

## 1. Extract downloaded “tar.xz” file

From terminal, execute the following command: `tar -xf yourfile.tar.xz`

**Note:** “xz.utils” needs to be installed in your computer

## 2. Copy or move files vmlinuz..., initrd-img..., System.map..., config... and folder 6.xx.xx [kernel ver] as follows: (Applies to all)

File/Folder	Type	Move or Copy To
vmlinuz...	File	/boot
initrd-img...	File	/boot
System.map...	File	/boot
config...	File	/boot
6.xx.xx [Kernel Ver]	Folder	/usr/lib/modules

Open terminal, navigate to the folder where files are extracted and run the following commands below. If GUI mode is the preferred method, open two instances of your favorite file manager, then simply copy and paste the files and/or folders. **Remember** to start the file manager as root. (eg: run "**sudo thunar**" on terminal for Thunar file manager)

- # **sudo cp vmlinuz... /boot**
- # **sudo cp initrd-img... /boot**
- # **sudo cp System.map... /boot**
- # **sudo cp config... /boot**

The next step is to copy the modules and linux headers directories. Prior to this, the appropriate destination directories must be created to accommodate the copied contents. For the purposes of this example, kernel version 6.15.1 will be used

- # **sudo mkdir /usr/lib/modules/6.15.1**

Now we can copy all the files and folders that are inside the 6.15.1 modules folder.

- # **sudo cp -R 6.15.1/\* /usr/lib/modules/6.15.1**

**Linux Headers:** Copy or move BunsenLabs headers folder to /usr/include. For all other Linux OS, copy or move to /usr/src

Distro	File/Folder	Type	Move or Copy To
BunsenLabs	linux	Folder	*** /usr/include
All other Linux OS	linux-header-[Kernel Ver]	Folder	/usr/src

\*\*\* = Highly Recommended backing up BunsenLabs' **linux** folder under **/usr/include**.

To safeguard existing Linux headers, it is advisable to back up the **linux** directory located at **/usr/include**. Creating a new directory, preferably named to reflect the current kernel version, such as **linux-old-kernel-version** is recommended for this purpose. You can determine your current kernel version by opening a terminal and executing the command **uname -a**.

Once the backup is complete, copy all contents from the downloaded linux folder into the **/usr/include/linux** directory, ensuring the new headers are properly placed for subsequent operations.

- **# sudo cp -R linux/\* /usr/include/linux**

[For all other distros]: repeat previous step creating new directory before copying files

- **# sudo mkdir /usr/src/linux-headers-6.15.1**
- **# sudo cp -R linux-headers-6.15.1/\* /usr/src/linux-headers-6.15.1**

### 3. Update initramfs and grub

The next step involves updating both the **initramfs** and **GRUB** configurations. However, prior to proceeding with the update, it is important to consider the following: if an NVIDIA driver was previously installed, there exists a potential risk of encountering a black screen during boot with the new kernel, as the driver may have been compiled specifically for the older kernel version. Should you choose not to uninstall the driver at this stage, you retain the option to revert to the previous kernel during boot and remove the NVIDIA driver afterward.

To remove the driver, run the command below on terminal.

- **sudo apt-get remove --purge '^nvidia-\***

And to clean up unneeded files:

- **sudo apt-get autoremove**

Now, initramfs and grub can be updated. ONLY do update-initramfs on the new kernel you are installing. DO NOT update all with **"-k all"**.

- **# sudo update-initramfs -u -k 6.15.1**
- **# sudo update-grub**

**NOTE:** If you have an AMD GPU, you might see warnings about missing firmware(s) during grub update. These warnings often indicate that the kernel module **amdgpu** is looking for firmware files that aren't present in the current linux-firmware package. However, it doesn't necessarily mean that your system is malfunctioning or that you are missing critical firmware for your GPU. But you can [check here](#) to download the latest copies of firmware.

## 4. Reboot

### **Trouble upgrading kernel?**

For assistance, you can email us at: [latestkernel.org@gmail.com](mailto:latestkernel.org@gmail.com). Please don't forget tell us the distro, kernel you're upgrading to and the trouble you're experiencing and we will do our best to help you get this resolved. Thank you!