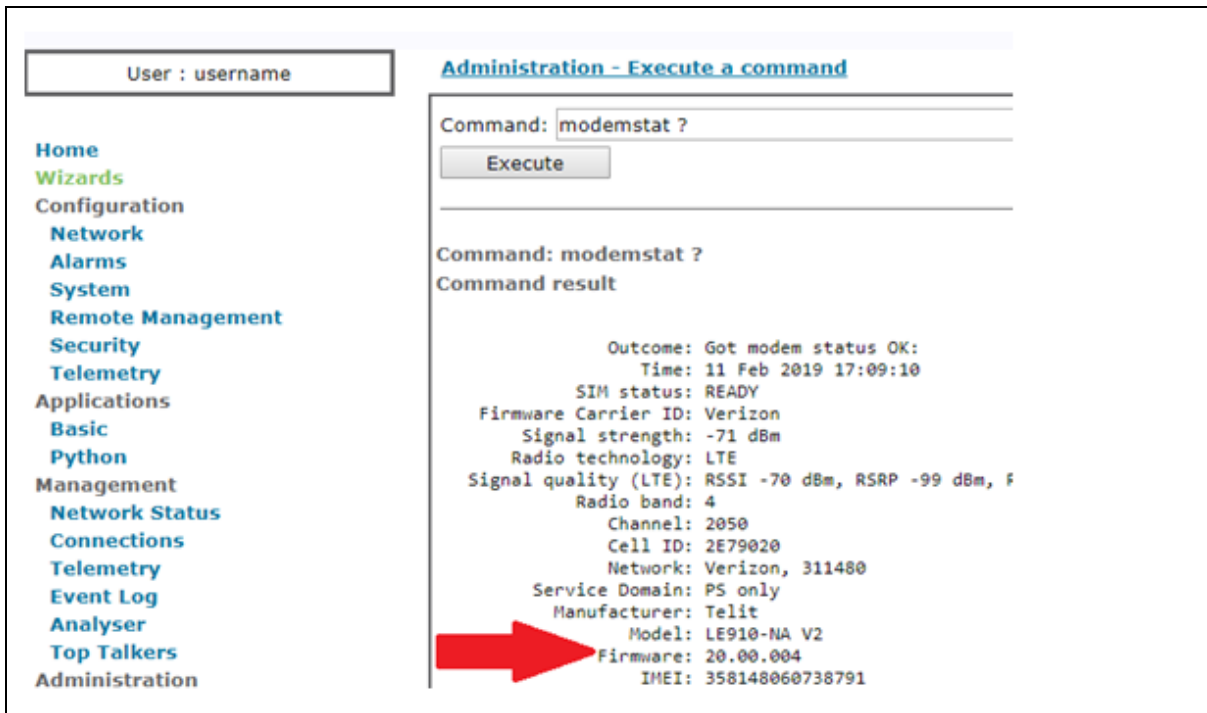| Device	SKU	Affected Modem Firmware	Good Modem Firmware
Digi TransPort WR11	WR11-M6xx-xxx-xx	20.00.014 / 20.00.524	20.00.015 / 20.00.525
Digi TransPort WR21	WR21-M5xx-xxx-xx	20.00.004 / 20.00.504	20.00.005 / 20.00.505
Digi TransPort WR31	WR31-M5xx-xxx-xx	20.00.004 / 20.00.504	20.00.005 / 20.00.505

Determine if an update is needed

Within the Web User Interface (WebUI), navigate to A**dministration - Execute a command**, and issue the modem status command: ***modemstat ?***

Note All WebUI Administrative commands can be issued at the Command Line Interface (CLI) using SSH, Telnet, or serial.

Within the results, the modem firmware version will be listed next to "Firmware:". If this data shows 20.00.**4 or lower, then the modem needs to be updated.

Refer to the image below as a reference:

Update the Modem Firmware

Prerequisites

The following is required to complete this update:

- TransPort device firmware (SarOS) must be running 6.1.3.8 or later, but it is strongly recommended that the device is running 7.0.0.6 or later.

- 50 MB of free storage required by the cellular modem firmware file. If storage is low, contact Tech support for guidance on freeing space on your router.

- To allow the appropriate files to be placed onto the device, the local FTP server must be enabled on the TransPort for all methods that do not involve using Digi Remote Manager for the upgrade: LAN or WAN.

- All upgrade methods will need the *applyAPN.py* Python file as part of the upgrade.

- Record the APN of the SIM card. If you do not know the APN, you can obtain it by running *modemstat ?* command from a command line interface. The APN value is in the **APN is use** field.

To determine how much space is available on our router:

1. Within the WebUI, navigate to **Administration - Execute a command**.

2. Issue the directory command: *dir*

   The last line shows the number of Flash Free bytes.

Best practices

When upgrading your cellular module, any momentary loss of power or event that causes the router or modem to reset can result in an unrecoverable router. The following should be considered when performing the update:

- Do not remove power during the modem firmware update process.

- Terminate any operation that may interfere with the modem firmware update process, including:
  - Python applications that programmatically control the cellular modem, for example to reset the modem, to do fail-over or to enable/disable the modem based on custom logic.
  - SureLink recovery mechanisms (i.e., link_retries, check_reg, rebootfails) or dual SIM failover features.
  - Router recovery mechanisms, like the cloud watchdog feature (cloud 0 watchdog).

Where to find the updated modem firmware

Using the Public Support site method

You can find the updated modem firmware by using the Public Support site method of upgrading firmware, which means you have direct access to **ftp1.digi.com**.

If your router has access to the Digi public support site (ftp1.digi.com), the update can be done using a single command.

You can test whether you have access to the Digi Public Support site.

1. Within the WebUI, navigate to **Administration - Execute a command**.

2. Initiate the ping command: ***ping ftp1.digi.com***

3. If you can resolve and connect to **ftp1.digi.com**, the ping command will return immediately and show 100 % success.

Not using the Public Support site method

If you are not using the Public Support site method, the updated modem firmware can be found in the locations specified below:

Modem: M6 (LE910- NA1)

Size: 4866 0348

all.bin MD5 checksum: 322C4F0A12C107D72C82114927600599

Location: http://ftp1.digi.com/support/firmware/transport/LE910NA1_carrier_firmware/all.bin

Modem: M5 (LE910 NA-V2)

Size: 4866 2956

all.bin MD5 checksum: 38B4470F298A7A8EE1698FD21FB8C781

Location: http://ftp1.digi.com/support/firmware/transport/LE910NA_V2_carrier_firmware/all.bin

Python: applyAPN.py

Location: ftp://ftp1.digi.com/support/telit/83000128-01.zip

Note All upgrade methods will need the *applyAPN.py* Python file as part of the upgrade.

Updating the modem firmware on your router

There are three methods shown below that can be used to download modem firmware and update your router:

- Method 1: Update the modem firmware using Digi Remote Manager

- Method 2: Update the modem firmware using your WAN connection

- Method 3: Update the modem firmware using a local LAN connection

- Method 4: Update the modem firmware using a USB flash drive

After you have updated the modem firmware, verify that the update was successful.

Note Downloading the firmware over a cellular connection (method 1 and method 2) will result in roughly 50 MB of data use on your cellular data plan.

Method 1: Update the modem firmware using Digi Remote Manager

Step 1: Download the updated modem firmware

If your router has access to Digi's public support site

For a single device

1. Download the *applyAPN.py* Python script from the Digi FTP site.

2. Unzip the downloaded file, and edit the *applyAPN.py* file with the correct APN for your Verizon plan. The area to edit is shown in the example below:

```
 1   #!/usr/bin/python
 2   #
 3   # Watches the eventlog of a Transport router
 4
 5   import sarcli
 6
 7   # Callback function that handles each line from the retrieved file.
 8   # Returns False if checkline() criteria is met, otherwise True
 9   # Non blank lines are appended to lines
10   #
11
12   #Add your APN here:
13   userDesired_APN = "APN_GOES_HERE"   ⟵
14
```

3. Save the changes to the *applyAPN.py* script.

4. Within Digi Remote Manager, navigate to **Device Management > Schedules**.

5. Double-click on the desired device to open the **Properties** screen.

6. In the **Properties** screen, click **Administration > File Managment**, and then click **Upload** to place the *applyAPN.py* file on to the router.

7. Navigate to **Administration > Execute a command**, and start the Python script by issuing the command: ***python applyAPN.py***

8. Click **Execute a command** to initiate the download process using the command: ***carrier all - ftp***

For multiple devices

1. Download the *applyAPN.py* Python script from the Digi FTP site.

2. Unzip the downloaded file, and edit the *applyAPN.py* file with the correct APN for your Verizon plan. The area to edit is shown in the example below:

```
1   #!/usr/bin/python
2   #
3   # Watches the eventlog of a Transport router
4
5   import sarcli
6
7   # Callback function that handles each line from the retrieved file.
8   # Returns False if checkline() criteria is met, otherwise True
9   # Non blank lines are appended to lines
10  #
11
12  #Add your APN here:
13  userDesired_APN = "APN_GOES_HERE"
14
```

3. Save the changes to the *applyAPN.py* script.

4. Within Digi Remote Manager, navigate to **Device Management > Schedules**.

5. Click **New Schedule**.

6. Click **Upload Files** and then click **Browse**. Navigate to the *applyAPN.py* file on your hard drive.

7. Click **Command Line Interface**, and type the command: *python applyAPN.py*

8. Click **Command Line Interface**, and type the command: *carrier all -ftp*

9. De-select the **Allow Offline** option for all three items added above.

    Use the image below as a reference:

    Note The task can also be saved using the **Save As** option at the bottom. This allows the task to be run again without having to build the task each time.

10. Enter a description in the **Description** field.

11. Click **Schedule >>**.

12. On the **Scheduler** page, choose the **Devices**, **Tags**, or **Groups** to run the update process task for your selection.

> **Note** The TransPort devices must all be of the same type when using this method, for example, all devices must be WR21s. If the devices are not of the same type and the task is run on them, it is likely the Digi device will become inoperable after the task completes.

13. Click **Run Now** to start the process for the selected devices.

> **Note** The **Operations** tab may show the update process task has completed, but the devices may not have completed the task. Verification that the update task process has completed on the devices occurs in Step 3, below.

If your router does not have access to Digi's public support site

1. Download the *applyAPN.py* Python script from the Digi FTP site.

2. Download the *all.bin* file for the radio in your device.

3. Unzip the downloaded file, and edit the *applyAPN.py* file with the correct APN for your Verizon plan. The area to edit is shown in the example below:

```
1   #!/usr/bin/python
2   #
3   # Watches the eventlog of a Transport router
4
5   import sarcli
6
7   # Callback function that handles each line from the retrieved file.
8   # Returns False if checkline() criteria is met, otherwise True
9   # Non blank lines are appended to lines
10  #
11
12  #Add your APN here:
13  userDesired_APN = "APN_GOES_HERE"
14
```

4. Save the changes to the *applyAPN.py* script.

5. Within Digi Remote Manager, navigate to **Device Management > Devices**.

6. Double-click on the desired device to open the **Properties** screen.

7. In **Properties** screen, click **Administration > File Management** and then click the **Upload** icon to place the *all.bin* file on to the router.

8. On the same **File Management** page, click the **Upload** icon to place the *applyAPN.py* file onto the router.

9. Navigate to **Administration > Execute a command**, and start the Python script with the command: ***python applyAPN.py***

10. Use **Execute a command** to initiate the download process using the command: ***carrier all***

Step 2: Download begins

If your Remote Manager WAN connection is through cellular (PPP 1), you will lose connectivity to the router for 5-10 minutes while the firmware gets written to the modem. The modem will reconnect when complete.

Note When using Remote Manager for the update, keep the cloud watchdog active. The default Remote Manager Watchdog will not reset the router unless the router is disconnected for 45 minutes. See Best Practices for issues when upgrading cellular modem firmware.

Step 3: Verify that the update was successful

1. In the Remote Manager, click on the **Device Management** tab.

2. Double-click on the target device to display the device properties.

3. Click **Refresh** at the bottom of the **Device** page.

4. Click **Execute a command**.

5. Type in the modem status command: *modemstat ?*

6. Validate the output shows the updated firmware version. An example is listed below.

Method 2: Update the modem firmware using your WAN connection

Prerequisite

The local FTP server must be enabled on the TransPort device to allow the appropriate files to be placed onto the device.

Step 1: Download the updated modem firmware

If your router has access to Digi's public support site

1. Download the *applyAPN.py* Python script from the Digi FTP site.

2. Unzip the downloaded file, and edit the *applyAPN.py* file with the correct APN for your Verizon plan. The area to edit is shown in the example below:

```
1   #!/usr/bin/python
2   #
3   # Watches the eventlog of a Transport router
4
5   import sarcli
6
7   # Callback function that handles each line from the retrieved file.
8   # Returns False if checkline() criteria is met, otherwise True
9   # Non blank lines are appended to lines
10  #
11
12  #Add your APN here:
13  userDesired_APN = "APN_GOES_HERE"
14
```

3. Save the changes to the *applyAPN.py* script.

4. Using an FTP program such as FileZilla, place the *applyAPN.py* and *all.bin* files on the root (/) directory of the router.

5. In the WebUI, navigate to **Administration - Execute a command**.

6. Start the Python script with the command: ***python applyAPN.py***

7. Initiate the download process using command: ***carrier all -ftp***

If your router does not have access to Digi's public support site

1. Download the *applyAPN.py* Python script from the Digi FTP site.

2. Download the *all.bin* file for the radio in your device.

3. Unzip the downloaded file, and edit the *applyAPN.py* file with the correct APN for your Verizon plan. The area to edit is shown in the example below:

```python
1    #!/usr/bin/python
2    #
3    # Watches the eventlog of a Transport router
4
5    import sarcli
6
7    # Callback function that handles each line from the retrieved file.
8    # Returns False if checkline() criteria is met, otherwise True
9    # Non blank lines are appended to lines
10   #
11
12   #Add your APN here:
13   userDesired_APN = "APN_GOES_HERE"
14
```

4. Save the changes to the *applyAPN.py* script.

5. Using an FTP program such as FileZilla, place the *applyAPN.py* and *all.bin* files on the root (/) directory of the router.

6. Within the WebUI, navigate to **Administration - Execute a command**, start the Python script with the command: ***python applyAPN.py***

7. While on the same **Execute a command page**, initiate the download process using the command: ***carrier all***

Note See Best Practices for information about common issues when upgrading cellular modem firmware.

Step 2: Download begins

If your Web UI WAN connection is through cellular (PPP 1), you will lose connectivity to the router for 5-10 minutes while the firmware gets written to the modem. The modem will reconnect when complete.

Step 3: Verify that the update was successful

After the upgrade process completes, wait 10 minutes. and re-issue the modem status command: ***modemstat ?***

This command can be executed in the WebUI under **Administration - Execute a command**, or at the CLI via Telnet, SSH, or the serial port.

The updated modem firmware version listed in the **Firmware** field should be **20.00.******5**. An example of this is shown below:

Method 3: Update the modem firmware using a local LAN connection

Prerequisite

The local FTP server must be enabled on the TransPort device to allow the appropriate files to be placed onto the device.

Step 1: Download the updated modem firmware

If your router has access to Digi's public support site

1. In the WebUI, navigate to **Administration - Execute a command**.

2. Initiate the download process using command: ***carrier all -ftp***

If your router does not have access to Digi's public support site

1. Download the *all.bin* file for the radio in your device.

2. Using an FTP program, such as FileZilla, place the **all.bin** file on the root (/) directory of the router.

3. Within the WebUI, navigate to **Administration - Execute a command**, initiate the download process using the command: ***carrier all***

Note See Best Practices for information about avoiding events that could prematurely reset your router.

Step 2: Download begins

Once the entire *all.bin* file is on the router, the modem will reset to write the image. The cellular connection will be lost for approximately 5-10 minutes while the firmware gets written to the modem.

Step 3: Verify that the update was successful

After the upgrade process completes, wait 10 minutes. and re-issue the modem status command: ***modemstat ?***

This command can be executed in the WebUI under **Administration - Execute a command**, or at the CLI via Telnet, SSH, or the serial port.

The updated modem firmware version listed in the **Firmware** field should be **20.00.******5**. An example of this is shown below:
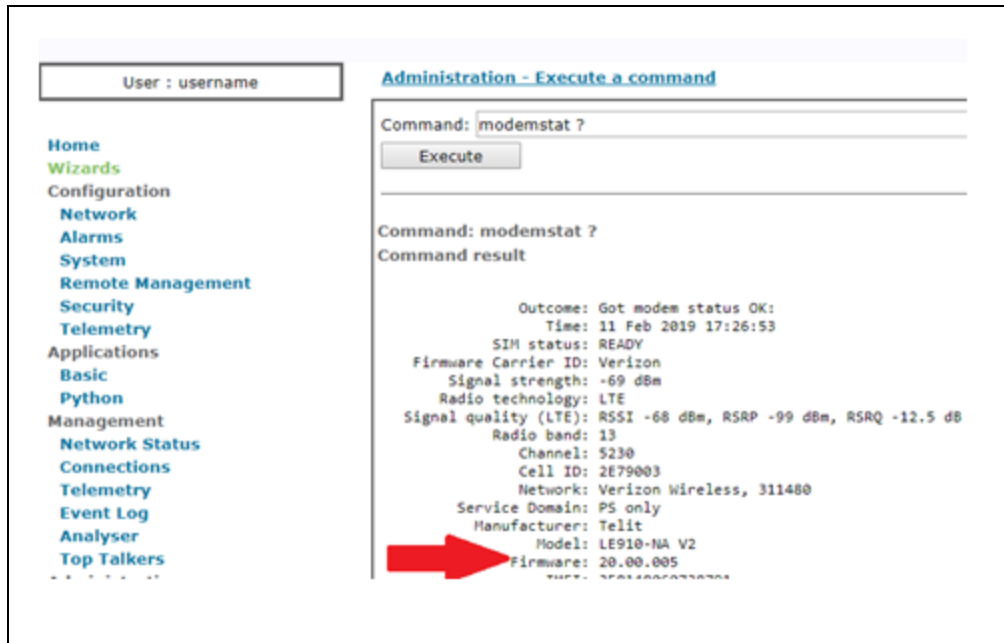
Note If your cellular connection does not come back after the upgrade, it is likely that your Verizon APN will need to be re-entered. In the WebUI, navigate to **Configuration - Network > Interfaces > Mobile** and enter in the APN.

Method 4: Update the modem firmware using a USB flash drive

Step 1: Create the update text file

1. Open a new text file.

2. Copy the following text into the file, making sure to edit the <mark>APN_GOES_HERE</mark> section with the actual APN for the Verizon SIM card:

```
del all.bin
copy u:all.bin all.bin
carrier all
del all.bin
modemcc 0 apn "APN_GOES_HERE"
config 0 save
flashleds
```

3. Save the text file as: *autoexec.bat*

Step 2: Prepare the flash drive

1. Using a PC, format the flash drive for FAT format to allow the TransPort to read the drive.

2. Download the appropriate *all.bin* file for the device from the Digi FTP site.

3. Copy the *all.bin* and *autoexec.bat* files to the flash drive.

4. Safely eject and remove the flash drive from the PC after the file transfer.

Step 3: Perform the update

1. Power up the router completely by waiting approximately 30 seconds after power is applied.

   Note Take note of the standard LED behavior before starting the upgrade, as the LED behavior will change once the process has completed.

2. Insert the thumb drive and the process will begin.

3. When the process completes, the router's LEDs will start flashing in an alternating pattern.

4. Power the router off.

5. Remove the flash drive.

6. Power the router back on.

Step 4: Verify that the update was successful

After the router powers up, connect to the device, and issue the modem status command: ***modemstat ?***

This command can be executed in the WebUI under **Administration > Execute a command**, or at the CLI via Telnet, SSH, or the serial port.

The updated modem firmware version listed in the **Firmware** field should be **20.00.**5**. An example of this is shown below: