Set-Up Linux

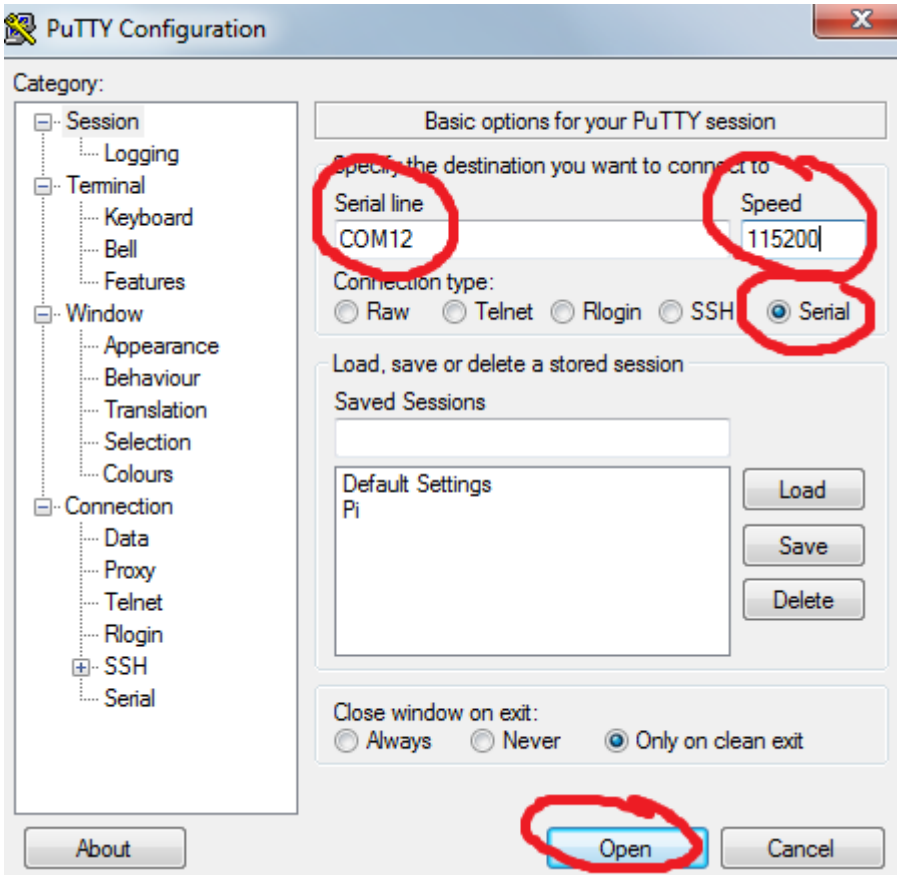
Using Linux on the Galileo

Connecting to the Linux Shell

- Plug in the **6-pin serial-USB** cable from the Galileo into your USB drive. Pay attention - it should be marked on your board which end is black and which is green
- Reopen **Device Manager** to find the COM number of the serial USB port. It will also be listed in the *Tools > Serial Port* menu in Arduino
- Open a **Serial terminal program**. I've included my favorite (PuTTY) in the Github. Another common choice is Tera Term, which you can download if you choose

Connecting to the Linux Shell

- Open your Serial terminal program and set the **COM port** to the same as your serial cable and set the **baud rate (speed) to 115200**



Connecting to the Linux Shell

- Connect, and it should open a text terminal window. Hit enter, and you will be prompted for a login. Enter **`root`** and hit enter (no password)
- You are now in the shell! Make sure it works by running a command like **`pwd`**, which should return **`/home/root`**

Testing the Shell (Learn a few Linux commands)

- Type **`pwd`**. This stands for **print working directory** and will print the *path* to your current location in the directory tree (in Linux, folders are called directories). This path might be the **root directory** (**/**) or a deeper directory like **/home/root/**

Testing the Shell

- Type **`cd`**. Without any arguments, this returns you to the root directory.
- Type **`ls`**. This lists the folders and files in your current directory. If you are in the root directory, you will see a bunch of folders. If you are in another directory, you might see files and folders or even nothing at all.

Testing the Shell

- Type **`cd [directory name]`** (pick any one of the directories that was listed when you typed **`ls`**). For example, type **`cd home`** or **`cd usr`**. cd means **change directory** and will move you into the directory name that you've chosen. Type **`pwd`** to show that it worked.
- Type **`ls`** see what's in your new directory, and the **`cd`** to return to the root directory

Testing the Shell

- Try making a file! Type **`touch [filename].txt`** to create a new file. Choose any filename you want. For example, I might say **`touch test.txt`**
- Add content to your file by typing **`echo "Hello, World!" > test.txt`**. Substitute with any string of text you want and the name of your file.
- Check that it worked by using the **`cat`** command to read the contents of your file. For example, **`cat test.txt`** and the terminal will print *Hello, World!* to the terminal.
- Remove your file by typing **`rm test.txt`**

The Bigger Linux Image

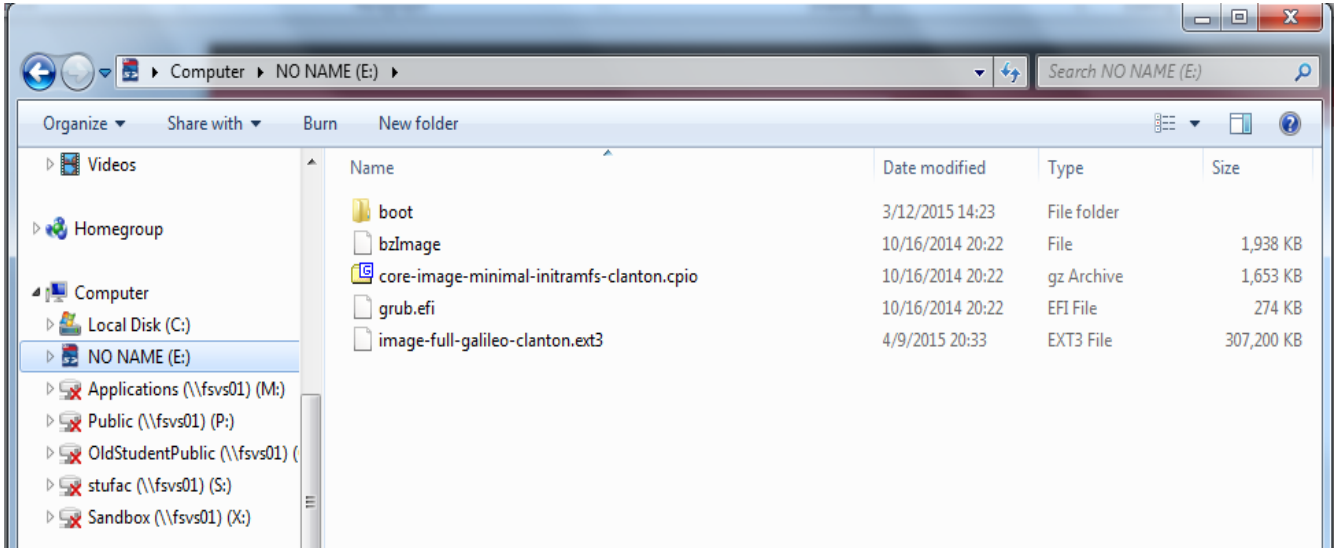
- Download the image from https://communities.intel.com/docs/DOC-22226 (It's called SD-Card Linux Image) and unzip it. It contained another zipped file – unzip that one too
- Get your micro-SD card and adapter and insert it into your computer

The Bigger Linux Image

- **Format** the SD card by opening a Windows Explorer and finding the SD card (in My Computer > Devices likely)
- Right-click the card and select **Format** from the menu
- Make sure the File System setting is set to **FAT32**
- Click **Start** and **OK** (*this erases all SD card content!!)*

The Bigger Linux Image

- When it's complete, move the **contents** of the ***image-full-galileo*** folder (from your unzipped SD card download) onto the card. Make sure they are in the **top level**:



The Bigger Linux Image

- Remove the SD card from the computer
- Power down the Galileo by unplugging first the USB and then the power, and then insert the SD card into the slot, and reboot the Galileo
- Connect to the Linux shell and type **`python`** into the command window. It should open a Python interpreter from the SD card image

Moving Files to the Galileo (mini Python project)

- Open the *record_time.py* file from the Python Scripts folder in the Github. This is a quick Python file that records the date and time
- You need to open it with a text editor like Notepad. I recommend downloading Sublime Text, it's my favorite text editor:

  http://www.sublimetext.com/3

Moving Files to the Galileo

- Connect an ethernet cable from your computer to the Galileo
- We use **scp** to transfer files. This already exists on Mac. For Windows, I've included a **pscp** program in the same folder to use for file transfer

Moving Files to the Galileo

- Open a **Windows Command Prompt** and navigate to the directory where *record_time.py* is by using **`cd`** to change directories and **`dir`** to list the contents of a directory (because this is Windows, not Unix/Linux where you use ls)
- In your **Linux shell**, type the command **`ifconfig`** to see internet connection settings. Under the **`eth0`** (ethernet) output, on the second line, look for the phrase **`inet addr`** followed by an IP address. Note or copy this address.

Moving Files to the Galileo

- In the Windows Command Prompt, type:
  - **`pscp -scp ./record_time.py root@[YOUR IP ADDRESS HERE]:/home/root`**
- for example, mine might look like
  - **`pscp -scp ./record_time.py root@192.168.137.228:/home/root`**
  - but your IP will be different
- When prompted, type **`y`** to store the key in cache

Moving Files to the Galileo

- This saved the file into the `/home/root` directory on the Galileo. In your Galileo command prompt, type **`cd /home/root`** to access this directory and **`ls`** to list the contents. *record_time.py* should be listed in the contents
- Run the file by typing **`python record_time.py`**. The program will access the current date and time and write it into a text file. Feel free to run the program a couple times.

Moving Files to the Galileo

- Use the command **`ls`** again to list the contents of the directory. Now that you have run the program, you should see a file called *button_log.txt*
- View the contents of the text file with **`cat button_log.txt`**. It will show the timestamps of when you ran the *record_time* program