

Hermes/ANAN-10 Direct Connection

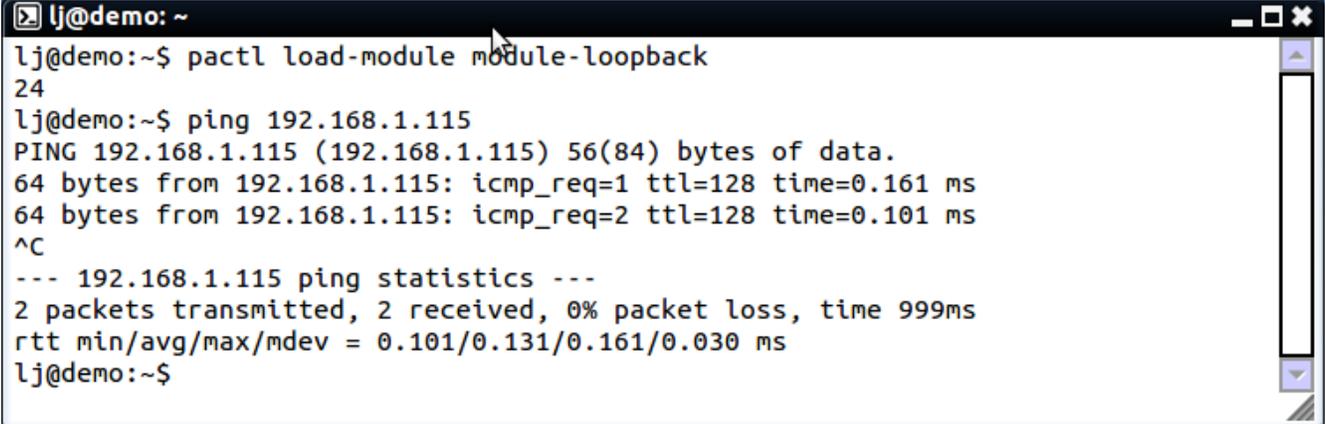
This article is a step-by-step instruction showing how I connected my Hermes/ANAN-10 Amateur SDR Transceiver directly to my laptop PC running cuSDR64 on Ubuntu Linux Precise 12.04 LTS. My objective was to hook my laptop up to Hermes directly with only straight non-crossover RJ-45/CAT6 cable. I also wanted to route the headphones output of Hermes into the Mic input of my laptop such that Hermes audio would appear on the laptop speakers so I didn't need to carry an external speaker. This was in preparation setting up a demonstration at a local Hamfest.

1. In order to get the mic input or line in audio to be “monitored” on the laptop's speakers, I simply loaded a pulse audio module. Look in the top of terminal window below. The command “pactl load-module module-loopback” shown entered with a successful response (24), loads this module causing what appears on the line-in/mic input to be repeated on the laptop's speakers.

If you want the loopback module loaded automatically, this may work:

```
pactl load-module module-loopback
```

```
sudo sh -c ' echo "load-module module-loopback" >> /etc/pulse/default.pa '
```

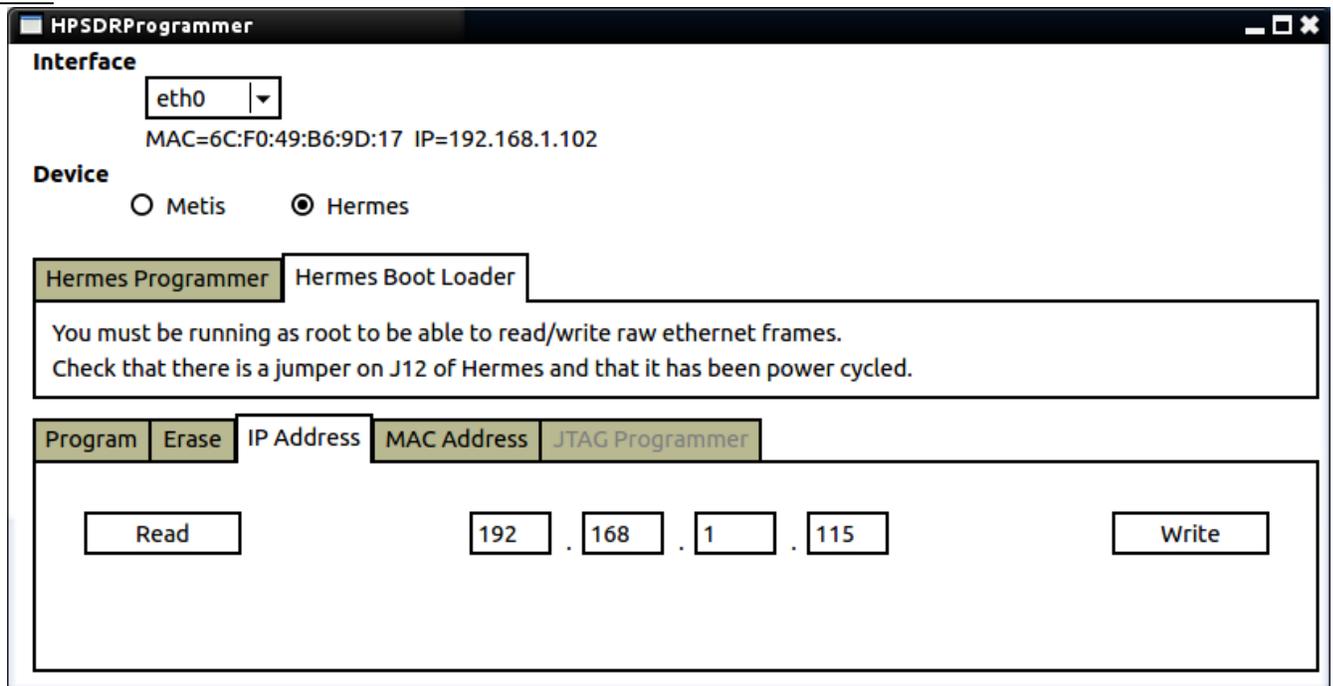


```
lj@demo: ~  
lj@demo:~$ pactl load-module module-loopback  
24  
lj@demo:~$ ping 192.168.1.115  
PING 192.168.1.115 (192.168.1.115) 56(84) bytes of data.  
64 bytes from 192.168.1.115: icmp_req=1 ttl=128 time=0.161 ms  
64 bytes from 192.168.1.115: icmp_req=2 ttl=128 time=0.101 ms  
^C  
--- 192.168.1.115 ping statistics ---  
2 packets transmitted, 2 received, 0% packet loss, time 999ms  
rtt min/avg/max/mdev = 0.101/0.131/0.161/0.030 ms  
lj@demo:~$
```

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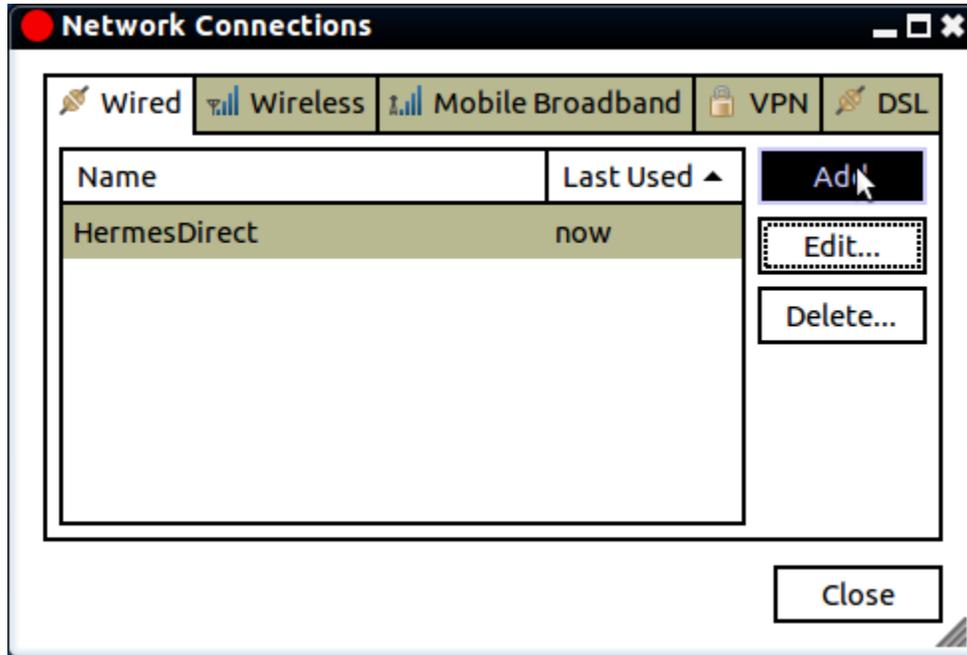
2. I used the program HPSDRProgrammer to set a static ip for my Hermes box. A static IP means that the address, once set internally to Hermes remains the same. Hermes will always listen on this static address on it's Ethernet jack after it is power cycled. I set 192.168.1.115 so as to avoid conflicts with other devices on my local LAN. When the HPSDR programmer starts, click **Hermes**, and then Hermes Boot Loader. Then click **IP Address** and fill in your chosen IP (I used 192.168.115) into the four blanks. Don't include the periods, numbers only. Then click **Write**. Go for a coffee and then shut down the HPSDRProgrammer application. Then power down Hermes, count to 20, and power it back up. This was the link I used to obtain the HPSDRProgrammer application. A newer version maybe available.

http://openhpsdr.org/downloads/programs/release/linux/HPSDRProgrammer_V1.6-64.tar.bz2



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3. You next must create a new Wired Connection. So open your Network Connections dialog, click Add and fill in a name such as HermesDirect. You can find the Network Connections dialog by typing “net” into DASH.



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4. Next in the IPv4, Network Connections dialog tab, select Manual. Click Add, then fill in the Address, Netmask, and Gateway following the example below. Note that the Gateway IP is the same as the IP you set into Hermes using the HPSDRProgrammer. 192.168.1.114 is the IP that your PC will assume after reboot when directly connecting to Hermes. These two IPs must be on the same subnet. So an addresses between 192.168.1.2 through 192.168.1.254 is valid given the Netmask of 255.255.255.0.

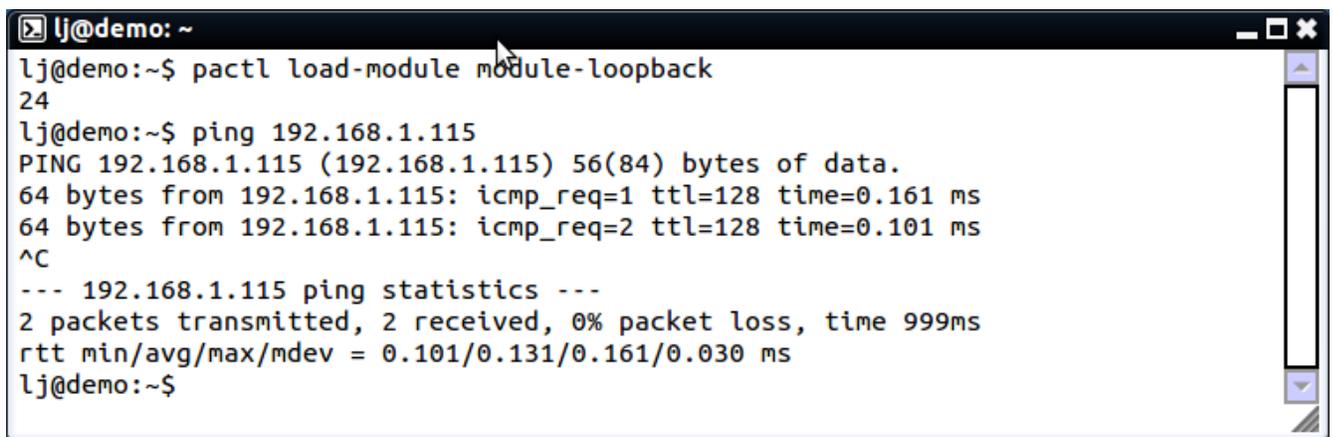
The screenshot shows a window titled "Editing HermesDirect" with the following configuration details:

- Connection name: HermesDirect
- Connect automatically
- Method: Manual (selected in a dropdown menu)
- Addresses table:

Address	Netmask	Gateway	Add
192.168.1.114	255.255.255.0	192.168.1.115	Delete
- DNS servers: [Empty text box]
- Search domains: [Empty text box]
- DHCP client ID: [Empty text box]
- Require IPv4 addressing for this connection to complete
- Buttons: Routes..., Cancel, Save...
- Available to all users

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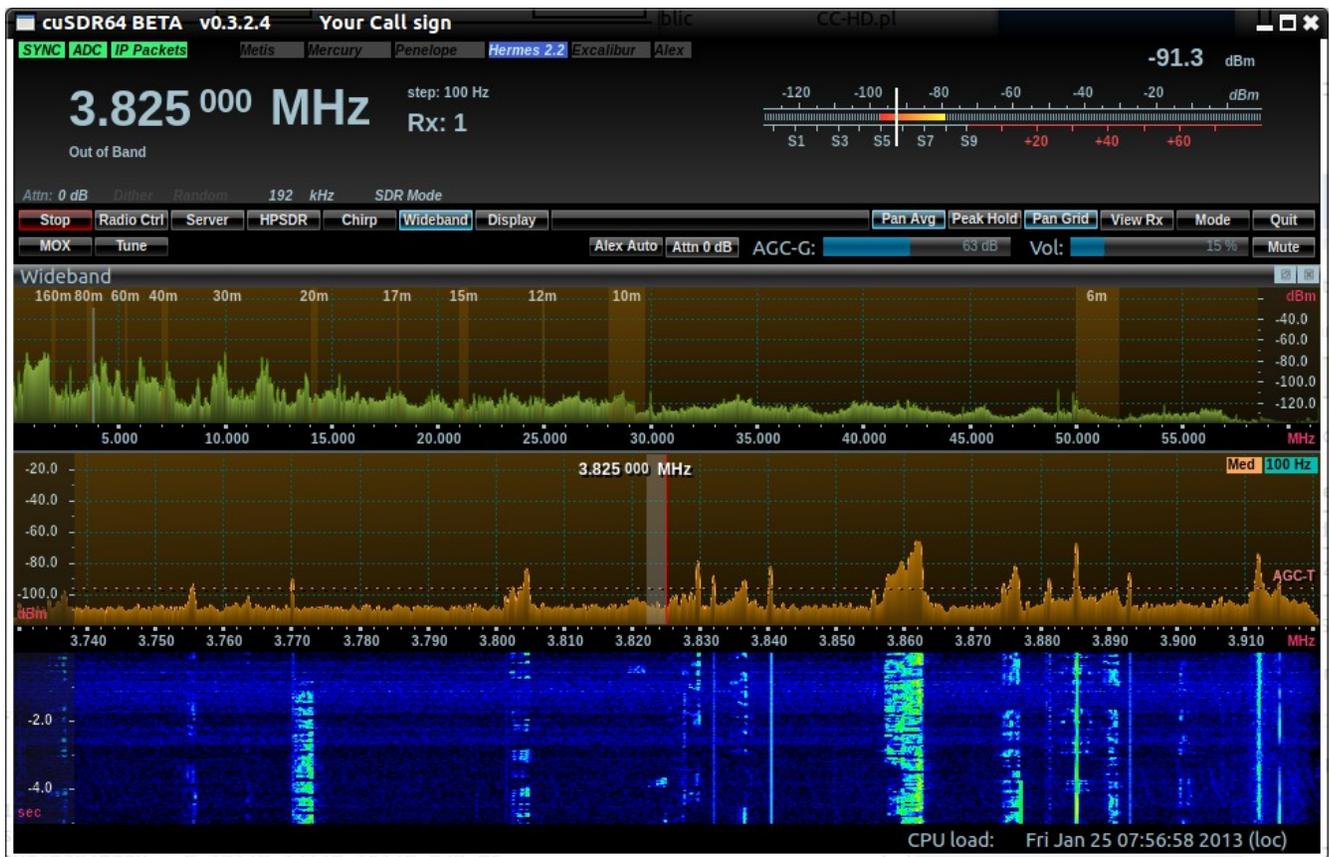
5. Next connect an ordinary CAT5 /RJ-45 cable between your PC's Network Interface Card and Hermes. A cross over cable is not necessary. Power cycle your PC and then Power Cycle Hermes. Open a terminal window on your PC. In the top right corner of your Ubuntu screen, click on the Networking Dialog symbol. (Up/Down Arrows if connected or a Windshield symbol if not connected or put your cursor in the top right corner, left click, and move left and right until you see network info. When the dialog opens, you may have to check “Enable Networking” If you were successful in setting a static IP in your Hermes, you should be able to “ping” Hermes. Look at the terminal window shown in the lower left for an example of what you should see if a successful TCP/IP connection has been made between PC and Hermes. Cntl-C to stop the “pinging” as illustrated below.

A terminal window titled 'lj@demo: ~' showing the execution of 'pactl load-module module-loopback' and a successful ping to 192.168.1.115. The ping statistics show 2 packets transmitted, 2 received, and 0% packet loss.

```
lj@demo:~$ pactl load-module module-loopback
24
lj@demo:~$ ping 192.168.1.115
PING 192.168.1.115 (192.168.1.115) 56(84) bytes of data.
64 bytes from 192.168.1.115: icmp_req=1 ttl=128 time=0.161 ms
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--- 192.168.1.115 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 999ms
rtt min/avg/max/mdev = 0.101/0.131/0.161/0.030 ms
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```

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6. Assuming that the Hermes headphone jack is connected to your PC's mic in or line in via a stereo cable, and a TCP/IP connection has been made between your PC and Hermes, via an RJ-45/Cat5 cable, invoke the cuSDR64 binary. Double click or in a terminal enter `./cuSDR64` from the directory where the cuSDR64 binary is located. When the cuSDR64 program window opens, click **Start**. You should hear a click from a relay internal to Hermes. Shortly the receiver should start operation as illustrated below.



Please route feedback and suggestions for improvement to larry@foxgulch.com

73, Larry W0AY