

实现目的

1. 了解 Acadia 或 RPi 或 WRTnode 中如何对网络进行配置；
2. 了解 Acadia 或 RPi 或 WRTnode 中如何对 VPN 进行连接。

实验器材

硬件

- Acadia 或 RPi 或 WRTnode 板一块；
- 5V/1A 电源一个；
- microUSB 线一根；
- USB-TTL 串口线一根（FT232RL 芯片或 PL2303 芯片）。

以下为自备（可选）器材：

- PC（Windows/Mac OS/Linux）一台；
- 声卡一个；
- 以太网线一根（可能还需要路由器等）。

软件

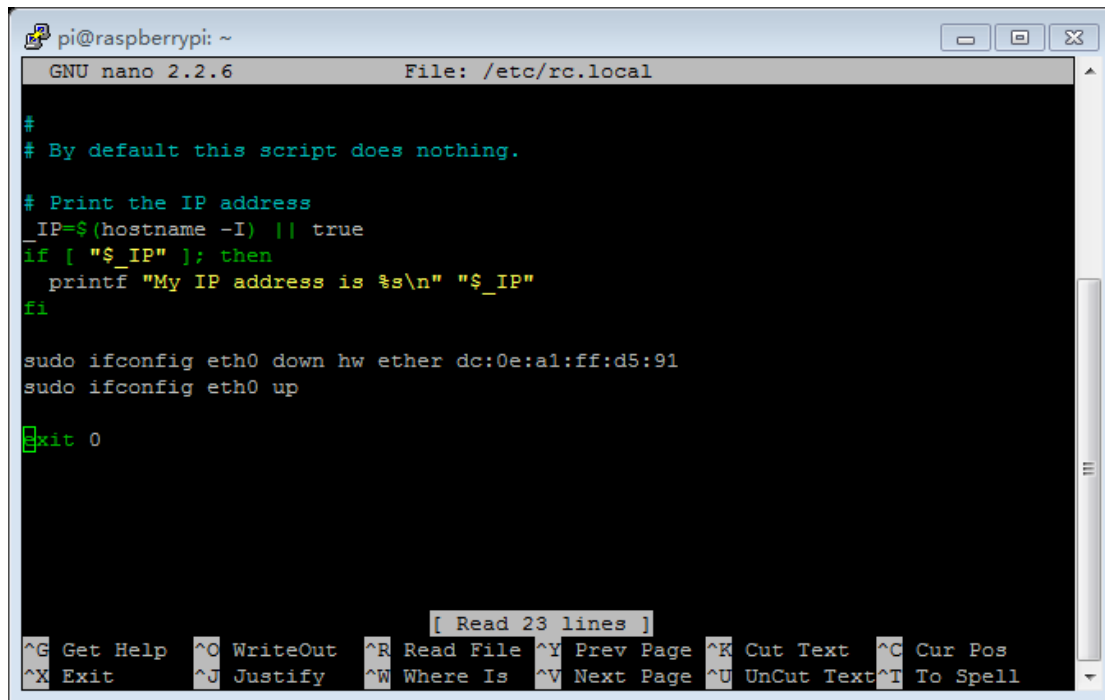
- PC 上的 USB-TTL 串口线配套的驱动程序；
- PC 上的串口终端软件，如 minicom、picocom、putty 等；
- PC 上的 SSH 软件，如 putty 等。

实验步骤

1. 对 Acadia 或 RPi 或 WRTnode 上的网卡进行配置；
2. 拨通校网 VPN。

1. 设置 MAC, ip 地址

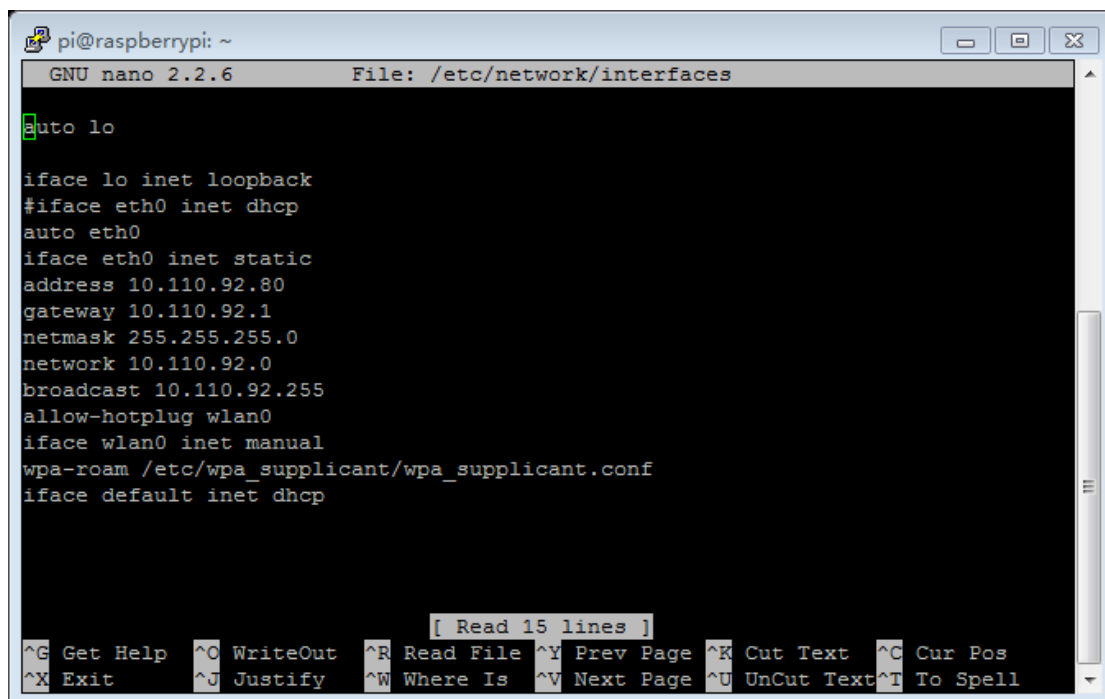
将网线插上后，编辑/etc/rc.local



```
pi@raspberrypi: ~  
GNU nano 2.2.6 File: /etc/rc.local  
  
#  
# By default this script does nothing.  
  
# Print the IP address  
_IP=$(hostname -I) || true  
if [ "$_IP" ]; then  
    printf "My IP address is %s\n" "$_IP"  
fi  
  
sudo ifconfig eth0 down hw ether dc:0e:a1:ff:d5:91  
sudo ifconfig eth0 up  
  
exit 0
```

[Read 23 lines]

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell

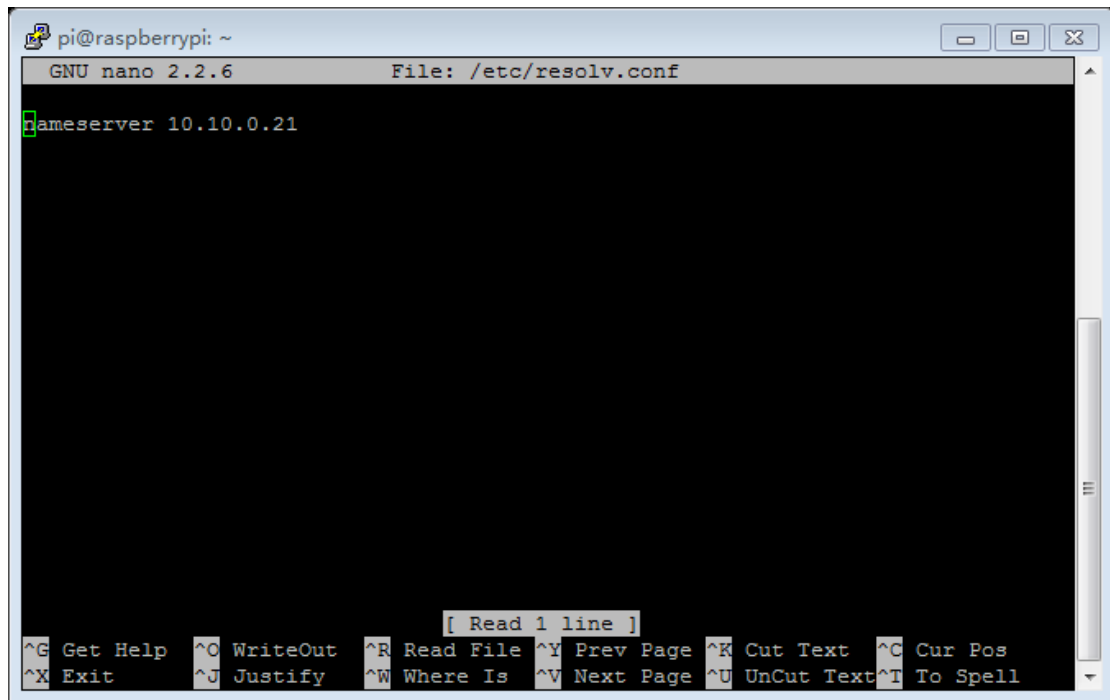


```
pi@raspberrypi: ~  
GNU nano 2.2.6 File: /etc/network/interfaces  
  
auto lo  
  
iface lo inet loopback  
#iface eth0 inet dhcp  
auto eth0  
iface eth0 inet static  
address 10.110.92.80  
gateway 10.110.92.1  
netmask 255.255.255.0  
network 10.110.92.0  
broadcast 10.110.92.255  
allow-hotplug wlan0  
iface wlan0 inet manual  
wpa-roam /etc/wpa_supplicant/wpa_supplicant.conf  
iface default inet dhcp
```

[Read 15 lines]

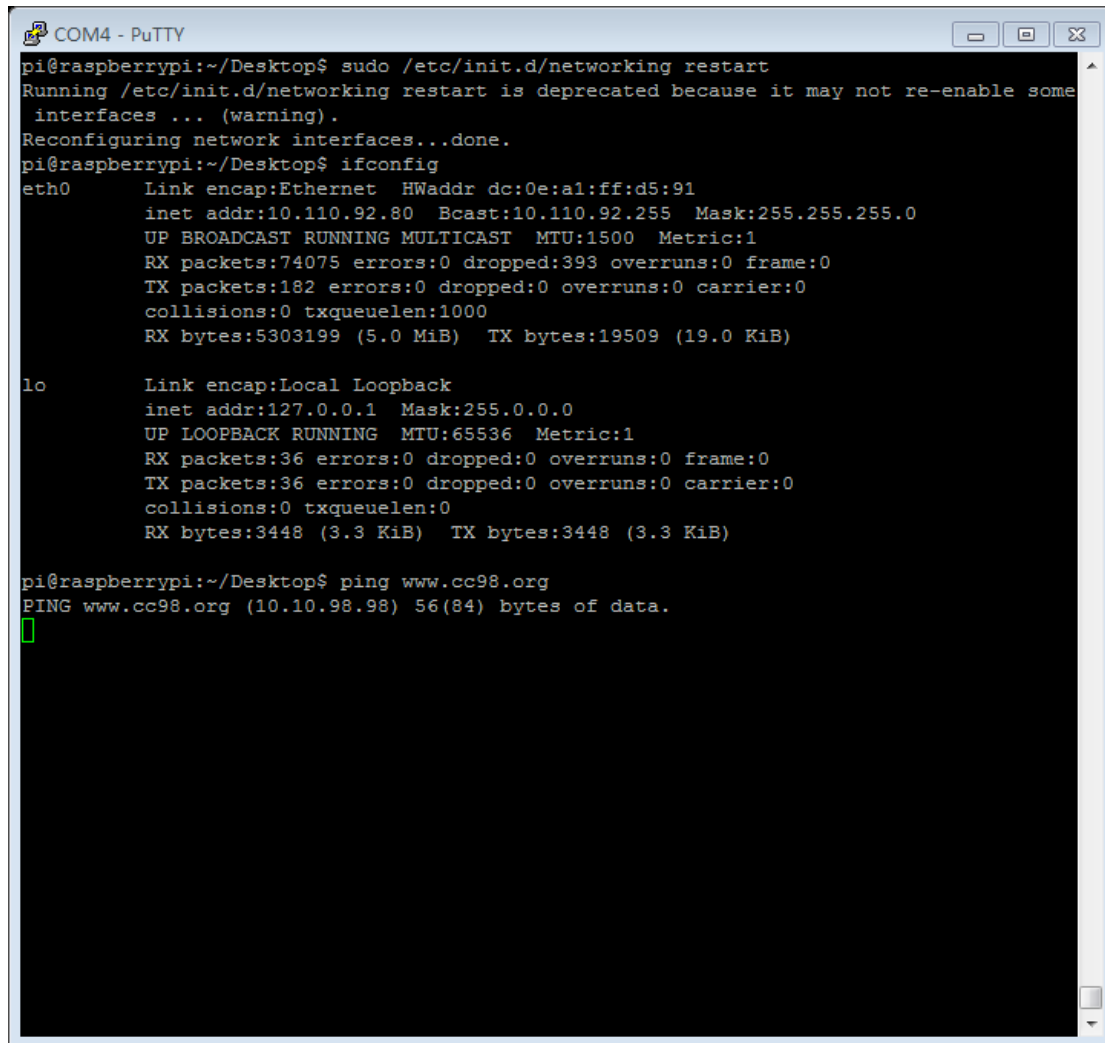
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell

2. 设置 DNS



```
pi@raspberrypi: ~  
GNU nano 2.2.6 File: /etc/resolv.conf  
nameserver 10.10.0.21  
[ Read 1 line ]  
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos  
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

ifconfig 查看设置



```
COM4 - PuTTY
pi@raspberrypi:~/Desktop$ sudo /etc/init.d/networking restart
Running /etc/init.d/networking restart is deprecated because it may not re-enable some
interfaces ... (warning).
Reconfiguring network interfaces...done.
pi@raspberrypi:~/Desktop$ ifconfig
eth0      Link encap:Ethernet  HWaddr dc:0e:a1:ff:d5:91
          inet addr:10.110.92.80  Bcast:10.110.92.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:74075 errors:0 dropped:393 overruns:0 frame:0
          TX packets:182 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:5303199 (5.0 MiB)  TX bytes:19509 (19.0 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:36 errors:0 dropped:0 overruns:0 frame:0
          TX packets:36 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:3448 (3.3 KiB)  TX bytes:3448 (3.3 KiB)

pi@raspberrypi:~/Desktop$ ping www.cc98.org
PING www.cc98.org (10.10.98.98) 56(84) bytes of data.
█
```

安装 VPN

按顺序安装 libpcap0.8, ppp, xl2tpd, 使安装顺序满足依赖性关系

```
sudo dpkg -i libpcap0.8_1.3.0-1_armhf.deb
```

```
sudo dpkg -i ppp_2.4.5-5.1_armhf.deb
```

```
sudo dpkg -i xl2tpd_1.3.1+dfsg-1_armhf.deb
```

```
tar -zxvf zjuvpn-8.2.tar.gz -C
```

```
COM4 - PuTTY
?Big Hero 6??DVD-RMVB.???.rmvb  WarcraftIII_1.20E
Hearthstone                      xl2tpd_1.3.1+dfsg-1_armhf.deb
libpcap0.8_1.3.0-1_armhf.deb      zjuvpn-8.2.tar.gz
root@raspberrypi:/mnt/usb# sudo dpkg -i libpcap0.8_1.3.0-1_armhf.deb
Selecting previously unselected package libpcap0.8:armhf.
(Reading database ... 76938 files and directories currently installed.)
Unpacking libpcap0.8:armhf (from libpcap0.8_1.3.0-1_armhf.deb) ...
Setting up libpcap0.8:armhf (1.3.0-1) ...
Processing triggers for man-db ...
root@raspberrypi:/mnt/usb# sudo dpkg -i ppp_2.4.5-5.1_armhf.deb
Selecting previously unselected package ppp.
(Reading database ... 76948 files and directories currently installed.)
Unpacking ppp (from ppp_2.4.5-5.1_armhf.deb) ...
update-rc.d: using dependency based boot sequencing
Setting up ppp (2.4.5-5.1) ...
Processing triggers for man-db ...
root@raspberrypi:/mnt/usb# sudo dpkg -i xl2tpd_1.3.1+dfsg-1_armhf.deb
Selecting previously unselected package xl2tpd.
(Reading database ... 77061 files and directories currently installed.)
Unpacking xl2tpd (from xl2tpd_1.3.1+dfsg-1_armhf.deb) ...
Setting up xl2tpd (1.3.1+dfsg-1) ...
Starting xl2tpd: xl2tpd.
Processing triggers for man-db ...
█
```

执行 `sudo zjuvpn -c`

```
COM4 - PuTTY
^C
--- 10.180.25.61 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 5.316/172.891/347.273/155.009 ms
pi@raspberrypi:~$ ping www.cc98.rog
ping: unknown host www.cc98.rog
pi@raspberrypi:~$ ping www.cc98.org
PING www.cc98.org (10.10.98.98) 56(84) bytes of data.
^C
--- www.cc98.org ping statistics ---
5 packets transmitted, 0 received, 100% packet loss, time 4000ms

pi@raspberrypi:~$ sudo zjuvpn -c
Configure L2TP VPN for ZJU.
Username: 3120000098
Password:
[MSG] Disconnecting VPN ... Done!
[MSG] Restarting l2tpd...
Restarting xl2tpd: xl2tpd.
[MSG] Done!
[MSG] Trying to bring up vpn... 3 secs... Done!
[MSG] Detected gateway: 10.110.92.1, PPP device: ppp0 .
[MSG] Setting up route table... Done!
pi@raspberrypi:~$ sudo apt-get install mysql-server
```