

# 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 project group username. Fortunately, you'll
# only need to enter the password once. (When prompted, use the password
# you were assigned originally.
```

```
svn -q --username <u> import linux-2.6.27.1 \
https://phoenix.goucher.edu/ossvn/<u>/linux-2.6.27.1
```

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

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

```
mkdir build
```

```
# Location for kernel source files, separate from the kernel object files.
```

```
cd linux-2.6.27.1
```

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

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

```
# The character preceding the "=" below is the letter O, NOT the
# numeral 0.
```

```
# 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 both the kdev and root passwords. Run the
# following commands as root:

passwd root
passwd kdev
```