A modding guide for (Version 1.5011)

For direct download: http://wrt160nl.org/files/wrt160nlmod.pdf

WRT160NL

presented by tema[HU] & tsoky[HU]

Preface :-)

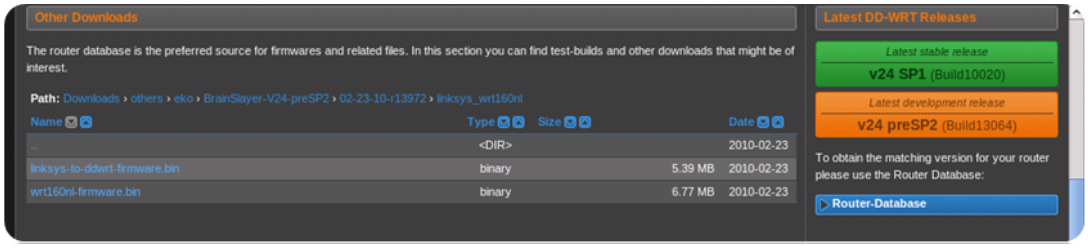
Want to share printer, run torrent client without PC, use a 3G modem, create Hotspot, use as repeater, boost signal, terminate VPN, check traffic flows, see graphical site-survey, etc? Give yourself a WRT160NL and maximum about 60 minutes and you can do it all :-)

We will need to do the followings, and that's what this guide is all about:

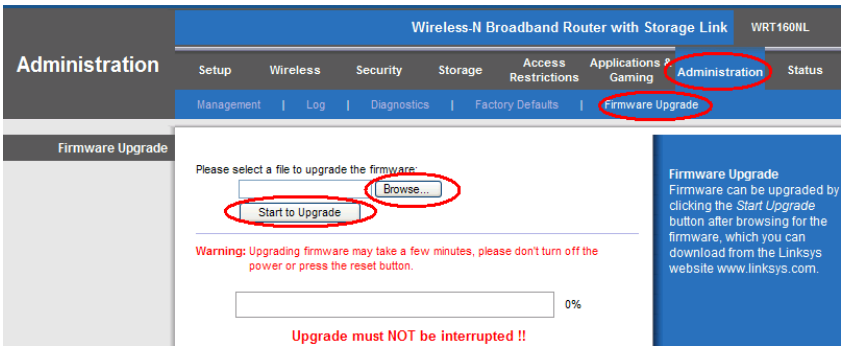
1) Install DD-WRT on the WRT160NL by replacing the Linksys firmware
2) Enable Internet access on the WRT160NL with DD-WRT
3) Create an ext3 drive which you will use with the USB port of the router
4) Make sure you know, how to read data from this drive under windows/Mac OS
5) Enable USB support on WRT160NL
6) Connect the ext3 formatted drive
7) Configure DD-WRT properly on WRT160NL (fix some config related issues)
8) Use the script to install and configure torrent client, virtual user based FTP, samba server, printer support

Installing DD-WRT

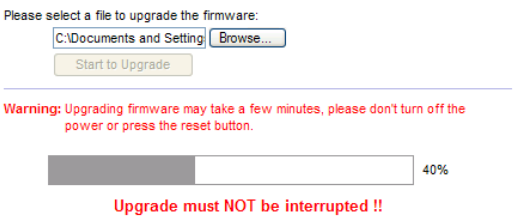
You need to install DD-WRT firmware. Get the version we used when writing this tutorial from http://www.wrt160nl.org/downloads.html or the latest from http://www.dd-wrt.com website.
On the DD-WRT site click on Router Database and enter the router name: WRT160NL
On the line appears while you are typing, click on the router's name and you will find these files below: save both of them on your computer. *(see picture and signs below)*



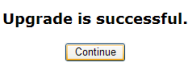
From the same computer enter to the WRT160NL router's webUI via (usually) http://192.168.1.1 than go to the Administration tab and click on Firmware Upgrade. *(see picture and signs below)*
Make sure, that you have wired connection to the router, and if you are running a laptop it is connected to the mains as well :-) Use a UPS if you happen to have one.
During the upgrade process: don't switch off or disconnect nor the router or the computer, that will brick your unit, and you really don't what that happen.
Find the "linksys-to-ddwrt-firmware.bin" by clicking Browse, than "Start Upgrade" *(see picture and signs below)*



The progress bar is moving, and you will get a page which says Upgrade successful. *(as below)*

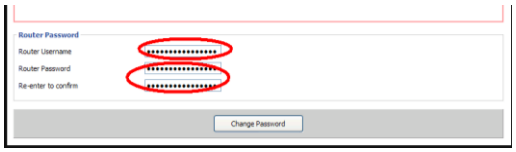


Once the upgrade is done, you will see the a message in the middle of the browser screen.



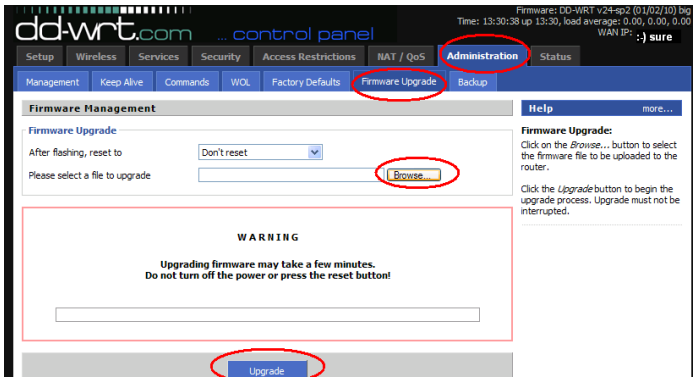
Close all open browsers. While doing that the router is being re-booted in the background.
Wait around 60 seconds while the network connection to the router is re-established by windows, and then start the browser again.

Enter http://192.168.1.1 to the browser and you will be requested to select router username and password. You cannot skip this. Enter both an admin username and password as well! Note it down! :-) Click “Change password” *(see picture and signs below)*

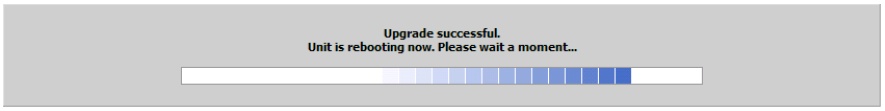


You are now on the status page (System information) of the router. Click on “Administration” tab.
Login to the router with the username and password via the pop-up… *(see picture and signs below)*

In Administration tab and click on Firmware upgrade.
Click browse and find the other downloaded file “wrt160nl-firmware.bin”, once selected click on Upgrade. *(see picture and signs below).* During the process don’t switch off, stop, disconnect ….etc. you know it already.

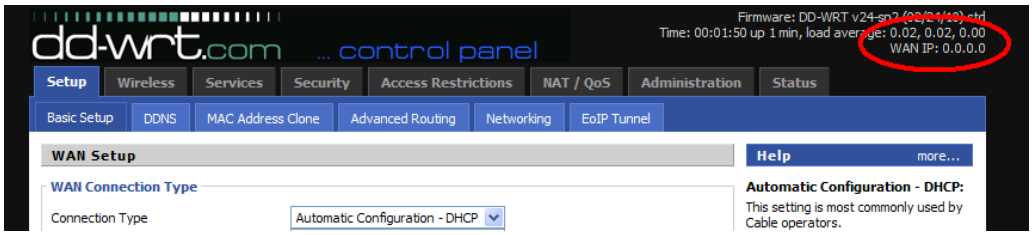


Firmware is being copied to the router….. please wait with patience. After done, it will reboot automatically and you will have the needed firmware version for this tutorial.

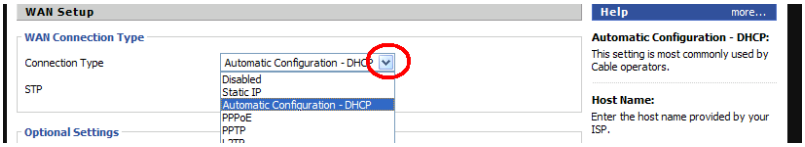


After unit is running again **we need to set up the WAN (Internet) connection** on the router. You are supposed to see the Basic settings sites. If not, please close the browser, start it again and enter: http://192.168.1.1- login to the router with the username and password via the pop-up.

Check if your Internet cable is connected to the WAN (Internet) port on the router. Wait around 60 seconds. If you see a WAN IP different than "0.0.0.0" on the upper right corner, your router is connected to the Internet. You can skip the following part.

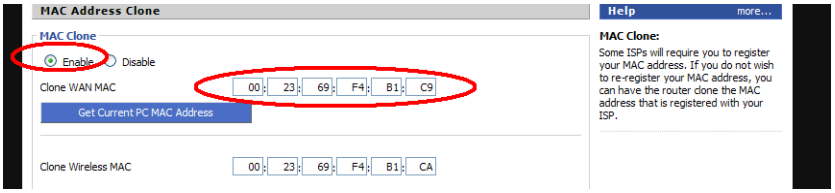


If you have only "0.0.0.0" as WAN IP, than select the type of WAN (Internet) connection from the drop down menu.
Automatic Configuration – DHCP is Ethernet or cable modem based like UPC
PPPoE is xDSL-modem based like ADSL



If PPPoE, enter your ADSL username and password in the proper fields. Don't touch the other settings if you don't know what it means :-)

If you need MAC address cloning please also set it under MAC Address Clone tab. (usually cable ops, like UPC subscriptions will need that.)



You should have a WAN IP by now.
Don't forget to set-up wireless security!!!

If you still don't have internet access please call your internet service provider or a friend :-)

Want to use extra applications! Let's create an "ext3" disk.

Linux is a kind of weird animal – apart from the fact that it likes cold fish and has wings but can't fly etc… – it won't properly work with your Windows file system (these days usually NTFS).

If you want to use anything else than the dd-wrt firmware's stock capability you need to have a disk, based on ext3 filesystem. Just easy… we will also make sure, that you will be able to read that disk afterwards as well under Windows so what you have downloaded wont stuck on the router.

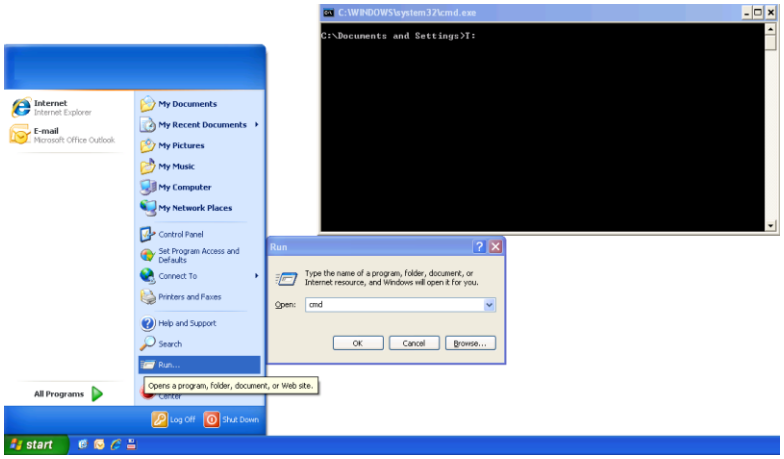
1) Create a bootable USB disk with the program on it!

Thanks to Patrick Verner and Jason Vasquez we have Parted Magic available. You can download the version we used for creating a bootable USB drive from http://www.wrt160nl.org/downloads.html or the newest version from Parted Magic website. If you like the program and make good use of it, check what's behind the Donate button :-)

Take a pendrive, it does not need to be empty, but must have FAT16 or FAT32 file system and at least 256 MB free space! If you are unsure about this, check it in windows, by going to My computer and right-click on the drive letter, select Properties, it will show you the file system. If you must re-format to get a FAT file system go back to My computer, right click on the drive letter and select Format. Before formatting don't forget to change the file system to FAT :-) Remember, if you format you will lose all your data on the USB stick.

Double click the ZIP file you have just downloaded until you will see two folders. Copy these 2 folders (called "boot" and "pmagic") to the root directory of the pendrive. Yes, the two complete directories from the ZIP file… so pendrive will have now two new directories added (boot & pmagic).

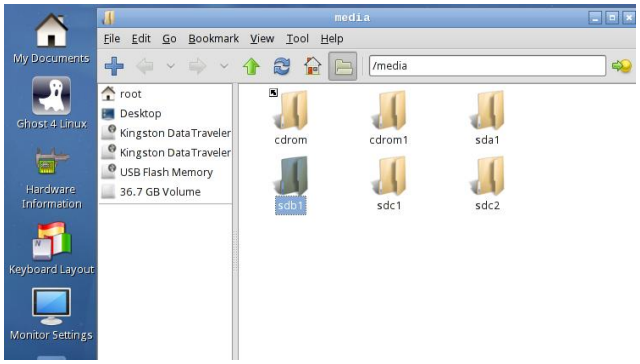
We also need to make the pendrive bootable so Open a command prompt please (go to Start menu and select Run, enter "cmd", press OK). You will see the black window *(see picture and signs below)*



Let's assume the pendrive where you have copied the two folders is called drive "T:" Assuming this, in the command prompt window now please enter the following commands, press ENTER after each line. Of course if your drive name is "H:" you need to replace all "T:"s with "H:"

T: *[press ENTER]*
cd \boot\syslinux\ *[press ENTER]*
syslinux.exe -d \boot\syslinux -ma T: *[press ENTER]*

Bravo :-) If you did not get an error message, now the pendrive should be bootable!
My advice is to copy the next chapter into a PDF file and put it also on that pendrive. You will be able to read what and how to do in Parted Magic to format your HDD or other pendrive for the purpose of using with the router! Download the full modding guide from http://wrt160nl.org/files/wrt160nlmod.pdf in PDF.
You will need to restart the computer when I tell you to do so. When the computer re-starts you most likely will need to enter the machine's BIOS to change the "Boot Sequence". Your aim is now to boot the computer from this pendrive so you can create the space of your thousands of movies and music and other programs. Tips: press the computer specific button when the machine restarts. The computer displays at startup which button is needed to enter the BIOS… usually DEL, F1, F2, ESC, etc. If you have no idea/luck at all, than try to Google "how to enter BIOS" my first result was Michael's page http://michaelstevenstech.com/bios_manufacturer.htm
Important: if you don't have the next chapter in (*After Parted Magic booted up..*) a PDF file on the bootable pendrive, to avoid getting lost you'd better print it from this window. :-)
When you restart and managed to boot from the drive, select option 1 to start Parted Magic. (This will load Parted Magic with its default settings into the RAM)
After the program starts if you click on My Documents select the USB Flash Memory on the left (or brand of your drive you will see it when reading) and browse to the PDF file. It will look something like this*(see picture and signs below)*. Get accommodated to the fact 1 click means already a double click in Parted Magic! :-)

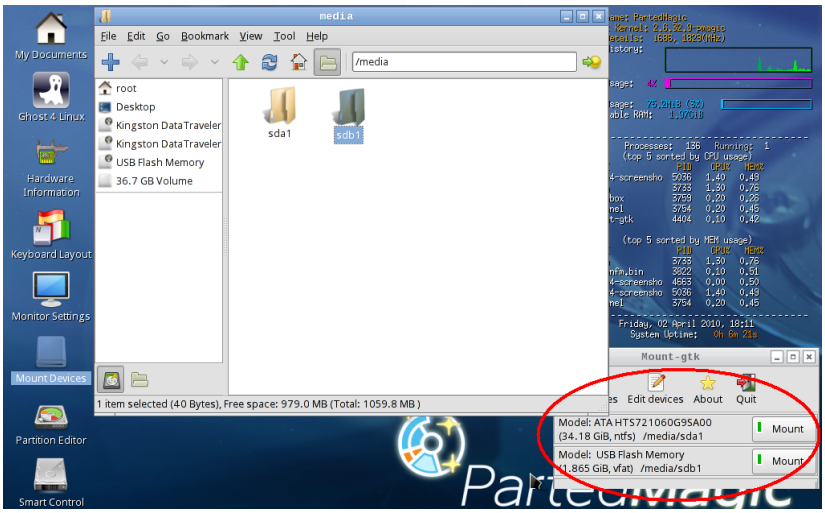


Leave the bootable pendrive in the USB port and please restart your computer NOW in order to boot from that! Important, you might need to change the boot sequence in the BIOS!

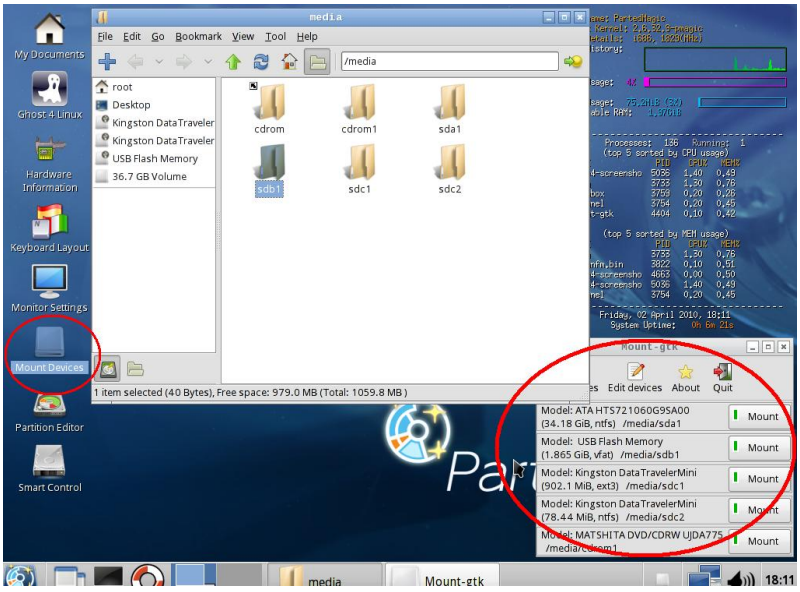
2) After Parted Magic boots up…

It will look like this *(see picture and signs below)*:

First identify the currently available drives on your computer *(see picture and signs below)* to make sure you won't format (and delete anything important). Start "Mount Devices", the icon is on the left side of the desktop. After you started, on the right a list of the currently attached storage devices will appear *(see picture and signs below)*. Identify /media/sda1 , /media/sdb1 etc. and make sure you know what must not be formatted under any circumstances. If you are not careful you can delete everything from your PC now…

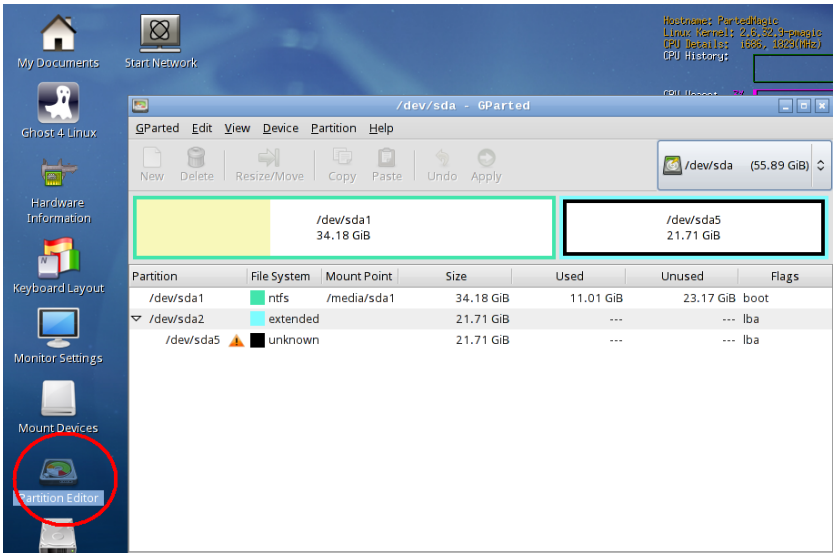


Once you know what devices are there already, connect the specific drive you are going to use with the router. Most probably it is a huge HDD or SSD, therefore I will call it the Drive :-). Once it is recognized by the system it will appear on the right side of the screen in the Mountable Device list *(see picture and signs below)*, and sequential device name(s) will be added. Let's assume that it is called /media/sdc1 (but we have already two partitions on that disk so /media/sdc2 will also appear)



If you would encounter any problems while the next step is being performed, please read the troubleshooting text after the picture.

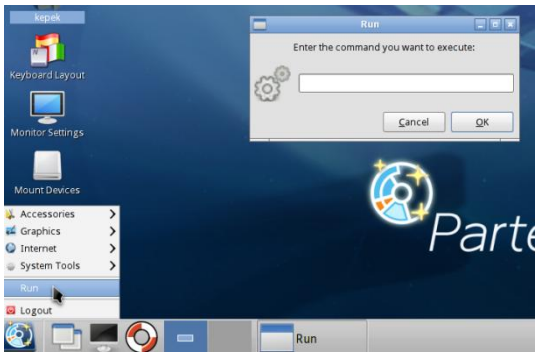
Now please keep in mind the device name of the Drive, and start Partition Editor. The icon is located on the left side of the desktop. *(see picture and signs below)*



---Troubleshooting part
(you can skip this if you have not experienced any problems):

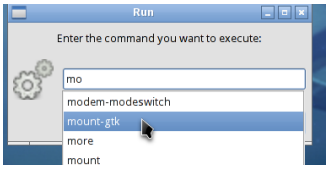
Restart the computer and boot again the computer with only Parted Magic USB in the USB port.

Once you see the Desktop screen, click the Partition Magic logo in the bottom left corner and click run.



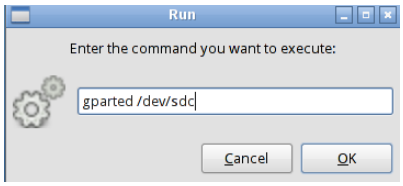
In order to make sure you determine which drive you want to format start Mount-gtk by entering:

mount-gtk *[Click OK]*



Connect the Drive and check the drive name appearing now.
Now you know, which drive you want to format, therefore you need to start partition editor manually appointing that exact drive. In our case that will be */sdc1*. Please edit the command properly before doing it.

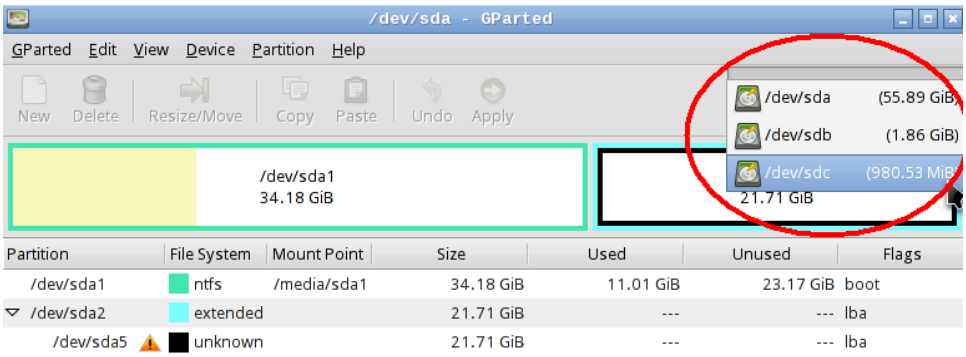
gparted /dev/sdc *[Click OK]*



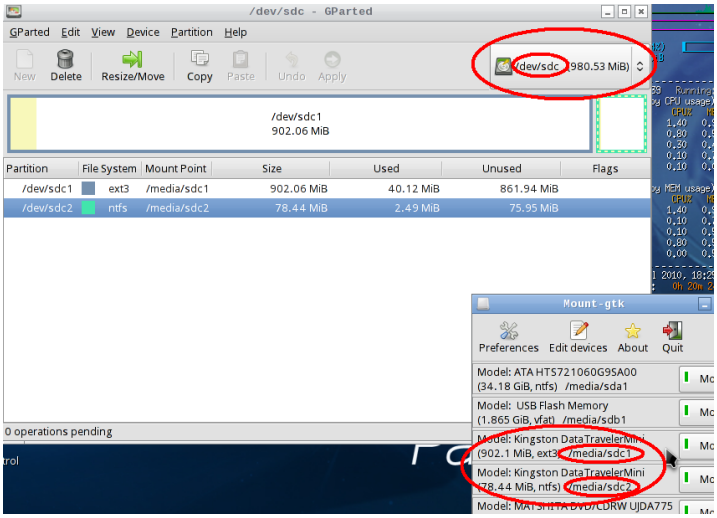
Continue reading.

----END of Troubleshooting part

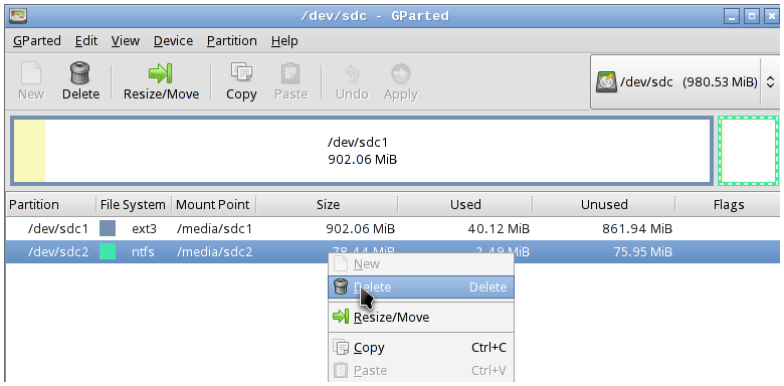
Please select the correct drive to be formatted on the upper right corner, by clicking on the arrows. Don’t do this, if you needed to troubleshoot just now due to a reboot. *(see picture and signs below)*



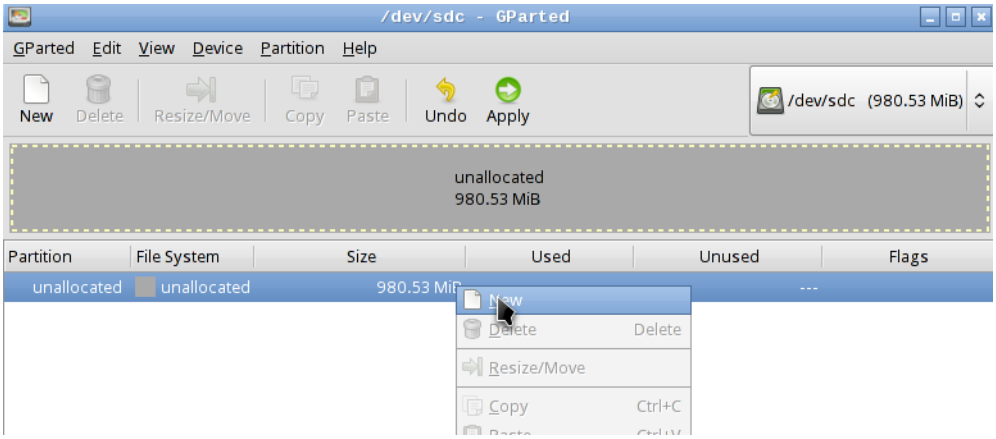
Check again that you really selected the Drive what you wanted! *(see picture and signs below)*



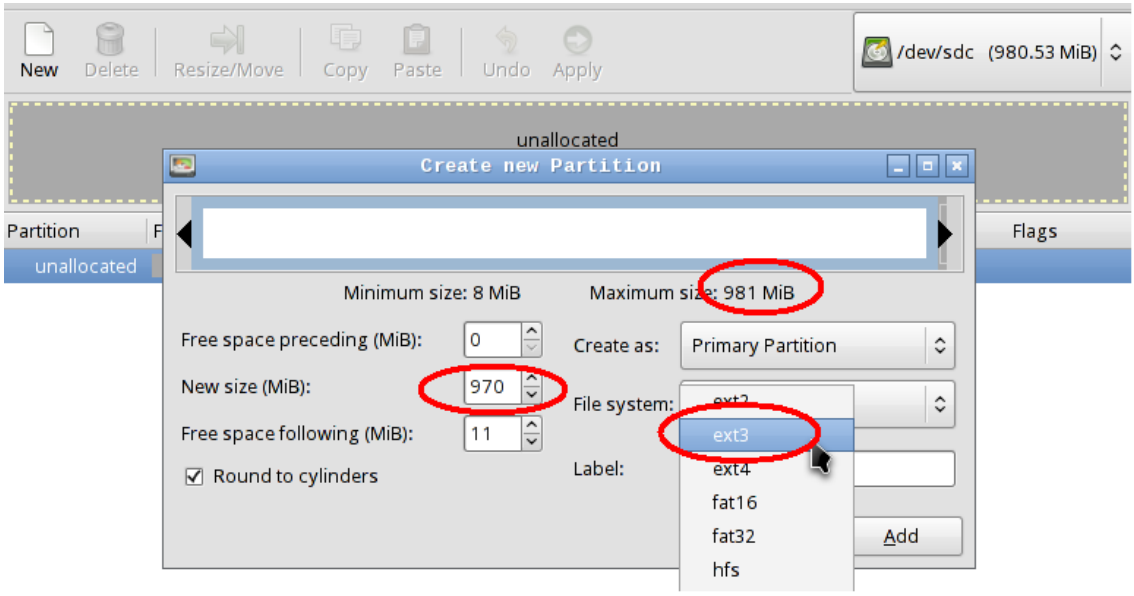
If you are sure this is the correct drive, right click on the line(s) and delete all available partitions on the disk! *(see picture and signs below)*



Now click again to the one line remaining and **create the new partition**! First click on New… *(see picture and signs below)*

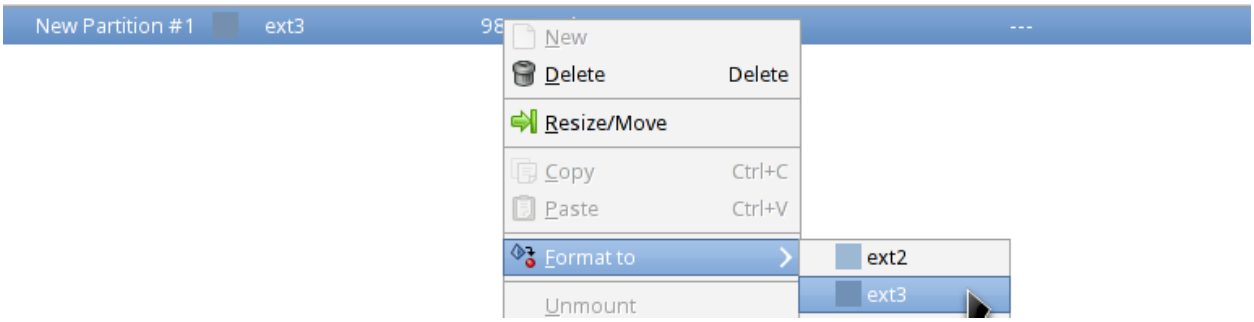


…and choose the type of File System: select “ext3”, and in my experience it is good to leave some 10 MB space unallocated… on some computers this will bring higher compatibility on Windows when you want to copy files… You can either decrease the “New size (MiB)” variable or increase the “Free space following (MiB)”… Once done, click “Add” button *(see picture and signs below)*

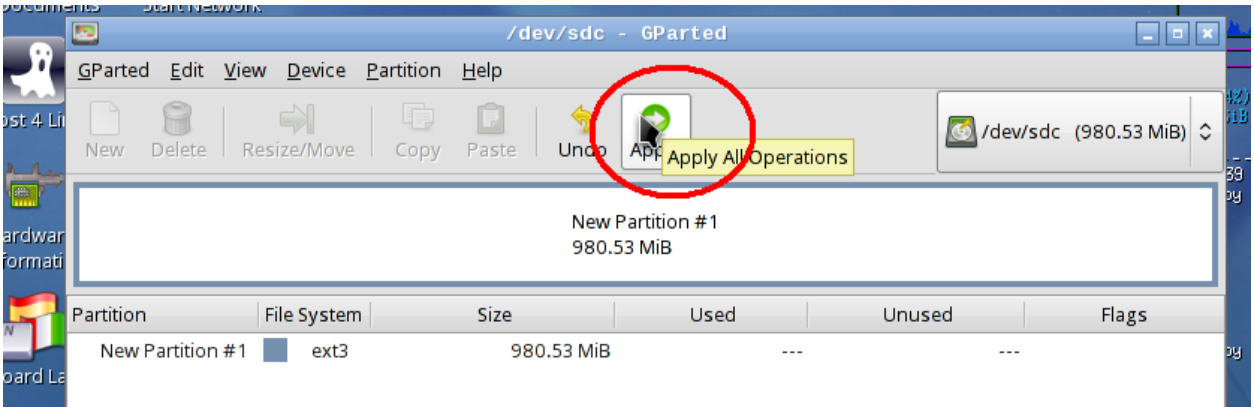


If you have left extra space as advised above, than you will see two lines on the screen. Now I only show one, which is the“ext3” part of the drive. The other has no importance at this stage.

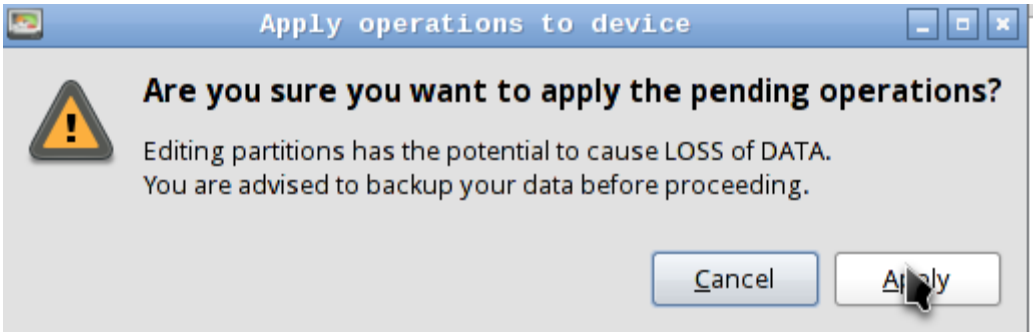
Right click on the line with ext3 file system, and select Format to > ext3 *(see picture and signs below)*



After this, start the ext3 creation and formatting process: click “Apply” *(see picture and signs below)*



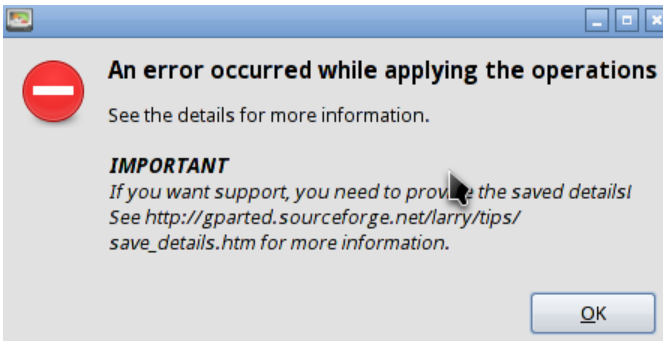
Usual question will appear, if you are really sure… Only press Apply if you know that this is really the correct Drive. Now all your data will be lost from the formatted disk. Don’t worry if you get an error in some seconds, just continue reading.



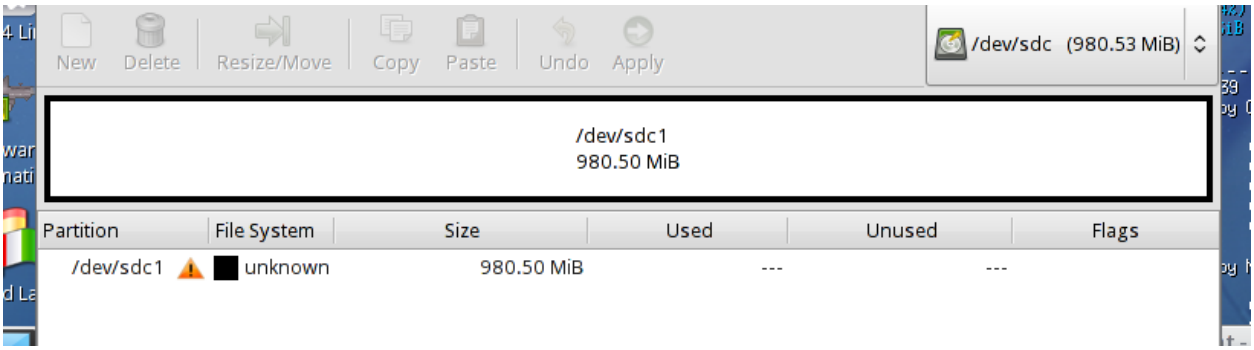
There are two options now.

If all operations completed successfully – than you are happy go to YOU ARE DONE :-)

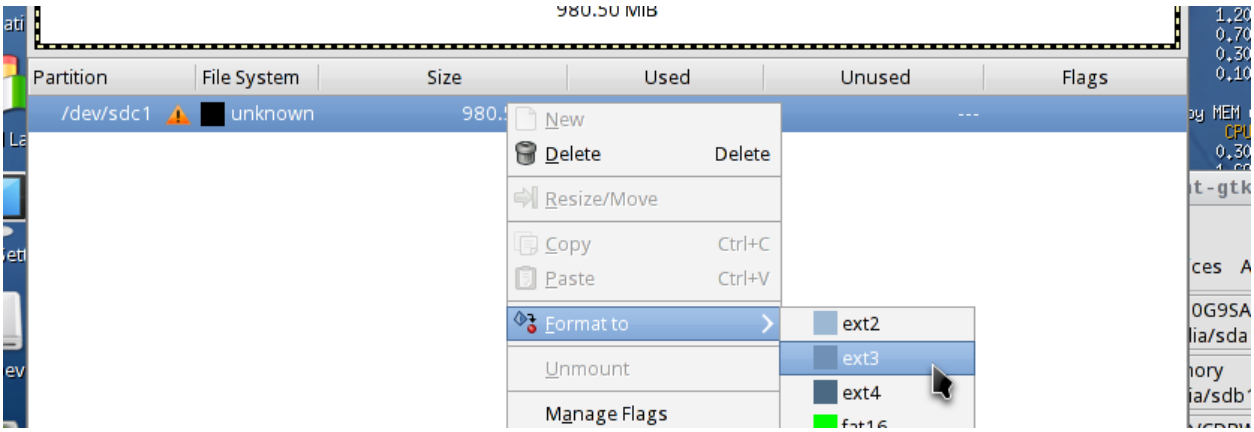
If there is an error… you are still happy, but let's see what to do:



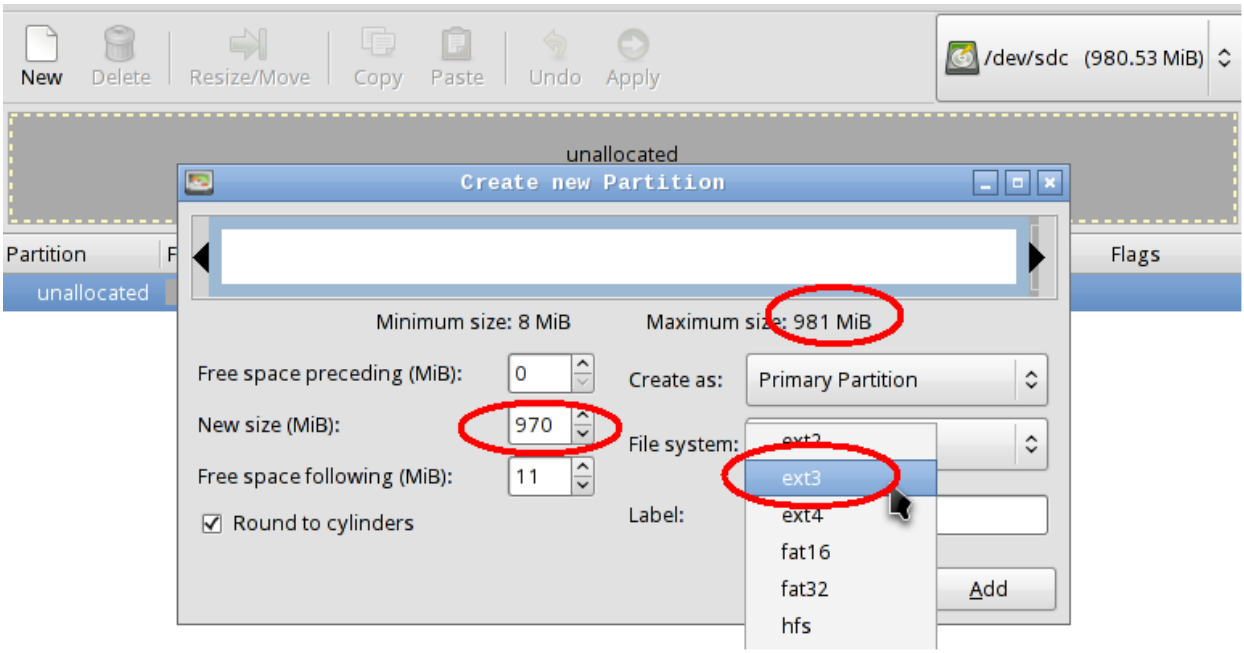
After you click OK, and close the other window, GParted will automatically refresh and there will be the Partition list with unknown file system. Something like this. *(see picture and signs below)*



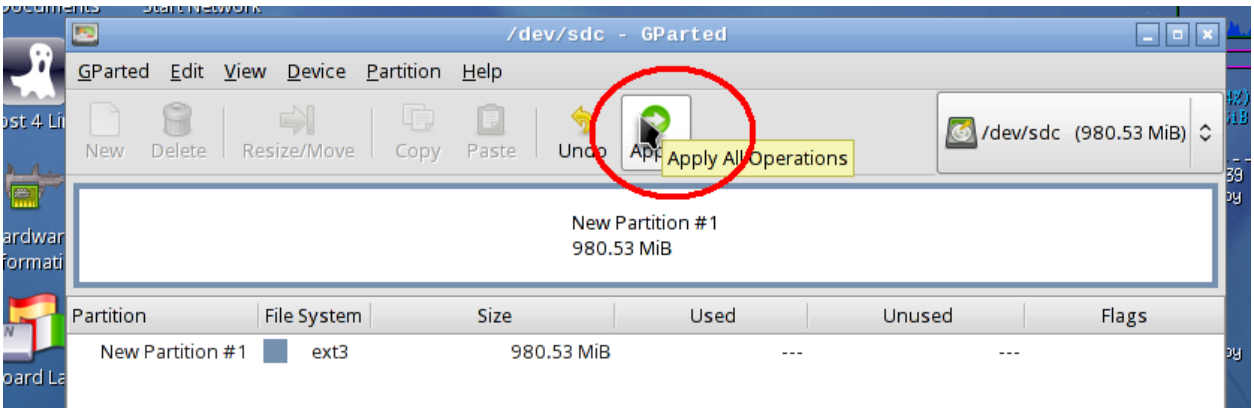
No problem, just right click again on the line and select Format to > ext3 as you did earlier.



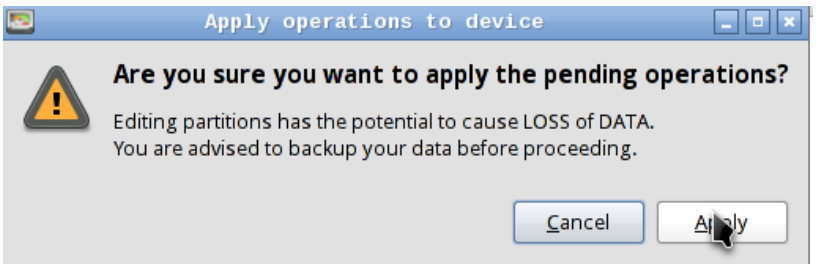
If you have not done so, I propose to leave the around 10 MB space by changing the size of the partition. *(see picture and signs below)*



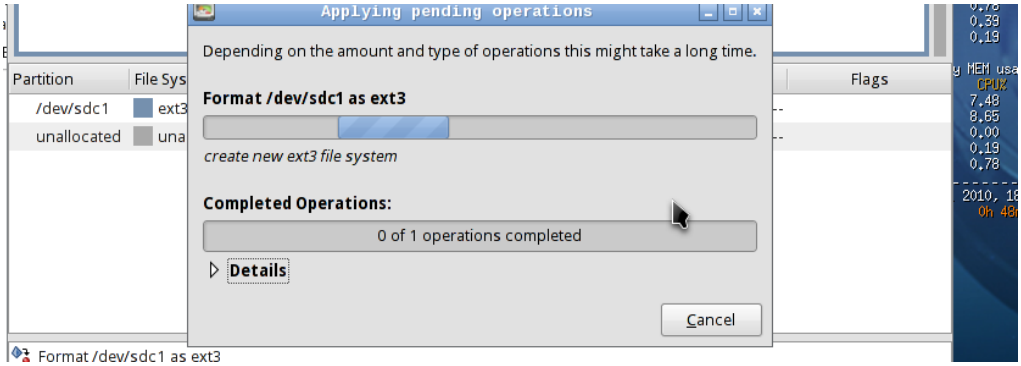
Now click Apply ---



The well known question will appear, if you are really sure… Only press Apply if you know that this is really the correct Drive. Now all your data will be lost from the formatted disk. The progress can take some time depending on the disk size. Go and eat something :-)



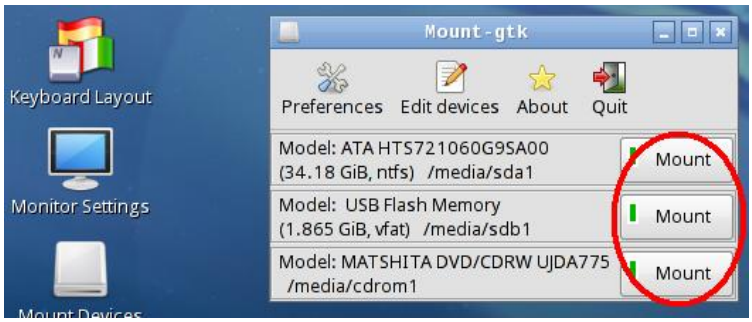
Wait for the progress bar to run its way until the operations are completed. This can take some time, be patient! *(see picture and signs below)*



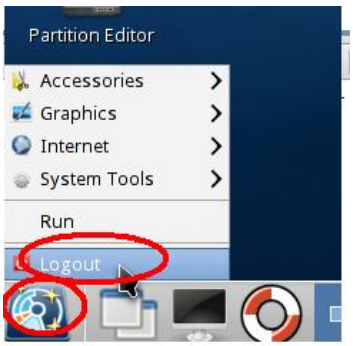
…..waiting…….waiting….. Opetarions complete!! Hurray!
If you have an error again, than delete again the partition (you know already hot to do that) and recreate the ext3 partition, reformat, etc. Very unlikely, but if you got into a loop with that, there should be another issue please try to fix it … sorry :-)

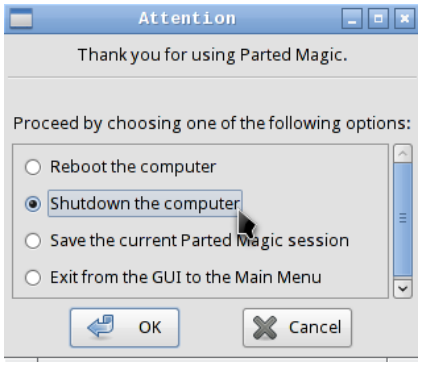
YOU ARE DONE with the ext3 drive creation we will just do the final steps!

This is how the Mount window should look like. All buttons must say “Mount”. *(see picture and signs below).* If you have any devices where “Unmount” appears, click those buttons to stop those devices.



Click the Parted Magic logo in bottom left corner of the Desktop *(see picture and signs below)* and select logout, and choose “Shut down computer”. Before you switch it on again, remove the USB drives we worked with.



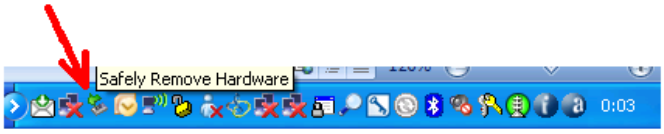


How to extract in Windows/Mac what will be downloaded to this ext3 disk?

Once you are done with creating your ext3 drive we will check whether the drive can be read by windows. **Mac users please see this link for solution**: http://sourceforge.net/projects/fuse-ext2/

Thanks to Bo Branten & Matt Wu and the community behind on SourceForge.net we have a great tool called Ext2FSD to read ext2/ext3 disks under windows. If you like it I propose to check the Help – Donate area in the program!

IMPORTANT: Before removing an ext3 drive, *ALWAYS* stop the respective USB device. You can do this, on the by clicking on the Safely Remove Hardware icon. Don't risk, as the data consistency can be hurt easily! *(see picture and signs below)*



Test what windows can do:

Switch on the computer and boot windows.

If windows offers you in the following process to format your drive, say NO!
Take the ext3 drive, and connect to the computer. If windows assigns a drive letter open it in windows explorer and check if you can see files. If windows offers you to format it, you need the install a program, read further. If now you will see a "lost+found" folder, than you can be assured that you will be able to see the files on this disk, i.e. whatever you download later with the router :-)

The installation process:

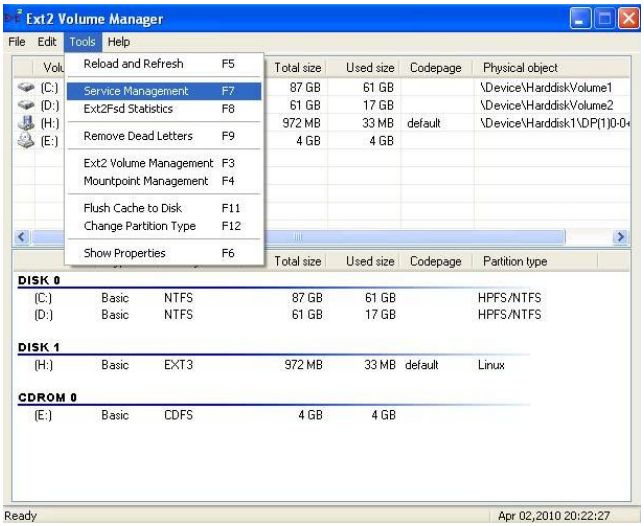
Windows wanted to format your ext3 drive…. We need to fix this and make windows understand that there are also other file systems :-)

Download the version we used from http://www.wrt160nl.org/downloads.html or the latest version from http://www.ext2fsd.com/

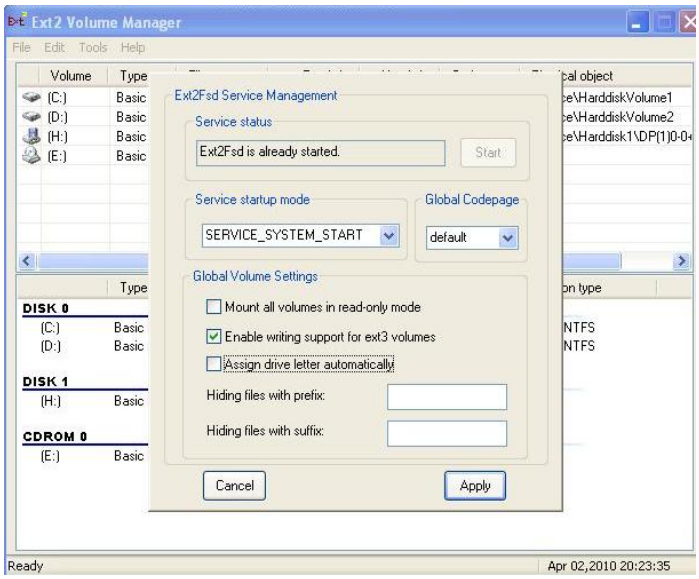
Just run the downloaded file installer and click next, next, next, ok etc :-)
After the program has been copied, but the installer is still running, you will be asked about multiple things, leave all boxes unchecked if you don't know what it means.
If you use Windows7 or your ext3 drive is bigger than 150GB and you don't see it in Windows, the known issues part as you will probably need some workaround.

Once installed, start the program in the Start menu

Check, whether the service is properly running. Select “Tools – Service Management”, or press F7



You must click the Start button if it is not grayed out as below. The Service startup mode is best to set Service_System_Start, as that will launch once windows is booting up. In order to avoid any deletion or change in the ext3 filesystem you can protect the Drive by mounting in read-only mode. If you wish you can also copy back to the Drive from windows, if you enable writing support. Be careful with this, as some files might ruin the filesystem.



connect the ext3 drive again and you must be able to see its content “lost+found”. If not, that you missed to start the service, or you have other problems, check the known issues below. *Wasn’t so hard, was it?… you should be done with this so let’s configure the router! :-)*

REMEMBER: Before removing ext3 drive, *ALWAYS* stop the USB device. You can do this by clicking on the Safely Remove Hardware icon. Don’t risk, as the data consistency can be hurt easily!

Issues with seeing the drive or its content after the service is running?

Any OS:

You connect the drive, but windows still does not recognize the filesystem and you can't see the data on it? Once the drive is connected, start Ext2FSD program, Select "Tools – Service Management", or press F7. Click "Apply" to re-enable the service is running. You should see the files now.

Windows7:

Set it to run in Compatibility Mode for Windows Vista SP2, it might be working well for you than. If not, you will need to use FTP to access the content of the drive, or search for another and stabile ext2/3 driver for Win7. Sorry about that.

Drive bigger than 150 GB and won't appear in windows:
The original solution was posted here, follow this webhop: ?????? http://kb.paragon-software.com/paragon/include/templ/object2.jsp?catId=2124&objId=2507&statId=1417560&foLang=en

1. Run REGEDIT
2. Open the following Registry key (it controls memory management parameters):
   HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management
   This Registry key controls memory management parameters.
3. Set the **PagedPoolSize** Registry value to the value of 0xFFFFFFFF
4. In addition, check the following Registry values:
   PagedPoolQuota should be either 0 (default) or 0x80 (decimal 128, maximum value).
5. Close REGEDIT and reboot Windows in order to activate new system settings.

Other issues:

See development FAQ please: http://www.ext2fsd.com/?page_id=7

Initial settings for modding:

At the time of writing this tutorial there were fixes pending with DD-WRT on the WRT160NL firmware, therefore we had to use some 'hacks' to make everything work. If you want to set up your custom programs, you have to use these workarounds.

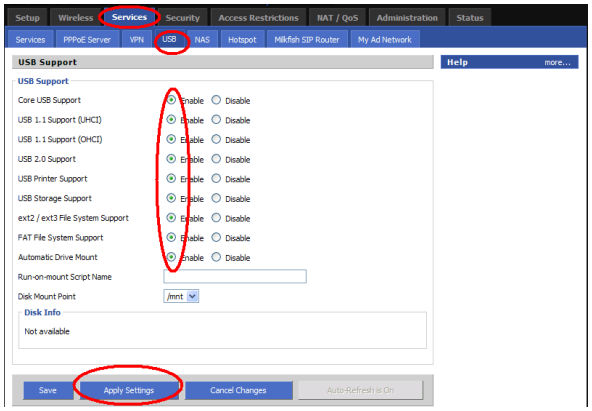
If you know how to login to the router and USB services are all enabled via the WebUI, plus you are totally not interested what is really going on, you can use directly our scripts. In that case just connect your USB hub if you need, and your ext2/ext3 drive and follow the "scripts howto" found a bit later

1. **Decide how many USB ports you will need, and connect a powered HUB if needed**
   We used the unit with 3G sharing via a USB modem while parallel connected a USB hard drive, for torrent and other programs, plus printer sharing. Therefore we needed 3 ports and it proved to be an ideal choice to use the Trust 4-port powered HUB.
   (http://www.trust.com/products/product.aspx?artnr=14789)

2. **Get your ext2 or ext3 HDD or pen drive**

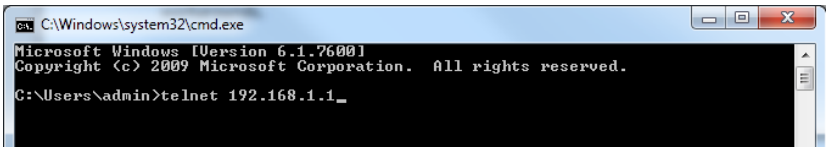
   It is necessary to have a Linux file system which supports symbolic links, as we have to copy the existing files/links from the router, and mount it as read-write. The first half of this tutorial explains how to create one.

3. **Mounting the drive**
   Enable USB support from the WebUI of the router (http://192.168.1.1) (Services -> USB -> enable ALL functions). Don't forget to click on "Apply settings" button *(see picture and signs below)*

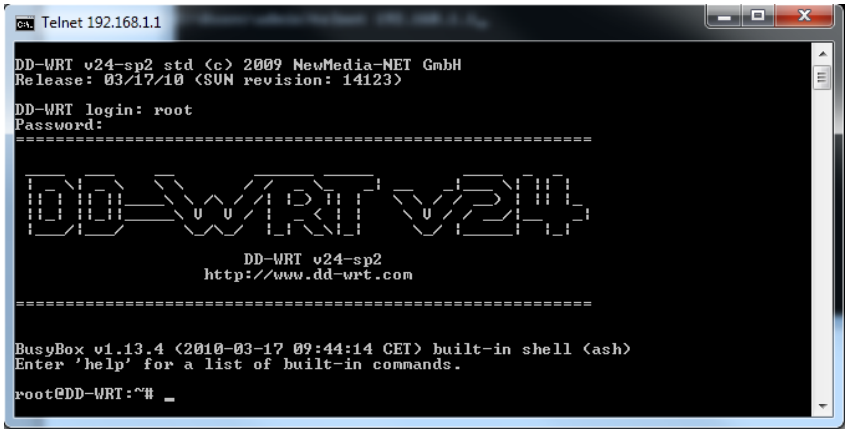


   Router will reboot now.
   When it is running again, plug the drive into the router, and log in via telnet, i.e. "telnet to the router". If you want to use backspace due to mistypes, download putty from our download site and use that, not the telnet client. In Windows 7 and Vista telnet is disabled. See here how to enable it: http://www.leateds.com/2009/telnet-for-windows-vista-windows-7/

   Run a cmd prompt and enter the following command:
   telnet 192.168.1.1 *[press ENTER]*



The username should be “root”, the password is what you’ve set up after the flashing. That’s what you get after logging in:



Now the choice is yours.

a) You either read, copy&paste and do these steps manually, kind of time consuming (skip the next part than)
b) Or do it via the scripts howto, see next page

---Scripts howto:

Enter the following commands, press enter after each line or copy&paste it and press ENTER.
Note, that "./" is there on purpose and you need to type it as well.

Download the script which will help you and make it executable

wget http://wrt160nl.org/files/wrt160nlmod.sh *[press ENTER]*
chmod +x wrt160nlmod.sh *[press ENTER]*

To do **the basic stuff** mount the file system, create links, set-up ipkg and create the auto-start script for reboot, enter:
./wrt160nlmod.sh initiate *[press ENTER]*

Afterwards this **for enabling torrent:**
./wrt160nlmod.sh torrent install *[press ENTER]*

To **install and setup SAMBA** so you can work with files from your router's torrent directory via LAN.
./wrt160nlmod.sh samba install *[press ENTER]*
The torrent directory will be available at \\192.168.1.1\downloads with the 'OpenWrt\root' username and the password you have set. If you don't know how to connect a network drive in windows, than check the FAQ at http://wrt160nl.org (Question 108)

To **install and setup FTP** so you can remotely download files from your router's torrent directory.
If you will use dd-wrt's built-in FTP service please choose another port than 21 when you're prompted
You **MUST** add at least one user in the setup section, otherwise you cannot log in.
./wrt160nlmod.sh ftp install After it is finished, run:

Never remove the USB drive when the router is running!!!! Power down your router first if you forgot to connect the hub! Connect the printer and the USB drive and switch on the router again.
For printer support, first connect your printer and:
./wrt160nlmod.sh printer *[press ENTER]*

For the ease of remote access you can also set-up your DynDNS account. If you don't know what is this, or how to do that, check the FAQ http://wrt160nl.org (Question 109)

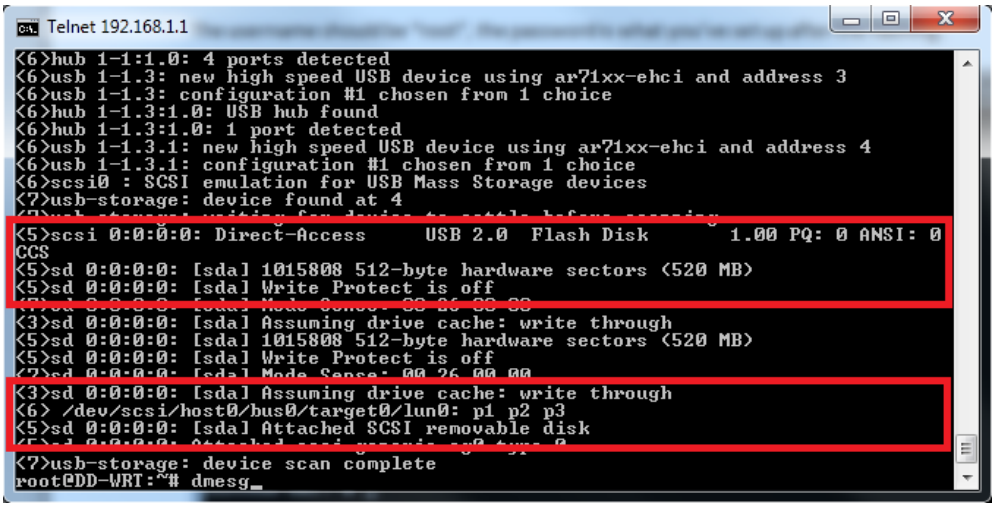
---END of scripts howto:

Manual howto:

Now let's run the dmesg command, and see the output. Enter one of the following command:

dmesg *[press ENTER]*

dmesg | grep sd *[press ENTER]* (this will be a less verbose output)

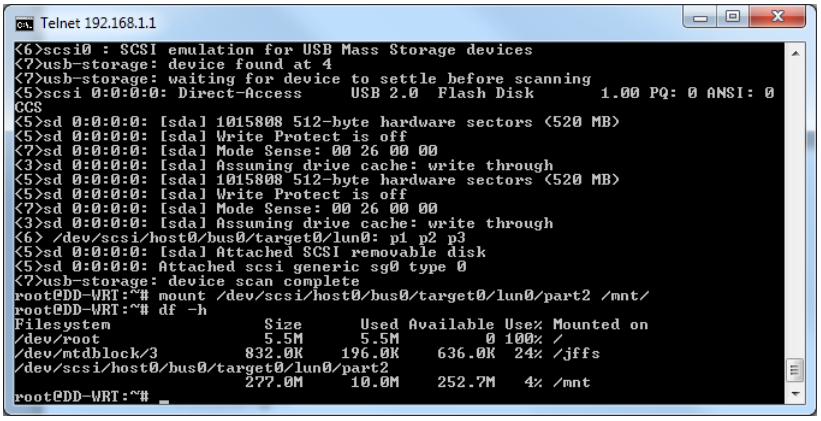


As you see *on the above screenshot*, the router recognized the USB drive, now we have to mount it because the DD-WRT automount function is not working properly. The command is below but the path could be different for you. For example part1 (shown above as "p1") means the first partition, which probably won't exist in your router, so you have to use partX accordingly or modify the command.

mount /dev/scsi/host0/bus0/target0/lun0/part1 /mnt/ *[press ENTER]*

Got an error message?: "mount: mounting /dev/scsi/host1/bus0/target0/lun0/part1 on /mnt failed: Device or resource busy" – Don't worry about this, most likely the router's automount function already mounted the drive by itself. Just go to the next step

See the below screenshot what happens (we also used df -h command after mounting see below)



You see, we have 252.7 MB usable space mounted under /mnt. The command "df -h" displays the free disk space in readable format.

4. **Copy the files we have to modify to /mnt**

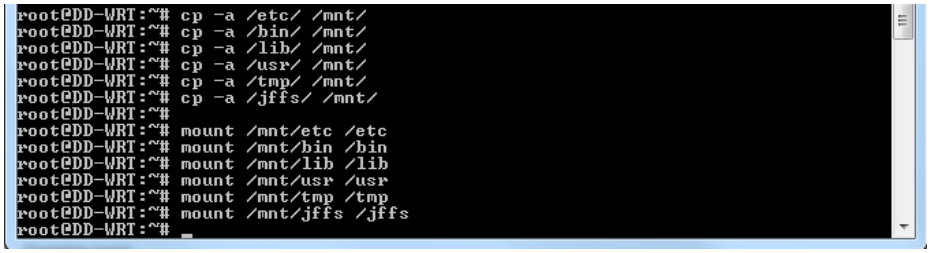
   Run the following commands and press ENTER after each line (or just copy & paste and press ENTER:-))

   cp -a /etc/ /mnt/
   cp -a /bin/ /mnt/
   cp -a /lib/ /mnt/
   cp -a /usr/ /mnt/
   cp -a /tmp/ /mnt/
   cp -a /jffs/ /mnt/
   sleep 1

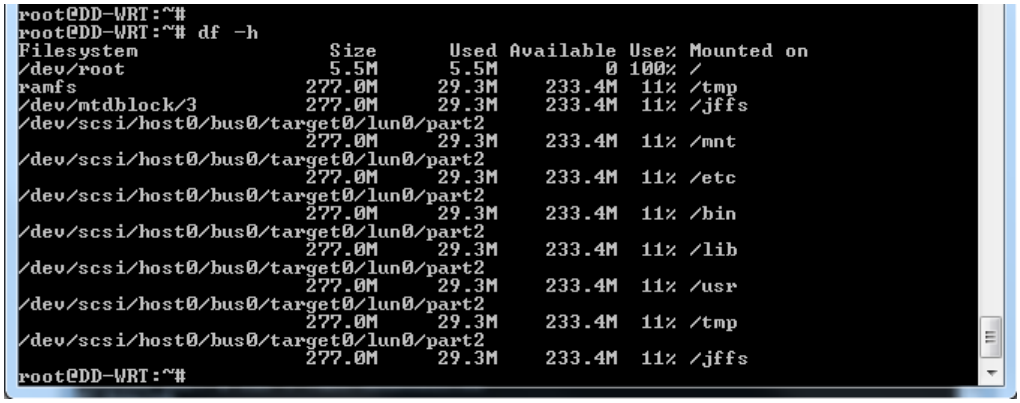
5. **Mount the drive**

   over our running system to enable writing. Do it with the following commands.

   mount /mnt/etc /etc
   mount /mnt/bin /bin
   mount /mnt/lib/ /lib
   mount /mnt/usr/ /usr
   mount /mnt/tmp/ /tmp
   mount /mnt/jffs/ /jffs
   sleep 1



Check if everything was mounted correctly, the output of “df -h” command should look like this:

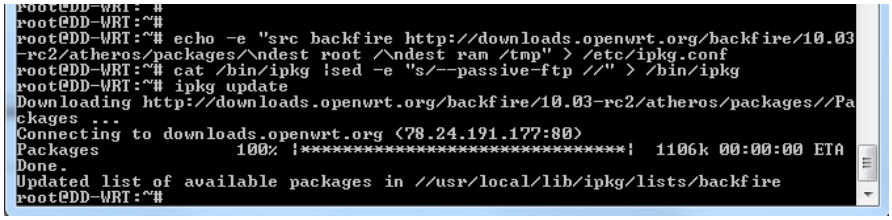


6. Setting up the IPKG

Big thanks to the guys @ OpenWRT for the Atheros support…

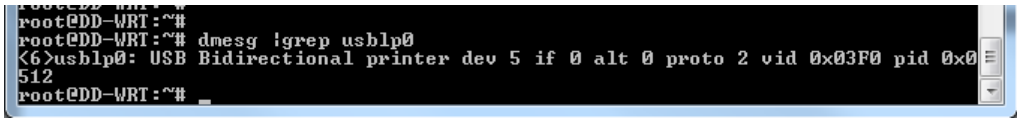
We have to add the Atheros [chipset] repository of OpenWRT to the ipkg.conf because the existing repos are built for different architecture. The DD-WRT ipkg script contains a wrong switch for wget, so we have to get rid of that as well. Then we can use the ipkg script for installing anything we need. Here is the command list one line with smaller letters so everything comes out into one line. You can copy paste it all.

```
mv /etc/ipkg.conf /etc/ipkg.conf.orig
echo -e "src backfire http://downloads.openwrt.org/backfire/10.03-rc2/atheros/packages/\ndest root /\ndest ram /tmp" > /etc/ipkg.conf
cp /bin/ipkg /bin/ipkg.orig
cat /bin/ipkg.orig |sed -e "s/--passive-ftp //" > /bin/ipkg
ipkg update
sleep 4
ipkg install coreutils-sort
sleep 1
```

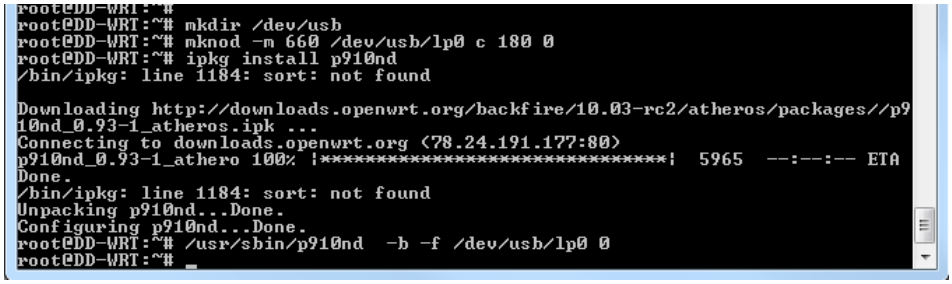


Setting up the Printer

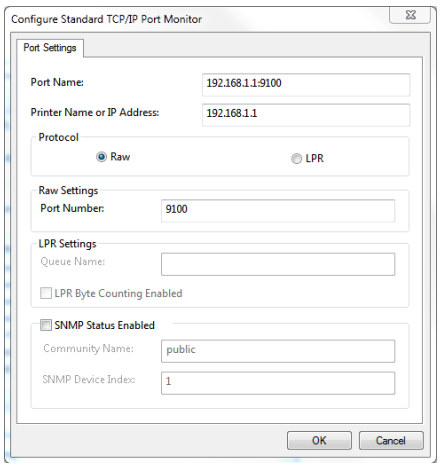
1. Check if your printer has been recognized by the system by running this command:
   dmesg |grep usblp0 *[press ENTER]*



2. Run the following commands to install and start the printer daemon:
   mkdir /dev/usb
   mknod -m 660 /dev/usb/lp0 c 180 0
   ipkg install p910nd
   echo "/usr/sbin/p910nd -b -f /dev/usb/lp0 0" > /mnt/etc/rc.p910nd
   /bin/sh /mnt/etc/rc.p910nd
   sleep 1



3. You can now add the printer in Windows.
   A detailed description about how to do this is available under FAQ (Question 102) on http://www.wrt160nl.org
   In a nutshell, you need to add a local printer, with no automatic detection, and create a new standard TCP/IP port (9100) for this. The printer IP address is the address of the router, by default it is 192.168.1.1. You have to set up a raw TCP port like below. Alternatively if you already have the printer installed on the PC you just need to create this port and use the printer via the router.



Setting up the Transmission daemon (torrent) and Pure FTPd

1. Run the following commands (remember, that you can really copy-paste from this file… just press enter after the last command is done… :-)):

```
mkdir -p /mnt/downloads
mkdir -p /mnt/downloads/.incomplete
chmod -R 777 /mnt/downloads
ipkg install libevent
ipkg install libcurl
ipkg install zlib
ipkg install libc
ipkg install transmission-daemon
ipkg install transmission-web
transmission-daemon
sleep 6
killall transmission-daemon
sleep 6
cp /tmp/root/.config/transmission-daemon/settings.json /tmp/root/.config/transmission-daemon/settings.json.orig
cat /tmp/root/.config/transmission-daemon/settings.json.orig |sed -e
"s/127\.0\.0\.1/127\.0\.0\.1,\*\.\*\.\*\.\*/;s/\\\\\/tmp\\\\\/root\\\\\/Downloads/\/mnt\/downloads/;s/\\\\\/tmp\\\\\/root\\\\\/.c
onfig\\\\\/transmission-daemon\\\\\/Incomplete/\/mnt\/downloads\/.incomplete/" > /tmp/root/.config/transmission-
daemon/settings.json
killall transmission-daemon
sleep 5
echo transmission-daemon -T  > /mnt/etc/rc.transmission
/bin/sh /mnt/etc/rc.transmission
sleep 1
```

2. Open http://192.168.1.1:9091/ in your browser, torrent user interface is available here. If you want to reach Transmission WebUI via Internet, please read point 4.
3. You might be able to access your completed downloads via ftp://192.168.1.1 with username "torrent" and the password you had to specify if you install PureFTPd for FTP support. (i.e. you can easily connect from your computer and copy files from the directory whereto the goodies downloaded via torrent). Commands:

   ipkg install pure-ftpd *[press ENTER]*

   The below command configures the service to port **21**, and adds user "**torrent**"
   If you will use other FTP server, please change these settings to the desired one, for example: 9021. You will also be asked for a password for the "torrent" user after the second command.

   ```
   echo "pure-ftpd -E -b -B -S0.0.0.0,21 -lpuredb:/etc/pureftpd.pdb" > /mnt/etc/rc.pureftpd
   pure-pw useradd torrent -u 1 -g 1 -d /mnt/downloads
   ```
   Now you need enter password twice for the specified user, then run the below command:
   ```
   pure-pw mkdb
   ```

   We are not ready yet, continue reading!

If you want to access this directory (where torrents are downloaded) also from the internet, enter the below command, where **21** must be changed if you used a different port name earlier.

```
echo -e "pure-ftpd -E -b -B -S0.0.0.0,21 -lpuredb:/etc/pureftpd.pdb\nsleep 5\niptables -I INPUT -p tcp --dport 21 -j ACCEPT " > /etc/rc.pureftpd
```

[press ENTER]

Now everything is configured, run this below command to start pureFTP daemon.

```
/bin/sh /mnt/etc/rc.pureftpd
```

[press ENTER]

OK, besides Transmission now also FTP is running and is properly set up.

4. If you want to reach the WebUI of Transmission and control torrents via the Internet, you need to do the followings. You are strongly advised to set up a **user**name and **pass**word as well. **Please change it as you wish before pressing enter** over that line, or copy and pasting, and be consequent with settings.

   Only to have authentication via http://192.168.1.1:9091 but not reachable via the Internet enter:

   ```
   echo -e "transmission-daemon -a *.*.*.* -t -u user -v pass\nsleep 5\niptables -D INPUT -p tcp --dport 9091 -j ACCEPT" > /mnt/etc/rc.transmission
   killall transmission-daemon
   sleep 6
   /bin/sh /etc/rc.transmission
   ```

   If you want to reach this also via the Internet (*with authentication*) run this:

   ```
   echo -e "transmission-daemon -a *.*.*.* -t -u user -v pass\nsleep 5\niptables -I INPUT -p tcp --dport 9091 -j ACCEPT" > /mnt/etc/rc.transmission
   killall transmission-daemon
   sleep 6
   /bin/sh /etc/rc.transmission
   ```

   If you want to reach this also via the Internet but *no authentication*

   ```
   echo -e "transmission-daemon -T -a *.*.*.*\nsleep 5\niptables -I INPUT -p tcp --dport 9091 -j ACCEPT" > /mnt/etc/rc.transmission
   killall transmission-daemon
   sleep 6
   /bin/sh /etc/rc.transmission
   ```

   Once you have run the selected set of commands your changes take place immediately! Please note that remote access (from Internet) related settings might need some manual settings or a reboot. Check the FAQ to understand it deeper.

5. **You can find more automated settings options with the script, noted in the beginning.**

6. **How to make sure that every time when you reboot the router, your services will start?**
   In order to avoid doing the above each time the router reboots, do the followings (you can also copy&paste the followings, into the telnet session). VERY important! The **bold text** must be replaced with the correct path you were also using to mount the drive at the very first time! If you are not sure what you are doing, than its strongly advised to run the script!

```
nvram set rc_startup="sleep 5
mount /dev/scsi/host0/bus0/target0/lun0/part1 /mnt/
mount /mnt/etc /etc
mount /mnt/bin /bin
mount /mnt/dev /dev
mount /mnt/lib /lib
mount /mnt/usr /usr
mount /mnt/tmp /tmp
mount /mnt/jffs /jffs
sleep 3
```

Select what services you already installed and execute their specific lines ONLY, line by line!

```
/bin/sh /mnt/etc/rc.transmission        (if you have transmission daemon installed)
/bin/sh /mnt/etc/rc.pureftpd            (if you have Pure FTPd installed)
/bin/sh /mnt/etc/rc.p910nd              (if you have printer installed)


"                                       <<<<<<<---------- there is a " sign in this line, it is important!!!
nvram commit
```

If you know you made something wrong enter the below commands and start again.

```
nvram set rc_startup=""
nvram commit
```

If you are sure that, all is well done, reboot the router with this command

```
reboot                          [press ENTER]
```