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LaFonera Software Flashing

From DD-WRT Wiki

It is extremely important to follow the guidelines for your specific router. Please see Installation for more information. Remember to follow the peacock thread first for background [1] (http://www.dd-wrt.com/phpBB2/viewtopic.php?t=51486) , use this page to identify your router model correctly, and use the dd-wrt download search page (DD-WRT Downloads page (http://www.dd-wrt.com/dd-wrtv3/dd-wrt/downloads.html) or secure version (https://secure.dd-wrt.com/dd-wrtv3/dd-wrt/downloads.html)) to ensure that you are getting the correct file (or files, as often is required) for the job.

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Preparation

(for easy installation of the FON2200 click here (http://www.dd-wrt.com/phpBB2/viewtopic.php?p=214431#214431))

If you have a Fonera+ UK Model (eg. 2201C UK), the only method to access RedBoot is via serial cable. RedBoot is enabled but only listening on IP address 0.0.0.0, you can access RedBoot via serial and change this or flash your device through serial.

Windows only, Linux with windows in VirtualBox fails.

You'll need the following for this tutorial:

1. SSH client
   - For windows, Putty (http://www.chiark.greenend.org.uk/~sgtatham/putty/) is a free and popular choice
   - For Mac OS X and Linux, SSH is built in. Open Terminal.app and use "ssh".
2. Telnet client
   - For Windows, Putty again will work.
   - For Mac OS X and Linux, telnet is built in. Open Terminal.app and use "telnet".
3. The following files:
   1. The firmware files:
      - [**v24 RC6.2 and earlier**] `root.fs` and `vmlinux.bin.l7` from a beta version (http://www.dd-wrt.com/dd-wrtv2/down.php?path=downloads%2Fobsolete%2Fbeta%2FFONERA/) or a release candidate (http://www.dd-wrt.com/dd-wrtv2/down.php?path=downloads%2Fobsolete%2Frelease+candidates/)
      - [**v24 RC7 and later**] `linux.bin` from a release candidate (http://www.dd-wrt.com/dd-wrtv2/down.php?path=downloads%2Fobsolete%2Frelease+candidates/) or a final (http://www.dd-wrt.com/dd-wrtv2/down.php?path=downloads%2Fv24%2FAtheros+WiSoc%2FFonera/)
   2. http://fonera.info/camicia/openwrt-ar531x-2.4-vmlinux-CAMICIA.lzma

      Link broken when I tried. Found the file there: http://www.box.net/shared/k19t9kd7no

   3. http://fonera.info/camicia/out.hex

      Link broken when I tried. Found the file there: http://www.box.net/shared/aj1yb53p12

4. **One** of the following methods to serve the above files to the LaFonera:
   - Connecting the LaFonera to the Internet (note: don't connect the LaFonera to the Internet before changing the DNS as instructed, as it may auto-update its firmware).
   - Windows: Run HTTP file server (http://www.rejetto.com/hfs/?f=dl) on your Windows machine (it's a simple no-installer-needed HTTP server). If the link does not work, try this one (http://www.dovedove.it/hfs/hfs.exe) .
   - Mac OS X: Start up "Personal Web Sharing" in the "Sharing" pane of System Preferences. Use the "Sites" folder in your home directory to serve files.
   - Linux: Install Apache from your distribution's package manager. You might want to have a look at webfs (http://linux.bytesex.org/misc/webfs.html) as well. [Simple alternatives welcome]
   - Fetching the files to another computer and copying them into LaFonera using `scp`.
5. TFTP server software.
   (TFTP is not FTP; these are different protocols. TFTP, unlike FTP, is used primarily for transferring files to and from network equipment (e.g. your router, switch, hub, whatnot firmware upgrade or backup, or configuration backup and restore))
   Here are some options:
   - Simple TFTP server for Windows: http://www.jounin.net/tftpd32.html Download this and run it, click the Browse button and select the folder containing the rootfs and vmlinux files from above, and use the given server interface as your redboot remote server ip.

- If you're running Linux, here's the simplest cross-distribution way to setup a TFTP server (Ubuntu/MacOSX users skip):
  - Download http://mirror.usu.edu/mirrors/gentoo/distfiles/tftp-hpa-0.48.tar.bz2 and unpack into a temporary directory. Make sure you have gcc, make, etc. installed on your system.
  1. Build tftp-hpa by running `./configure` and then `make`.
  2. Become root (or use sudo) and run `./tftpd/tftpd -s -L [tftpdir]` where [tftpdir] is the directory containing vmlinux.bin.l7 and root.fs. Note that this directory and its content must be readable by the `nobody` user.
  3. Test with a command-line TFTP client, such as the one that was built with tftp-hpa.
- If you're running Ubuntu:
  1. Type "sudo apt-get install tftpd-hpa" and put files into /var/lib/tftpboot/ directory.
  2. Edit the /etc/default/tftpd-hpa For example with the command "sudo gedit /etc/default/tftpd-hpa". Make sure RUN_DAEMON is set to "yes"
  3. Start the daemon with the command "sudo /etc/init.d/tftpd-hpa start"
- If you're running Mac OS X, you can use the integrated tftp server:
  1. Create the TFTP server root by typing `sudo mkdir /private/tftpboot`
  2. Start the server by typing `sudo /sbin/service tftp start`,

or on newer versions of OS X try `sudo launchctl load -F /System/Library/LaunchDaemons/tftp.plist`

1.
   -
     1. Test it by typing `tftp localhost` then `get (filename)` where (filename) is the name of a file you have put in /private/tftpboot
     2. Note: the above instructions only seem to work on older OS X installations. If you're having trouble with the built-in TFTP on the command line, you can use this very useful freeware to manage it with a GUI: http://www.macupdate.com/info.php/id/11116
2. An Ethernet cable to connect LaFonera to your computer and/or router. (LaFonera's Ethernet port is auto-sensing.)

Flashing

I honestly passed to much pain during the progress for people who want to enjoy DD-WRT with a REAL PROGRAM who flashed your fon ap 2*** just do this a user friendly fon flasher with instructions inside just click here: Easy La Fonera (http://www.megaupload.com/?d=E1IH8ORB) REMEMBER TO CHOOSE THE CORRECT FIRMWARE THE ONE INSIDE THE ARCHIVE IS v24 sp2 [BETA] Build: 14896 for 2100 by iFun !

If you have a serial connection skip to Step 6

Step 1 - Reseting original firmware

Start with a stock LaFonera, with the original firmware (7.x). If you're unsure your version, with the power on, hold down the reset button on the bottom of the unit for up to 30 seconds. This should reset it to the *original* firmware. Details in this (http://wavetenna.blogspot.com/2008/02/fonera-702-r3-hack.html) video (http://www.metacafe.com/watch/1116957/fonera_7_0_2_r3_hack_initial_hack_enable_ssh/) .

It will then broadcast the "MyPlace" SSID. The password for this SSID is the serial number of the device and is located on the sticker on the underside of the fonera. Connect to it.

Then call up the fonera's web admin with http://192.168.10.1/ and you should see what is your firmware version.

Step 2 - Enable the built-in SSH server

For firmware version 0.7.1 r1 or below

If your firmware is 0.7.1 r2 or higher, get to the next step.

over wireless (http://blog.blase16.de/index.php?url=2006/11/28/Hacking-Fonera) or over Ethernet (easier) (http://myfonblog.blogspot.com/2008/08/hacking-la-fonera-part-1-dd-wrt.html)

For firmware version 0.7.1 r2 or higher

Some foneras will not reset once they've upgraded firmware, or may come with later versions by default. Regardless of your version (up to and including 0.7.2 r3) you can use the method detailed on this page to downgrade to 0.7.1 r1, http://dltv.wordpress.com/2008/01/10/fonera-072-r3-hacked/ .

It basically tricks the fonera into believing it is receiving a firmware update from Fon.

Do steps 1 to 8 and ignore the rest. Here is a short version:

You will need a router in addition to your fonera for this method. If you don't have one, see this workaround (http://dltv.wordpress.com/2008/01/10/fonera-072-r3-hacked/#comment-7281) .

- On your Non-fonera router:

1. Change your main router's IP to 213.134.45.129
2. Subnet mask: 255.255.255.0
3. Static DNS to the following address:

   The address may change. To find out the current one, resolve kolofonium.datenbruch.de For example by issueing a ping request . It will always point to the right DNS server.

- On your fonera

1. Give it a static IP : 213.134.45.200
2. Subnet mask 255.255.255.0
3. Gateway AND DNS : 213.134.45.129
4. Reboot the fonera

The detailed explanations are there: http://stefans.datenbruch.de/lafonera/#kolofonium

Without an additional router, you can also try this:

- Change the name server (DNS) of your La Fonera to the one pointed to by kolofonium.datenbruch.de
- Reboot and connect it to the Internet via Ethernet.

A fake DNS server at that IP applies the hack to your router for you, and you can now connect via SSH (until the next reboot). No need to download HTML hacks and manual edi files. This should work with other firmwares, too. When done, change the name server according back to your usual ISP or LAN setup.

Once this is done, you should be able to ssh the fonera over the wifi on its address: 213.134.45.200. You might need to cycle through a couple of reboots before ssh responds. Default access are: login: root / Pass: admin

NOTE: If you reset your too early dns and allow the fonera to "phone home" it will likely run a firmware update that will bring you back up to 0.7.2 r2 or more. You don't want this to happen so it is best if you keep the dns setup as above until you have completed flashing.

NOTE: If you just go ahead and hook up the serial port, you can get right to the flashing of DDWRT. You will not need to SSH or telnet in.

Alternative method

This works on the newest firmware that has been hard-coded on the new chips

- Hold reset button for 30 seconds
- Remove the power connector while still holding reset.
- Replace power connector and continue holding reset button until "wifi" lights up and goes away again (a good 2-3 minutes of holding it).
- Let go and wait for "wifi" to come back (2-3 minutes).
- Now you may use the "step1.html" and "step2.html" method to turn SSH on as you would with the normal "r1" LaFonera. It will still continue to say "r2" on the LaFonera status page whilst you enjoy your SSH connection.

Step 3 - Install enhanced FON kernel

WARNING: Ensure that your Fonera is connected to the Internet before doing next steps, and it is best to do them one command at a time. Otherwise, the failed wget command will not get a file which the mtd command will then take and erase things in memory (my device is currently unresponsive because of this).

Connect via SSH to the LaFonera, and execute the following commands:

```
cd /tmp
wget http://fonera.info/camicia/openwrt-ar531x-2.4-vmlinux-CAMICIA.lzma
mtd -e vmlinux.bin.l7 write openwrt-ar531x-2.4-vmlinux-CAMICIA.lzma vmlinux.bin.l7
reboot
```

- **Be patient. This can take a few minutes.**

After the "reboot" command, the LaFonera will reboot and you'll lose the connection.

If wget don't work, download the openwrt-ar531x-2.4-vmlinux-CAMICIA.lzma on your computer and transfer it to the fonera using the method you prefer (e.g. scp)

Don't be mislead by the name of the file. This is actually a FON kernel hacked to write on the mtd partion with RedBoot. After this step the LaFonera should be able to restart without any problem. In case you are not able to connect to the Internet from the LaFonera, you can download the files locally, install an FTP or HTTP server on your PC and wget the files from the PC by entering the local server IP. Or, you can use scp to copy the file to the router over ssh.

Step 4

Again connect via SSH to the LaFonera, and execute the following commands. (**Note: Your LaFonera will not boot past RedBoot anymore after this step**)

```
cd /tmp
wget http://fonera.info/camicia/out.hex
mtd -e "RedBoot config" write out.hex "RedBoot config"
reboot
```

Please note, if you get an error stating "Could not open mtd device", please make sure you have properly capitalized the word RedBoot. The name is case sensitive!

If wget don't work, download the out.hex on your computer and transfer it to the fonera using the method you prefer (e.g. scp)

Step 5 - Access the RedBoot command prompt

Your LaFonera should not be able to completely boot, because the FIS directory will be erased. However, you should be able to connect to the RedBoot prompt. To connect to RedBoot you need to:

- a) Configure your PC so you have an address like 192.168.1.166.
- b) Connect your PC and the LaFonera through a crossover ethernet cable or a switch and 2 normal cables (*note: you can connect to LaFonera with either a normal cat5 ethernet cable, or with a crossover cable, as La Fonera's NIC is auto-sensing*).
- c) Disconnect and reconnect the power to your LaFonera. In the **first 10 secs** you can access to RedBoot via a plain Telnet connection (most likely to IP 192.168.1.254) **on port 9000**.
  - Open a command prompt or terminal window and type in the following:

```
telnet 192.168.1.254 9000
```

Note the 9000 after the IP. This specifies port 9000, which is the port RedBoot is listening on.
If the RedBoot> prompt is not immediately visible, try pressing enter once you've connected.
[You can use a IP/port scan program like Angry IP Scanner (http://www.angryziber.com/ipscan/) , and as soon as it can ping to your LaFonera you can Telnet to it for 10 seconds and you can also check if port 9000 is available]
[Sometimes you may have to use another telnet client such as Putty (http://www.chiark.greenend.org.uk/~sgtatham/putty/) . Windows' built-in Telnet client may fail to show the prompt after rebooting the LaFonera]

If everything goes well you should have a "RedBoot>" prompt in telnet.

For FON+ versions which hard-coded against downgrading

I used the telnet method to access Redboot. The time-window to access by telnet is really short, and I suspect FON+ does not always listen to 192.168.1.1 until I set it WAN address manually. I suggest the following:===

- First, I follow the reset firmware procedure in Step 1, however, firmware version did not downgrade as I check it from 192.168.10.1 Web interface (connect to FON+ LAN side, computer DCHP on)
- Next, at the same Web interface, I set the FON+ WAN to 192.168.1.1 Netmask 255.255.255.0 Gateway 192.168.1.254 Without this step, I cannot ping the Fon+ in next step. Some doc on the net suggest that the Boot header does not care about network setting in NVRAM, therotically maybe they are right but my device did not listen to "telnet 192.168.1.1 9000" until I change things in the Web GUI.
- Windows firewall turned off, I am not sure if this is nessessary but I did to avoid trouble.
- I unplugged the cable from LAN side
- Computer DCHP off, computer IP set to 192.168.1.254 netmask 255.255.255.0
- Open the first DOS command prompt, ping -t 192.168.1.1
- Connect WAN to Computer, let FON+ boot. After bootup (2-3min), it should response to ping
- Open another DOS command prompt window, at the prompt type TELNET 192.168.1.1 9000 *** WITHOUT PRESSING ENTER ***
- Resize and move the two DOS command promtp windows such that you can see both.
- Single-Click the second command prompt windows (ensure it is the active window accepting your ENTER key in next step quick enough)
- Unplug power cable of FON+ for 5 seconds and reconnect power
- place a finger next to the ENTER key
- Left hand prepare for keying CTRL-C
- If you see the FON+ response to PING, immediately press ENTER
- If telnet enter RedBoot successfully, immediately press CTRL-C
- Note, I repeated steps of (UNPLUG -> ENTER -> CTRL-C) for 3 times to accee RedBoot successfully, because the 2 seconds time-window for gaining RedBoot access is really short.
- Lastly, follow any other instruction in this Wiki to update by RedBoot + TFTP.

Step 6 - Get the DD-WRT binaries

Download the latest `root.fs` and `vmlinux.bin.l7` from: here (http://www.dd-wrt.com/dd-wrtv2/down.php?
path=downloads%2Fobsolete%2Frelease+candidates%2FDD-
WRT+v24+RC6.2%2FAtheros+WiSoc%2FFonera/) [**v24 R6.2**]

or

Download the latest `linux.bin` from: here (http://www.dd-wrt.com/dd-wrtv2/down.php?
path=downloads%2Fv24%2FAtheros+WiSoc%2FFonera/) [**v24 Final**]

Step 7 - Setup local TFTP server

For v24 RC7 and later:

Copy *linux.bin* to your TFTP server directory.

For RC6.2 and earlier:

Copy *root.fs* and *vmlinux.bin.l7* to your TFTP server directory.

No matter what you use for a TFTP server, RedBoot will try to fetch the files from the root directory, e.g.,
`/root.fs`. Make sure your TFTP server is configured to do this as some are not by default.

Alternatively, if you have a web server, you can copy the files to it instead (or even if you don't have one you
can do it quickly with HFS (http://www.rejetto.com/hfs/))

Step 8 - Configure Redboot

Configure RedBoot for local IP address and TFTP server in telnet.

```
ip_address -l [local ip address/24] -h [remote server address]
```

> Replace "[local ip address/24]" with "192.168.1.254/24" and "[remote server address]" with whatever
> you entered as the IP address of your TFTP server, 192.168.1.166 in this case. Or you can just use an IP
> address on your lan, so you don't need to change the IP of your box.

```
ip_address -l 192.168.1.254/24 -h 192.168.1.166
```

If the local IP address changes from 192.168.1.254 your Telnet session will die and you will need to reconnect
to the newly entered IP address.

- Note: If DD-WRT is already installed on your Fon, and you are upgrading or changing from one version
  or build to another, the default IP address of the La Fonera will be 192.168.1.1. Therefore, the local IP
  address would be entered as: "192.168.1.1/24".

Step 9 - Flashing the La Fonera

For v24 RC7 and later, including v24 preSP2

```
RedBoot> fis init
About to initialize [format] FLASH image system - continue (y/n)? y
*** Initialize FLASH Image System
... Erase from 0xa87e0000-0xa87f0000: .
```

```
... Program from 0x80ff0000-0x81000000 at 0xa87e0000: .
RedBoot> load -r -b 0x80041000 linux.bin
Using default protocol (TFTP)
Raw file loaded 0x80041000-0x80662fff, assumed entry at 0x80041000
RedBoot> fis create linux
```

NOTE: you must use the file "linux.bin" from the DD-WRT FON downloads section. Do not use fonera-firmware.bin.

NOTE: There are other methods of transfering the files over to the fonera, including directly over a serial connection (if you are using one) or using HTTP (the standard web protocol). For serial users, add "-m xmodem" to the end of your load commands, find the send file option in your terminal, select the right file, and it should to the rest. If you want to use HTTP, add "-m HTTP -h your_server_ip [-p your_server_port]". You may need to add a "/" to the filename, eg: "/root.fs", and the file should be in the main folder of your site. (Otherwise, try "/folder/root.fs"). If it starts printing out jibberish, wait till it stops, clear the screen, and retry the command without the "-v".

The fis create linux command takes a long time to run, sometimes up to an hour. If you manage to stay connected (most unix telnet clients will not time out, so long as you don't type anything after the last command, if you are on the serial port, it will not disconnect), you will see the flashing output when it done:

```
... Erase from 0xa8030000-0xa8652000: ...............................................................
... Program from 0x80041000-0x80663000 at 0xa8030000: ...............................................
... Erase from 0xa87e0000-0xa87f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa87e0000: .
```

This is also the recommended way to upgrade the firmware from a v24 RC version to v24 SP1. Upgrading the firmware via the web interface does not work (at least, it didn't work for me using v24 RC6).

Tested to work for v24 preSP2 (build 12533). -netvope

You can try rebooting now with the "reset" command in RedBoot.

For some reason, booting fails because it tries to load vmlinux.bin.l7 instead of linux. If that happens to you (if the SSID dd-wrt never shows up). You must rewrite the boot script.

- Boot into RedBoot (see #Recovery of a non-responsive LaFonera), that is:
    - Connect the fonera to your computer with an ethernet cable
    - telnet 192.168.1.254 9000

And take the following steps:

```
RedBoot> fconfig
Run script at boot: true
Boot script:
.. fis load -l vmlinux.bin.l7
.. exec
Enter script, terminate with empty line
>> fis load -l linux
>> exec
>>
Boot script timeout (1000ms resolution): 10
Use BOOTP for network configuration: false
Gateway IP address:
Local IP address: 192.168.1.254
Local IP address mask: 255.255.255.0
Default server IP address:
Console baud rate: 9600
GDB connection port: 9000
Force console for special debug messages: false
Network debug at boot time: false
```

```
Update RedBoot non-volatile configuration - continue (y/n)? y
... Erase from 0xa87e0000-0xa87f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa87e0000: .
RedBoot>reset
```

NOTE: Basically you never touch the default values. Exept at "Update RedBoot non-volatile configuration" where you enter "y".

For v24 RC6.2 and earlier

Run these commands in telnet. Make sure that there is no firewall blocking the 'load' command. The "fis create" commands below will take a while, do not disconnect while waiting

```
fis init
load -r -v -b 0x80041000 root.fs
fis create -b 0x80041000 -f 0xA8030000 -l 0x002C0000 -e 0x00000000 rootfs
load -r -v -b 0x80041000 vmlinux.bin.l7
fis create -r 0x80041000 -e 0x80041000 -l 0x000E0000 vmlinux.bin.l7
fis create -f 0xA83D0000 -l 0x00010000 -n nvram
```

> /!\ Each "fis create" commands take up to 10 minutes or so to complete, so be patient before typing the next command! There will be no output in the terminal window after the programming starts until the programming cycle has been completed. This is normal, don't panic.

There are other methods of transfering the files over to the fonera, including directly over a serial connection (if you are using one) or using HTTP (the standard web protocol). For serial users, add "-m xmodem" to the end of your load commands, find the send file option in your terminal, select the right file, and it should to the rest. If you want to use HTTP, add "-m HTTP -h your_server_ip". You may need to add a "/" to the filename, eg: "/root.fs", and the file should be in the main folder of your site. (Otherwise, try "/folder/root.fs"). If it starts printing out jibberish, wait till it stops, clear the screen, and retry the command without the "-v".

- a) This is a sample of the output you will see.

```
RedBoot> fis init
About to initialize [format] FLASH image system - continue (y/n)? y
*** Initialize FLASH Image System
... Erase from 0xa83e0000-0xa83f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa83e0000: .

load -r -v -b 0x80041000 root.fs
Using default protocol (TFTP)
Raw file loaded 0x80041000-0x802e3fff, assumed entry at 0x80041000
RedBoot> fis create -b 0x80041000 -f 0xA8030000 -l 0x002C0000 -e 0x00000000 rootfs
... Erase from 0xa8030000-0xa82f0000: ..........................................
... Program from 0x80041000-0x80301000 at 0xa8030000: ........................................
... Erase from 0xa83e0000-0xa83f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa83e0000: .

RedBoot> load -r -v -b 0x80041000 vmlinux.bin.l7
Using default protocol (TFTP)
Raw file loaded 0x80041000-0x80120fff, assumed entry at 0x80041000

RedBoot> fis create -r 0x80041000 -e 0x80041000 -l 0x000E0000 vmlinux.bin.l7
... Erase from 0xa82f0000-0xa83d0000: .............
... Program from 0x80041000-0x80121000 at 0xa82f0000: .............
... Erase from 0xa83e0000-0xa83f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa83e0000: .

RedBoot> fis create -f 0xA83D0000 -l 0x00010000 -n nvram
... Erase from 0xa83e0000-0xa83f0000: .
... Program from 0x80ff0000-0x81000000 at 0xa83e0000: .
```

- b) Run this command in telnet to reboot.

```
reset
```

That's it. Your LaFonera should reboot and start DD-WRT. It by default will DHCP an external IP address, start an open wireless network called "dd-wrt" and have management at http://192.168.1.1 (on port 80). The default username is "root" and the default password is "admin".

Resetting NVRAM

If the configuration is corrupted/incorrect, try resetting of the NVRAM. Power up the unit, and wait about 2 minutes, then hold down the reset button for several seconds. You must do this while the firmware is loaded, hence waiting for a minute or two after powering it up.

If that fails, try these steps:

1. Reset the LaFonera and telnet into the Redboot prompt (see Step 5 above).

2. Enter the following command to erase the NVRAM partition.

```
fis erase -f 0xA83D0000 -l 0x00010000
```

3. Load DD-WRT by typing and executing these commands:

For v24 RC7 and later:

```
fis load -l linux
exec
```

For v24 RC6 and before:

```
fis load -l vmlinux.bin.l7
exec
```

You're all done. DD-WRT will rebuild the NVRAM and it will be fresh as spring!

Reflashing LaFonera original firmware

1. Download the firmware:
    - Download and unzip a pre-converted zip file:
      7.1.1 version (Enable-SSH hole is OPEN in this version): Link
      (http://rapidshare.com/files/18083671/fonera_0.7.1.1_unpacked.zip.html)
      7.1.2 versions (Enable-SSH hole has been patched in this version): Link
      (http://uselesshacks.com/files/fonera_0.7.1.2.zip)
    - If you want the firmware directly from FON, download it here: Fon.com (http://www.fon.com/)
      (Direct link (http://downloads.fon.com/firmware/current/fonera_0.7.1.3.fon)) then follow these
      steps to convert it to usable files:
        1. Remove the first 520 bytes of the downloaded file.
            - On Linux, Mac OS X (or other *nixes): **tail --bytes +520 fonera_0.7.1.3.fon >
              fonera_0.7.1.3.tar.gz**
            - Windows: Use the mirrored zip files which are already converted.
        2. Change the extension of the resulting file to `.tar.gz` and `untar` it.
2. You need 2 files from the steps above, `kernel.lzma` and `rootfs.squashfs`. Put these in your TFTP
   server root directory. If you don't have a TFTP server, go back the beginning of this document and set one
   up.

3. Connect to the RedBoot prompt and type in the following commands:

```
ip_address -l 192.168.1.254/24 -h 192.168.1.166
fis init
load -r -v -b 0x80040450 rootfs.squashfs
fis create -b 0x80040450 -f 0xA8030000 -l 0x00700000 -e 0x00000000 rootfs
load -r -b %{FREEMEMLO} kernel.lzma
fis create -r 0x80041000 -e 0x80041000 vmlinux.bin.l7
fis load -l vmlinux.bin.l7
exec
```

or with Fonera 2200

```
ip_address -l 192.168.1.254 -h 192.168.1.166
load -r -b %{FREEMEMLO} kernel.lzma
fis init
fis create -e 0x80041000 -r 0x80041000 vmlinux.bin.l7
fis free
load -r -b %{FREEMEMLO} rootfs.squashfs
fis create -l 0x730000 rootfs
reset
```

Reboot the FON and you're done. If a FON AP doesn't appear check here (http://stefanotesti.com/p/12) (2100 only)

Recovery of a non-responsive LaFonera

If you've managed to get partway through this guild and find the LaFonera doesn't seem to respond anymore, here are a few recovery tricks.

1. Set your computer's network card IP address to 169.254.255.2 and the subnet mask to 255.255.0.0. You may need to disconnect/disable all other network cards on that PC to ensure the proper route is used.
2. Connect your LaFonera to the network card via a network cable.
3. In a browser, try to connect to http://169.254.255.1:8080
4. If that fails, try to establish an SSH connection to `169.254.255.1`
5. If that fails, try to establish a Telnet connection to `169.254.255.1` on the standard port (23), or port 9000.
   - Power on the LaFonera, and after 2 to 4 seconds, try to start the Telnet connection to catch the RedBoot prompt.
   - When Using RedBoot, make sure you are using line mode for Telnet. In Mac OS X and Linux, enable this by creating a file named ".telnetrc" in your home folder. Add the following lines:

```
192.168.1.254
        mode line
```

If all steps above fails you can try this:

1. Change your:

```
IP adress to: 192.168.1.166
Subnet mask to: 255.255.255.0
Standard gateway to: 169.254.255.1
DNS: 169.254.255.1 (maybe is an optional setting)
```

2. Open Putty and enter:

```
Host name: 192.168.1.254
Protocol: Telnet
Port 9000
```

---

3. DON'T press "Open"!

4. Power on your LaFonera

5. When your computer gets an IP adress press the "Open" button in Putty

6. Hopefully you will see someting like this now:

```
== Executing boot script in 9.160 seconds - enter ^C to abort
^C
RedBoot>
```

7. If Putty timeout or can't connect to your LaFonera try to restart the LaFonera and try to catch the RedBoot prompt (you only have a few seconds to do that!)

If that fails, you may have to resort to a serial connection

Serial connect devices are listed in the #External_links section of this guide.

See also LaFonera_Software_Debricking.

External Links

- Complete tutorial with screenshots (http://myfonblog.blogspot.com/2008/08/hacking-la-fonera-part-1-dd-wrt.html) of hacking LaFonera without a wireless card. It is the tutorial from uselesshacks.com
- Here is another complete tutorial (http://www.easy2design.de/bla/?page_id=98) on debricking/flashing LaFonera using different methods.
- Hardware layout (http://wiki.openwrt.org/OpenWrtDocs/Hardware/Fon/Fonera) of the LaFonera router.
- "Looking inside the FON LaFonera firmware" (http://microblog.routed.net/2007/02/22/looking-inside-the-fon-la-fonera-firmware/) Useful info about the FON original firmware package.
- "How to make a dual-supply RS-232 to TTL level converter" (http://microblog.routed.net/2007/02/14/how-to-make-a-dual-supply-rs-232-to-ttl-level-converter/)
- Alternative serial port cable mod (http://www.dd-wrt.com/phpBB2/viewtopic.php?p=63256#63256) using cell-phone serial-to-USB cables. Requires no soldering, just the cable and two wires.
- Detailed Tutorials and Guides (http://fonerahacks.com) on flashing and hacking the Fonera with a growing community.
- Detailed Tutorials and Guides in french (http://www.linwin-solutions.com/index.php?option=com_blog&view=comments&pid=1&Itemid=12) on flashing the Fonera 2.0 with OpenWRT.
- Restore Fonera firmware after DDWRT v24final upgrade (http://stefanotesti.com/p/12) v24final modifies the boot file so FON won't auto boot. Extra commands here fixes the problem (2100 only)

References

- http://www.dd-wrt.com/phpBB2/viewtopic.php?t=9011&postdays=0&postorder=asc&start=0 Camicia's forum post

Retrieved from "http://www.dd-wrt.com/wiki/index.php/LaFonera_Software_Flashing"

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