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How to compile a single module in Ubuntu linux

by WROSTEK on APRIL 19, 2012 in LINUX

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Occasionally you may experience problems in a specific kernel module that requires a patch. Once patched, you can follow these directions to compile only the module affected, saving a bunch of time.

Assume the following, for this example:

You are building a module for Ubuntu 3.2.0-21-generic kernel.
Your source tree with the patched module is located in /usr/src/linux-source-3.2.0
Your linux header source is located in /usr/src/linux-headers-3.2.0-21-generic
Your working folder (where you are building the new module) is /usr/src/mytree
In this case, your EXTRAVERSION is -21-generic (this is the specific flavor of the 3.2.0 kernel we are building) this is important to note, and will be used later in this example.

Now to create your working folder and change into it:

```
1  mkdir /usr/src/mytree
2  cd /usr/src/mytree
```

Now that you are in your working folder, you need to copy over your kernel configuration file and Module.symvers file.

```
1  cp /boot/config-`uname -r`  .config
2  cp /usr/src/linux-headers-3.2.0-21-generic/Module.symvers .
```

Now with those files in place, you need to change to your source folder and prep your work area by running a few make commands. These commands make use of the EXTRAVERSION we noted above:

```
1  cd /usr/src/linux-source-3.2.0
2  make EXTRAVERSION=-21-generic O=/usr/src/mytree oldconfig
3  make EXTRAVERSION=-21-generic O=/usr/src/mytree prepare
4  make EXTRAVERSION=-21-generic O=/usr/src/mytree outputmakefile
5  make EXTRAVERSION=-21-generic O=/usr/src/mytree archprepare
6  make EXTRAVERSION=-21-generic O=/usr/src/mytree modules SUBDIRS=s
```

At this point you are ready to compile the module you have patched. Suppose it is the drivers/net/wireless/rt2x00 module:

```
1  make EXTRAVERSION=-21-generic O=/usr/src/mytree modules SUBDIRS=d
```

At this point you should have a drivers/net/wireless/rt2x00 folder in your working folder (/usr/src/mytree) which contains the .ko module files.

Simply backup the old modules in /lib/modules/3.2.0-21-generic/kernel/drivers/net/wireless/rt2x00 , and replace them with your new ones, then reload or reboot to test the new modules!

Good Luck!

Bookmark the PERMALINK.

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Thank you for this guide! I wanted to debug the i915 module on my Thinkpad X30 running Xubuntu 12.04 but couldn't find any up to date instructions on compiling a signle kernel module. Following your guide everything worked like a charm!   REPLY

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Vladyslav

May 12, 2012

Just in case someone might also be interested in messing up with i915, here's what I did

```
sudo apt-get build-dep --no-install-recommends linux-image-$(uname
-r)
apt-get source linux-image-$(uname -r)
mkdir ~/my_i915
cd ~/my_i915
cp /usr/src/linux-headers-3.2.0-24-generic/Module.symvers .
cp /boot/config-`uname -r` .config
cd ~/linux-3.2.0/
make EXTRAVERSION=-24-generic O=~/my_i915 oldconfig
make EXTRAVERSION=-24-generic O=~/my_i915 prepare
make EXTRAVERSION=-24-generic O=~/my_i915 outputmakefile
make EXTRAVERSION=-24-generic O=~/my_i915 archprepare
make EXTRAVERSION=-24-generic O=~/my_i915 modules SUBDIRS=scripts
vim drivers/gpu/drm/i915/intel_display.c
make EXTRAVERSION=-24-generic O=~/my_i915 modules
SUBDIRS=drivers/gpu/drm/i915
sudo cp ~/my_i915/drivers/gpu/drm/i915/i915.ko /lib/modules/3.2.0-
24-generic/kernel/drivers/gpu/drm/i915/
sudo depmod -a
sudo update-initramfs -u
```

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