

“Recipe” for Building a Kernel

CS 311

We’re kernel hackers now. Building a kernel isn’t for the faint of heart. **Pay attention to everything below and take copious notes when we discuss this material**, or you will find yourself starting over from the beginning with a new virtual machine image. Starting from a shell/terminal:

```
# The following "cd" simply ensures you’re in your home directory.
```

```
cd
```

```
# The following two svn commands perform the initial repository import of  
# your kernel source tree and then make the local copy a working copy.  
# REPLACE <u> below with YOUR username.
```

```
svn -q import linux-2.6.27.1 https://merlin.goucher.edu/svn/<u>/linux-2.6.27.1
```

```
svn -q --force co https://merlin.goucher.edu/svn/<u>/linux-2.6.27.1
```

```
# Location for kernel object files, so we can keep the kernel source  
# relatively pristine.
```

```
mkdir build
```

```
cd linux-2.6.27.1
```

```
# It’s dot dot slash build slash dot config !!!!
```

```
cp minimal.config ../build/.config
```

```
# In the menuconfig tool, run below in the next step, select 'General  
# setup' and then select 'Local  
# version'. Change the local version string to something like _TPK_00 .  
# You can use the two digit number as a version number, incrementing it  
# each time you add a new kernel feature.  
# Exit the tool, saving the new .config file.
```

```
make O=/home/kdev/build menuconfig
```

```
make -j 3 O=/home/kdev/build
```

```
# The following command will install the kernel modules and the kernel.
```

```
sudo make O=/home/kdev/build modules_install install

# If you reboot now, your shiny new kernel should be available as one of
# the kernel choices in GRUB.

# This isn't really necessary, since you can use sudo, but here's how you
# gain root from the kdev account:

su -

# Exiting root, returning to kdev account:

exit

# It's probably best to change the kdev and root passwords. Run the
# following commands as root:

passwd root
passwd kdev

# The SSH server is disabled. Unless you know what you're doing, it's best
# to leave it disabled. If you should want to enable it temporarily,
# run as root:

/etc/init.d/sshd start

# If you want to enable the SSH server permanently, run as root:

chkconfig --level 2345 sshd on
/etc/init.d/sshd start

# If you don't change the root and kdev passwords and you enable the SSH
# server, your machine WILL get pwned.
```