

# HD Raspberry Pi Laptop Connection

For "[laptop](http://csinparallel.stolaf.edu/CSiP_rpi3_base_2.0.img.zip)" Raspberry Pi 3 image ([http://csinparallel.stolaf.edu/CSiP\\_rpi3\\_base\\_2.0.img.zip](http://csinparallel.stolaf.edu/CSiP_rpi3_base_2.0.img.zip))

## Your kit should contain:

1. Raspberry Pi 4 motherboard in a red-and-white box;
2. USB-C to wall power block;
3. USB A-to-C adapter;
4. Ethernet cable;
5. USB to Ethernet dongle;
6. MicroSD card in a plastic protector;
7. Cooling fins for certain Pi chips;
8. Black hard case for the Pi motherboard; and
9. Zippered case for the kit.

**Note: Return all these items at the end!**

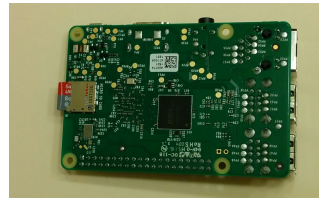


1. Install software on your laptop.

- Install a VNC viewer client such as RealVNC Viewer <https://www.realvnc.com/download/viewer/>  
**Note:** We do not need VNC Connect (the Pi already has a server installed)
- *Linux only:* Make VNC viewer an executable: `chmod -x VNC-Viewer-6.1.1-Linux-x64`
- *Windows only:* Install an SSH client such as putty <http://www.putty.org/>

2. Insert the MicroSD card.

Remove the MicroSD from its plastic protector, and insert into the MicroSD slot on the bottom side of the motherboard.



3. Connect the Raspberry Pi 4 to power.

- Attach the power block first to the Pi, then to a power socket. **Note:** Use the power block provided, or your Pi might not receive enough power to function correctly.

### Look for this:

- A red light should appear, indicating that power is connected to the Pi.
- A green light should flash, indicating that the Pi operating system is booting.

4. Attach your laptop to the Pi.

- If your laptop *has an ethernet port*, attach the ethernet cable between that laptop ethernet port and the Pi's ethernet port.
- If your laptop *doesn't have an ethernet port*, connect the USB-to-ethernet dongle to a USB port on your laptop, then attach the ethernet cable between that dongle to the Pi's ethernet port.
  - Use the USB A-to-C adapter if your laptop only has USB-C socket(s).



### 5. Verify an Ethernet network connection to the Pi.

#### Windows:

- From the Start menu, select Control Panel, then Network and Internet
- Once your laptop connects to the Pi (this may take a minute or so), you may see a popup window about selecting a network location. You can select Home Network or choose the red X at the top right of the window to exit that popup.

#### Linux:

- After a moment, a two-arrow icon should show in the upper right toolbar:

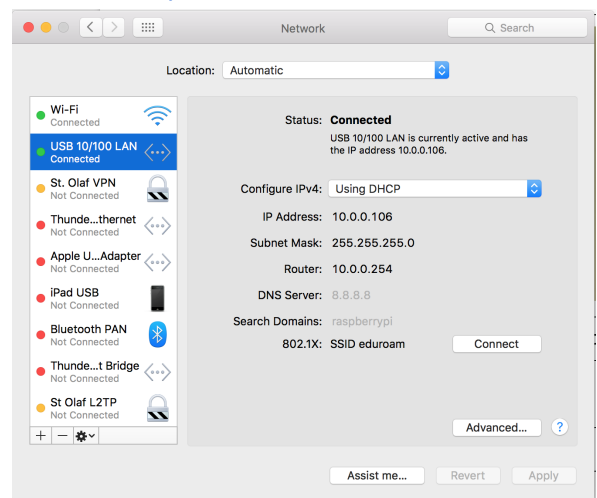


This indicates a wired connection to the Pi.

#### Macintosh:

- Start up to System Preferences, then choose Network.
- *If using an ethernet port on your Mac*, the Ethernet port should move to the top and show that it is connected.
- *If using the kit's USB-Ethernet dongle*, “USB 10/100 LAN” should move near the top of the list and show a green connection status (image below). The connection may take a minute or so to complete.

**Note for dongle only:** If “USB 10/100 LAN” doesn't appear in the list, download the driver for “**SKU 202023**” from <http://www.cablematters.com/cs-Downloads.aspx>

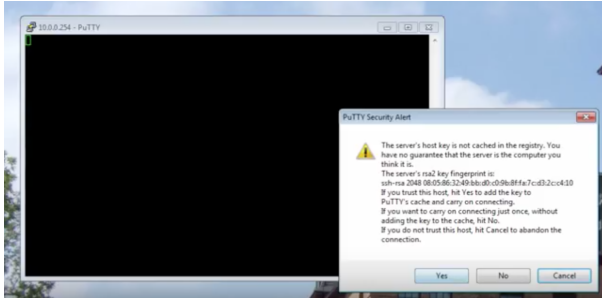


6. Log into the Pi using SSH. *Note:* After you change the password on your Pi, use the new password.

**Windows:**

- Open the Putty application (or another SSH client) and enter the IP address 10.0.0.254 , then login with  
User: pi  
Password: raspberry

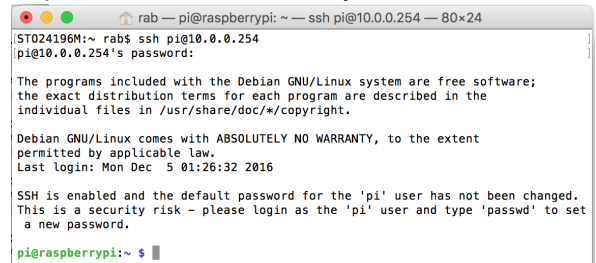
**Note:** If this is your first SSH session to this Pi, a popup will appear. Click on Yes to indicate that you trust the Pi.



**Macintosh, Linux:**

- Open the Terminal application
- Enter the command  
`ssh pi@10.0.0.254`  
Password: raspberry

**Note:** If this is your first SSH session to this Pi, respond Yes to indicate that you trust the Pi.



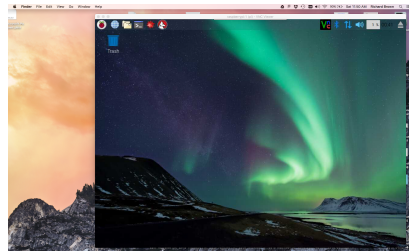
7. Connect a VNC viewer on your laptop to the VNC virtual desktop.


- Open VNC Viewer, and create a new connection to the virtual desktop 10.0.0.254  
**Note:** On your first connection to this VNC server, click Continue to indicate you trust the Pi.

*Linux only:* Command to start VNCViewer:

```
./VNC-Viewer-6.1.1-Linux-x64
```

- Enter username pi and password raspberry .  
You should see a Raspberry Pi desktop.



8. To open a terminal window in VNCViewer, click on the  icon near the top of the Pi VNC viewer window. (You can also compile and run programs in an SSH session from your laptop to the Pi.)

# To quit

To close the VNC viewer:

*Windows:* Click on the red X in the upper right corner of the VNC viewer window.

- You can reconnect to your virtual desktop using VNC viewer later, until that virtual desktop exits on the pi.

*Macintosh, Linux:* Click on the red dot in the upper left corner of the VNC viewer window.

- You can reconnect to your virtual desktop using VNC viewer later, until that virtual desktop exits on the pi.

To close an SSH session (not necessary when you shut down the Pi operating system, below):

*In that SSH session from your laptop to the Pi, enter the command*

`exit`

- You can start another SSH session to the Pi later, and have multiple SSH sessions at once.

To shut down the Pi operating system:

*In an SSH session from your laptop to the pi, enter the command*

`sudo shutdown -h now`

Allow a few seconds for the Pi's operating system to shut down.

- The -h flag halts the Pi hardware (you could restart by substituting -r instead).

**Note: Return all the kit items in their zippered case at the end!**

See first page for a list of all kit items.