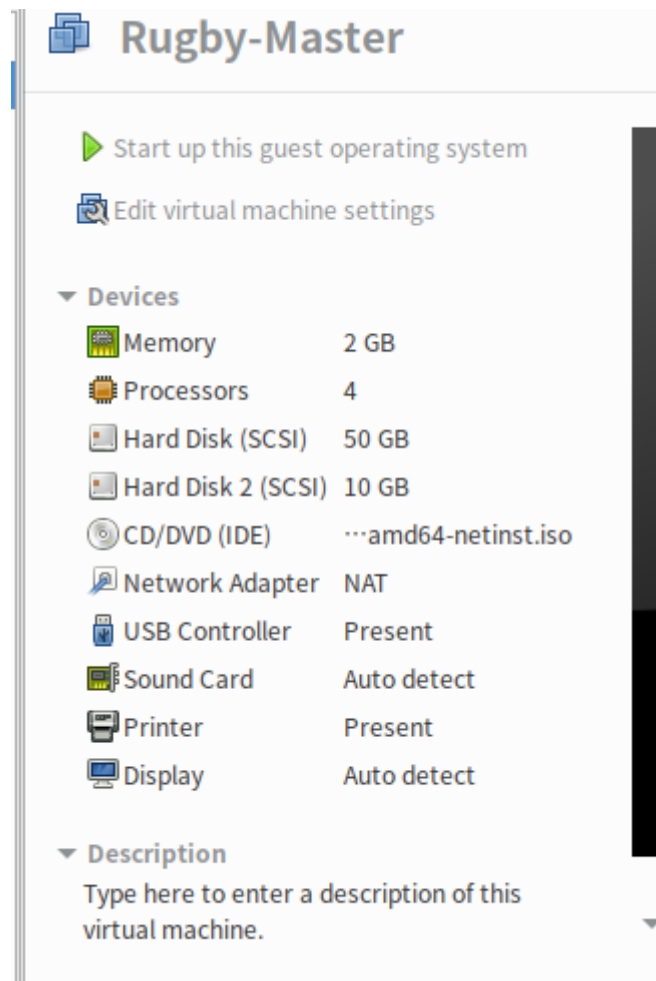


Prepare

vm config

os: debian-9.8.0-amd64-netinst

No graphical interface



static ip

```
supinfo@RugbyMaster:~$ sudo apt-get install net-tools
supinfo@RugbyMaster:~$ sudo vim /etc/network/interfaces
```

```
# The primary network interface
+auto ens33
allow-hotplug ens33
iface ens33 inet static
+      address 192.168.10.130
+      netmask 255.255.255.0
```

mount

mount the 10 G on directory `/storage`

8G partition for user account.

2G partition for archives .

```
Created a new partition 1 of type 'Linux' and of size 8 GiB.  
Created a new partition 1 of type 'Linux' and of size 2 GiB.
```

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/sdb1		63	16777279	16777217	8G	83	Linux
/dev/sdb2		16777280	20971519	4194240	2G	83	Linux

```
# storage disk for user data
```

/dev/sdb1	/storage/user	ext4	defaults	0	0
/dev/sdb2	/storage/user	ext4	defaults	0	0

Users

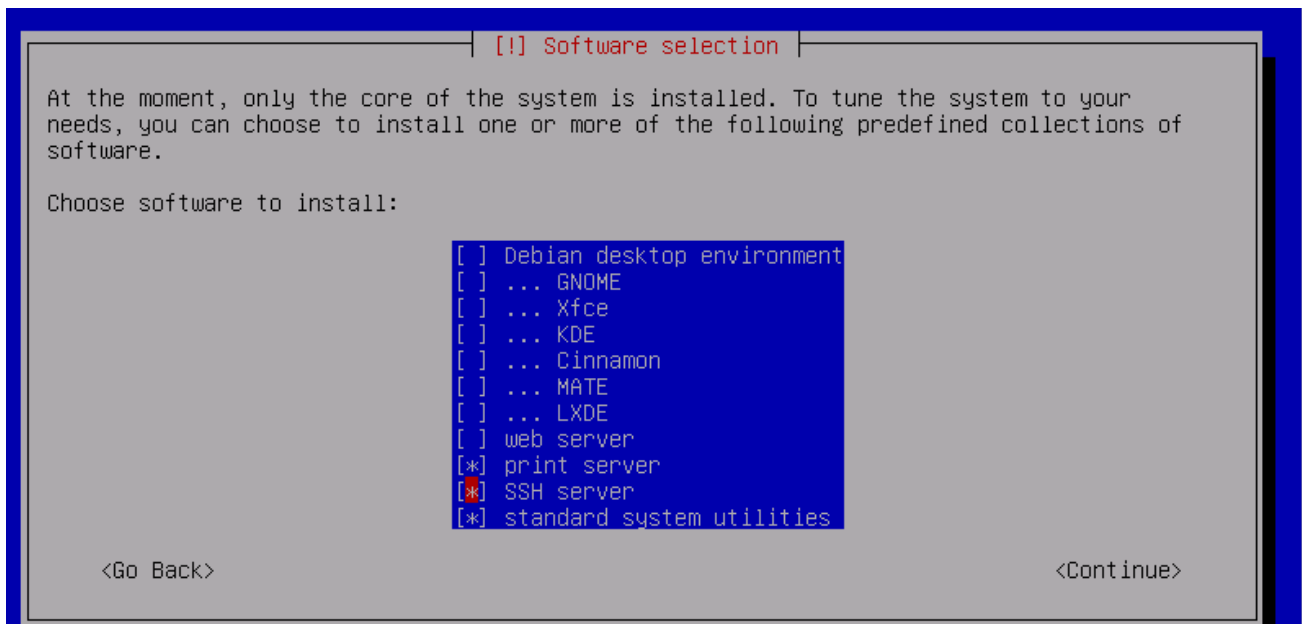
demo user

```
empty:x:1001:1003:,,,:/storage/user/home/empty:/bin/bash  
half:x:1002:1004:,,,:/storage/user/home/half:/bin/bash  
over:x:1005:1007:./storage/user/home/over:/bin/bash
```

system account

```
root@RugbyMaster:/# useradd -r -s /usr/sbin/nologin rugbadmin  
  
root@RugbyMaster:/# cat /etc/passwd | grep rugbadmin  
rugbadmin:x:50:50:./home/rugbadmin:/usr/sbin/nologin  
  
root@RugbyMaster:/script# vim /etc/sudoers
```

SSH



```
supinfo@RugbyMaster:~$ sudo service ssh status
* ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2019-04-13 12:35:29 UTC; 6min ago
   Process: 493 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 502 (sshd)
     Tasks: 1 (limit: 19660)
    CGroup: /system.slice/ssh.service
            └─502 /usr/sbin/sshd -D
```

ssh key in pc

```
gorkr@gorkr-PC:~$ scp /home/gorkr/.ssh/id_rsa.pub
supinfo@192.168.10.130:/home/supinfo/.ssh
supinfo@192.168.10.130's password:
id_rsa.pub                                     100% 401
615.4KB/s   00:00
```

in server, only administer account, refuse root

```
supinfo@RugbyMaster:~$ chmod 700 .ssh
supinfo@RugbyMaster:~$ mv .ssh/id_rsa.pub .ssh/authorized_keys

PubkeyAuthentication yes                #允许公钥认证
AuthorizedKeysFile .ssh/authorized_keys #指定包含用于用户身份验证的公钥的文件
PasswordAuthentication no               #选项前面可以加#号注释掉，同样会禁用密码登录
PermitRootLogin no

gorkr@gorkr-PC:~$ ssh root@192.168.10.130
root@192.168.10.130: Permission denied (publickey).
gorkr@gorkr-PC:~$ ssh empty@192.168.10.130
empty@192.168.10.130: Permission denied (publickey).
```

```
supinfo@RugbyMaster:~$ sudo systemctl restart sshd.service
```

Quota

```
root@RugbyMaster:/home/supinfo# sudo cat /etc/fstab
```

```
# storage disk for user data
```

```
/dev/sdb1      /storage/user    ext4    defaults,usrquota,grpquota 0 0
/dev/sdb2      /storage/safeplace ext4    defaults 0 0
```

```
root@RugbyMaster:/home/supinfo# quota -u empty
```

```
Disk quotas for user empty (uid 1001):
```

Filesystem	blocks	quota	limit	grace	files	quota	limit	grace
/dev/sdb1	20	409600	512000		5	0	0	

```
root@RugbyMaster:/home/supinfo# edquota -p empty -u half
```

```
root@RugbyMaster:/home/supinfo# edquota -p empty -u over
```

```
root@RugbyMaster:/home/supinfo# repquota -a
```

```
*** Report for user quotas on device /dev/sdb1
```

```
Block grace time: 5days; Inode grace time: 5days
```

User		Block limits				File limits			
		used	soft	hard	grace	used	soft	hard	grace
root	--	28	0	0		6	0	0	
empty	--	20	409600	512000		5	0	0	
half	--	16	409600	512000		4	0	0	
over	--	4	409600	512000		1	0	0	

```
root@RugbyMaster:/home/supinfo# /etc/init.d/quota status
```

```
* quota.service - Initial Check File System Quotas
```

```
Loaded: loaded (/lib/systemd/system/quota.service; enabled; vendor preset: enabled)
```

```
Active: active (exited) since Sat 2019-05-25 03:17:36 UTC; 11min ago
```

```
Docs: man:quotacheck(8)
```

```
Process: 244 ExecStart=/usr/share/quota/quota-initial-check.sh (code=exited, status=0/SUCCESS)
```

```
Main PID: 244 (code=exited, status=0/SUCCESS)
```

```
Tasks: 0 (limit: 19660)
```

Sudo

supinfo is different with the system account, he maintains the daily [service](#).

```
visudo
supinfo ALL=(root) /bin/chmod
supinfo ALL=(ROOT) /bin/mv
```

Cron

```
root@RugbyMaster:/home/supinfo/bin# cat /etc/cron.allow
rugbadadmin

root@RugbyMaster:/script# ls -l
total 4
-rwx----- 1 rugbadadmin rugbadadmin 885 May  6 09:12 monit_and_archive.sh

root@RugbyMaster:/script# crontab -e -u rugbadadmin
0 * * * * /script/monit_and_archive.sh

root@RugbyMaster:/script# crontab -l -u rugbadadmin
0 * * * * /script/monit_and_archive.sh
```

Bounus

```
#!/bin/bash
#Shell name:create_50_users.sh
#Program:
#   create 50 users in a dirctory
#History:
#   2019/5/1 gorkr
#
#
#Usage:
#   chmod 700 create_50_users.sh
#   sudo ./create_50_users.sh
#

PATH=/bin:/sbin:/usr/bin:/usr/sbin:/usr/local/bin:/usr/local/sbin:.
export PATH

if [ $UID -ne 0 ]
then
    echo "Run as root"
    exit 1
fi

sb=400M # 400M softblock
```

```

hb=500M # 500M hardblock
gr=432000 # 5 days grace

for i in `seq 50`
do
    useradd -G test test$i -d /storage/user/test/home/test$i -m >/dev/null 2>/dev/null
    setquota -u test$i ${sb} ${hb} 0 0 /storage/user/
    if [ $i -lt 46 ]
    then
        dd if=/dev/zero of=/storage/user/test/home/test$i/file bs=2k count=1
    elif [ $i -lt 48 ]
    then
        dd if=/dev/zero of=/storage/user/test/home/test$i/file bs=1M count=250
    else
        dd if=/dev/zero of=/storage/user/test/home/test$i/file bs=1M count=550
    fi
    chown test$i:test$i /storage/user/test/home/test$i/file
    [ $? -eq 0 ] && echo -e "[\033[32mok\033[0m]user test$i create success."
done
exit 0

...

```

script

```

#!/bin/bash
#Program: moniter user of quota.
#History: 19/5/1 gorkr
#Usage:
PATH=/bin:/sbin:/usr/bin:/usr/sbin:/usr/local/bin:/usr/local/sbin:.
export PATH

user=`/usr/sbin/repquota -u /storage/user/ | tail -n +7 | awk -F ' ' '{print $1}'` #
all of users wrote in quota, excipt root

for i in ${user} # $user和${user}一样吗
do
    used=`/usr/sbin/repquota -u /storage/user/ | grep $i | awk -F " " '{print $3}'`
    limit=`/usr/sbin/repquota -u /storage/user/ | grep $i | awk -F " " '{print $5}'`
    if [ $used -ge $limit ];then # 这里是 是否大于指定大小
        date=`date +%Y%m%d`
        tar -czvf /storage/safeplace/${i}-${date}.tar.gz /storage/user/home/${i}/ #
        将制定路径打包, 将其存放在指定目录
        rm -rf /storage/user/home/${i}/* # 将文件删除
    fi
done

```

```

function login {
    #记录登录到本机的用户名, 登录时间和登陆地点
    username=$USER
    time=`date +%y-%m-%d\ %H:%M:%S`
    termenal=`ps | grep bash | grep -v grep | awk '{print $2}'`
    location=`w | grep "$termenal" | awk '{print $3}'`
    if [[ "$location" =~ '-' ]] || [[ "$location" =~ '^:' ]]; then
        location="localhost"
    fi
    echo -e "$username\t$time\t$location" >> /var/log/login
}

function prompt {
    username=$USER
    if [ $username == "root" ] || [ $username == "rugbadadmin" ] || [ $username ==
"supinfo" ]
    then
        exit 1
    fi
    used=`/usr/sbin/repquota -u /storage/user/ | grep $username | awk -F " " '{print
$3}'`
    limit=`/usr/sbin/repquota -u /storage/user/ | grep $username | awk -F " " '{print
$5}'`
    if [ $used -ge $limit ]
    then
        echo "$username, you are locked, please contact administraor to get you files."
    else
        echo "$username, you have used $used, please not over $limit, be careful."
    fi
}

prompt

```

this script also `/etc/profile.d` , when a user login this script is excuted automatically.

```

root@RugbyMaster:/script# ls -l
total 4
-rwx----- 1 rugbadadmin rugbadadmin 1852 May 25 02:45 monit_and_archive.sh

```

```

over@RugbyMaster:~$ dd if=/dev/zero of=file bs=1M count=550
sdb1: warning, user block quota exceeded.
sdb1: write failed, user block limit reached.
dd: error writing 'file': Disk quota exceeded
500+0 records in

```

```

499+0 records out
524283904 bytes (524 MB, 500 MiB) copied, 2.1806 s, 240 MB/s

root@RugbyMaster:/storage/user/home/over# /script/monit_and_archive.sh
tar: Removing leading `/' from member names
/storage/user/home/over/
/storage/user/home/over/file
/storage/user/home/over/.bash_history

root@RugbyMaster:/storage/user/home/over# ls -l /storage/safeplace/
total 520
drwx----- 2 root root 16384 Apr 15 12:17 lost+found
-rw-r--r-- 1 root root 509080 May 25 03:48 over-20190525.tar.gz

```

awk

```

#!/bin/bash
#Program:hape
PATH=/bin:/sbin:/usr/bin:/usr/sbin:/usr/local/bin:/usr/local/sbin:

export PATH

storage_path='/storage/safeplace/'
cd ${storage_path}

s=0 #计算abuse的数量
u=0 #用户数量
p=0

echo "" > /home/supinfo/report.html
echo "<html><head><title>User Abuse Report Viewer</title></head><body>" >>
/home/supinfo/report.html
echo "<h4>User Abuse Report</h4>">> /home/supinfo/report.html
echo "<table border='1'>">> /home/supinfo/report.html
echo "<tr><td>username</td><td>date</td><td>datasize</td>"
</tr>">>/home/supinfo/report.html
for f in `ls ./*.tar.gz`;
do
    username=`ls -lh $f | awk -F" " '{print $3}'`
    userdate=`tar -tvf $f | awk -F" " '{print $4}'`
    datasize=`ls -lh $f | awk '{print $5}'`

    echo "<tr><td>$username</td>">> /home/supinfo/report.html
    echo "<td>$userdate</td>">> /home/supinfo/report.html
    echo "<td>$datasize</td></tr>">> /home/supinfo/report.html

    s=$((echo "$s+1" | bc))
done

```



```
echo "</table>" >> /home/supinfo/report.html

user=`/usr/sbin/repquota -u /storage/user/ | tail -n +7 | awk -F ' ' '{print $1}'` #
all of users wrote in quota, except root
for d in $user
do
    u=$(echo "$u+1" | bc)
done

echo "<p>the abuse percentage is <em>$s/$u </em>.</p>">>/home/supinfo/report.html

echo "</body></html>" >> /home/supinfo/report.html
```

we use a web to graph report

```
scp supinfo@192.168.10.130:/home/supinfo/report.html ~/Desktop
```