

Flashing the WG156 from Factory

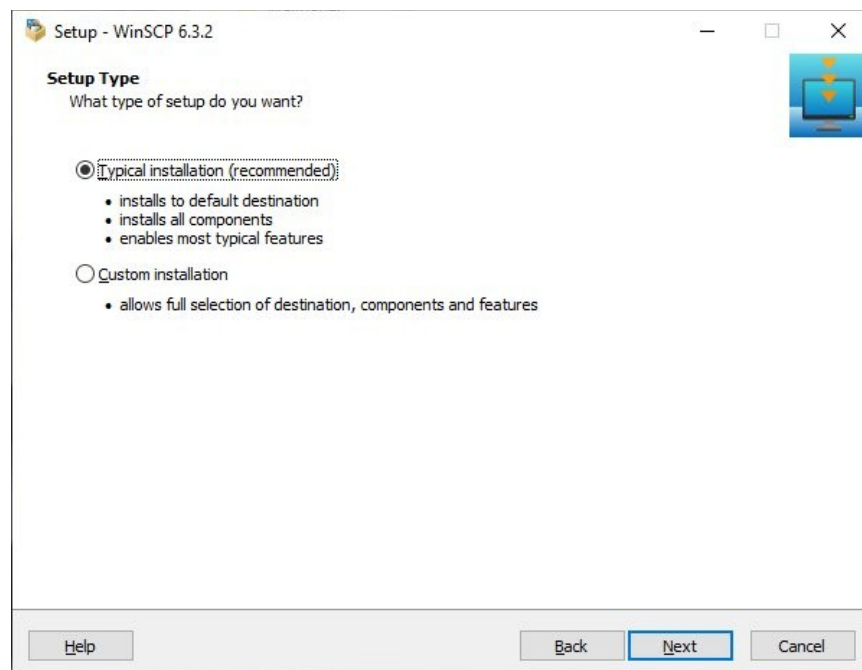
In order to flash the ZBT WG156 from the factory firmware to a ROOter firmware you must install and use two programs that allow access to the router's file system.

This must be done as the router does not have a Reset button Recovery GUI and the factory firmware does not allow flashing any firmware except the factory version.

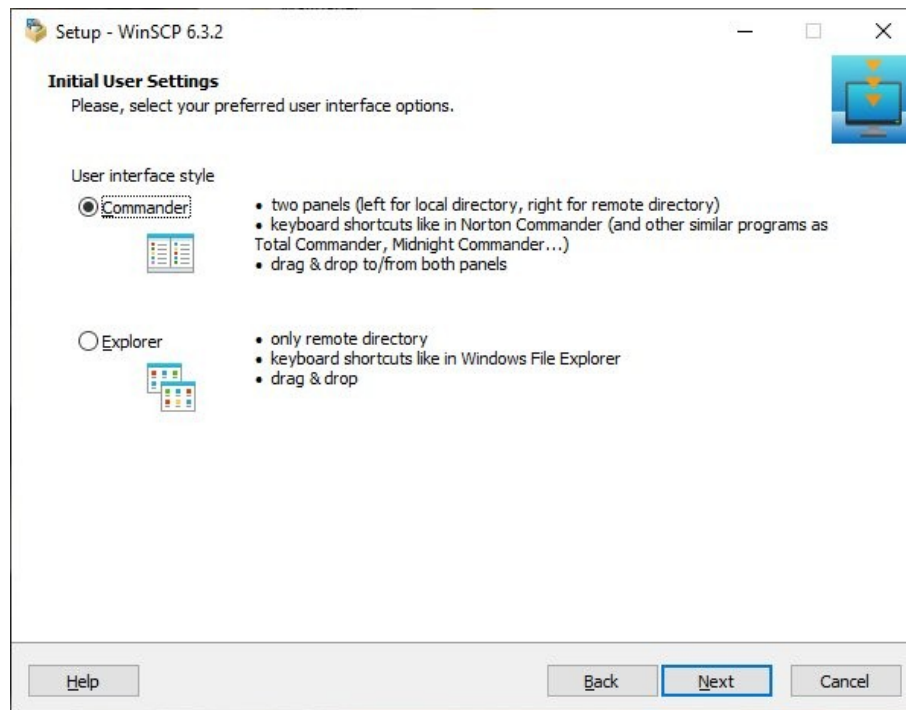
The two required programs are WinSCP and Putty, which give access to the router's file system and allow us to flash to a new firmware. Both are included in the ROOter firmware archive. They are installed as shown below.

WinSCP

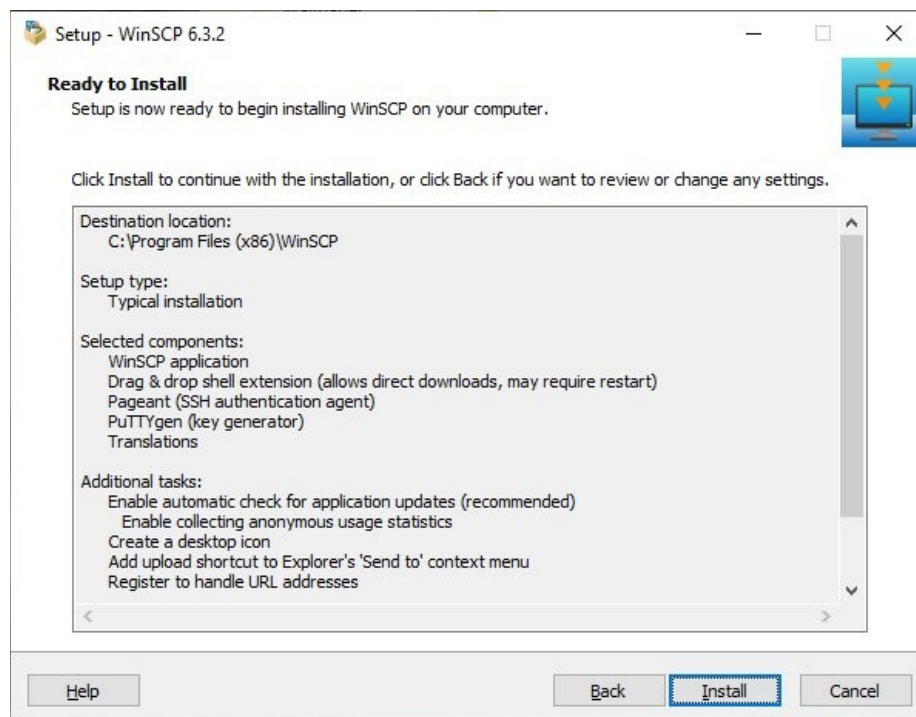
Execute the *WinSCP-6.3.2-Setup.exe* file by double clicking to install. Use the *Typical installation* method.



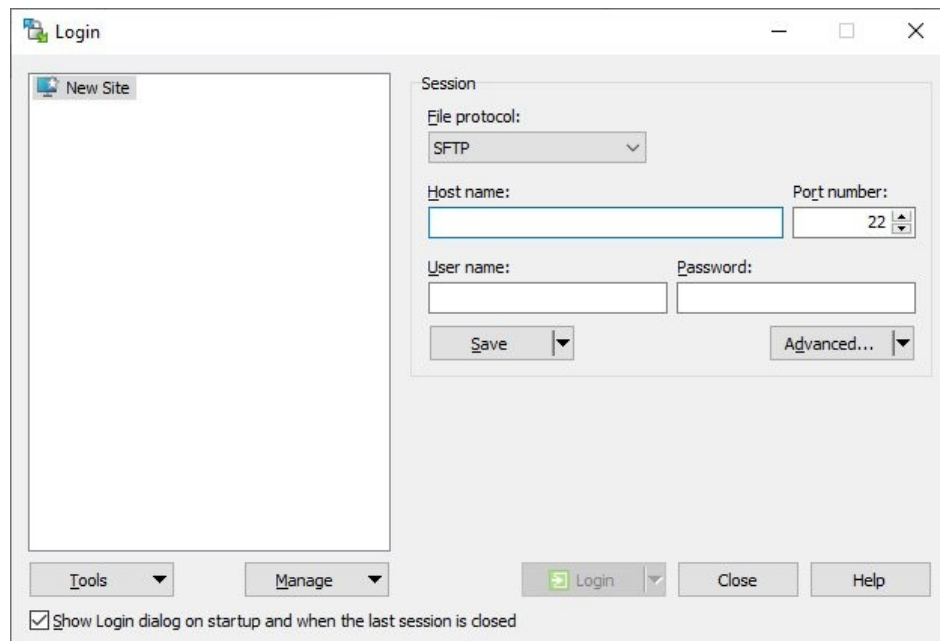
The *User Interface Style* should be left as *Commander* as this is used here.



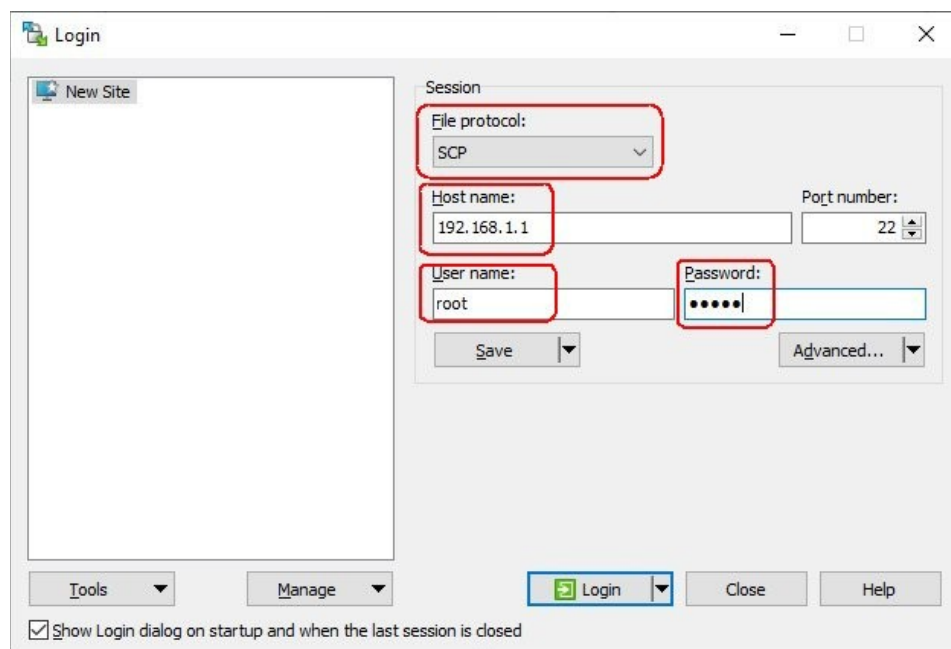
Now Install it.



When WinSCP is first run it will show you a dialog box used to set up access to the router.

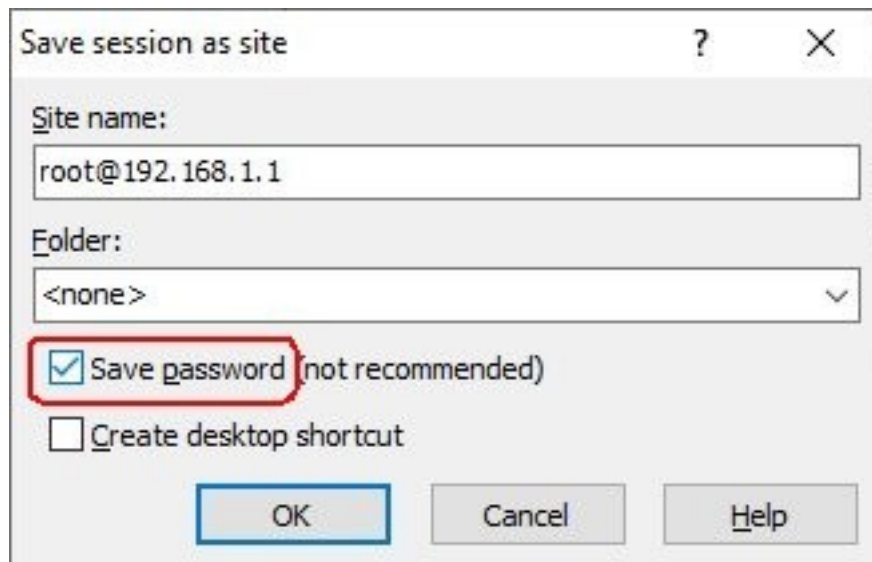


Change the areas in this box as follows.

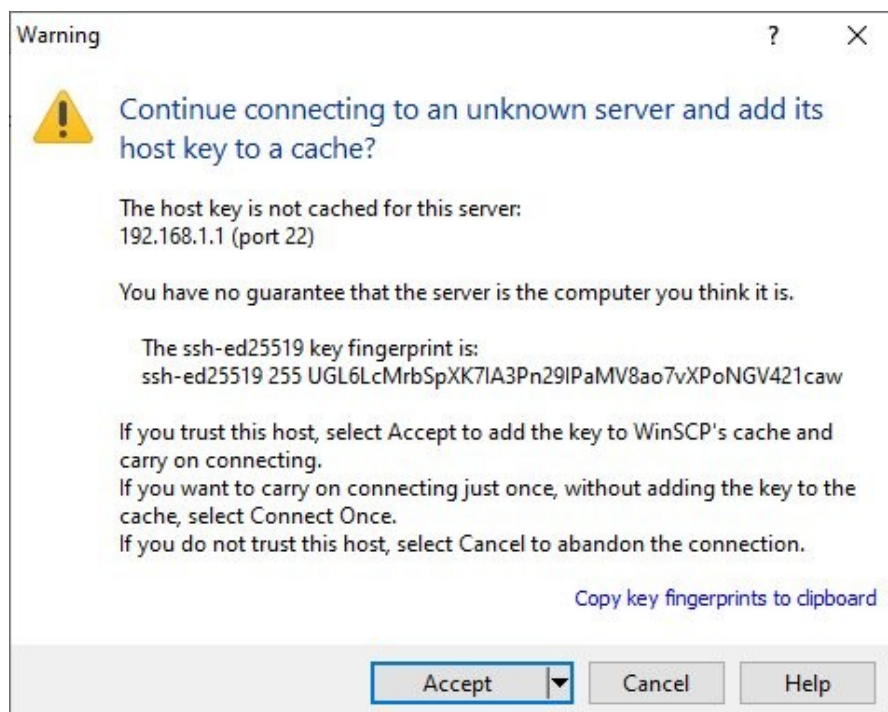


- File Protocol – SCP
- Host Name – 192.168.1.1
- User Name – root
- Password – admin

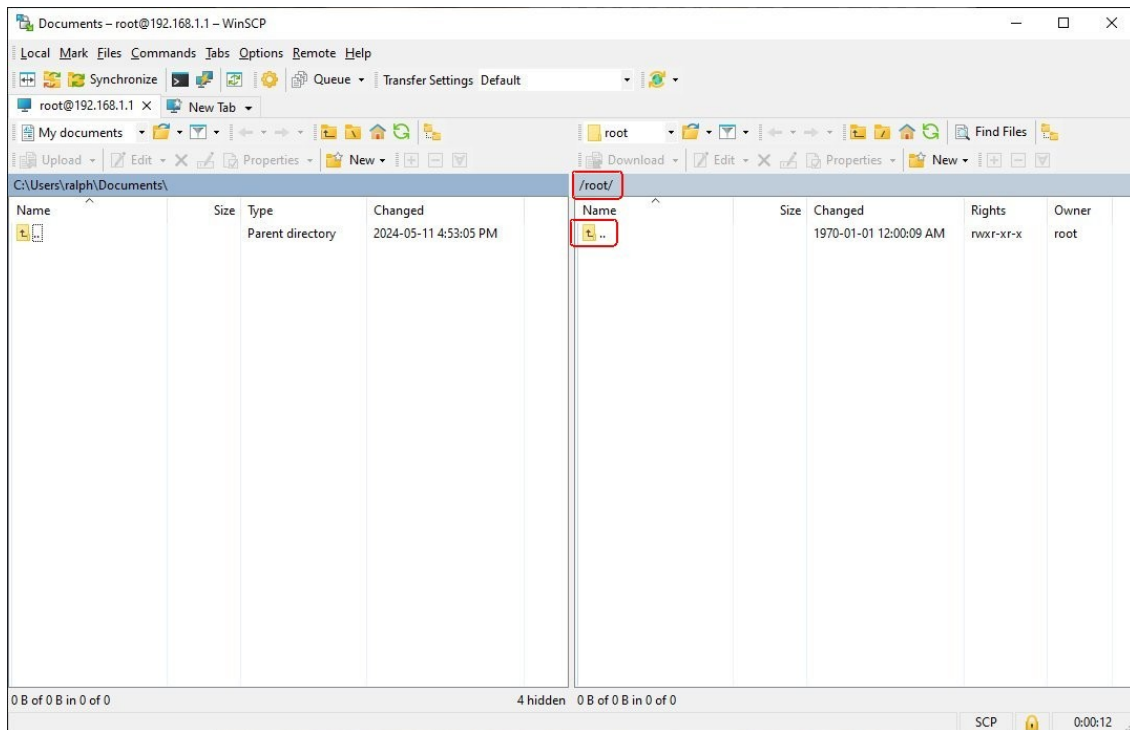
The click on the *Save* button to save these settings. In the following dialog check the *Save Password* box and then click on *OK*.



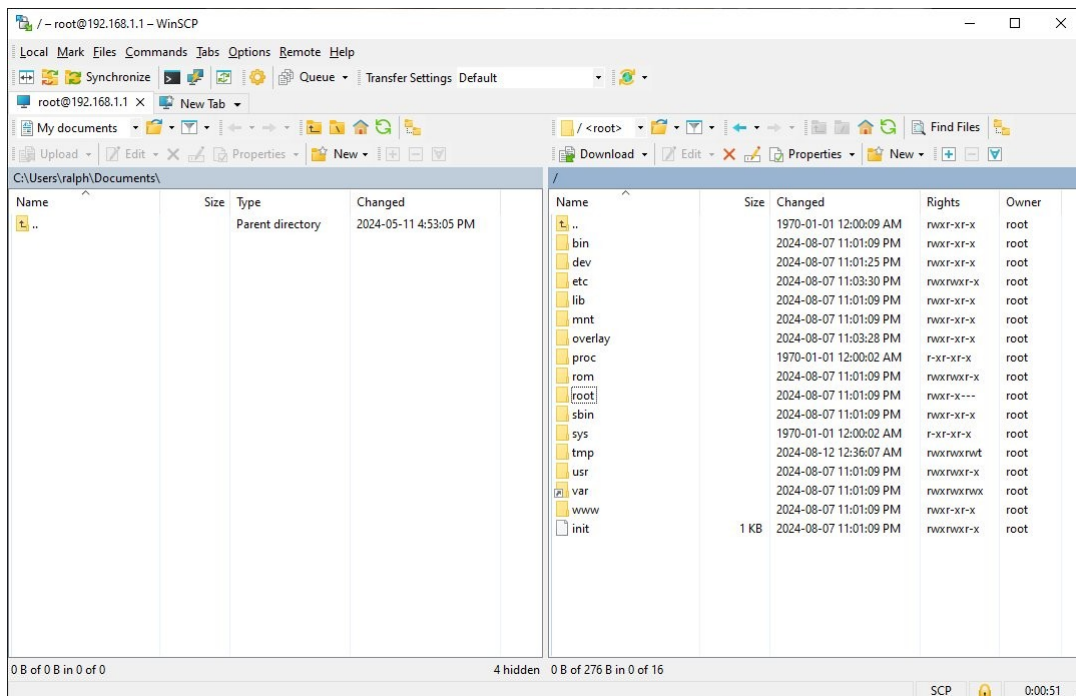
WinSCP will then attempt to connect to the router. You will receive a warning at this point. Click *Accept*.



You will then be presented with a view of both your computer's file system and the file system of the router.

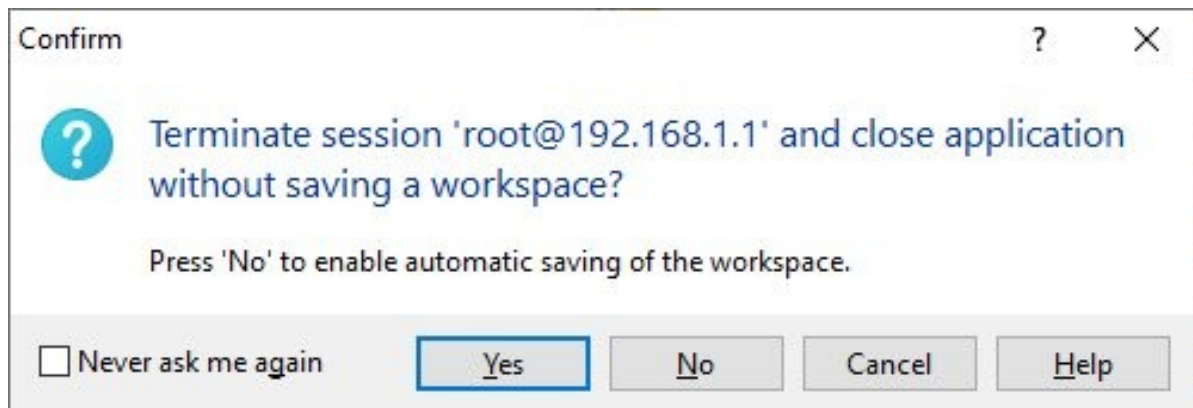


The router's file system will be in the `/root` folder at this point. Double click on the double dots to move to the base folder of the router.

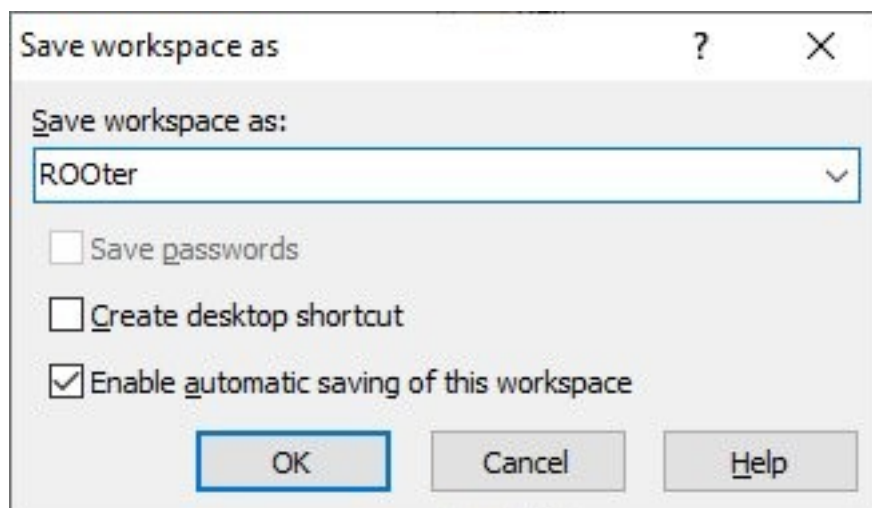


WinSCP is now ready to be used. You can exit the program while you install Putty.

When exiting you will be asked if you wish to save the session as a workspace. This is optional but will be shown here.



Pressing No will save the session before exiting.

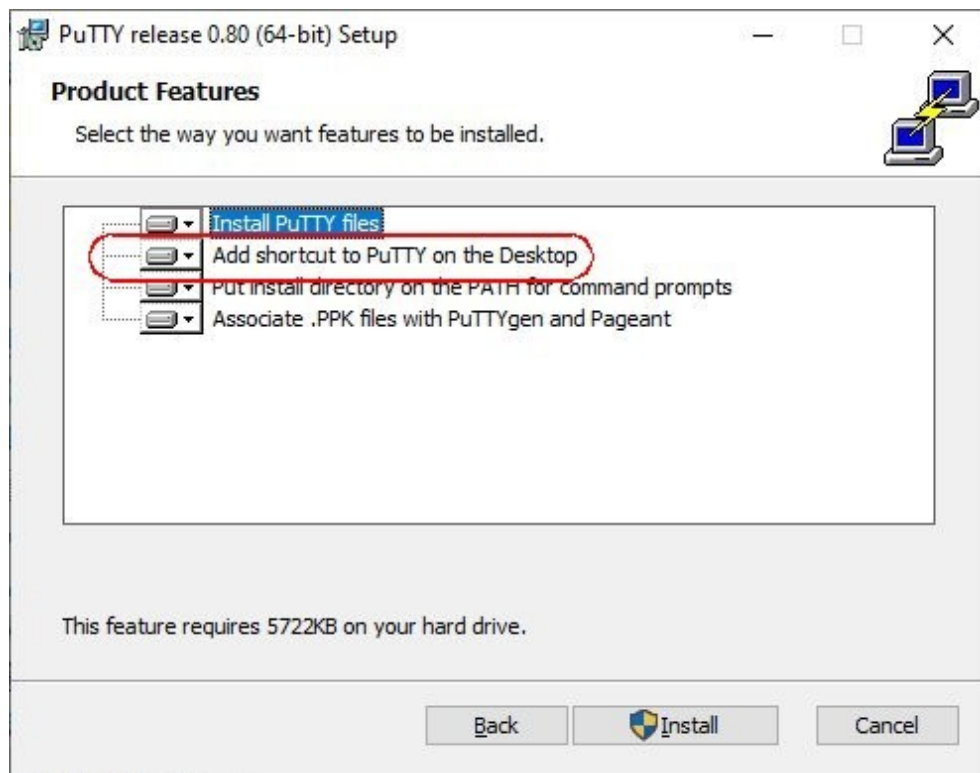


Give the workspace a name and press *OK*. The program will then exit.

Putty

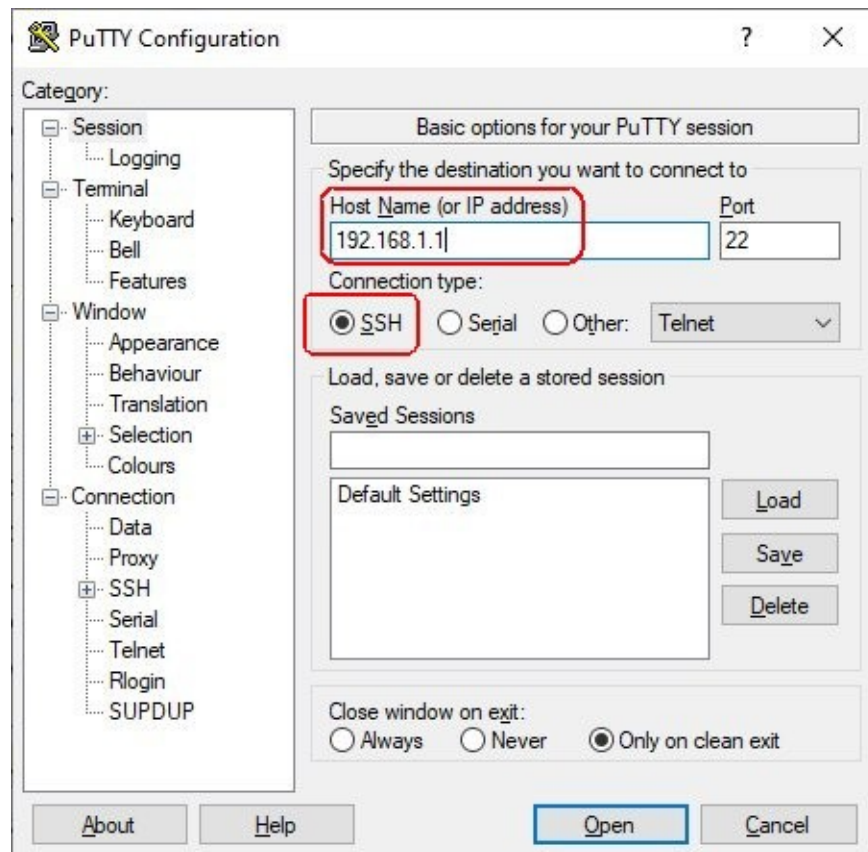
Putty is a terminal program that allows you to access the router's command line and run commands from it. To install double click on the *putty-64bit-0.80-installer.msi* file and follow the instructions.

If you want to have a Desktop shortcut during the installation you need to change a setting.



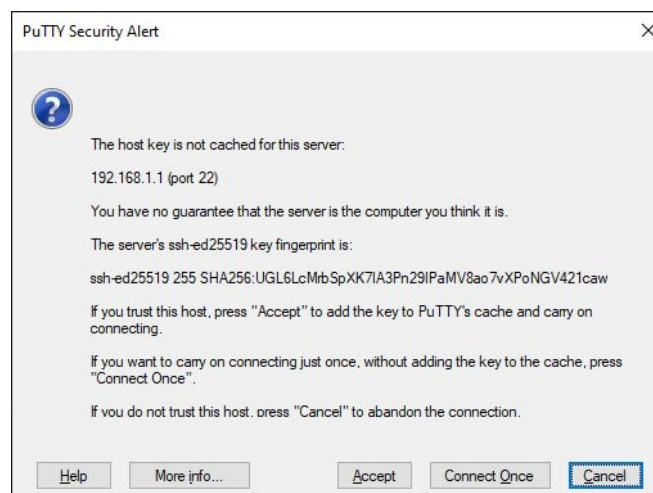
Click on the dropdown and choose the *Install to hard disk* option to make it create a shortcut.

After completing the installation you can run Putty from the shortcut and set it up to access the router's command line.

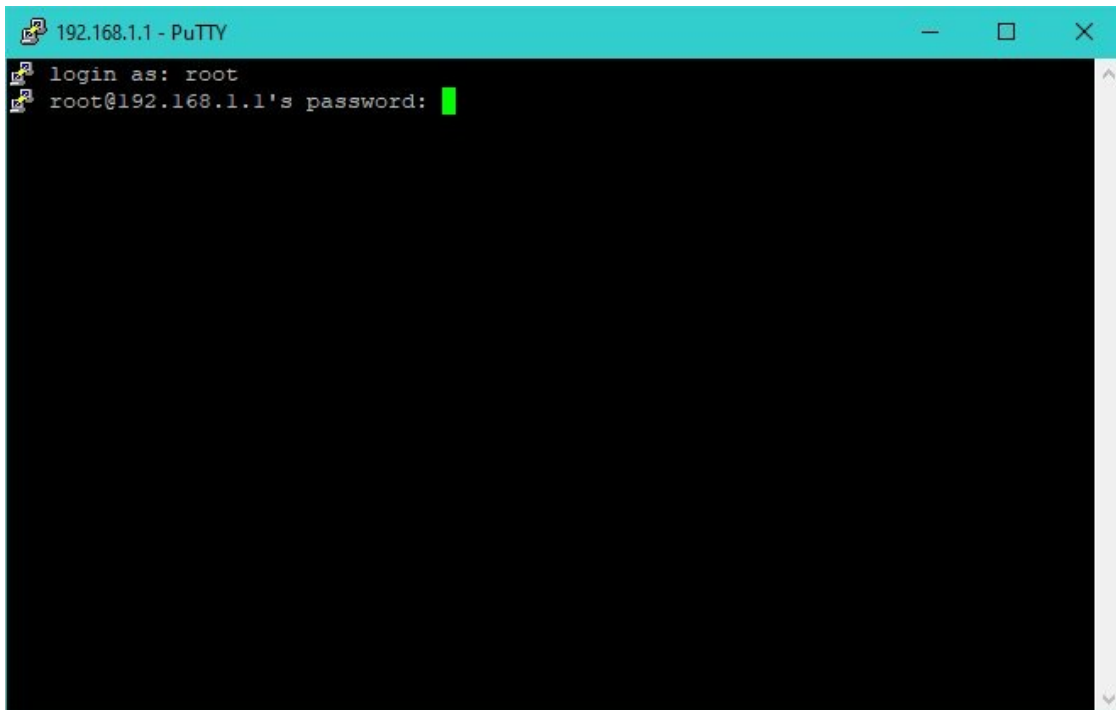


If you wish to save these settings, click on the *Save* button and give it a name. You can then double click on the name in the *Saved Sessions* to connect to the router.

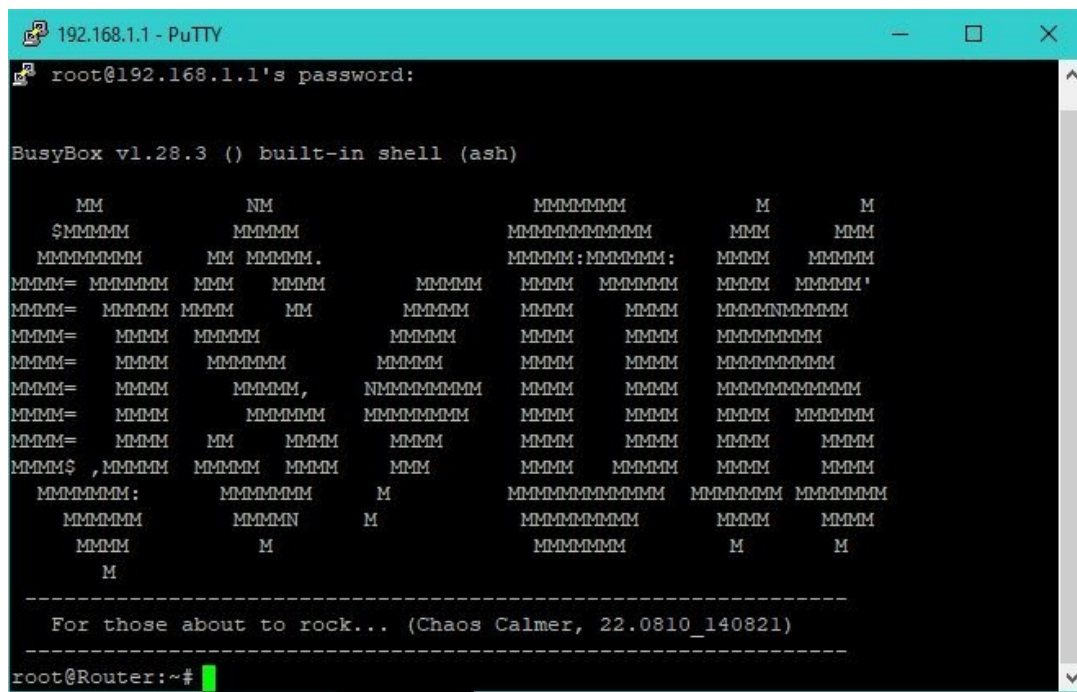
Otherwise, click on the *Open* button. You will see a Security Alert asking if you want to connect to this unknown router. Click *Accept* or *Connect Once* to do so.



You will then be asked to login to the router.



Login as **root** with the password being **admin**. You will not see the password on the screen. You will then see the command line screen.



With WinSCP and Putty installed we are now ready to flash the WG156 from the factory firmware to ROOter.

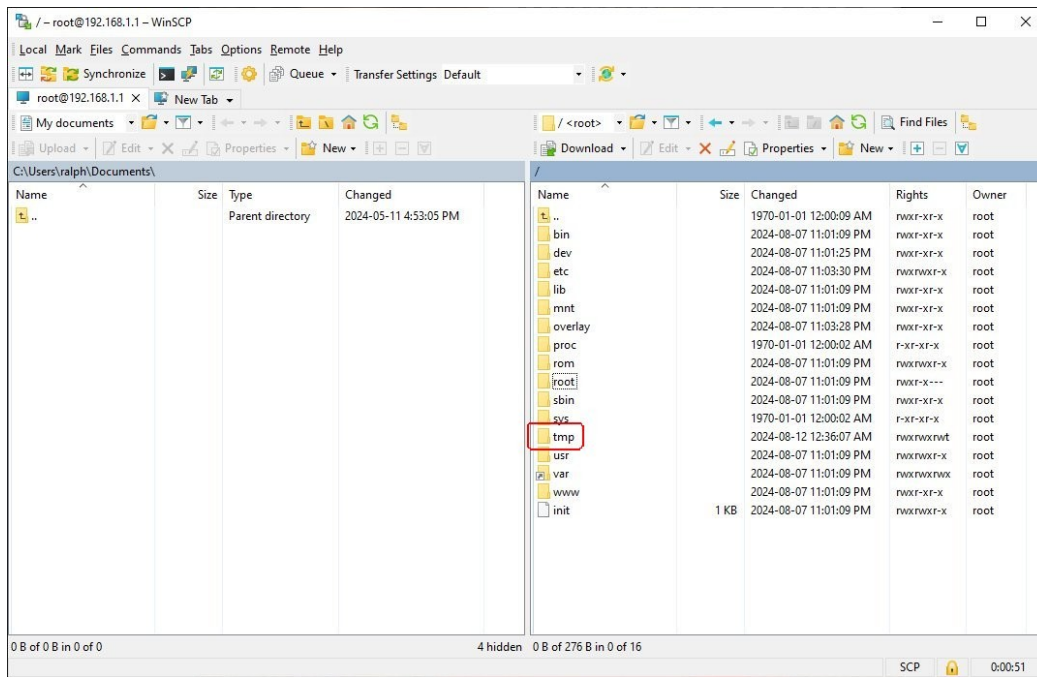
Installing New Firmware

The flash of the WG156 requires several steps. The first is to copy some files to the router. Second is to execute one of those files to do the actual flashing and, third, is to flash the new firmware to the current ROOter firmware.

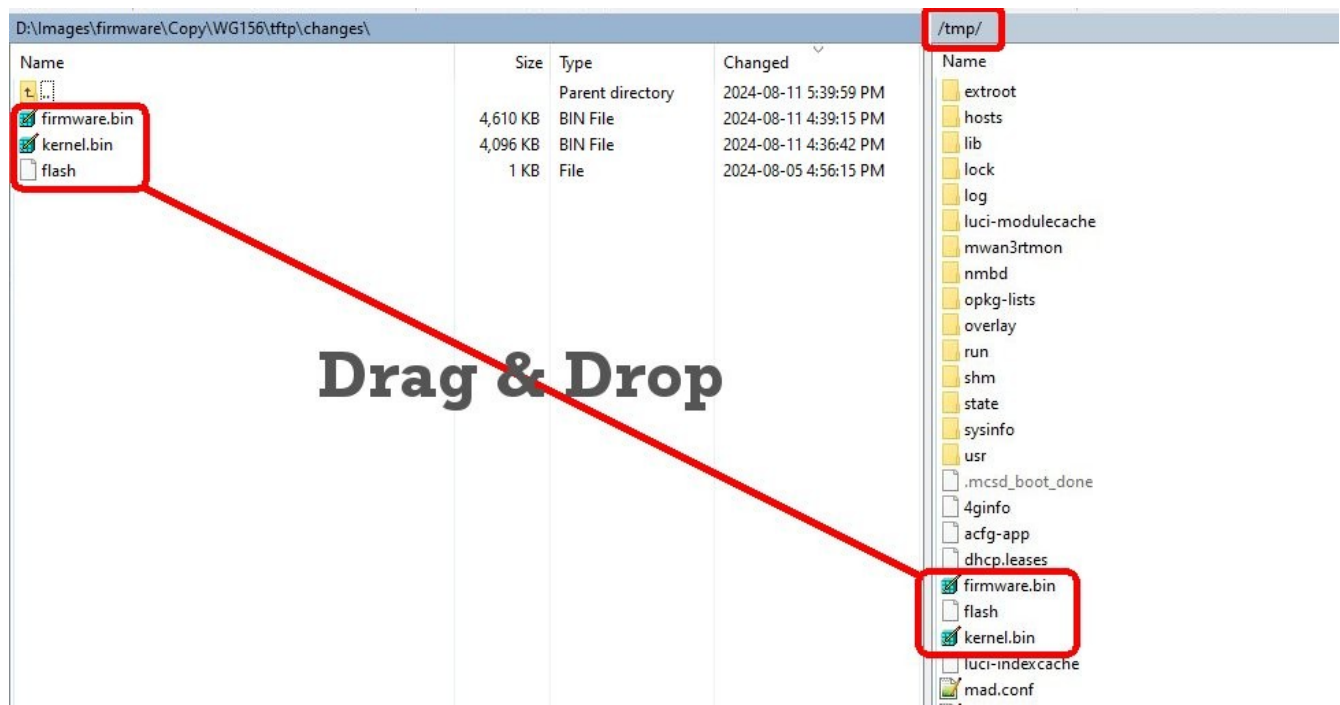
There are three files included in the ROOter archive that need to be copied to the router. These are

- flash
- kernel.bin
- firmware.bin

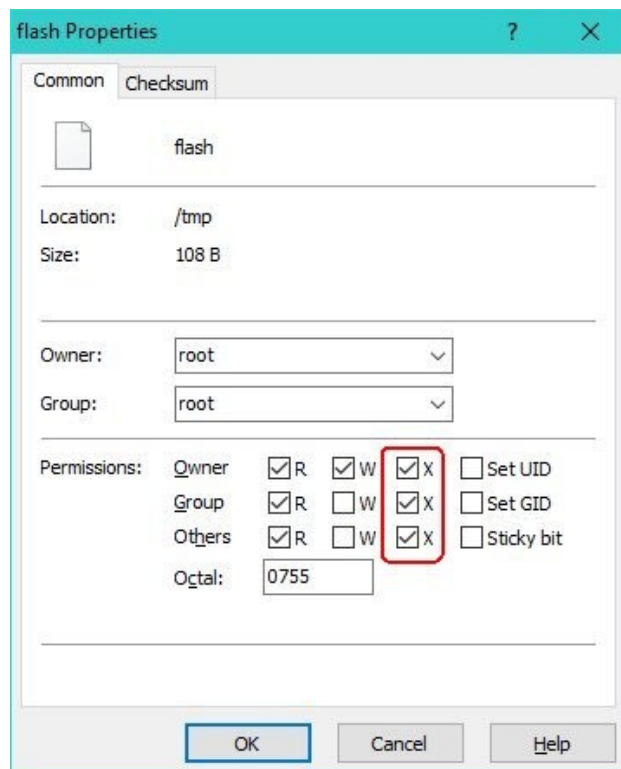
Start WinSCP running and log into the router. Change the left side panel to point to the folder that contains the above files. Change the right side panel to the router's */tmp* folder.



This is where the files will be copied.

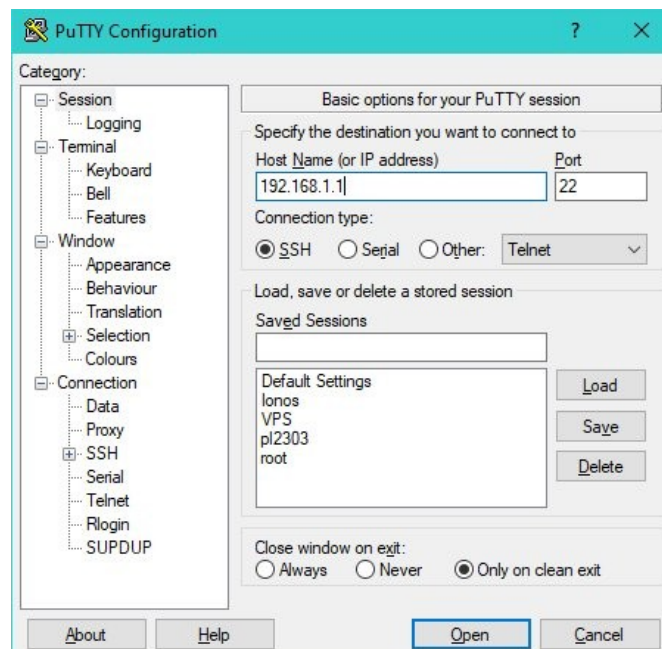


Next we must make the file named *flash* executable. Right click on the file and select *Properties* from the drop menu. Then set the file to executable.



You can now close WinSCP.

Next, start Putty running. If you saved the session earlier then you can just double click on the name in *Saved Sessions*. Otherwise fill in the *User Name* and Protocol and click *Open*.



Login as you did earlier using *root* and *admin* so you reach the command line.

```
192.168.1.1 - PuTTY
root@192.168.1.1's password:

BusyBox v1.28.3 () built-in shell (ash)

      MM      NM      MMMMMMM      M      M
    $MMMMM    MMMMM    MMMMMMMMMMMM    MMM    MMM
  MMMMMMMM    MM MMMMM.    MMMMM:MMMMMM:    MMMM    MMMMM
MMM= MMMMM    MM    MMMM    MMMMM    MMMM    MMMMM    MMMM    MMMMM'
MMM=  MMMM    MMMM    MM    MMMMM    MMMM    MMMM    MMMMMNMMMMM
MMM=  MMMM    MMMMM    MMMMM    MMMM    MMMM    MMMMMMMMM
MMM=  MMMM    MMMMMM    MMMMM    MMMM    MMMM    MMMMMMMMM
MMM=  MMMM    MMMMM,    NMMMMMMMMM    MMMM    MMMM    MMMMMNMMMMM
MMM=  MMMM    MMMMMM    MMMMMMMM    MMMM    MMMM    MMMM    MMMMM
MMM=  MMMM    MM    MMMM    MMMM    MMMM    MMMM    MMMM    MMMM
MMMM$ ,MMMM    MMMMM    MMMM    MMM    MMMM    MMMMM    MMMM    MMMM
MMMMMM:    MMMMMM    M    MMMMMMMMMMMMM    MMMMMMM    MMMMMMMM
  MMMMM    MMMMN    M    MMMMMMMMM    MMMM    MMMM
    MMMM      M      MMMMMMM    M      M
      M

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  For those about to rock... (Chaos Calmer, 22.0810_140821)
-----
root@Router:~# /tmp/flash
```

Type */tmp/flash* into the command line and press *Return*. The flash process will start and you will see progress in the terminal.

```
192.168.1.1 - PuTTY

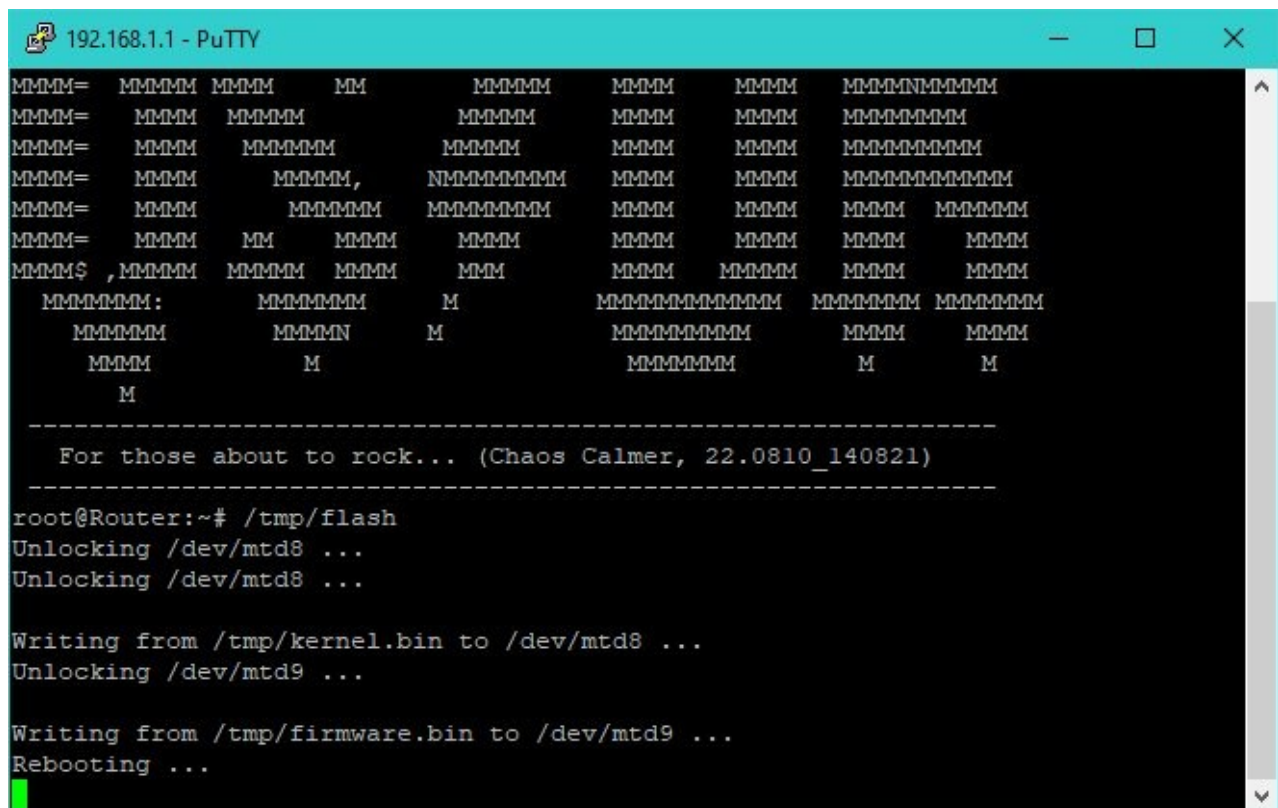
  MMMMMMMM    MM MMMMM.    MMMMM:MMMMMM:    MMMM    MMMMM
MMM= MMMMM    MM    MMMM    MMMMM    MMMM    MMMMM    MMMM    MMMMM'
MMM=  MMMM    MMMM    MM    MMMMM    MMMM    MMMM    MMMMMNMMMMM
MMM=  MMMM    MMMMM    MMMMM    MMMM    MMMM    MMMMMMMMM
MMM=  MMMM    MMMMM,    NMMMMMMMMM    MMMM    MMMM    MMMMMNMMMMM
MMM=  MMMM    MMMMMM    MMMMMMMM    MMMM    MMMM    MMMM    MMMMM
MMM=  MMMM    MM    MMMM    MMMM    MMMM    MMMM    MMMM    MMMM
MMMM$ ,MMMM    MMMMM    MMMM    MMM    MMMM    MMMMM    MMMM    MMMM
MMMMMM:    MMMMMM    M    MMMMMMMMMMMMM    MMMMMMM    MMMMMMMM
  MMMMM    MMMMN    M    MMMMMMMMM    MMMM    MMMM
    MMMM      M      MMMMMMM    M      M
      M

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  For those about to rock... (Chaos Calmer, 22.0810_140821)
-----
root@Router:~# /tmp/flash
Unlocking /dev/mtd8 ...
Unlocking /dev/mtd8 ...

Writing from /tmp/kernel.bin to /dev/mtd8 ...
Unlocking /dev/mtd9 ...

Writing from /tmp/firmware.bin to /dev/mtd9 ... [e]
```

When this is complete the router will reboot.



```
192.168.1.1 - PuTTY
MMMM=  MMMM  MMMM  MM      MMMMM  MMMM  MMMM  MMMMMNNNNMM
MMMM=   MMMM  MMMMM      MMMMM  MMMM  MMMM  MMMMMMMMM
MMMM=   MMMM  MMMMMM      MMMMM  MMMM  MMMM  MMMMMMMMM
MMMM=   MMMM      MMMMM,  NMMMMMMMMM  MMMM  MMMM  MMMMMMMMMMM
MMMM=   MMMM      MMMMM  MMMMMMMMM  MMMM  MMMM  MMMM  MMMMM
MMMM=   MMMM  MM  MMMM  MMMM      MMMM  MMMM  MMMM  MMMM  MMMM
MMMM$ ,MMMMM  MMMMM  MMMM  MMM      MMMM  MMMMM  MMMM  MMMM
      MMMMMMM:      MMMMMMM  M      MMMMMMMMMMMMM  MMMMMMM  MMMMMMM
      MMMMMMM      MMMMN  M      MMMMMMMMMMM      MMMM  MMMM
      MMMM      M      MMMMMMM      M      M
      M

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  For those about to rock... (Chaos Calmer, 22.0810_140821)
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root@Router:~# /tmp/flash
Unlocking /dev/mtd8 ...
Unlocking /dev/mtd8 ...

Writing from /tmp/kernel.bin to /dev/mtd8 ...
Unlocking /dev/mtd9 ...

Writing from /tmp/firmware.bin to /dev/mtd9 ...
Rebooting ...
```

You can now close Putty.

Wait for the router to reboot, which is indicated by the lower right LED flashing. When that has stopped the router is finished rebooting to the ROOter firmware.

Point your browser to *192.168.1.1* and you will see the ROOter GUI. The ROOter firmware being run is a cut down version which is only used to flash to the latest firmware.

Use *System->Backup/Flash Firmware* to flash to the regular ROOter firmware. The lower right LED will flash when the flash process is taking place and will stop when it is done. This takes about 4 minutes and 50 seconds to complete.