

Monday, September 9

Review setup of QEMU and GeekOS

Run GeekOS again

Intro to/review of GDB

Tour of GeekOS source, with attention to
Project 0

Discussion slides will be posted at

<http://www.cs.umd.edu/~jonfd/f13-412/>

QEMU setup

Instructions linked from class page, at <http://www.cs.umd.edu/~shankar/412-Notes/geekos-install-09-05.pdf>

Issues:

- `sudo apt-get qemu...` should have been `sudo apt-get install qemu...`
- You may also need to do `sudo apt-get install nasm`
- 64-bit OSs may cause problems

QEMU setup, cont.

Any other problems?

Mac users: VirtualBox seems to work fine for me; so does gdb 7.6.

If you are running in a VM, give it at least 1 GB of memory.

Linuxlab setup instructions on Wednesday.

QEMU/GeekOS demo

As described before, we run GeekOS with
make run

in the `build` directory. All the programs in the `user` directory are available for you to run, though almost all of them will break for now.

However, we'd like a debugger. (Or: You will **really** want a debugger.)

Debugging GeekOS

This is an introduction; we will do a lot in the debugger as we go forward.

Use two terminal tabs. In one,

```
make dbgrun
```

In the other,

```
make dbg
```

Depending on your version of gdb, you may see a warning about auto-load safe-path. If you do, change the setting in `~/ .gdbinit`.

Debugging GeekOS, cont.

QEMU waits for gdb before doing anything. To start it,

```
c (or continue)
```

Control-C in gdb to pause QEMU.

Breakpoints: restart, and before c, type

```
break Sys_Spawn
```

which is the handler for the process creation syscall. Type c when done.

Using gdb

More instructions:

- `step (s)`, `next (n)`, `finish`
- `print (p)`, `examine (x)`

Other breakpoint specs:

- `break file.c:line`

Help:

- `help [topic or keyword]`
- `apropos topic`
- <http://users.ece.utexas.edu/~adnan/gdb-refcard.pdf>

GeekOS Source

syscall.c: entry point for system call handlers

pipe.c: where you will do most of Project 0

vfs.c: indirection layer for Read, Write, Close

More to come...