



CS 1550

Week 2 – Setting up environment
for Project 1

Teaching Assistant
Xiaoyu (Veronica) Liang

Recitation TA – Office Hours

- Office Hours
 - Tuesday:
 - 5:00pm – 6:00pm
 - Thursday:
 - 3:00pm – 4:00pm
 - 5:00pm – 6:00pm
- Office
 - SENSQ 6410
- Email
 - xil160@pitt.edu
- Slides Website
 - http://people.cs.pitt.edu/~xil160/CS1550_Fall2019/

Tophat

- Course Name:

Intro to OS Fall 2019

- Join Code:

092537

- Password:

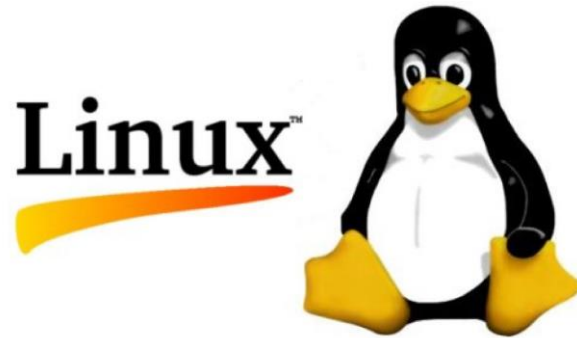
Veronica-Daniel

- Make sure set up your student ID

Student Number (ID) - Grading Setup

Setting up environment for Project 1

- We will compile a **Linux** distro from source



Setting up environment for Project 1

1. First log to your **thoth.cs.pitt.edu** account
 - Command line
 - Terminal
 - PowerShell
2. Navigate to **/u/OSLab/username**
 - Copy linux source from `/u/OSLab/original/linux-2.6.23.1.tar.bz2`
 - Run `cp /u/OSLab/original/linux-2.6.23.1.tar.bz2 .`

Setting up environment for Project 1

3. Extract files locally

- Run `tar xjf linux-2.6.23.1.tar.bz2`

4. Move into **linux-2.6.23.1/**

- Run `cd linux-2.6.23.1`

5. Copy the .config file

- Run `cp /u/OSLab/original/.config .`

6. Build linux source code

- Run `make ARCH=i386 bzImage`

Setting up environment for Project 1

- Repeating from step **2** will give you a new environment
 - This will not be necessary unless you really need to

Setting up environment for Project 1

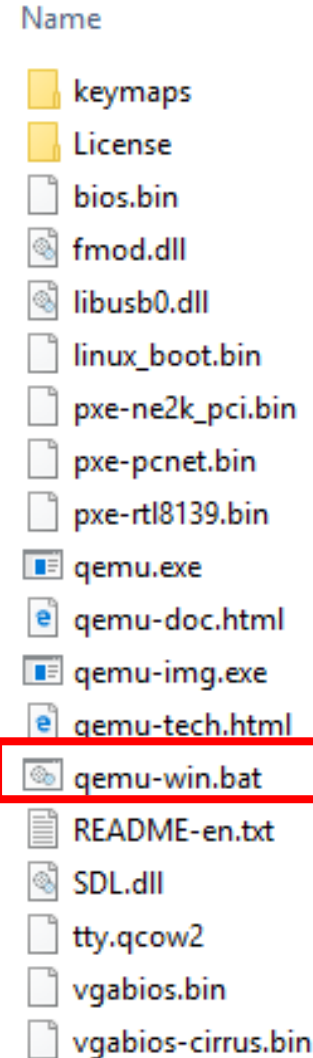
- To add the changes you will need to rebuild the Kernel
 - Run again `make ARCH=i386 bzImage`

Configuring QEMU

- We need a x86 version of QEMU (username and pass is **root**)
- Windows Users
 - Download QEMU and an Image from this [link](#)
 - Unzip qemu_windows.zip
- Mac Users
 - Install homebrew, from this [link](#)
 - In terminal, run:
brew install qemu
 - Download QEMU and an Image from this [link](#)
 - Unzip qemu_mac_ubuntu.zip
- Ubuntu Users
 - In terminal, run:
apt-get install qemu
 - Download QEMU and an Image from this [link](#)
 - Unzip qemu_mac_ubuntu.zip
- Detailed guidance
 - https://github.com/maher460/Pitt_CS1550_recitation_materials/tree/master/project1

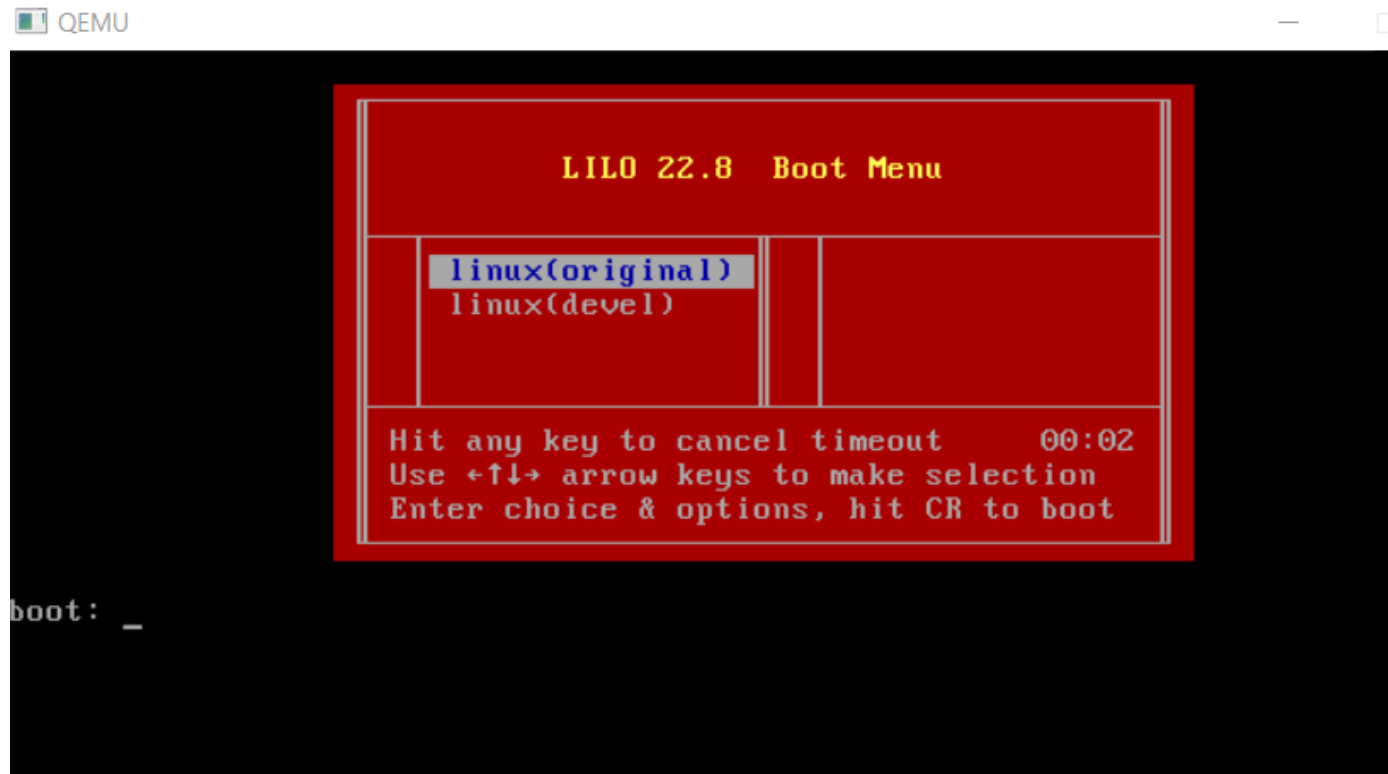
Configuring QEMU

- Windows:
 - double-click/execute
qemu-win.bat
- Mac/Ubuntu
 - Run the script:
./start.sh



Configuring QEMU

- Choose Linux(original)



Copying files from Linux to QEMU

- Now we need two files from the Linux we just built
 - Kernel File **bzImage** from:
 - linux- 2.6.23.1/arch/i386/boot/
 - System call map **System.map** from:
 - linux-2.6.23.1/

Copying files from Linux to QEMU

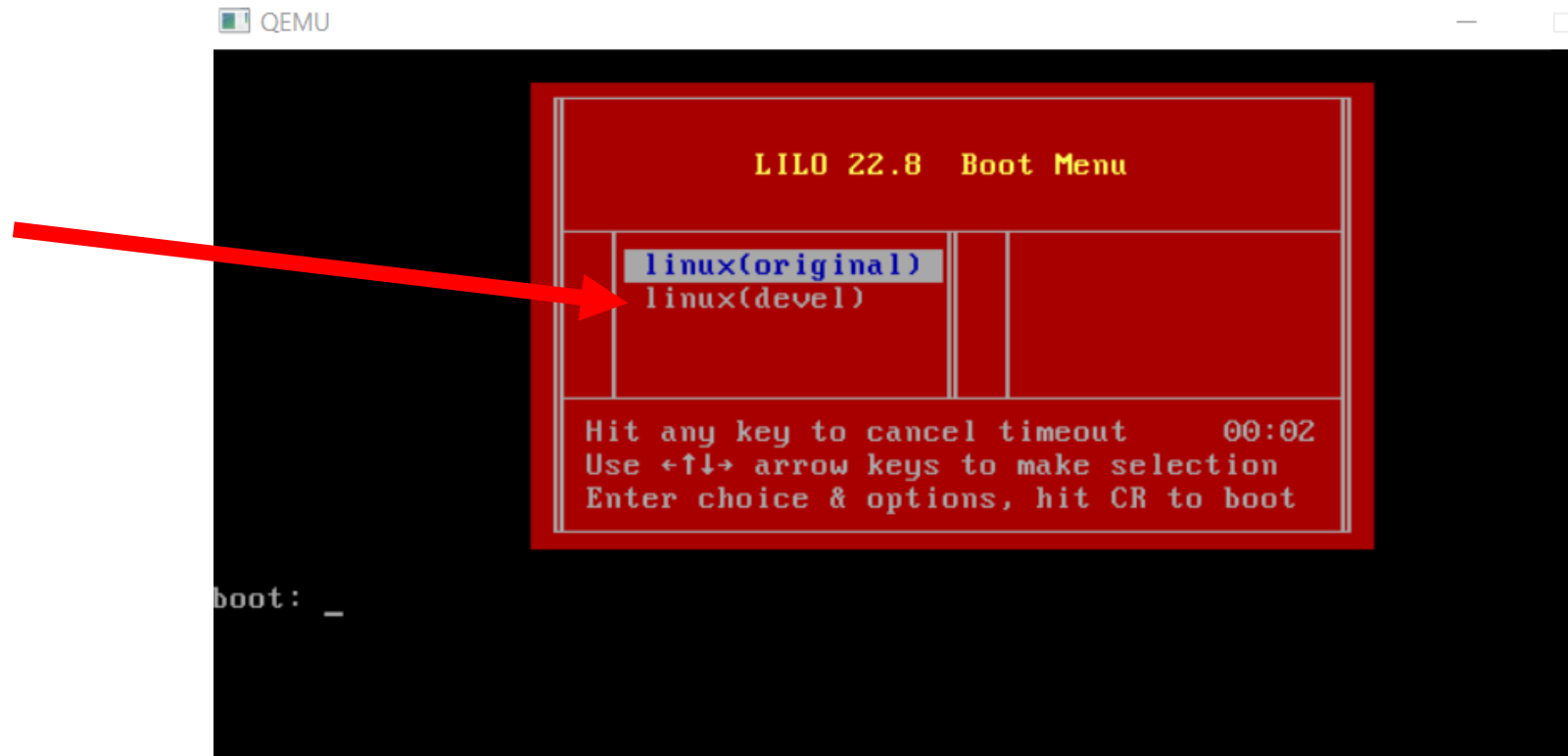
- **FROM WITHIN THE NEW QEMU**
- Download the files from your compiled Linux:
 - `scp USERNAME@thoth.cs.pitt.edu:/u/OSLab/USERNAME/linux-2.6.23.1/arch/i386/boot/bzImage .`
 - `scp USERNAME@thoth.cs.pitt.edu:/u/OSLab/USERNAME/linux-2.6.23.1/System.map .`
- Install the rebuilt kernel in QEMU:
 - `cp bzImage /boot/bzImage-devel`
 - `cp System.map /boot/System.map-devel`

Copying files from Linux to QEMU

- After this run **linux loader** command:
 - Run **lilo**
- This will relink the new modified kernel you just copied
- Then reboot the system with the command:
 - Run **reboot**

Copying files from Linux to QEMU

- You will change to **linux(devel)** kernel
 - So to see changes always remind to choose it when opening Qemu





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