实验 4 网络及其服务管理

1. 配置主机 IP 地址，以及主机名为 Class1Server。

（1）配置主机 ip 地址：

查看网卡名称：

```
pengmeidong@pengmeidong-virtual-machine:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default ql
en 1000
    link/ether 00:0c:29:07:54:ba brd ff:ff:ff:ff:ff:ff
    inet 192.168.247.130/24 brd 192.168.247.255 scope global dynamic ens33
       valid_lft 1719sec preferred_lft 1719sec
    inet6 fe80::f986:e728:ff2e:5013/64 scope link
       valid_lft forever preferred_lft forever
pengmeidong@pengmeidong-virtual-machine:~$
```

为 ens33

添加 ip 地址、再次查看本机 ip 地址

```
root@pengmeidong-virtual-machine:/home/pengmeidong# ip addr add 192.168.2.2/24 dev ens33
root@pengmeidong-virtual-machine:/home/pengmeidong# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default ql
en 1000
    link/ether 00:0c:29:07:54:ba brd ff:ff:ff:ff:ff:ff
    inet 192.168.247.130/24 brd 192.168.247.255 scope global dynamic ens33
       valid_lft 1551sec preferred_lft 1551sec
    inet 192.168.2.2/24 scope global ens33
       valid_lft forever preferred_lft forever
    inet6 fe80::f986:e728:ff2e:5013/64 scope link
       valid_lft forever preferred_lft forever
root@pengmeidong-virtual-machine:/home/pengmeidong#
```

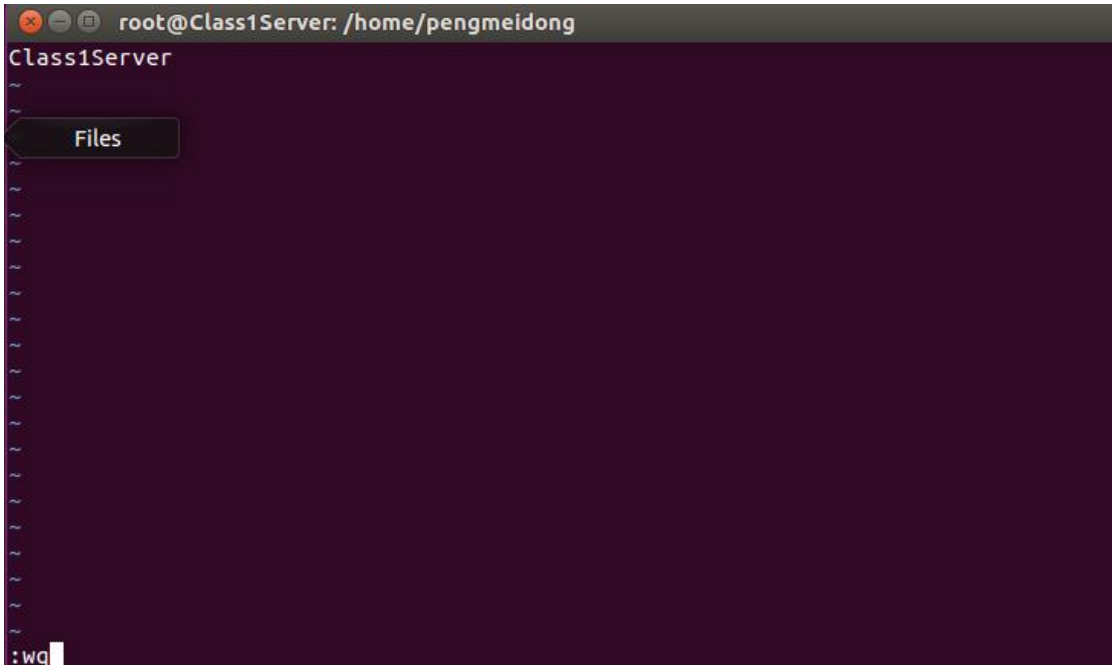
（2）修改主机名

```
root@pengmeidong-virtual-machine:/home/pengmeidong# hostname Class1Server
root@pengmeidong-virtual-machine:/home/pengmeidong# hostname
Class1Server
root@pengmeidong-virtual-machine:/home/pengmeidong# _
```

关闭终端窗口后，(ctrl+alt+T）再次打开终端窗口，已经改变

```
pengmeidong@Class1Server: ~
pengmeidong@Class1Server:~$
```

永久修改主机名



2. 安装并配置 OpenSSH

(1) 检查是否已安装 ssh 服务，若已安装，则可以直接登录

```
root@Class1Server:/home/pengmeidong# ps -e | grep sshd
root@Class1Server:/home/pengmeidong# ssh localhost
ssh: connect to host localhost port 22: Connection refused
root@Class1Server:/home/pengmeidong#
```

(2) 安装 openssh 客户端

```
root@Class1Server:~# apt-get install openssh-server
```

```
root@Class1Server: ~
Selecting previously unselected package ssh-import-id.
Preparing to unpack .../ssh-import-id_5.5-0ubuntu1_all.deb ...
Unpacking ssh-import-id (5.5-0ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for systemd (229-4ubuntu21.31) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for ufw (0.35-0ubuntu2) ...
Setting up ncurses-term (6.0+20160213-1ubuntu1) ...
Setting up openssh-sftp-server (1:7.2p2-4ubuntu2.10) ...
Setting up openssh-server (1:7.2p2-4ubuntu2.10) ...
Creating SSH2 RSA key; this may take some time ...
2048 SHA256:pxWt3wbE4hVmDpzXl4m6m/4dNdovhlbhKeLoum3HexI root@Class1Server (RSA)
Creating SSH2 DSA key; this may take some time ...
1024 SHA256:dgAkRJfmUogcLUrNsw4Pzr7zkxdpAojprivVKZIpxqk root@Class1Server (DSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:csgkLTMCF/0R1qMQ19aumlxwqOVrbUccRHVBIUzwyoA root@Class1Server (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:2nnP4/O1kT7MI4471DZzOETgvUJmpmKbBU9owrutYos root@Class1Server (ED2551
9)
Setting up ssh-import-id (5.5-0ubuntu1) ...
Processing triggers for systemd (229-4ubuntu21.31) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for ufw (0.35-0ubuntu2) ...
root@Class1Server:~#
```

启动 ssh 服务

```
root@Class1Server:~# service ssh start
root@Class1Server:~#
```

查询服务启动状态

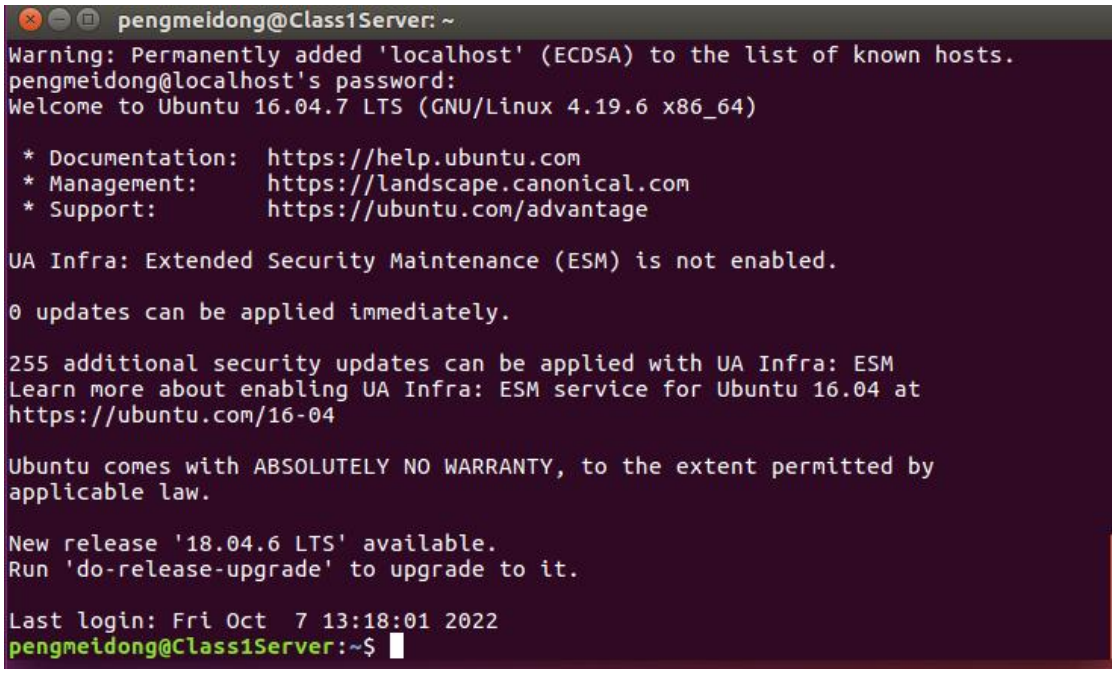
```
root@Class1Server: ~
Processing triggers for systemd (229-4ubuntu21.31) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for ufw (0.35-0ubuntu2) ...
root@Class1Server:~# apt-get install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
openssh-server is already the newest version (1:7.2p2-4ubuntu2.10).
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
root@Class1Server:~# service ssh start
root@Class1Server:~# service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enab
   Active: active (running) since 五 2022-10-07 13:28:09 CST; 1min 23s ago
 Main PID: 4150 (sshd)
   CGroup: /system.slice/ssh.service
           └─4150 /usr/sbin/sshd -D

10月 07 13:28:09 Class1Server systemd[1]: Starting OpenBSD Secure Shell server..
10月 07 13:28:09 Class1Server sshd[4150]: Server listening on 0.0.0.0 port 22.
10月 07 13:28:09 Class1Server sshd[4150]: Server listening on :: port 22.
10月 07 13:28:09 Class1Server systemd[1]: Started OpenBSD Secure Shell server.
10月 07 13:29:11 Class1Server systemd[1]: Started OpenBSD Secure Shell server.
lines 1-12/12 (END)
```

(3) 使用 ssh 本地登录

切换普通用户

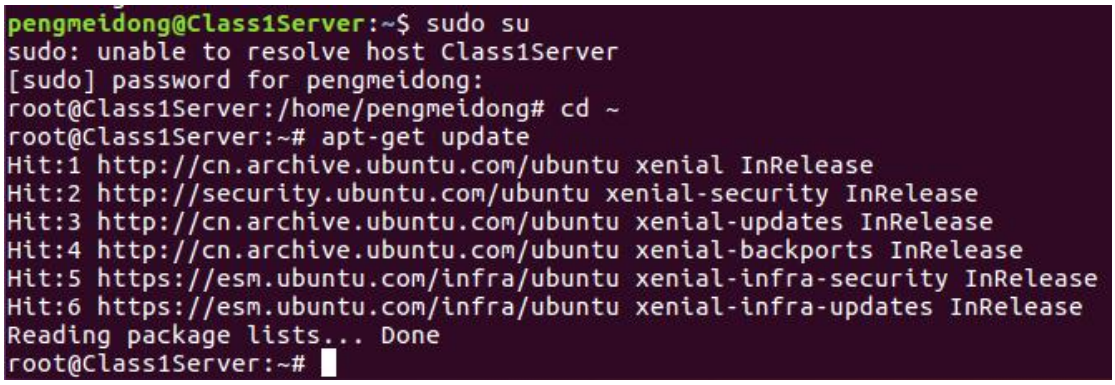
```
root@Class1Server:~# exit
exit
pengmeidong@Class1Server:~$
```

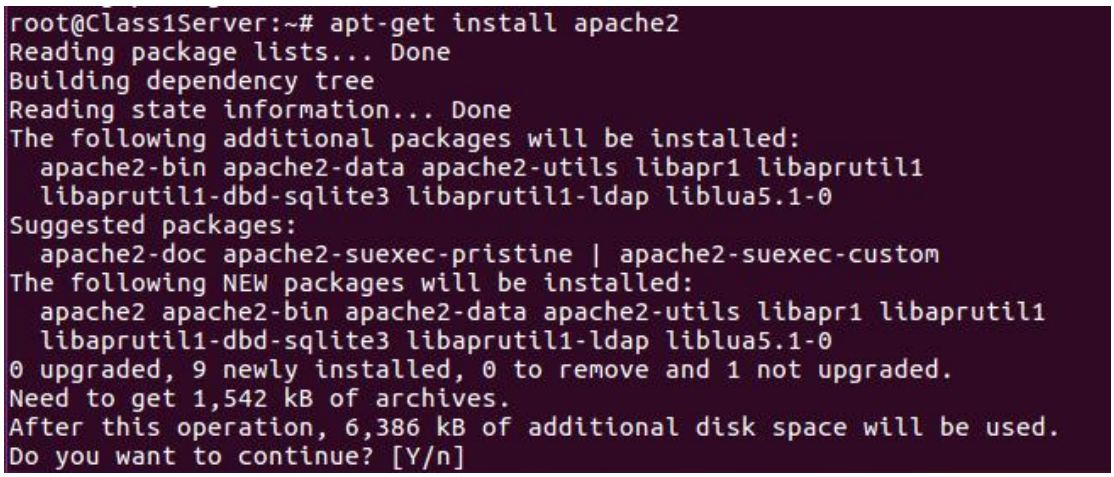
```
pengmeidong@Class1Server:~$ ssh localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:csgkLTMCF/0R1qMQ19aumlxwqOVrbUccRHVBIUzwyoA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
pengmeidong@localhost's password:
```



3. 安装并配置 Apache 服务器

(1) 安装 apache2





```
After this operation, 6,386 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 libapr1 amd64 1.5.2-
3 [86.0 kB]
Get:2 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 libaprutil1 amd64 1.
5.4-1build1 [77.1 kB]
Get:3 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 libaprutil1-dbd-sqli
te3 amd64 1.5.4-1build1 [10.6 kB]
Get:4 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 libaprutil1-ldap amd
64 1.5.4-1build1 [8,720 B]
Get:5 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 liblua5.1-0 amd64 5.
1.5-8ubuntu1 [102 kB]
Get:6 http://cn.archive.ubuntu.com/ubuntu xenial-updates/main amd64 apache2-bin
amd64 2.4.18-2ubuntu3.17 [927 kB]
26% [6 apache2-bin 1,343 B/927 kB 0%]
```

查看安装是否成功

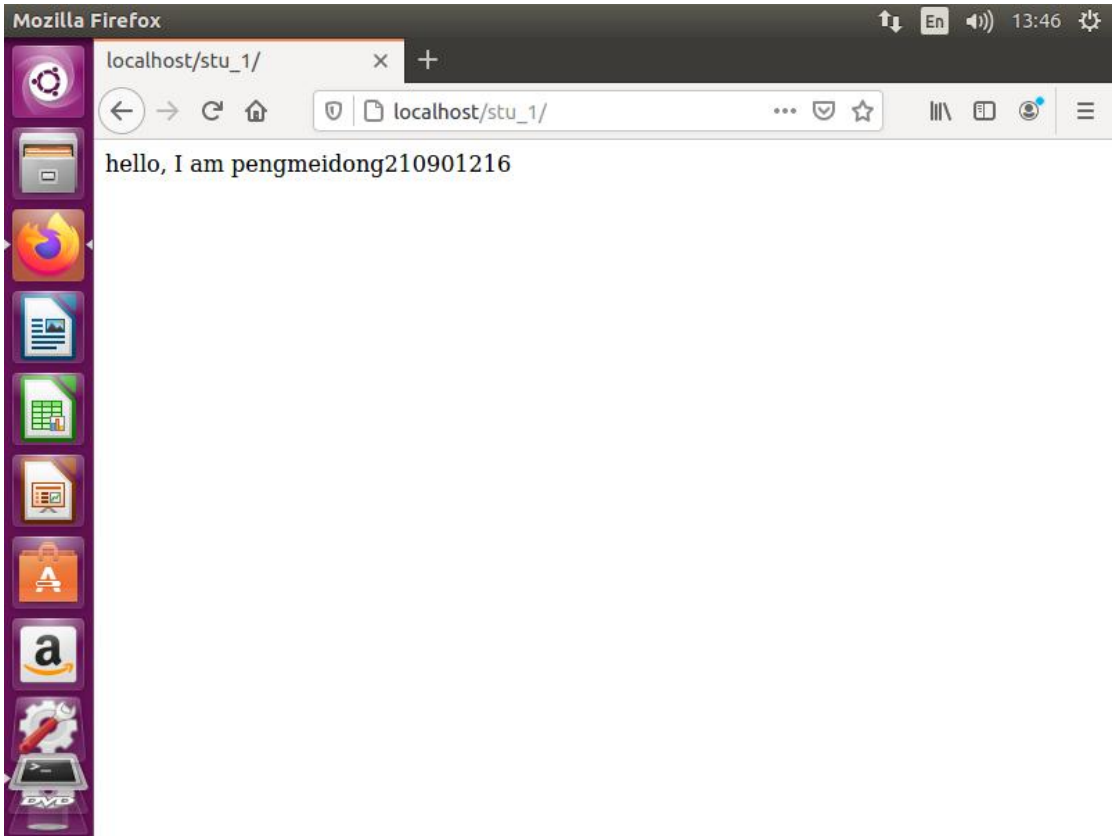
```
root@Class1Server:~# systemctl status apache2
● apache2.service - LSB: Apache2 web server
   Loaded: loaded (/etc/init.d/apache2; bad; vendor preset: enabled)
  Drop-In: /lib/systemd/system/apache2.service.d
           └─apache2-systemd.conf
   Active: active (running) since 五 2022-10-07 13:39:03 CST; 54s ago
     Docs: man:systemd-sysv-generator(8)
   CGroup: /system.slice/apache2.service
           ├─5861 /usr/sbin/apache2 -k start
           ├─5866 /usr/sbin/apache2 -k start
           └─5867 /usr/sbin/apache2 -k start

10月 07 13:38:57 Class1Server systemd[1]: Starting LSB: Apache2 web server...
10月 07 13:38:57 Class1Server apache2[5839]:  * Starting Apache httpd web server
10月 07 13:39:01 Class1Server apache2[5839]: AH00557: apache2: apr_sockaddr_info
10月 07 13:39:01 Class1Server apache2[5839]: AH00558: apache2: Could not reliabl
10月 07 13:39:03 Class1Server apache2[5839]:  *
10月 07 13:39:03 Class1Server systemd[1]: Started LSB: Apache2 web server.
lines 1-17/17 (END)
```

(2) 新建/var/www/html/stu_i 文件夹和/var/www/html/stu_i/index.html 文件并编辑

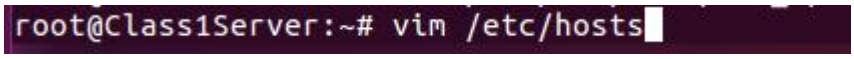
```
root@Class1Server:~# mkdir /var/www/html/stu_1
root@Class1Server:~# vim /var/www/html/stu_1/index.html
```

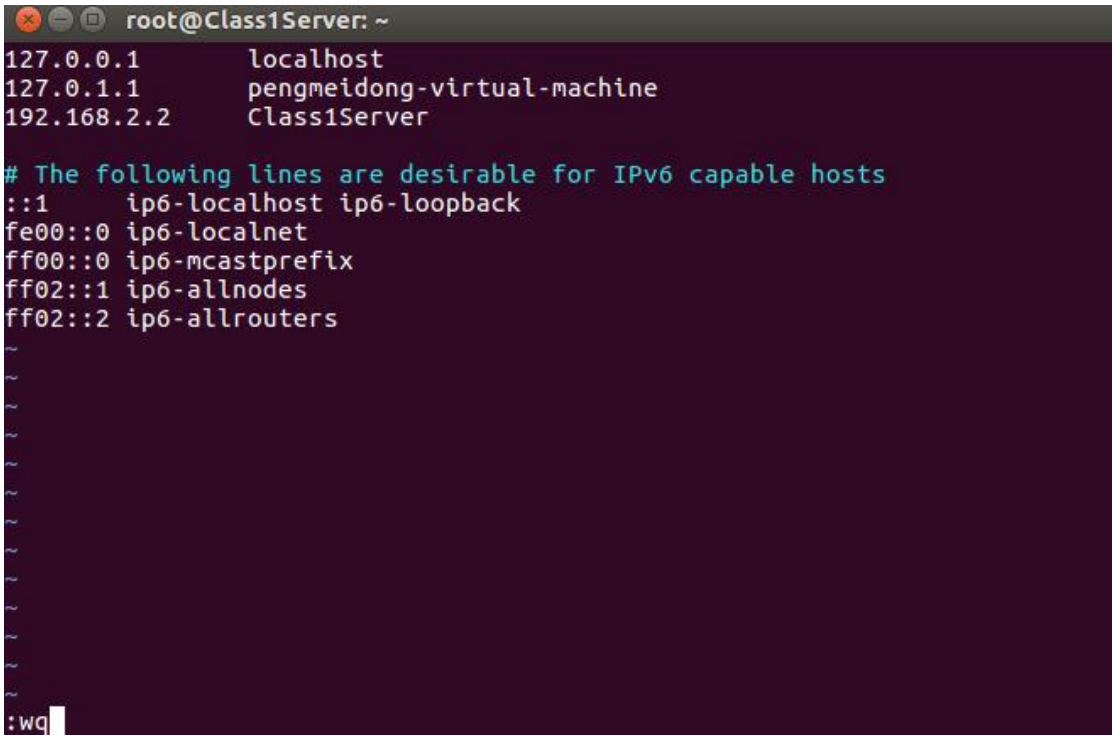
```
root@Class1Server: ~
<html>
        <body>
                hello, I am pengmeidong210901216
        </body>
<html>
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

在浏览器中输入 localhost/stu_1 查看刚刚新建的网页



(3) 设置 ip 和主机名映射 vim /etc/hosts





(4) 启 动 apache，在 firefox 输 入 url ： http://Class1Server/stu_1

```
root@Class1Server:~# /etc/init.d/apache2 start
[ ok ] Starting apache2 (via systemctl): apache2.service.
root@Class1Server:~#
```

4. 安装并配置 vsFTP 服务器

(1) 安装 vsFTP

```
root@Class1Server: ~
root@Class1Server:~# apt-get install vsftpd
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  vsftpd
0 upgraded, 1 newly installed, 0 to remove and 1 not upgraded.
Need to get 115 kB of archives.
After this operation, 336 kB of additional disk space will be used.
Get:1 http://cn.archive.ubuntu.com/ubuntu xenial/main amd64 vsftpd amd64 3.0.3-3
ubuntu2 [115 kB]
Fetched 115 kB in 1s (86.7 kB/s)
Preconfiguring packages ...
Selecting previously unselected package vsftpd.
(Reading database ... 220001 files and directories currently installed.)
Preparing to unpack .../vsftpd_3.0.3-3ubuntu2_amd64.deb ...
Unpacking vsftpd (3.0.3-3ubuntu2) ...
Processing triggers for systemd (229-4ubuntu21.31) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up vsftpd (3.0.3-3ubuntu2) ...
Processing triggers for systemd (229-4ubuntu21.31) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
root@Class1Server:~#
```

(2) 添加用户 stu_1

```
root@Class1Server:~# useradd -m -d /home/stu_1 -s /bin/bash stu_1
root@Class1Server:~# passwd stu_1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@Class1Server:~#
```

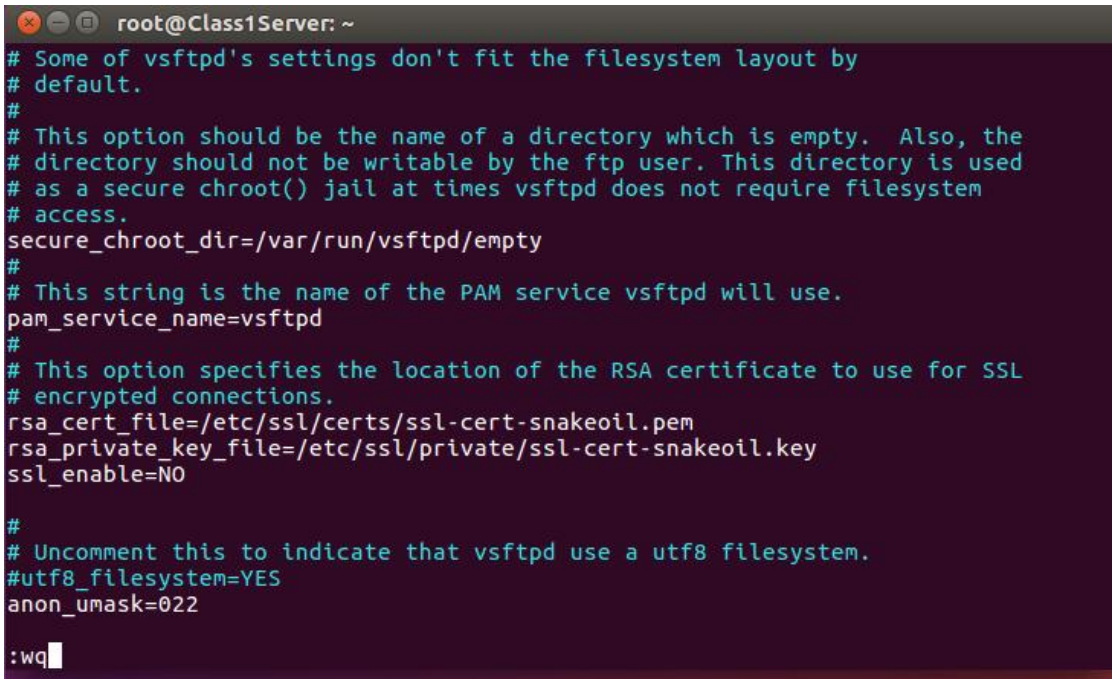
(3) 修改 vsftpd 配置文件

```
root@Class1Server:~# vi /etc/vsftpd.conf
```

root@Class1Server: ~

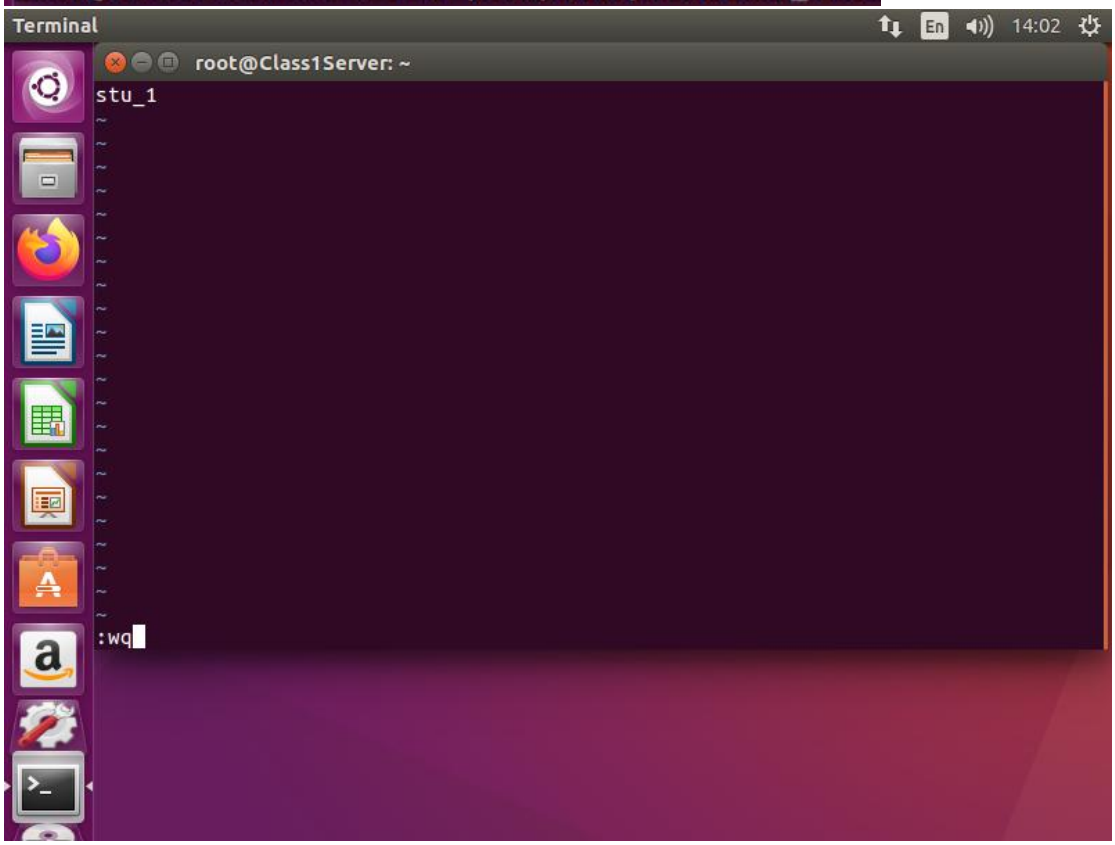
```
# Allow anonymous FTP? (Disabled by default).
anonymous_enable=NO
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftpd's)
local_umask=022
#
# Uncomment this to allow the anonymous FTP user to upload files. This only
# has an effect if the above global write enable is activated. Also, you will
# obviously need to create a directory writable by the FTP user.
anon_upload_enable=YES
#
# Uncomment this if you want the anonymous FTP user to be able to create
# new directories.
anon_mkdir_write_enable=YES
#
# Activate directory messages - messages given to remote users when they
-- INSERT --                                                    35,1          17%
```

```
# chroot)
chroot_local_user=YES
chroot_list_enable=YES
# (default follows)
chroot_list_file=/etc/vsftpd.chroot_list
#
# You may activate the "-R" option to the builtin ls. This is disabled by
```



(4) 修改 vsftpd.chroot_list，添加可访问用户名单每行一个

```
root@Class1Server:~# vim /etc/vsftpd.chroot_list
```

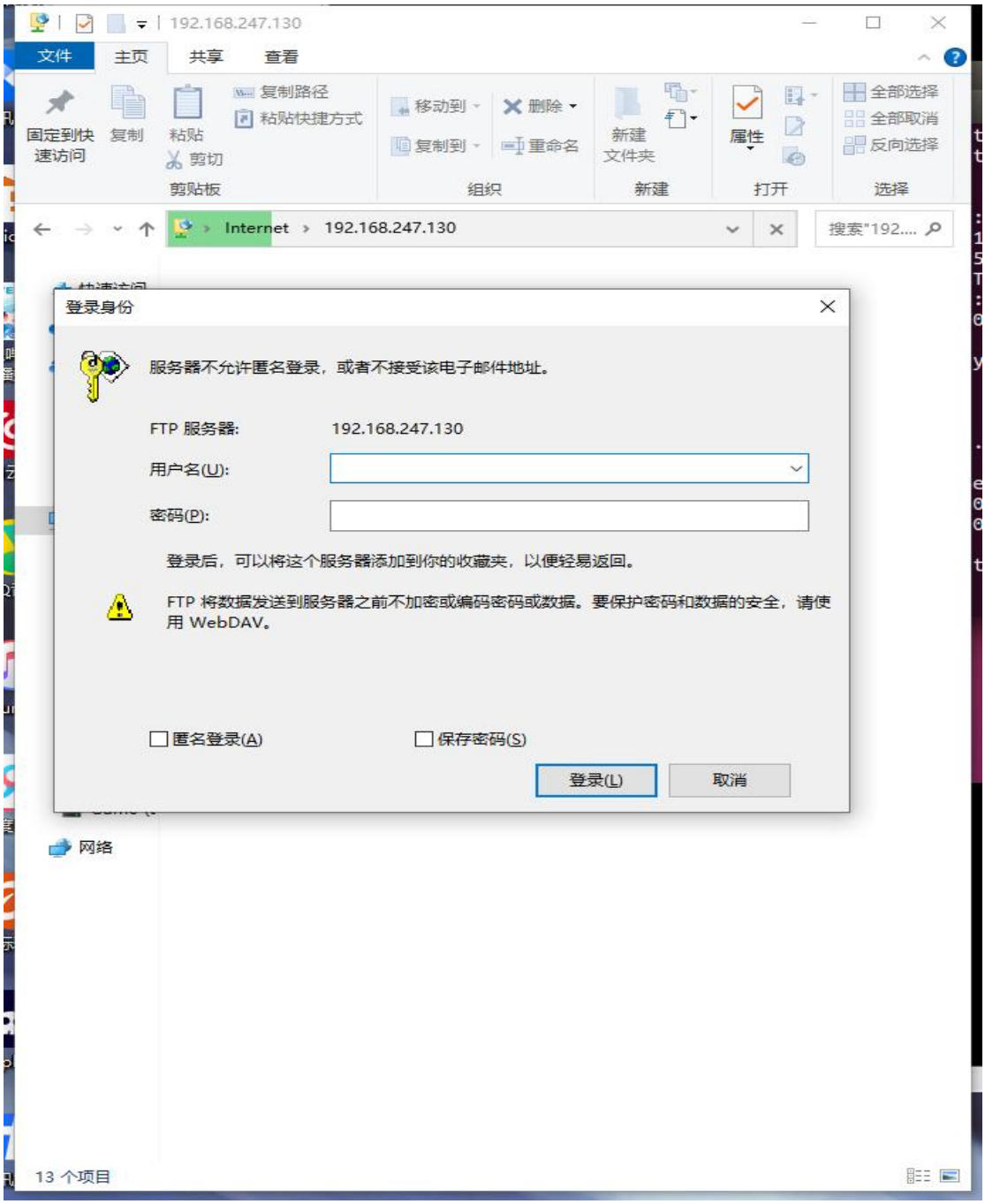


(5) 启动 vsftp 服务

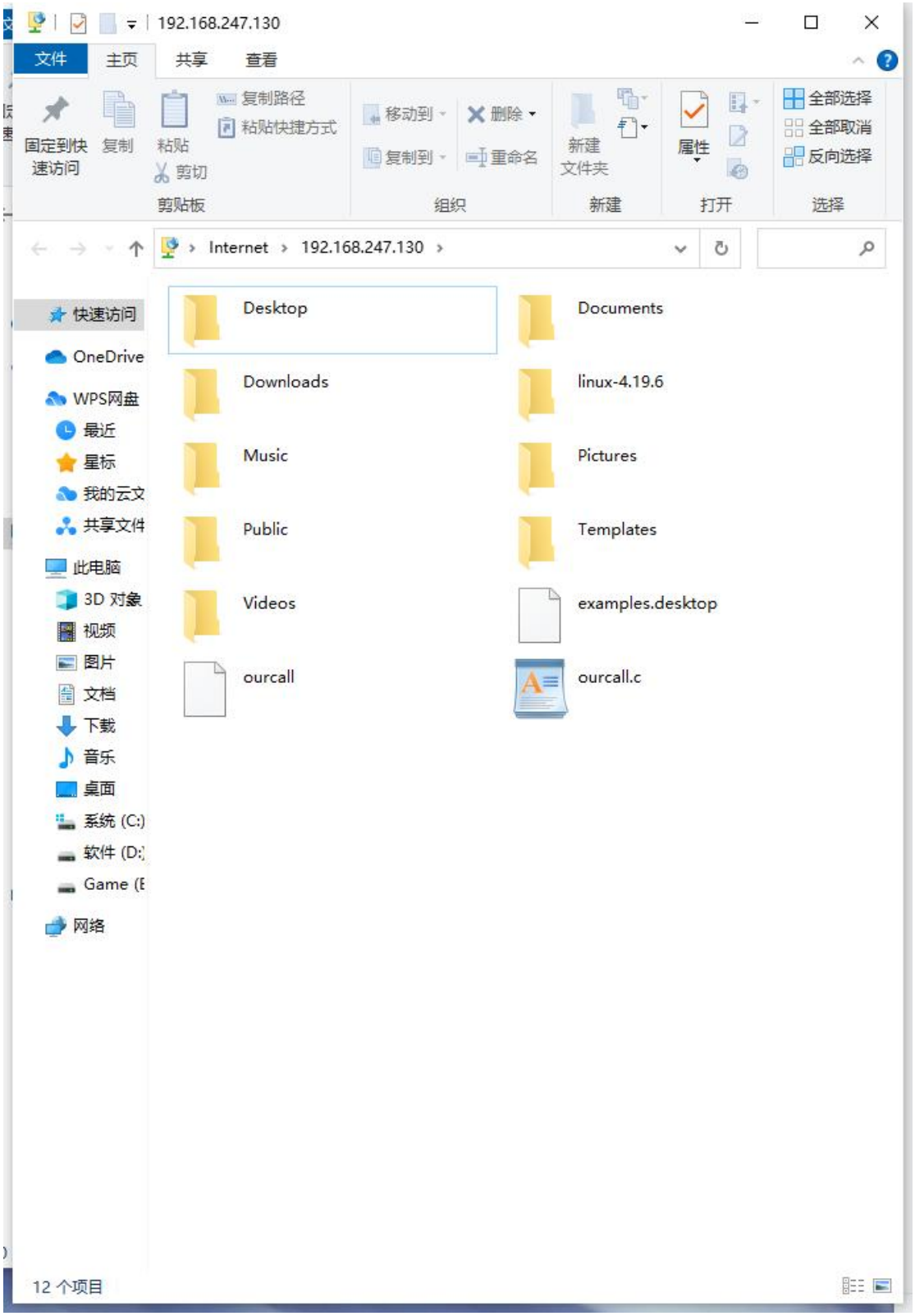
```
root@Class1Server:~# service vsftpd start
root@Class1Server:~# service vsftpd status
● vsftpd.service - vsftpd FTP server
   Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: e
   Active: active (running) since 五 2022-10-07 13:51:25 CST; 12min ago
 Main PID: 7385 (vsftpd)
   CGroup: /system.slice/vsftpd.service
           └─7385 /usr/sbin/vsftpd /etc/vsftpd.conf

10月 07 13:51:25 Class1Server systemd[1]: Starting vsftpd FTP server...
10月 07 13:51:25 Class1Server systemd[1]: Started vsftpd FTP server.
10月 07 14:03:29 Class1Server systemd[1]: Started vsftpd FTP server.
lines 1-10/10 (END)
```

(6) 登录界面

```
root@Class1Server:~# ifconfig
ens33     Link encap:Ethernet  HWaddr 00:0c:29:07:54:ba
          inet addr:192.168.247.130  Bcast:192.168.247.255  Mask:255.255.255.0
          inet6 addr: fe80::f986:e728:ff2e:5013/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:15992 errors:1 dropped:1 overruns:0 frame:0
          TX packets:9510 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:18055020 (18.0 MB)  TX bytes:1162908 (1.1 MB)
          Interrupt:19 Base address:0x2000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:5740 errors:0 dropped:0 overruns:0 frame:0
          TX packets:5740 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:584017 (584.0 KB)  TX bytes:584017 (584.0 KB)

root@Class1Server:~#
```


192.168.247.130
文件
主页
共享
查看
固定到快速访问
复制
粘贴
剪切
复制路径
粘贴快捷方式
剪贴板
移动到
复制到
删除
重命名
组织
新建文件夹
新建
属性
打开
全部选择
全部取消
反向选择
选择
Internet › 192.168.247.130
搜索"192....
登录身份
服务器不允许匿名登录，或者不接受该电子邮件地址。
FTP 服务器:
192.168.247.130
用户名(U):
密码(P):
登录后，可以将这个服务器添加到你的收藏夹，以便轻易返回。
FTP 将数据发送到服务器之前不加密或编码密码或数据。要保护密码和数据的安全，请使用 WebDAV。
匿名登录(A)
保存密码(S)
登录(L)
取消
网络
13 个项目

(7) 界面


192.168.247.130
文件
主页
共享
查看
固定到快速访问
复制
粘贴
复制路径
粘贴快捷方式
剪切
剪贴板
移动到
删除
复制到
重命名
组织
新建文件夹
新建
属性
打开
全部选择
全部取消
反向选择
选择
Internet › 192.168.247.130 ›
快速访问
OneDrive
WPS网盘
最近
星标
我的云文
共享文件
此电脑
3D 对象
视频
图片
文档
下载
音乐
桌面
系统 (C:)
软件 (D:)
Game (E
网络
Desktop
Documents
Downloads
linux-4.19.6
Music
Pictures
Public
Templates
Videos
examples.desktop
ourcall
ourcall.c
12 个项目