浙大校网 VPN

实验器材

硬件

Raspberry Pi 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）。

自备器材：

PC（Windows/Mac OS/Linux）一台。

无线网卡

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， putty

实验步骤

1.通过 ifconfig 查找 Pi 的 MAC，然后到学生公寓网申请 ip

2	10.110.40.97	B8-27-EB-E9-6D-7B	255.255.255.0	10.110.40.1	玉泉校区8舍

2.设置静态 IP、网关、子网掩码

编辑/etc/network/interfaces，填入网关、ip、子网掩码，

iface etho inet dhcp 改为 iface etho inet static

```
pi@raspberrypi:~$ sudo vi /etc/network/interfaces
auto lo

iface lo inet loopback
#iface eth0 inet dhcp
iface eth0 inet static
address 10.110.40.97
gateway 10.110.40.1
netmask 255.255.255.0

allow-hotplug wlan0
iface wlan0 inet manual
wpa-roam /etc/wpa_supplicant/wpa_supplicant.conf
iface default inet dhcp
```

3.设置 DNS

在/etc/resolc.conf 里加入 DNS

```
pi@raspberrypi:~$ sudo vi /etc/resolv.conf
nameserver 10.10.0.21
nameserver 8.8.8.8
```

4.编写脚本 network，

#！ /bin/bash

sudo /etc/init.d/networking stop

sudo /etc/init.d/networking start

ifup eth0

注：实验中发现经过重启或 sudo /etc/init.d/networking restart 都不能修

改 ifconfig，故使用 stop 和 start 命令来修改
运行脚本

```
pi@raspberrypi:~$ sudo /etc/init.d/network
Deconfiguring network interfaces...done.
Configuring network interfaces...done.
```

5．查看内网
ifconfig 查看 ip 是否设置好
结果显示已经设置完全

```
pi@raspberrypi:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr b8:27:eb:e9:6d:7b
          inet addr:10.110.40.97  Bcast:10.110.40.255  Mask:255.255.255.0
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

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:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

wlan0     Link encap:Ethernet  HWaddr e8:4e:06:26:e4:64
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

ping 10.180.72.44(ZJUWLAN)

```
pi@raspberrypi:~$ ping 10.180.72.44
PING 10.180.72.44 (10.180.72.44) 56(84) bytes of data.
64 bytes from 10.180.72.44: icmp_req=1 ttl=62 time=116 ms
64 bytes from 10.180.72.44: icmp_req=2 ttl=62 time=12.9 ms
64 bytes from 10.180.72.44: icmp_req=3 ttl=62 time=81.8 ms
64 bytes from 10.180.72.44: icmp_req=4 ttl=62 time=61.9 ms
64 bytes from 10.180.72.44: icmp_req=5 ttl=62 time=45.4 ms
^C
```

内网测试成功
6.通过 ssh 将需要文件传送给 Pi，并解压、运行文件

```
pi@raspberrypi:~$ 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 ...
```

```
pi@raspberrypi:~$ 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
insserv: warning: script 'network' missing LSB tags and overrides
Setting up ppp (2.4.5-5.1) ...
insserv: warning: script 'network' missing LSB tags and overrides
Processing triggers for man-db ...
```

```
pi@raspberrypi:~$ 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) ...
insserv: warning: script 'network' missing LSB tags and overrides
Starting xl2tpd: xl2tpd.
Processing triggers for man-db ...
```

```
pi@raspberrypi:~$ sudo tar -zxvf zjuvpn-8.2.tar.gz  -C/
usr/
usr/share/
usr/share/zjuvpn/
usr/share/zjuvpn/xl2tpd.conf-example
usr/share/zjuvpn/options
usr/sbin/
usr/sbin/zjuvpn
```

7、实现拨号上网

```
pi@raspberrypi:~$ sudo zjuvpn -c
Configure L2TP VPN for ZJU.
Username: 3120101866
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: 10.110.40.1, PPP device: ppp0 .
[MSG] Setting up route table...  Done!
```

```
pi@raspberrypi:~$ ping www.baidu.com
PING www.a.shifen.com (115.239.210.27) 56(84) bytes of data.
64 bytes from 115.239.210.27: icmp_req=1 ttl=54 time=4.65 ms
64 bytes from 115.239.210.27: icmp_req=2 ttl=54 time=4.00 ms
64 bytes from 115.239.210.27: icmp_req=3 ttl=54 time=3.72 ms
64 bytes from 115.239.210.27: icmp_req=4 ttl=54 time=4.22 ms
64 bytes from 115.239.210.27: icmp_req=5 ttl=54 time=4.46 ms
64 bytes from 115.239.210.27: icmp_req=6 ttl=54 time=4.35 ms
64 bytes from 115.239.210.27: icmp_req=7 ttl=54 time=4.69 ms
```