Ethernet Setup

Tutorial

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For Windows

- Turn on your machine and connect via Ethernet to your computer, either directly or via a USB to ethernet adapter.
- Download and install Xming.
  - Run it, you should just see a small "X" icon appear in your system tray, no window will pop up.

- Check that your ethernet port has a static IP address of 192.168.0.2, Netmask 255.255.255.0. If you're not sure how to do that, this tutorial is helpful. If you are a corporate user, you may want to request your IT department to install a second network card configured to these settings.
- Install & configure PuTTY SSH client (or any other SSH client may work as well).

- ○ Download and install [PuTTY SSH client](#).

- ○ Run PuTTY and navigate the left-side menu to *Connection>SSH>X11*.

- ○ Click on "Enable X11 forwarding".

- ○ In the left menu click on *Session*, from there you should see a text entry box titled "*Host Name (or IP address)*" just below it enter **pocketnc@192.168.0.77** on port **22**.

- ○ Make sure that *Connection type:* is set to **SSH**.

- ○ Below in the "*Saved Sessions*" box, settings can be stored for later reuse by typing in a descriptive name and clicking on the *Save* button.

- ○ Click the *Open* button.

- Launch machine controller.

  - ○ A new console window should appear with a line displaying *Using username "pocketnc"*.

  - ○ Next it will prompt you for a password, enter **pocketnc**.

  - ○ Once logged in, you will have direct linux terminal access to the BBB's operating system just as you would on a computer running linux.

  - ○ Now that we have tested that the SSH connection works, we can test that Xming is working by entering the command **linuxcnc**.

  - ○ The MachineKit Configuration Selector will pop up. Choose the Pocket NC configuration located under My Configurations>ARM.BeagleBone.PocketNC

  - ○ After several seconds you should see LinuxCNC's AXIS window appear, PocketNC uses this program as its CNC control interface.

  - ○ Test out your machine by turning E-stop off, Machine Power on, and clicking on **Home All**. For the next steps to get going machining, see the Uploading and Deleting Files tutorial and the AXIS Overview tutorial.

  - ○ Finally, when it's time to close up shop for the day you can power down the PocketNC machine by closing the AXIS window, and from the console window

enter **sudo halt & exit** this will we initiate the shutdown process and close the SSH connection on the way out.

For Mac OSX:

1. Check that your ethernet port has a static IP address of 192.168.0.2, Netmask 255.255.255.0. If you're not sure how to do that, <u>this tutorial</u> is helpful. If you are a corporate user, you may want to request your IT department to install a second network card configured to these settings.

2. You will need the X11 application. It comes with OSX 10.5 and newer, but you will probably need to <u>download it</u> for older versions. Once you have it installed and running, open up a terminal session and run: ssh -Y pocketnc@192.168.0.77

3. After several seconds it should prompt you for a password, enter **pocketnc**.

4. Once logged in, you will have direct linux terminal access to the BBB's operating system just as you would on a computer running linux.

5. Now that we have tested that the SSH connection works, we can test that Xming is working by entering the command **linuxcnc**.

6. The MachineKit Configuration Selector will pop up. Choose the Pocket NC configuration located under My Configurations>ARM.BeagleBone.PocketNC

7. The LinuxCNC AXIS window will appear. PocketNC uses this program as its CNC control interface.

8. Test out your machine by turning E-stop off, Machine Power on, and clicking on **Home All**. For the next steps to get going machining, see the Uploading and Deleting Files tutorial and the AXIS Overview tutorial.

9. Finally, when it's time to close up shop for the day you can power down the PocketNC machine by closing the AXIS window, and from the console window enter **sudo halt & exit** this will we initiate the shutdown process and close the SSH connection on the way out.

For Linux:

If you use Linux regularly you most likely know how to use SSH & X forwarding already. Instead, included are some instructions for the Linux newbies out there.

1. Check that your ethernet port has a static IP address of 192.168.0.2, Netmask 255.255.255.0. If you're not sure how to do that, this tutorial is helpful. If you are a corporate user, you may want to request your IT department to install a second network card configured to these settings.

2. Open a terminal window in your current desktop session.

3. Enter **ssh -X pocketnc@192.168.0.77**

4. When prompted for a password, enter **pocketnc**

5. Now that we have tested that the SSH connection works, launch the machine controller with the command**linuxcnc**.

6. The MachineKit Configuration Selector will pop up. Choose the Pocket NC configuration located under My Configurations>ARM.BeagleBone.PocketNC

7. After several seconds you should see LinuxCNC's AXIS window appear, PocketNC uses this program as its CNC control interface.

8. Test out your machine by turning E-stop off, Machine Power on, and clicking on **Home All**. For the next steps to get going machining, see the Uploading and Deleting Files tutorial and the AXIS Overview tutorial.

9. Finally, when it's time to close up shop for the day you can power down the PocketNC machine by closing the AXIS window, and from the console window enter **sudo halt & exit** this will we initiate the shutdown process and close the SSH connection on the way out.

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