

# **Flashing the Mikrotik RBSXTR Router**

A number of steps must be taken in order to flash the RBSXTR router from factory firmware to ROOter. These are normal for Mikrotik routers and you will not risk a brick of the router.

First, unzip the firmware package into a folder. You should have these files :

- tftp32.\* ( 3 files )
- RBSXTR-initramfs-kernel.bin
- TRS-CPE-GOXXXX-XX-XX-update.bin
- this document

The steps that will be taken are :

- flash to a temporary firmware that only resides in RAM. Powering off the router at this point will revert the router to the factory firmware.
- Flash to a permanent ROOter firmware. After this the router will run ROOter firmware after powering off.

To flash the router a few things need to be done first.

This can not be done using Wifi and requires you connect a computer to the router using an Ethernet cable. The computer should not be connected to any other Network, just to the router.

## **Prepare the Computer**

Two things must be done to the computer before it can be used to flash the router. These involve the IP Address and the Firewall.

The computer must have a static IP Address set before trying to flash the router. This can be done by the following steps.

Press the *Windows key* + *I* combination. In the ensuing dialog box select the *Network and Internet* tile.



### System

Display, sound, notifications, power



### Devices

Bluetooth, printers, mouse



### Phone

Link your Android, iPhone



### Network & Internet

Wi-Fi, airplane mode, VPN



### Personalization

Background, lock screen, colors



### Apps

Uninstall, defaults, optional features



### Accounts

Your accounts, email, sync, work, family



### Time & Language

Speech, region, date



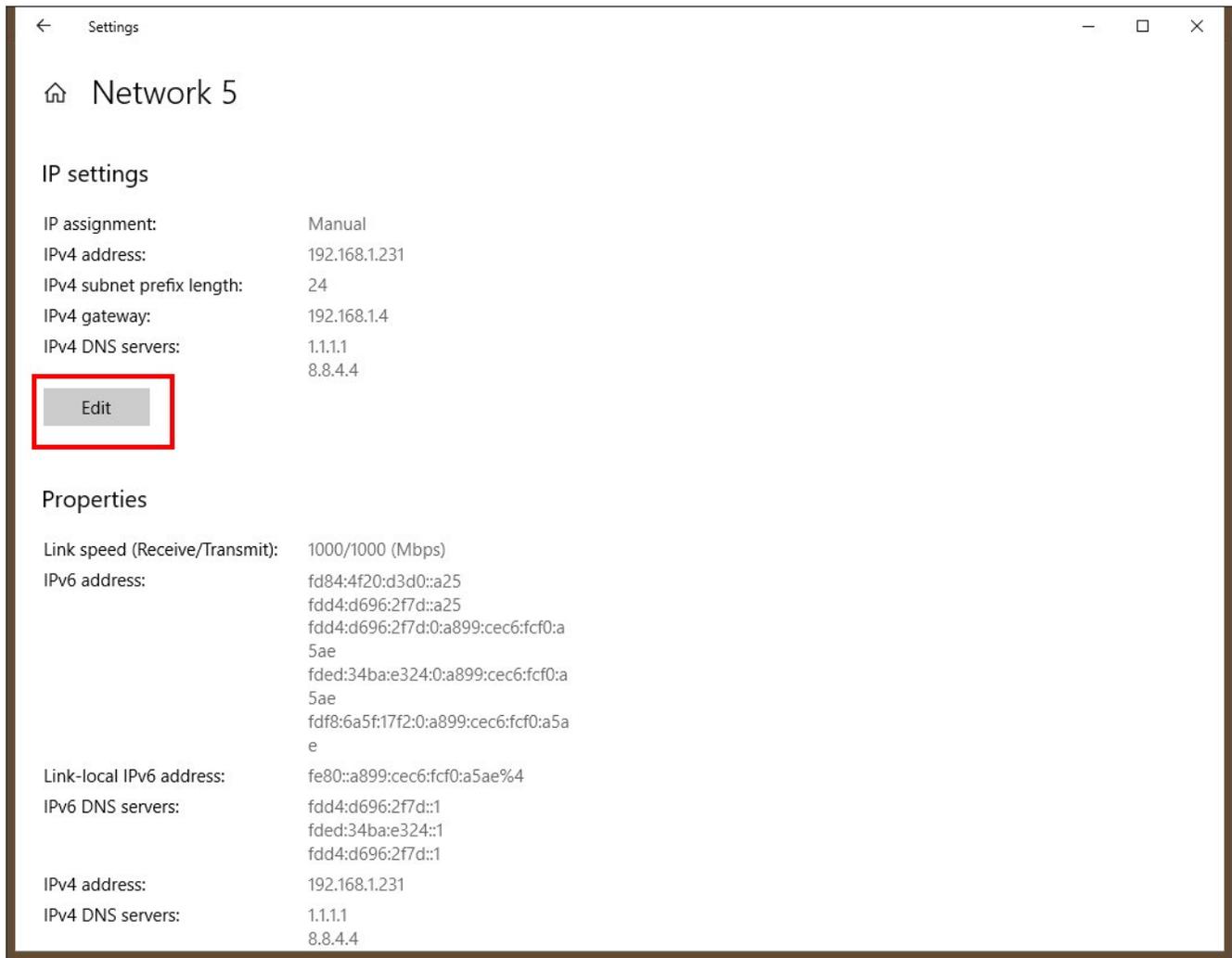
### Gaming

Xbox Game Bar, captures, Game Mode

In the following Status dialog click on the *Properties* button.

The screenshot shows the Windows Settings application. On the left is a navigation pane with 'Settings' at the top, followed by 'Home', a search box 'Find a setting', and a list of categories: 'Network & Internet', 'Status', 'Ethernet', 'Dial-up', 'VPN', and 'Proxy'. The 'Network & Internet' category is selected. The main content area is titled 'Status' and 'Network status'. It shows a network diagram with a laptop, a Wi-Fi icon, and a globe, with labels 'Local Area Connection' and 'Public network'. Below this, it states 'You're connected to the Internet' and provides a note about limited data plans. A section for 'Local Area Connection' shows '268.6 GB From the last 30 days'. Two buttons, 'Properties' and 'Data usage', are visible, with 'Properties' highlighted by a red box. Further down, there are links for 'Show available networks', 'Advanced network settings', 'Change adapter options', 'Network and Sharing Center', and 'Network troubleshooter'. At the bottom, there is a link 'View hardware and connection properties'.

In the next dialog scroll down to the *IP Settings* section and click on the *Edit* button.



The *Edit IP settings* dialog will appear. Do the following here.

- Set the mode to *Manual*.
- Make sure *IPv4* is On.
- Set the *IP Address* to **192.168.1.231**. This address must be used in order for the flashing to work.
- Set the *Subnet Prefix length* to 24.

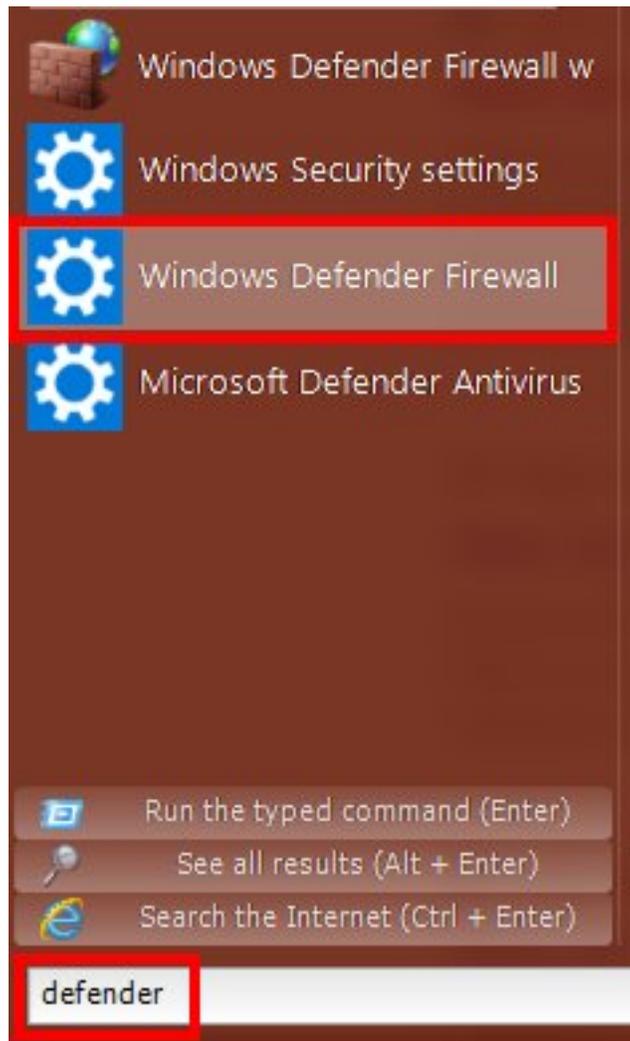


The image shows a screenshot of the 'Edit IP settings' dialog box. The 'Manual' mode is selected in the dropdown menu. The 'IPv4' toggle is turned on. The 'IP address' field contains '192.168.1.231' and the 'Subnet prefix length' field contains '24'. The 'Gateway', 'Preferred DNS', and 'Alternate DNS' fields are empty. The 'IPv6' section is collapsed. 'Save' and 'Cancel' buttons are at the bottom.

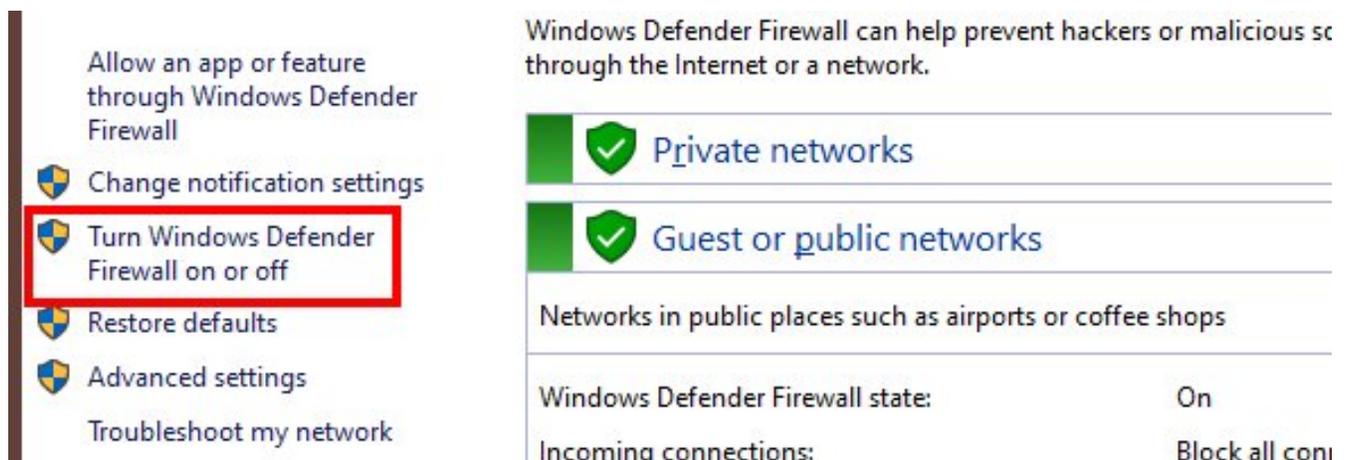
Click on the *Save* button. Your computer now has a static IP Address of 192.168.1.231.

It is also necessary to disable the Windows Defender Firewall because it blocks sending the firmware to the router.

Click on the *Start* button and enter **defender** into the search box. Select the *Windows Defender Firewall Settings* tile.



In the Firewall dialog select *Turn Windows Defender Firewall on or off*.



Select *Turn Off Windows Defender Firewall* for both Private and Public Networks. Click on the *OK* button.

## Customize settings for each type of network

You can modify the firewall settings for each type of network that you use.

### Private network settings

- Turn on Windows Defender Firewall
  - Block all incoming connections, including those in the list of allowed apps
  - Notify me when Windows Defender Firewall blocks a new app

- Turn off Windows Defender Firewall (not recommended)

### Public network settings

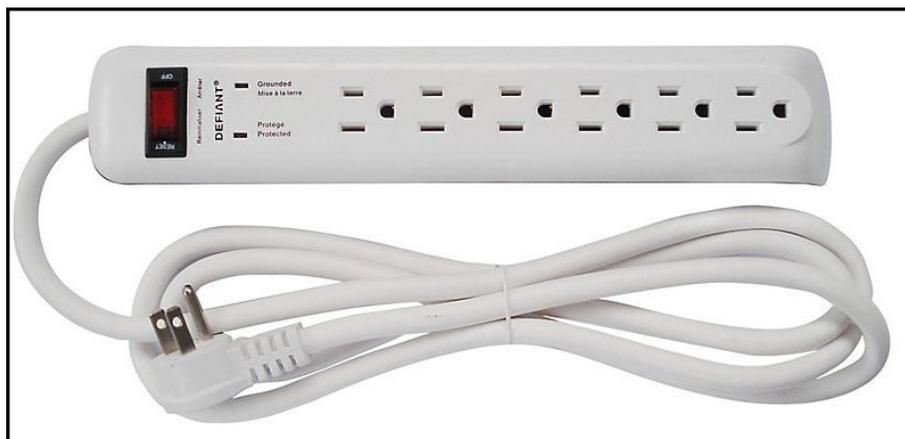
- Turn on Windows Defender Firewall
  - Block all incoming connections, including those in the list of allowed apps
  - Notify me when Windows Defender Firewall blocks a new app

- Turn off Windows Defender Firewall (not recommended)

The Firewall is now disabled and we are ready to flash the router.

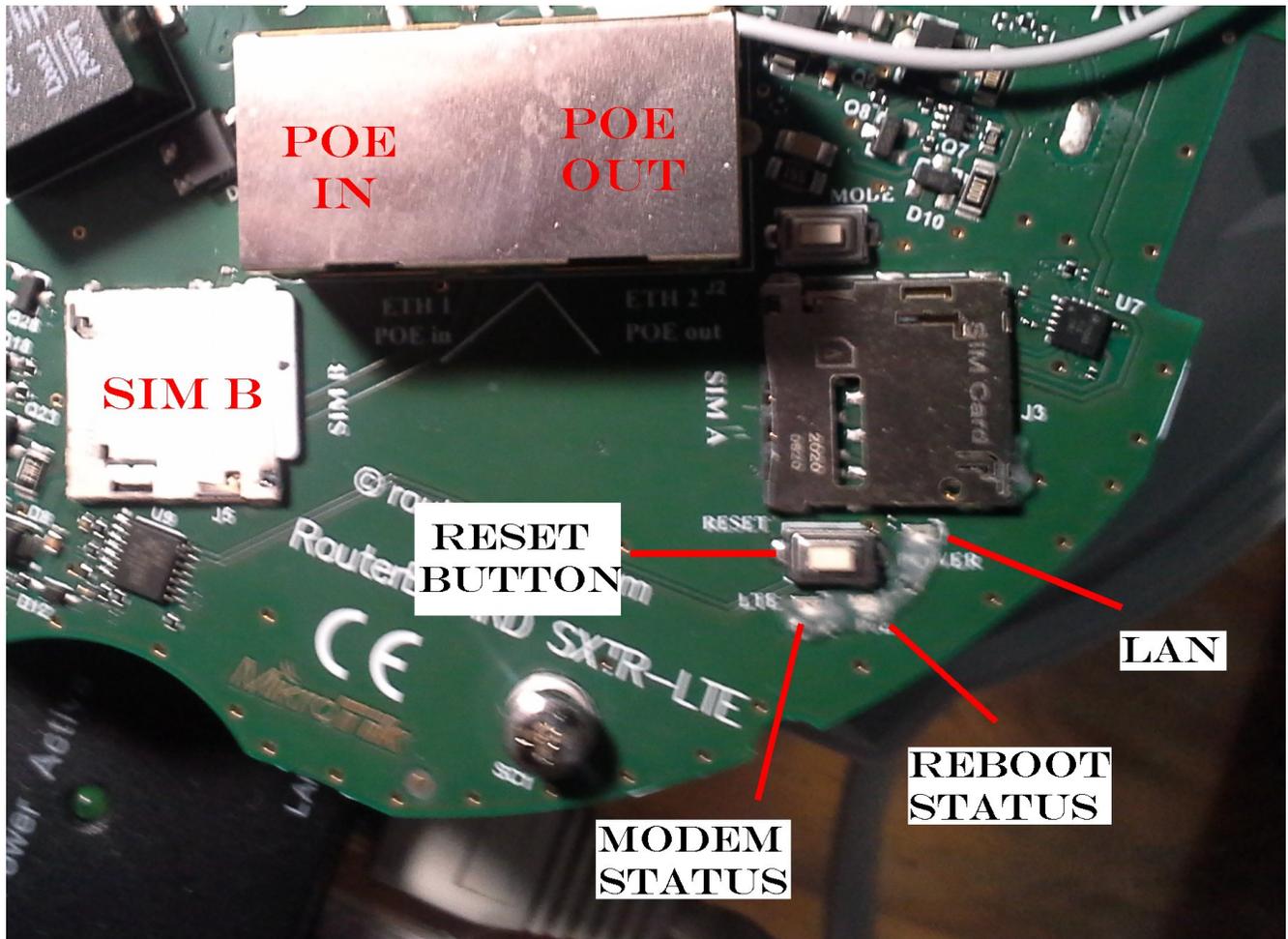
## Prepare the Router

Because we must power on the router while holding down a button it is easiest to use a power bar to allow easy power control.



Plug in the POE power supply to the power bar and make sure it is turned off.

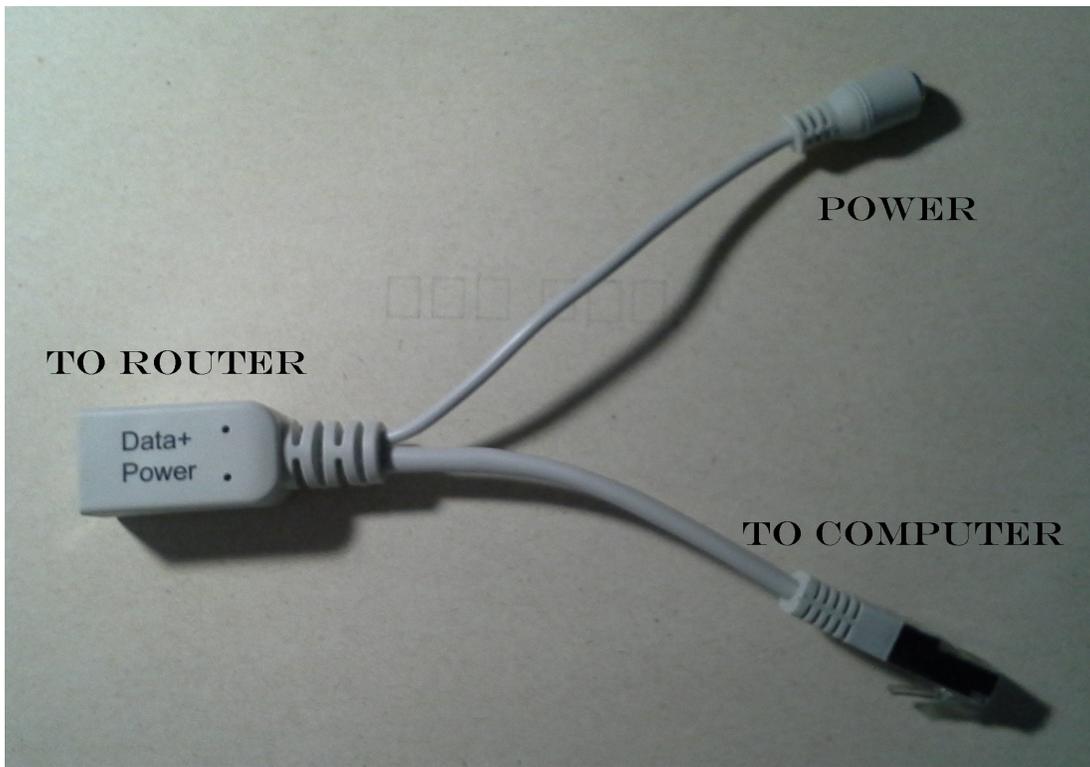
An internal look at the router circuit board highlights the important areas.



Connect an Ethernet cable from the POE injector to the *POE IN* Ethernet port. This is the only Ethernet port which will work.

Plug the other end of the POE injector into the Ethernet port on your computer.

Then plug in the power supply to the POE injector.

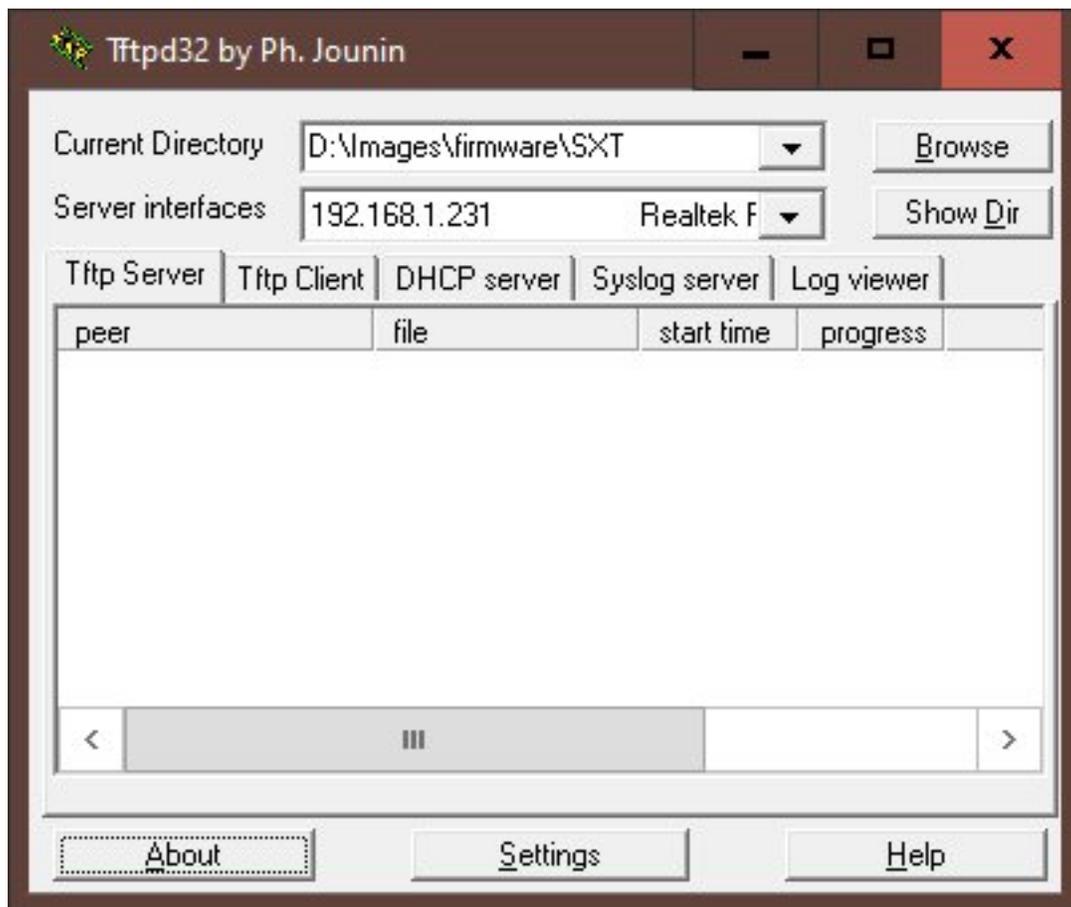


The router is now connected to the computer's Ethernet port and can be powered on and off by using the switch on the power bar.

## Flashing the Router

We are now ready to flash the router with a temporary firmware that will only reside in the router's RAM. It will not affect the factory firmware at this point.

Go to the folder where you unzipped the firmware package and run **tftp32.exe** by double clicking on it.



Now hold down the router's *Reset Button* with something like a flat screwdriver. You will feel and hear it click when it is properly depressed. Don't release the button.

Then use the switch on the power bar to turn on the router. The Leds on the router will now light up.

The important Led is *Modem Status*. It will go solid for 5 seconds, blink for 5 seconds and then go solid again for 5 seconds. When it goes out again release the *Reset Button*.

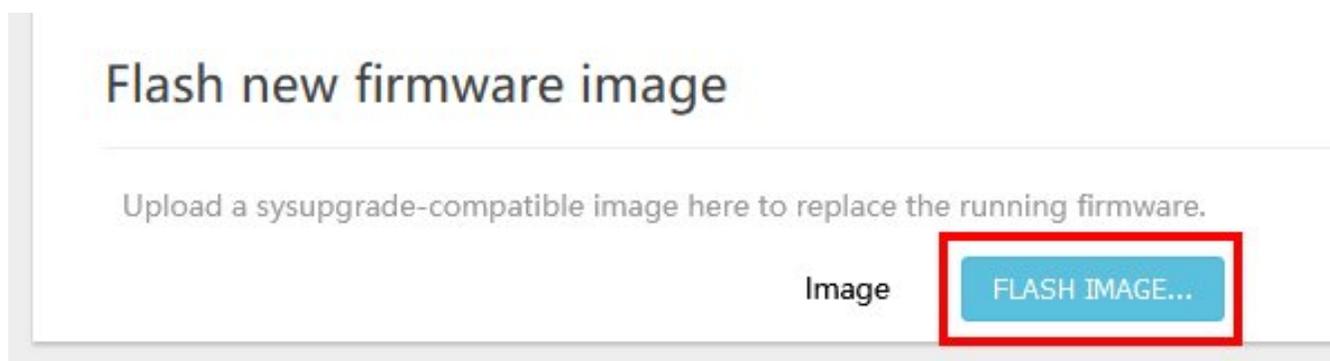
On the TFTP32 dialog box you will see an indication that a file is being transferred. If you don't, power off the router and try again. It is important that the *Reset Button* be held down through all of this procedure.

Once the file has finished uploading the red *Reboot Status* Led will begin blinking. This will last for a minute or so and when it stops the LAN Led will light up and blink.

At this point the router has been flashed to the temporary firmware. Do not power off the router as the new firmware will be lost and the router will revert back to factory firmware.

Now use your browser to go to <http://192.168.1.1/index.html> and you will see the ROOter GUI. There is no password set so you can just log in.

Go to *System*→*Backup / Flash Firmware* and scroll down to the bottom to the *Flash New Firmware Image* section. Click on the *Flash Image* button.



In the next dialog use the *Browse* button to select the **TRS-CPE-GOXXXX-XX-XX-update.bin** file from the folder. Then use the *Upload* button to upload and check file to make sure it is a valid firmware file.

## Flash image?

The flash image was uploaded. Below is the checksum and file size listed, compare them with the original file to ensure data integrity.

Click 'Continue' below to start the flash procedure.

- Size: 8.44 MB
- MD5: 472de7621a009b4a06307197778bf966
- SHA256: c52acf451e6ff98c30fc98173c02f94960b15899cf8667ddca21dc28cb30d06a

KEEP SETTINGS AND RETAIN THE CURRENT CONFIGURATION

CANCEL

CONTINUE

It is important to make sure the *Keep Setting* box is not checked. Then click the *Continue* button to flash the firmware.

This process is quite slow and will take about **13 minutes** to complete. The Leds will flash and change several times. The *Reboot Status* Led will flash for some time before stopping and the *LAN* Led will light. Wait for a bit and the *Reboot Status* Led will start flashing again. When the *WAN* Led comes on again the flash is complete.

At this point you should reset the computer's IP Address to Automatic and to turn Windows Defender Firewall back on again.

The router is now flashed to ROOter. Use your browser to go to <http://192.168.1.1/index.html> and you will see the ROOter GUI.

The SIM must go in the *SIM B* holder to the left of the Ethernet port. It will not work in the other SIM holder.

When the modem is connecting the *Modem Status* Led will flash, slowly at first then faster, as the connection process proceeds. When it goes solid the modem is connected.