

# **gNewSense on Lemote YeeLoong**

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How to install and run the gNewSense GNU/Linux operating system on a Lemote YeeLoong

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Attributes to the gNewSense.org wiki and it's participants.

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# 1 General information

This chapter includes mostly general information about the Lemote YeeLoong models and the gNewSense GNU/Linux operating system in context of the MIPS architecture.

## 1.1 Lemote YeeLoong

As you probably already know, the Lemote YeeLoong is the first fully free laptop, running solely on free software — even down to BIOS level. If you are installing gNewSense on your laptop for the first time: Congratulations! There is nothing as liberating as running a completely free operating system, on completely free components.

When instructions used in this manual was written on the gNewSense wiki, it was the Lemote YeeLoong 8089 model that was used. That is the first Lemote YeeLoong model, the 8,9-inch netbook. If you own a 10-inch Lemote YeeLoong 8101 you have nothing to fear, the installation process is no different! I am writing this manual on the mentioned model and the installation went just as smooth as explained with the 8089 model.

## 1.2 gNewSense

gNewSense is, unfortunately, one of the few GNU/Linux distrobutions of our time that is using exclusively free software in it's repositories. Even the kernel have been stripped (or 'deblob') for all drivers and parts that are using proprietary components. The gNewSense team is working actively to have good compatability with the Lemote YeeLoong netbook specifically. Most of the packages in gNewSense repository have also been compiled for the MIPS architecture.

## 1.3 Compatability

Be aware that there might be several compatability issues with the Lemote YeeLoong. The development of a Linux port to the YeeLoong and MIPS architecture is still pretty new, but its only going forward!

## 2 Making ready the USB drive

First of all you need to point your browser of choice to [gNewSense MIPS linux image directory](http://archive.gnewsense.org/gnewsense-metad/installer/current/mipsel/loongson/netbook/)<sup>1</sup> and download `initrd.gz` and `vmlinux-2.6.31.6-libre1`. Note that the version name on `vmlinux-2.6.xx.x-libre1` may vary as the image gets updated after time.

Finished downloading? Great! Now it's time to format the USB drive in ext2 so your YeeLoong can read it. If you have already formatted the USB drive you can skip this step.

We start by running the command `'fdisk /dev/sdb'` (just change it to the path of your USB drive) to erase the existing partition table. When the terminal enter `fdisk` and you can see `'Command (m for help):'`, type the letter `'p'` and hit *ENTER*. Then type `'d'` and hit *ENTER* to delete existing partitions, and it will ask you for the number of the partition. The number is what follows `'sdb'`, type it in and hit *ENTER*. If there is more partitions, repeat the process with them. After all partitions on your USB drive have been deleted, hit `'n'` and *ENTER* to create a new partition, then `'p'` and *ENTER* to make it a primary partition. `fdisk` will now ask you which cylinder the partition should start at, just hit *ENTER* and `fdisk` will choose from the beginning of the drive by default. Then you will be asked for the last partition, again, hit enter and it will by default choose the end of the drive. You should now be back at the command prompt for `fdisk`. To see that everything went according to plan just it `'p'` and hit *ENTER* to see your new partition table.

Now its time to set the filesystem type for your new partition. As mentioned above, we want to use the ext2 filesystem. Type `'t'` and hit *ENTER* and you will be asked to give the HEX-code for the filesystem you want to use. Type `'83'` and hit *ENTER*. As you have logically figured out, that is the HEX-code for the ext2 filesystem. Now just hit `'w'` and *ENTER* to write your new partition table to your USB drive and you are all set to create your filesystem.

Back in the terminal, issue the command `'mkfs -t ext2 /dev/sdb'` and as before, change `'sdb'` to the path of your USB drive. Now just copy your two downloaded files onto your USB drive like usual, or with the `'cp'` command.

And voila, you are set to boot gNewSense on your YeeLoong!

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<sup>1</sup> <http://archive.gnewsense.org/gnewsense-metad/installer/current/mipsel/loongson/netbook/>

## 3 Booting gNewSense

There is two ways to boot up gNewSense, either by a USB drive or through a network connection with TFTP. If you want to use TFTP we assume you have the technical insight necessary for us not to go into the same details like with the USB drive.

### 3.1 Booting from USB drive

Now that you have your USB drive ready, plug it into one of the available USB ports on your YeeLoong and hit the power button. As the YeeLoong starts, press down the `<DEL>`-key on your keyboard to enter the PMON command prompt. PMON is the BIOS for the YeeLoong and has a wide range of commands available do to all sorts of things we won't talk about in this manual.

If your screen is black and you have `'PMON>'` in your upper left corner, you have done everything right. Type:

```
load (usb0,0)/vmlinux-2.6.31.6-libre1
```

and hit `'ENTER'` to load the linux image you copied to your USB drive. If the filename of the image you downloaded is different than the one in this manual, simply enter the correct one. Should you get an error, fear not, just type the command again and it **will work**.

If everything went alright, PMON should print out some weird message you don't have to think about. Now type:

```
initrd (usb0,0)/initrd.gz
```

and hit `'ENTER'` to load the `initrd.gz` file. Note that this might take up to 15 minutes, so go make yourself a nice cup of coffee while its working. When it is done it too will spit out a message you don't have to think about.

This final command will initiate the gNewSense installer. Type:

```
g console=tty no_auto_cmd
```

And you will be presented with the gNewSense installer.

### 3.2 Booting gNewSense from TFTP

Find your way to the [gNewSense MIPS linux image directory](http://archive.gnewsense.org/gnewsense-mipsel/installer/current/mipsel/loongson/netboot/)<sup>1</sup> and download the `vmlinux-2.6.31.6-libre1` image and `initrd.gz` file and upload it to your TFTP server.

When you power up the machine, press down the `<DEL>`-button and you will enter PMON command prompt. Type the following for setting up the IP address of your YeeLoong

```
ifaddr rt10 192.168.1.31
```

Or what ever you want the IP address to be

Then type the following to load the image from your TFTP server

```
load tftp://192.168.1.31/vmlinux-2.6.31.6-libre1
```

To load the `initrd`, type the following

---

<sup>1</sup> <http://archive.gnewsense.org/gnewsense-metad/installer/current/mipsel/loongson/netboot/>

```
initrd tftp://192.168.1.31/initrd.gz
```

Now, to start the installer, execute:

```
g console=tty no_auto_cmd
```

And the gNewSense installer will appear. Continue to next step.

## 4 Starting installation of gNewSense

The installation of gNewSense is pretty much straightforward and we will not go into details with the specific steps. There is however a couple of things you need to know.

1. You need an internet connection. The image you are currently running is a netboot, meaning it gets all its packages from online repositories. If you get any messages about troubles with the mirror then **do not** choose the option of changing mirrors, this will break the installation and you will need to start all over again.
2. If you get a message about any issue with LVM, choose '*Continue*', when later approached by a question about LVM, choose to install without (the first option).
3. If you get a message about a issue with the partition table on the disk, just reboot and go over the process again. There is nothing dangerous with this message, the installer just doesn't see the partition table changes you made earlier in the installation process.

The installer will also prompt you about the GRUB bootloader, please see the next step for further instructions about GRUB.

### 4.1 GRUB Bootloader

The GRUB bootloader is the preferred way of booting gNewSense after installation. During the installation the gNewSense installer will ask you two questions about GRUB. First, it wants you to define a Linux command line. Type in the following line in the box

```
console=tty no_auto_cmd machtype=8.9
```

Next the installer will ask you about the default Linux command line. The box will probably already have the value 'quiet' in it so you can just continue, but if it doesn't, make sure to write

```
quiet
```

... in the box.

### 4.2 Alternative PMON2000 Bootloader

If you so choose to use the PMON2000 bootloader, this is what you need in your '/boot/boot.cfg' or '/boot.cfg' file.

```
default 0
timeout 3
showmenu 1
title gNewSense metad - hda1
    kernel (wd0,0)/boot/vmlinuz-2.6.27.7-libre
    initrd (wd0,0)/boot/initrd.img-2.6.27.7-libre
    args console=tty no_auto_cmd root=/dev/hda1 rootdelay=8

title gNewSense metad - rescue via USB
    kernel (usb0,0)/boot/rescue
    args root=/dev/sda1 console=tty no_auto_cmd rootdelay=7
    #initrd (usb0,0)/boot/initrd.img
```



```
title gNewSense metad - reinstall via USB
kernel (usb0,0)/vmlinuz-2.6.31.6-libre1
initrd (usb0,0)/initrd.gz
args console=tty no_auto_cmd
```

## 5 Running gNewSense

Everything is working? Happy to see your fully free netbook running a fully free operating system? Great!

The rest is just some additional information you might want to consider doing after installation.

### 5.1 Correct gNewSense metad sources in APT

To make sure you have the right sources in your sources.list in `/etc/apt/`-folder open up emacs and see if the file contains the following:

```
deb http://archive.gnewsense.org/gnewsense-metad/gnewsense metad main
deb-src http://archive.gnewsense.org/gnewsense-metad/gnewsense metad main

## gnewsense security
deb http://archive.gnewsense.org/gnewsense-metad/gnewsense-security metad main
deb-src http://archive.gnewsense.org/gnewsense-metad/gnewsense-security metad main
```

### 5.2 Run the newest kernel

If your installation didn't install the newest kernel (you can check this by executing the `'uname -r'` command in the terminal) then you can install one easily with APT.

At the point of writing this manual, the newest libre kernel is Linux 2.6.32.9, to upgrade to this kernel, do in terminal the following command

```
sudo apt-get install linux-image-2.6.32.9-libre-lemote
```

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