



CS 1550

Week 3 – Setting up environment
for Project 1

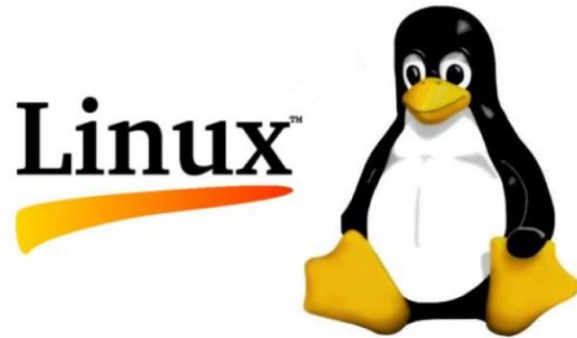
Teaching Assistant
Henrique Pötter

Recitation TA – Office Hours

- Office Hours (SENSQ 6507)
 - Tuesday:
 - 10:00 am to 11:00 am / 6:00 pm to 7:00 pm
 - Wednesday:
 - 10:00 am to 12:00 pm
 - Friday:
 - 10:00 am to 12:00 pm
- Email
 - potter.hp@pitt.edu
- Slides Website
 - <http://people.cs.pitt.edu/~henriquepotter/>

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

Setting up environment for Project 1

1. First log to your **thoth.cs.pitt.edu** account
 - Command line
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 - 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`

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

- Run `cd linux-2.6.23.1`

Setting up environment for Project 1

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

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- Run `cd linux-2.6.23.1`

5. Copy the .config file

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

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

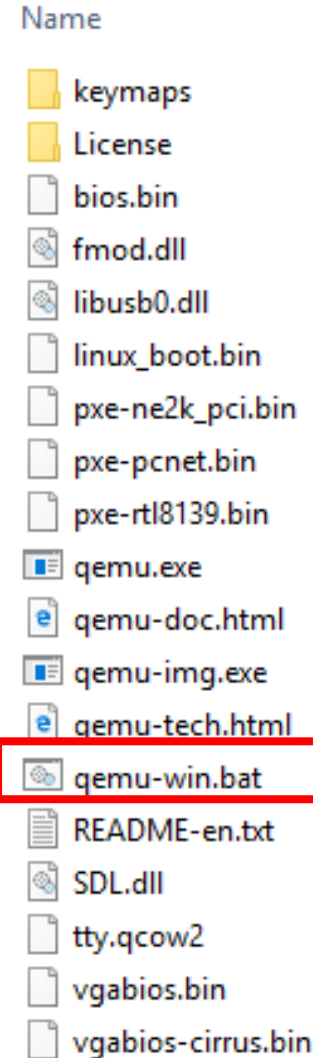
- To add the changes you will need to rebuild the Kernel
 - Run again `make ARCH=i386 bzImage`

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 [brew.sh](#)
 - In terminal, run:
brew install qemu
 - Download QEMU and an Image from this [link](#)
 - Unzip qemu-mac&ubuntu-img(only).zip
- Ubuntu Users
 - In terminal, run:
apt-get install qemu
 - Download QEMU and an Image from this [link](#)
 - Unzip qemu-mac&ubuntu-img(only).zip
- Detailed guidance
 - https://github.com/Henrique-Potter/Pitt_CS1550_recitation_materials/tree/master/project1

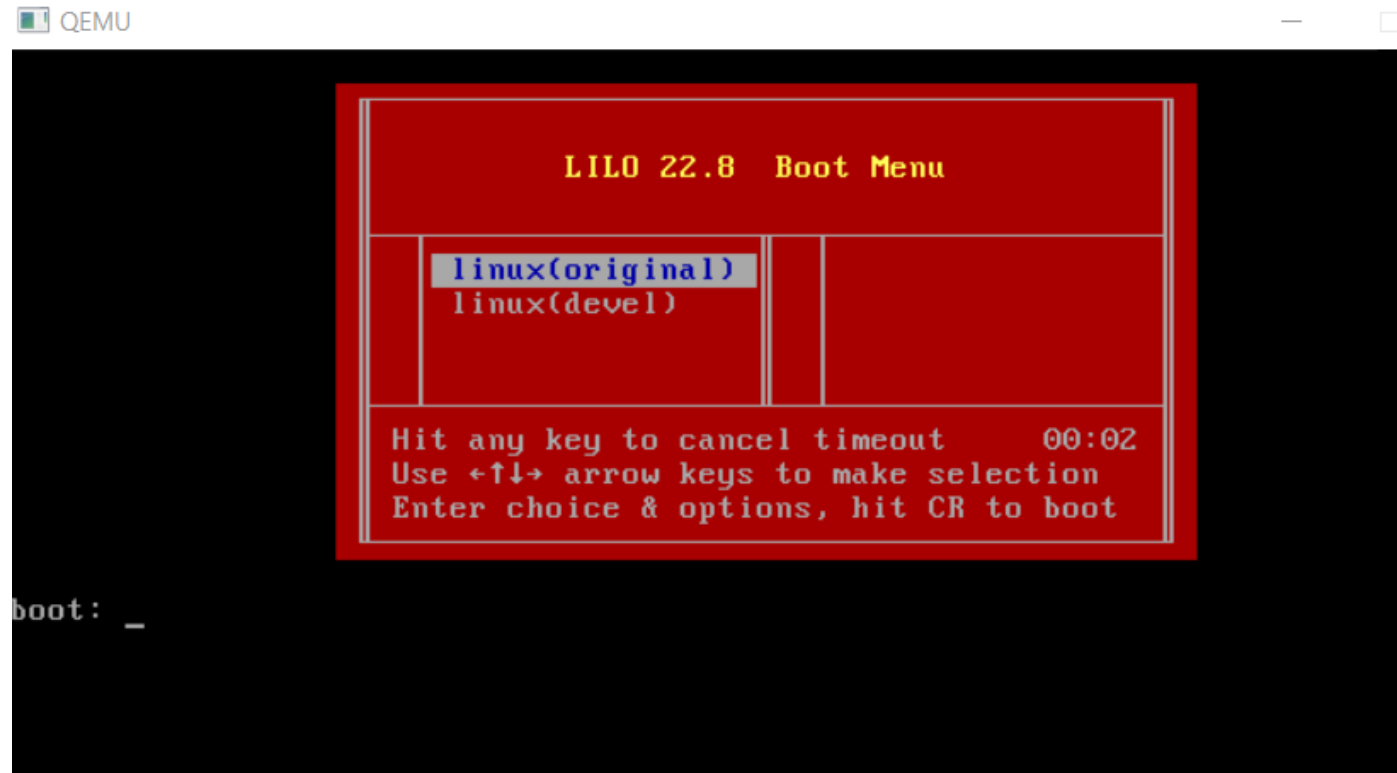
Configuring QEMU

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



Configuring QEMU

- Choose Linux(original)
 - User '**root**' as user and password



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/
- Please be sure about **the path** where **you copied** the **linux distro!**
 - If you follow the step here the linux files should be in **/u/OSLab/username**

Copying files from Linux to QEMU

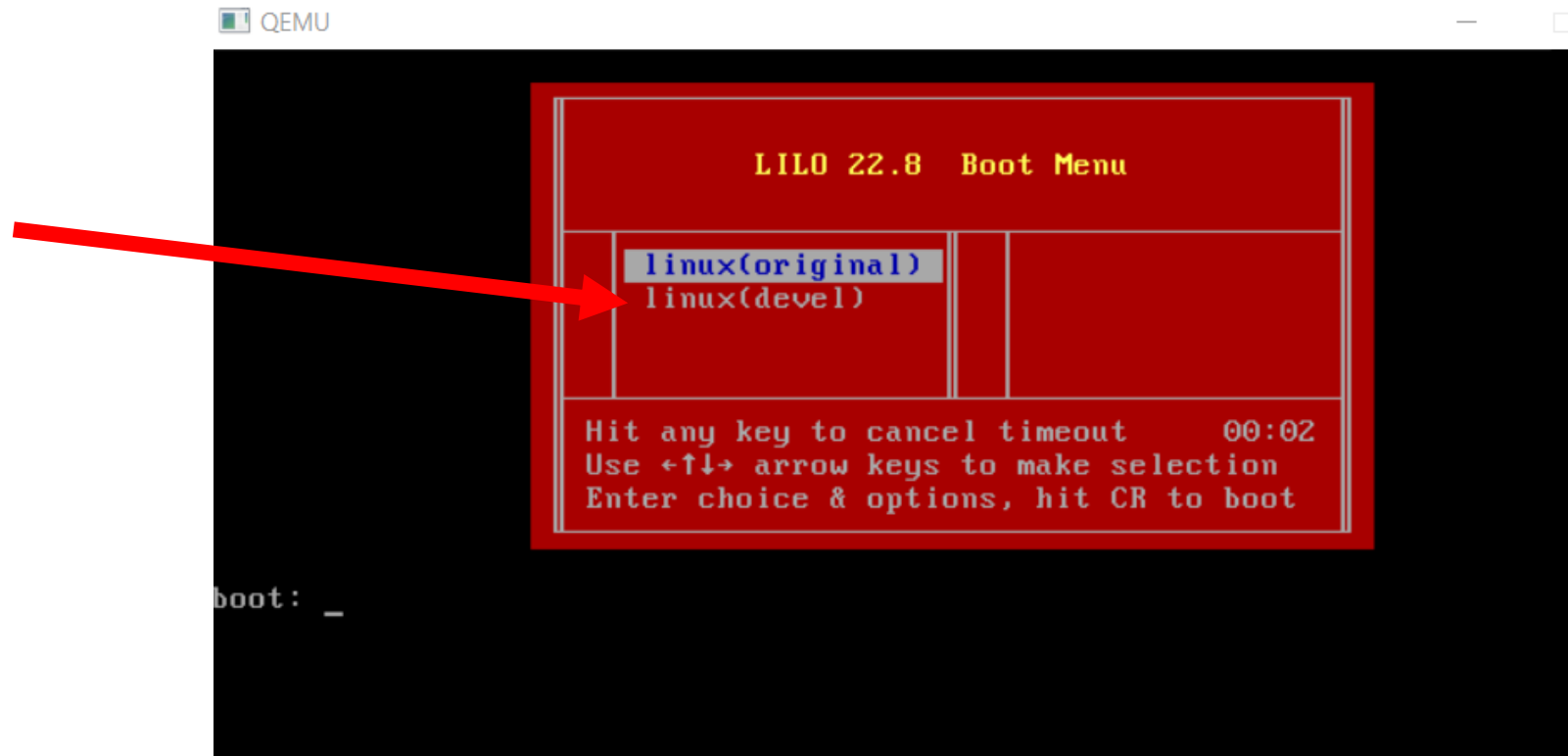
- **FROM WITHIN THE NEW QEMU**
- Download the files from your compiled Linux:
 - **scp** USERNAME@thoth.cs.pitt.edu:/u/OSLab/username /linux-2.6.23.1/arch/i386/boot/**bzImage** .
 - **scp** USERNAME@thoth.cs.pitt.edu:/u/OSLab/username /linux-2.6.23.1/**System.map** .
- Install the rebuilt kernel in QEMU: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