

第二章作业

第二章作业

2.2节 初步配置培训用服务器

2.2.1

1.查看操作系统内核信息

```
uname -a
```

查看操作系统版本信息

```
cat /proc/version
```

查看系统的发行版信息

```
lsb_release -a
```

服务器安装的是Debian 4.9.65-3版本的操作系统，不是最新版本

```
Connecting to 10.83.3.79:32200...
Connection established.
To escape to local shell, press Ctrl+Alt+].

elaine@newbie-unknown85858:~$ uname -a
Linux newbie-unknown85858.i.nease.net 4.9.0-4-amd64 #1 SMP Debian 4.9.65-3 (2017-12-03) x86_64 GNU/Linux
elaine@newbie-unknown85858:~$ cat /proc/version
Linux version 4.9.0-4-amd64 (debian-kernel@lists.debian.org) (gcc version 6.3.0 20170516 (Debian 6.3.0-18) ) #1 S
MP Debian 4.9.65-3 (2017-12-03)
```

```
elaine@newbie-unknown85858:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Debian
Description:    Debian GNU/Linux 9.3 (stretch)
Release:        9.3
Codename:       stretch
```

2.使用ifconfig查看，每台服务器有2个IP地址，eth0表示第一块网卡，inet表示网卡的IP地址为10.83.3.79 广播地址为10.83.3.255 掩码地址为255.255.255.0

lo表示主机的回环地址，一般是用来测试一个网络程序，但又不想让局域网或外网的用户能够查看，只能在此台主机上运行和查看所用的网络接口。另外两台服务器的IP地址为10.83.3.80和10.83.3.81

```

root@newbie-unknown85858:/home/elaine# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1400
    inet 10.83.3.79 netmask 255.255.255.0 broadcast 10.83.3.255
    ether 52:54:00:c5:41:4c txqueuelen 1000 (Ethernet)
    RX packets 197998 bytes 21209798 (20.2 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 237429 bytes 122340046 (116.6 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1 (Local Loopback)
    RX packets 20179 bytes 4187412 (3.9 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 20179 bytes 4187412 (3.9 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

3.每台服务器的CPU主频为2397.222MHz,有一个cpu核心。

查看核数

```
cat /proc/cpuinfo | grep "cpu cores" | uniq
```

查看主频

```
cat /proc/cpuinfo
```

```

1 网易 * +
cpu cores      : 1
elaine@newbie-unknown85858:~$ cat /proc/cpuinfo
processor      : 0
vendor_id     : GenuineIntel
cpu family    : 6
model         : 42
model name    : Intel Xeon E312xx (Sandy Bridge)
stepping      : 1
microcode     : 0x1
cpu MHz       : 2397.222
cache size    : 4096 KB
physical id   : 0
siblings      : 1
core id       : 0
cpu cores     : 1
apicid        : 0
initial apicid : 0
fpu           : yes
fpu_exception : yes
cpuid level   : 13
wp            : yes
flags         : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse ss
e2 ss syscall nx pdpe1gb rdtscp lm constant_tsc rep_good noopl eagerfpu pni pclmulqdq ssse3 fma cx16 pcid sse4_1 s
se4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand hypervisor lahf_lm abm fsgsbase bmi1 avx2
smep bmi2 erms invpcid xsaveopt
bugs          :
bogomips      : 4794.44
clflush size  : 64
cache_alignm  : 64
address sizes : 40 bits physical, 48 bits virtual

```

4.服务器内存为4G, 总硬盘空间为271.8G, swap空间为2047M

```
elaine@newbie-unknown85858:~$ head /proc/meminfo
MemTotal:      4050856 kB
MemFree:       3618372 kB
MemAvailable:  3643116 kB
Buffers:       4216 kB
Cached:        258836 kB
SwapCached:    0 kB
Active:        214972 kB
Inactive:      133444 kB
Active(anon):  85672 kB
Inactive(anon): 47488 kB
elaine@newbie-unknown85858:~$
```

```
elaine@newbie-unknown85858:~$ free -m
              total        used         free       shared    buff/cache   available
Mem:           3955          137          3532           46         285         3557
Swap:          2047           0          2047
elaine@newbie-unknown85858:~$
```

```
root@newbie-unknown85858:/home/elaine# fdisk -l | grep Disk
GPT PMBR size mismatch (209715199 != 419430399) will be corrected by w(rite).
Disk /dev/vda: 10 GiB, 10737418240 bytes, 20971520 sectors
Disklabel type: gpt
Disk identifier: 6818F6DE-685E-478E-8972-0F25414FBCB4
Disk /dev/vdb: 2 GiB, 2147483648 bytes, 4194304 sectors
Disk /dev/vdc: 200 GiB, 214748364800 bytes, 419430400 sectors
Disklabel type: gpt
Disk identifier: 738B478C-C6EF-4A9D-B5B7-867A85009413
Disk /dev/vdd: 50 GiB, 53687091200 bytes, 104857600 sectors
Disk /dev/mapper/disk1-root: 9.8 GiB, 10464788480 bytes, 20439040 sectors
root@newbie-unknown85858:/home/elaine#
```

5.该服务器为虚拟机，使用的是KVM的虚拟化技术以及QEMU的虚拟化软件

```
root@newbie-unknown85858:/home/elaine# systemd-detect-virt
kvm
root@newbie-unknown85858:/home/elaine#
```

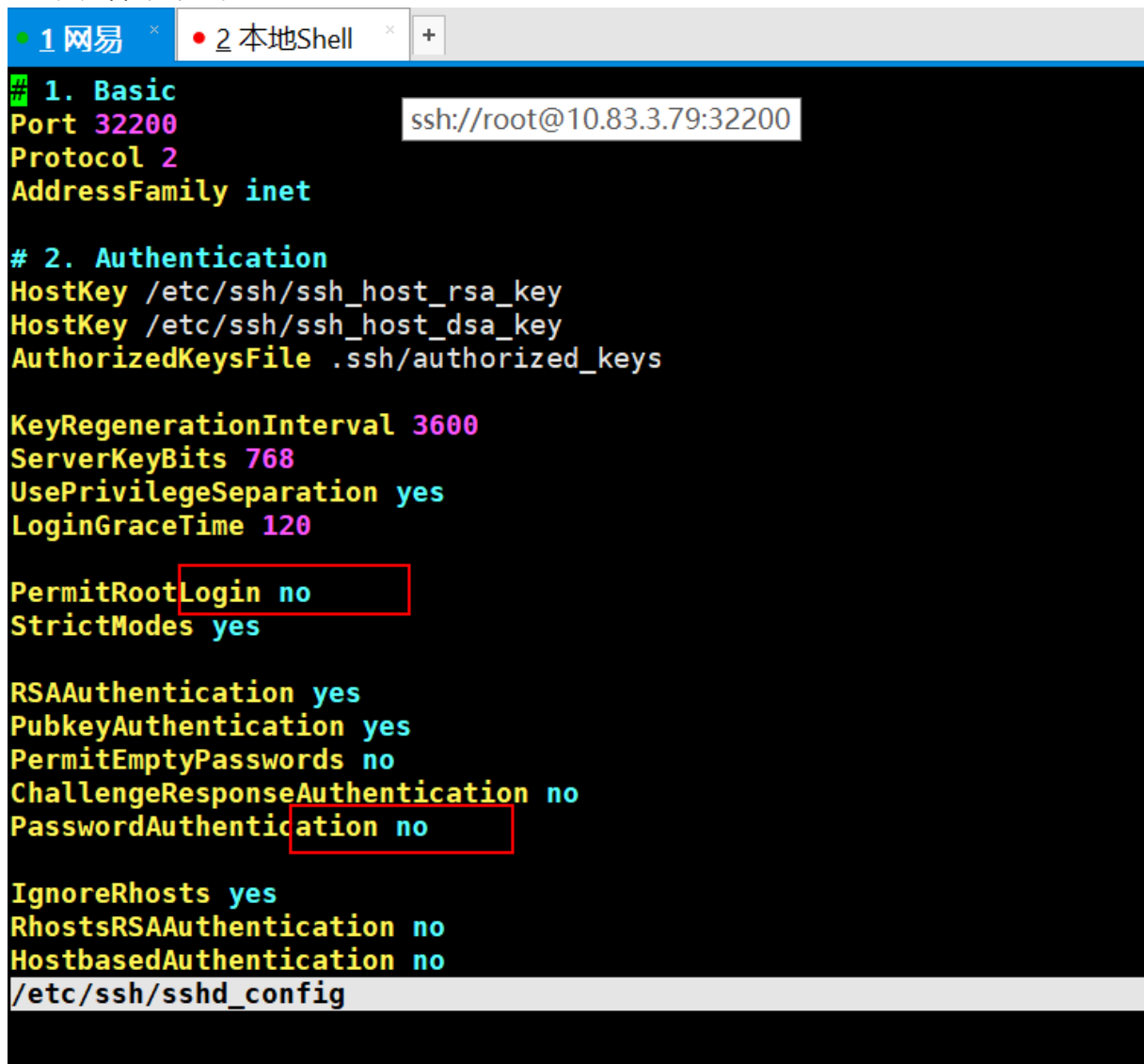
6.查看开机时间

```
who -b
```

```
elaine@newbie-unknown85858:~$ who -b
          system boot  2017-12-15 17:11
elaine@newbie-unknown85858:~$
```

2.2.2

1和2: 通过查看 `vi /etc/ssh/sshd_config` 其中已经设置好不允许root使用ssh登录, 只允许通过密钥方式登录, 不允许通过用户名密码方式登录。



```
1. Basic
Port 32200
Protocol 2
AddressFamily inet

# 2. Authentication
HostKey /etc/ssh/ssh_host_rsa_key
HostKey /etc/ssh/ssh_host_dsa_key
AuthorizedKeysFile .ssh/authorized_keys

KeyRegenerationInterval 3600
ServerKeyBits 768
UsePrivilegeSeparation yes
LoginGraceTime 120

PermitRootLogin no
StrictModes yes

RSAAuthentication yes
PubkeyAuthentication yes
PermitEmptyPasswords no
ChallengeResponseAuthentication no
PasswordAuthentication no

IgnoreRhosts yes
RhostsRSAAuthentication no
HostbasedAuthentication no
/etc/ssh/sshd_config
```

3和4: 确保导师跟自己的用户都能通过ssh登录, 并可以切换到root: 执行 `/root/adduser.sh <email address>` 添加导师到wheel组, 修改 `/etc/pam.d/su` 配置, 将 `#auth required pam_wheel.so use_uid` 注释去掉, 再修改 `/etc/login.defs` 文件, 在文件末尾添加 `SU_WHEEL_ONLY yes`, 现在只有属于wheel用户组的用户才可以切换到root用户

```
#
# The PAM configuration file for the Shadow `su' service
#
# This allows root to su without passwords (normal operation)
auth      sufficient pam_rootok.so

# Uncomment this to force users to be a member of group root
# before they can use `su'. You can also add "group=foo"
# to the end of this line if you want to use a group other
# than the default "root" (but this may have side effect of
# denying "root" user, unless she's a member of "foo" or explicitly
# permitted earlier by e.g. "sufficient pam_rootok.so").
# (Replaces the `SU_WHEEL_ONLY' option from login.defs)
auth      required pam_wheel.so

# Uncomment this if you want wheel members to be able to
# su without a password.
# auth      sufficient pam_wheel.so trust

# Uncomment this if you want members of a specific group to not
# be allowed to use su at all.
# auth      required pam_wheel.so deny group=nosu

# Uncomment and edit /etc/security/time.conf if you need to set
# time restraint on su usage.
# (Replaces the `PORTTIME_CHECKS_ENAB' option from login.defs
```

```
# CLOSE_SESSIONS
# LOGIN_STRING
# NO_PASSWORD_CONSOLE
# QMAIL_DIR
```

```
SU_WHEEL_ONLY yes
```

```
/etc/login.defs
```

```
"/etc/login.defs" 340L, 10494C
```

尝试了创建新的用户test2，不能切换到root

```

elaine@newbie-unknown85858:~$ su test1
Password:
su: Authentication failure
elaine@newbie-unknown85858:~$ su
Password:
root@newbie-unknown85858:/home/elaine# su test1
sh-4.4$ su
Password:
root@newbie-unknown85858:/home/elaine# useradd test2
root@newbie-unknown85858:/home/elaine# su test2
sh-4.4$ su
Password:
su: Permission denied
sh-4.4$

```

修改了 `/etc/ssh/sshd_config` 文件，将其中允许ssh登录的用户添加进去，并重启服务 `service sshd restart`

```

Subsystem sftp /usr/lib/openssh/sftp-server

AllowUsers steamedfish vincent elaine gzhongzenglin cancon zp
hanjxu gzwuxindong wangcheng02 zhengliangju loushang gzweiyuh
/etc/ssh/sshd_config
"/etc/ssh/sshd_config" 49L, 1097C

```

2.2.3

重启服务器依然有效

2.3节申请端口映射并设置防火墙

2.3.1

操作步骤如下：

1.先拒绝所有的数据包，控制流入

```
iptables -P INPUT DROP
```

```

root@newbie-unknown85858:/etc/network/if-pre-up.d# iptables -F
Chain INPUT (policy DROP)
num target prot opt source
1 ACCEPT tcp -- 10.83.3.81
2 ACCEPT tcp -- 10.83.3.80

```

2.然后添加INPUT链，开启指定的网段能访问8888等等6个端口

```

iptables -I INPUT -s 127.0.0.0/8 -p tcp --dport 35000 -j ACCEPT
iptables -I INPUT -s 10.0.0.0/8 -p tcp --dport 35000 -j ACCEPT
iptables -I INPUT -s 172.16.0.0/12 -p tcp --dport 35000 -j ACCEPT
iptables -I INPUT -s 192.168.0.0/16 -p tcp --dport 35000 -j ACCEPT

```

3.除以上端口外，其余端口已被禁止

4.使得10.83.3.80和10.83.3.81两台服务器能够通过内网访问此服务器的所有端口

```

iptables -I INPUT -s 10.83.3.80 -p tcp -j ACCEPT
iptables -I INPUT -s 10.83.3.81 -p tcp -j ACCEPT

```

```
root@newbie-unknown85858:/etc/network/if-pre-up.d# iptables -L -n --line-number
Chain INPUT (policy DROP)
num target      prot opt source                destination
1  ACCEPT        tcp  --  10.83.3.81              0.0.0.0/0
2  ACCEPT        tcp  --  10.83.3.80              0.0.0.0/0
3  ACCEPT        tcp  --  172.16.0.0/12           0.0.0.0/0          tcp dpt:35000
4  ACCEPT        tcp  --  10.0.0.0/8              0.0.0.0/0          tcp dpt:35000
5  ACCEPT        tcp  --  127.0.0.0/8             0.0.0.0/0          tcp dpt:35000
6  ACCEPT        tcp  --  192.168.0.0/16          0.0.0.0/0          tcp dpt:35000
```

5.端口32200已被开放

```
31  ACCEPT        all  --  0.0.0.0/0              0.0.0.0/0          state RELATED,ESTABLISHED
32  ACCEPT        all  --  127.0.0.1              0.0.0.0/0
33  ACCEPT        icmp --  0.0.0.0/0              0.0.0.0/0
34  ACCEPT        tcp  --  0.0.0.0/0              0.0.0.0/0          tcp dpt:32200
35  DROP          all  --  0.0.0.0/0              0.0.0.0/0
```

6.持久化:

```
iptables-save > iptables.up.rules
```

7.开机启动时将保存的规则导入:

```
iptables-restore < iptables.up.rules
```

```
1 网易 2 网易2 +
Password:
root@newbie-unknown85858:/home/elaine# iptables -L -n --line-number
Chain INPUT (policy ACCEPT)
num target      prot opt source                destination
1  ACCEPT        all  --  0.0.0.0/0              0.0.0.0/0          state RELATED,ESTABLISHED
2  ACCEPT        all  --  127.0.0.1              0.0.0.0/0
3  ACCEPT        icmp --  0.0.0.0/0              0.0.0.0/0
4  ACCEPT        tcp  --  0.0.0.0/0              0.0.0.0/0          tcp dpt:32200
5  DROP          all  --  0.0.0.0/0              0.0.0.0/0

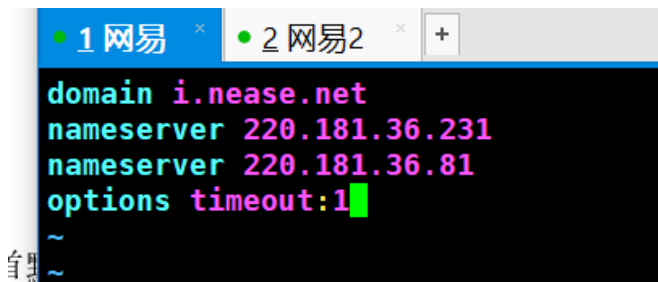
Chain FORWARD (policy ACCEPT)
num target      prot opt source                destination

Chain OUTPUT (policy ACCEPT)
num target      prot opt source                destination
root@newbie-unknown85858:/home/elaine# iptables-restore < iptables.up.rules
bash: iptables.up.rules: No such file or directory
root@newbie-unknown85858:/home/elaine# cd /etc/network/if-pre-up.d/
root@newbie-unknown85858:/etc/network/if-pre-up.d# iptables-restore < iptables.up.rules
root@newbie-unknown85858:/etc/network/if-pre-up.d# iptables -L -n --line-number
Chain INPUT (policy DROP)
num target      prot opt source                destination
1  ACCEPT        tcp  --  10.83.3.81              0.0.0.0/0
2  ACCEPT        tcp  --  10.83.3.80              0.0.0.0/0
3  ACCEPT        tcp  --  192.168.0.0/16          0.0.0.0/0          tcp dpt:35000
4  ACCEPT        tcp  --  172.16.0.0/12           0.0.0.0/0          tcp dpt:35000
5  ACCEPT        tcp  --  10.0.0.0/8              0.0.0.0/0          tcp dpt:35000
6  ACCEPT        tcp  --  127.0.0.0/8             0.0.0.0/0          tcp dpt:35000
7  ACCEPT        tcp  --  192.168.0.0/16          0.0.0.0/0          tcp dpt:9999
8  ACCEPT        tcp  --  172.16.0.0/12           0.0.0.0/0          tcp dpt:9999
```

Load

2.4节优化服务器配置

1.系统一共设置了2个DNS服务器, 通过修改 /etc/resolv.conf 将时间的选项加入修改超时设置为1秒, 默认是5秒



```
domain i.nease.net
nameserver 220.181.36.231
nameserver 220.181.36.81
options timeout:1
~
```

2.将系统升级到最新

```
apt-get update
apt-get dist-upgrade
```

```
root@newbie-unknown85858:/etc/apt/apt.conf.d# cat /proc/version
Linux version 4.9.0-4-amd64 (debian-kernel@lists.debian.org) (gcc version 6.3.0 20170516
(Debian 6.3.0-18) ) #1 SMP Debian 4.9.65-3 (2017-12-03)
root@newbie-unknown85858:/etc/apt/apt.conf.d#
```

3.给系统添加内核参数，编辑 `/etc/default/grub` 目录下的GRUB配置模板。在 `GRUB_CMDLINE_LINUX_DEFAULT` 变量中以“name=value”的格式添加内核参数

```
# If you change this file, run 'update-grub' afterwards to update
# /boot/grub/grub.cfg.
# For full documentation of the options in this file, see:
#   info -f grub -n 'Simple configuration'

GRUB_DEFAULT=0
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR=`lsb_release -i -s 2> /dev/null || echo Debian`
GRUB_CMDLINE_LINUX_DEFAULT="console=tty1 console=ttyS0,115200n8 fsck.repair=yes consoleblank=0 ipv6
.disable=1 net.ifnames=0"
GRUB_CMDLINE_LINUX=""

# Uncomment to enable BadRAM filtering, modify to suit your needs
# This works with Linux (no patch required) and with any kernel that obtains
# the memory map information from GRUB (GNU Mach, kernel of FreeBSD ...)
```

4.将系统语言设为英文，并设置支持中文：

```
root@newbie-unknown85858:/etc/default# env | grep LANG
LANG=en_US.UTF-8
root@newbie-unknown85858:/etc/default# vi /etc/default/locale
```


154. en_ZA.UTF-8 UTF-8	314. mg_MG.UTF-8 UTF-8	474. zh_TW BIG5
155. en_ZM UTF-8	315. mhr_RU UTF-8	475. zh_TW.EUC-TW EUC
156. en_ZW ISO-8859-1	316. mi_NZ ISO-8859-13	476. zh_TW.UTF-8 UTF-
157. en_ZW.UTF-8 UTF-8	317. mi_NZ.UTF-8 UTF-8	477. zu_ZA ISO-8859-1
158. eo UTF-8	318. mk_MK ISO-8859-5	478. zu_ZA.UTF-8 UTF-
159. es_AR ISO-8859-1	319. mk_MK.UTF-8 UTF-8	479. 以上都不是
160. es_AR.UTF-8 UTF-8	320. ml_IN UTF-8	

输入您想选择的项目，各项目之间以空格分开。)

选择需要生成的区域设置(locale)。 152 468

debian 里的很多软件包都使用区域设置(locale)来以正确的语言向用户显示文本。你可以从生成的区域设置中选择一个。注意：这将会把整个系统都设置为这种语言。如果您运行的是一个多用户系统，而且并不是系统内的所有用户都使用同一种语言，这可能会带来一些麻烦。

1. 无 2. C.UTF-8 3. en_US.UTF-8 4. zh_CN.UTF-8

哪个将作为系统环境默认的区域设置(locale)? 3

```
Generating locales (this might take a while)...
en_US.UTF-8... done
zh_CN.UTF-8... done
```

5.设置环境变量，针对所有用户生效:已经都创建好了

```
vi /etc/profile
```

```
fi
else
    if [ "`id -u`" -eq 0 ]; then
        PS1='# '
    else
        PS1='$ '
    fi
fi
fi

if [ -d /etc/profile.d ]; then
    for i in /etc/profile.d/*.sh; do
        if [ -r $i ]; then
            . $i
        fi
    done
    unset i
fi

export LANG=en_US.UTF-8
export LC_MESSAGES=en_US
export HISTFILESIZE=100000
export HISTCONTROL=ignoredups
export HISTSIZE=10000
export HISTTIMEFORMAT="%Y-%m-%d %H:%M:%S" "
```

```
/etc/profile [+]
-- INSERT --
```

6.设置将所有用户在shell环境下输入的所有命令，通过Logger发送到系统syslog：暂时有问题，还在研究中...

7.设置时区为上海时区

```
tzselect
vi /etc/profile #将时区的环境变量写入
```

```
#? 9
Please select one of the following time zone regions.
1) Beijing Time
2) Xinjiang Time
#?
1) Beijing Time
2) Xinjiang Time
#? 1

The following information has been given:

      China
      Beijing Time

Therefore TZ='Asia/Shanghai' will be used.
Local time is now:      Thu Dec 28 22:01:24 CST 2017.
Universal Time is now: Thu Dec 28 14:01:24 UTC 2017.
Is the above information OK?
1) Yes
2) No
#? 1

You can make this change permanent for yourself by appending the line
      TZ='Asia/Shanghai'; export TZ
to the file '.profile' in your home directory; then log out and log in again.

Here is that TZ value again, this time on standard output so that you
```

```
export LANG=en_US.UTF-8
export LC_MESSAGES=en_US
export HISTFILESIZE=100000
export HISTCONTROL=ignoredups
export HISTSIZE=10000
export HISTTIMEFORMAT="%Y-%m-%d %H:%M:%S"
export TZ='Asia/Shanghai'
profile [+]
```

```
root@newbie-unknown85858:/home/elaine# date
Thu Dec 28 22:13:03 CST 2017
root@newbie-unknown85858:/home/elaine#
```

8.校准系统时间，并开启自动对时服务：首先安装ntp工具，服务器上已经是最新版本。
执行校时命令：

```
ntpdate cn.pool.ntp.org
```

```
root@newbie-unknown85858:~# ntpdate cn.pool.ntp.org
29 Dec 09:55:37 ntpdate[3685]: the NTP socket is in use, exiting
root@newbie-unknown85858:~# service ntp stop
root@newbie-unknown85858:~# ntpdate cn.pool.ntp.org
29 Dec 09:56:40 ntpdate[3746]: adjust time server 115.28.122.198 offset 0.004321 sec
```

自动校时:

```
vi /etc/cron.daily/ntpdate #添加下面一行, 实现每天同步
ntpdate ntp.ubuntu.com cn.pool.ntp.org
chmod 755 /etc/cron.daily/ntpdate
ntpdate -d cn.pool.ntp.org
```

```
root@newbie-unknown85858:/etc/cron.daily# vi /etc/cron.daily/ntpdate
root@newbie-unknown85858:/etc/cron.daily# chmod 755 /etc/cron.d
cron.d/      cron.daily/
root@newbie-unknown85858:/etc/cron.daily# chmod 755 /etc/cron.daily/ntpdate
root@newbie-unknown85858:/etc/cron.daily# ntpdate -d cn.pool.ntp.org
29 Dec 10:21:32 ntpdate[5076]: ntpdate 4.2.8p10@1.3728-o Sat Sep 23 19:02:40 UTC 2017 (1)
transmit(120.25.115.19)
receive(120.25.115.19)
```

9.设置只有自己的用户和导师有权限使用su命令, 其他没有权限使用: 跟前面第二节中类似, 已实现, 还有另一种办法是:

```
ls -ls /bin/su
chmod 700 /bin/su
```

10.给/分区加上三个挂载参数

```
vi /etc/fstab
mount -o remount /
```



```

S tmpfs on /run/user/0 type tmpfs (rw,nosuid,nodev,relatime,size=405084K,mode=700)
root@newbie-unknown85858:~# update-alternatives --config editor
There are 3 choices for the alternative editor (providing /usr/bin/editor).

  Selection    Path                        Priority  Status
  -----
  0             /bin/nano                   40       auto mode
  1             /bin/nano                   40       manual mode
  * 2           /usr/bin/vim.basic          30       manual mode
  3             /usr/bin/vim.tiny           15       manual mode

Press <enter> to keep the current choice[*], or type selection number: █

```

load

2.5 节分区联系

操作步骤如下：

1. 使用 parted 将 /dev/vdd 划分分区

```

root@newbie-unknown85858:~# parted /dev/vdd
GNU Parted 3.2
Using /dev/vdd
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) mklabel
New disk label type? gpt
(parted) mkpart
Partition name? []? dp1
File system type? [ext2]? xfs
Start? 0
End? 10GB
Warning: The resulting partition is not properly aligned for best performance.
Ignore/Cancel?
Ignore/Cancel? Ignore
(parted) print
Model: Virtio Block Device (virtblk)
Disk /dev/vdd: 53.7GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name  Flags
  1      17.4kB  10.0GB  10000MB  xfs          dp1

(parted) mkpart
Partition name? []? dp2
File system type? [ext2]? ext4
Start? 10GB

```

通过同样步骤划分第二个分区，然后进行如下初始化

```

Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
root@newbie-unknown85858:~# mkfs.xfs /dev/vdd1
meta-data=/dev/vdd1            isize=512    agcount=4, agsize=610351 blks
                     =          sectsz=512   attr=2, projid32bit=1
                     =          crc=1        finobt=1, sparse=0, rmapbt=0, reflink=0
data        =          bsize=4096   blocks=2441402, imaxpct=25
                     =          sunit=0      swidth=0 blks
naming      =version 2           bsize=4096   ascii-ci=0 ftype=1
log         =internal log        bsize=4096   blocks=2560, version=2
                     =          sectsz=512   sunit=0 blks, lazy-count=1
realtime    =none               extsz=4096   blocks=0, rtextents=0
root@newbie-unknown85858:~# mkfs.ext4 /dev/vdd2
mke2fs 1.43.4 (31-Jan-2017)
Creating filesystem with 2441216 4k blocks and 610800 inodes
Filesystem UUID: a579fabd-f85a-4502-aaef-0c310eabd37a
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

root@newbie-unknown85858:~# █

```

2.对第三个分区使用LVM创建2个逻辑分区

```

Command (m for help): p
Disk /dev/vdd: 50 GiB, 53687091200 bytes, 104857600 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: 70022E9D-D4EC-4753-A6C5-AAE4DC8BE34B

Device            Start      End  Sectors  Size Type
/dev/vdd1          34    19531250 19531217   9.3G Linux filesystem
/dev/vdd2    19531776  39061503 19529728   9.3G Linux filesystem
/dev/vdd3    39061504 104857566 65796063 31.4G Linux LVM

Command (m for help): █

```

然后创建pv,vg,跟两个lv, 并格式化

```

pvcreeate /dev/vdd3
vgcreate vg_group /dev/vdd3
vgdisplay
lvcreate -L 10G -n lv_test  vg_group
mkfs.xfs  /dev/vg_group/lv_test
lvcreate -L 13.7G -n lv_test1  vg_group
mkfs.xfs  /dev/vg_group/lv_test1

```