Vendor: RedHat

Exam Code: RHCE-CN

Exam Name: Red Hat Certified Engineer — RHCE

Version: Demo

Exam Times:
RHCE: Two hours.

Pass Scores:
Total 300 points. Pass at 210 points.

Exam Environment:
Take examinations on a real system with a pre-installed virtual machine.
All exams must be completed in the virtual machine.
Network must be well configured. If the network cannot be accessed, you will not pass the exam.
In the iptables configuration, if you need to refuse the access, please use “Reject”. (The default is set as ACCEPT.)

Note:
Your IP address, Host Name, Gateway and DNS has been configured.
IP address: 172.24.30.5/24
Hostname: station.domain30.example.com
vim /etc/hosts
172.24.30.5 station.domain30.example.com
Add the corresponding relation between the host name and IP in the hosts records.

You are a member of the domain30.example.com host domain, another domain is t3gg.com---172.25.0.0/16 network.

QUESTION 1
To ensure SELinux open after the boot:

Answer:
vim /etc/sysconfig/selinux
selinux=enforcing
setenforce 1
getenforce

QUESTION 2
Open system kernel forwarding packets function:

Answer:
vim /etc/sysctl.conf
net.ipv4.ip_forward = 1
sysctl -w **(Effective immediately)**

The following commands should executed without sysctl.conf option:
sysctl -a |grep net.ipv4
sysctl -P net.ipv4.ip_forward = 1
sysctl -w

QUESTION 3
Configure SSH access as follows:

- Harry has remote SSH access to your machine from within example.com
- Clients within t3gg.com should NOT have access to ssh on your system

Answer:
yum install -y sshd
chkconfig sshd on
vim /etc/hosts.deny
sshd: 172.25.0.0/16

Use iptables:
iptables -F
iptables -X
iptables -Z
iptables -nvL
iptables -A INPUT -s 172.25.0.0/16 -p tcp -dport 22 -j REJECT
services iptables save
Each finished writing a iptables rules saved

iptables -nvL
cat / etc / services can be used to view port
If wrong, can be modified in vim / etc / sysconfig / iptables

QUESTION 4
Configure FTP access as follows:

- Download from catalog: / var / ftp / pub using anonymous is allowed
- Clients within t3gg.com should NOT have access to FTP on your system

Answer:
yum install -y vsftpd
chkconfig vsftpd on
services vsftpd start
Deny: uninstall hosts.deny or use iptables
vim /etc/hosts.deny
vsftpd: 172.25.0.0/16
iptables -A INPUT -s 172.25.0.0/16 -p tcp -dport 20:21 -j REJECT
services iptables save

QUESTION 5
Mount /root/cdrom.iso under /opt/data, and take effect automatically at boot-start

Answer:
cd /opt/
mkdir data
mount -t iso9660 -o loop /root/cdrom.iso /opt/data
vim /etc/fstab
/root/cdrom.iso /opt/data iso9660 defaults,loop 0 0

QUESTION 6
Configure Web server as follow:
Clients within http://station.domain30.example.com should have access to Web server on your system

Answer:
yum install -y httpd
chkconfig httpd on
cd /etc/httpd/conf/
vim httpd.conf
NameVirtualHost 172.24.30.5:80

<VirtualHost 172.24.30.5:80>
DocumentRoot /var/www/html/
ServerName tation.domain30.example.com
</VirtualHost>
service httpd restart

QUESTION 7
Build a web server to enable the virtual host. So http://www.domain30.example.com able to access to the page / www / virtual directory, download from http://ip/dir/example.html. And ensure, http://station.domain30.example.com also be access to the contents of.

Answer:
mkdir -p /www/virtual
cd /www/virtual
wget http://ip/dir/example.com
cp example.com index.html
se manage fcontext -a -t httpd_sys_content_t '/www(/.*)?'
restorecon -vRF /www
vim /etc/httpd/conf/httpd.conf **(Create a new host)**
<VirtualHost 172.24.30.5:80>
DocumentRoot /www/virtual/
ServerName www.domain30.example.com
</VirtualHost>
service httpd restart
Verify with elinks

Other kinds of questions:
Download files from http://ip/dir/restircted.html. Local user have access to it through http://dtop30.dn.ws.com/restircted, but Clients within remote.com should NOT have access to it.

htpasswd -cm /etc/httpd/.htpasswd sisi
htpasswd -m /etc/httpd/.htpasswd tami
<VirtualHost 172.24.30.5:80>
DocumentRoot /www/virtual/
ServerName www.domain30.example.com
<Directory "/www/virtual/">
AuthName "www.domain30.example.com"
AuthType basic
AuthUserFile /etc/httpd/.htpasswd
Require valid-user
</Directory>

</VirtualHost>
services httpd restart

QUESTION 8
Download files from http://ip/dir/restircted.html. Local users have access to it through http://station.domain30.example.com/restircted, but Clients within t3gg.com should NOT have access to it.

Answer:
cd /var/www/html
wget http://ip/dir/restircted.htm
iptables -A INPUT -s 172.25.0.0/16 -p tcp -dport 80 -j REJECT
service iptables save

QUESTION 9
Configure NFS server to share /common directory with domain30.example.com. Authenticate the clients devices have the access to it as root user.

Answer:
yum install -y nfs
chkconfig nfs on
chkconfig rpcbind on
vim /etc/exports
/common 172.24.30.0/255.255.255.0 (rw,no_root_squash)
showmount -e 172.16.30.5
mount -t nfs 172.16.30.5:/common /mnt

QUESTION 10
Configuring samba server, shared / common, and can browse to the. User harry shared read-only, if necessary, harry users password for harryuser were.

Answer:
yum install -y postfix
chkconfig smb on
useradd harry
smbpasswd -a harry
vim /etc/samba/smb.conf
[common]
comment = common
path = /common
browseable = yes

read only = yes
testarpm
getsebool -a |grep samba_share_nfs
setsebool -P samba_share_nfs=1
services smb restart
mount -t cifs //172.16.30.5/common /mnt -o username=harry%harryuser

QUESTION 11
Configure an email server domian30.example.com, and it requests to send and receive emails from the local server or the user harry can send or receive emails from network. The email of user harry is /var/spool/mail/harry.
Please note: the DNS server has already been MX record.

Answer:
yum install -y postfix
chkconfig postfix on
vim /etc/postfix/main.cf
inet_interfaces = all
mydestination = example.com, domain30.example.com, localhost
mynetworks = 172.16.30.0/24, 127.0.0.1/8
services postfix restart

Test:
netstat -tulnp |grep 25
hostname
echo hello |mail -s “test”root@example.com
cat /var/spool/mai/harry

QUESTION 12
Connect to mail server and send email to admin, ensure that user harry can revive it.

Answer:
vim /etc/aliases
admin: harry
newaliases

QUESTION 13
Configure Kernel parameters rhelblq=1 and enable /proc/cmdline to verify your Kernel parameters.

Answer:

Vim /etc/grub.conf
Write the end of the kernel line
To see after restart
cat /proc/cmdline

QUESTION 14
Configure cron as follow:
Clients tom should NOT have access to cron

Answer:
useradd tom
vim /etc/cron.deny
tom
Effective immediately save and exit.

QUESTION 15
Write a script / root / program, the requirements when the input parameter kernel to the script, the script returns the user, the input parameters to the script user, the script returns the kernel. While the script no parameters or parameter error, the output from the standard error output usage: / root / the program kernel | user

Answer:
vim /root/program
#!/bin/bash
if [“$1” == “kernel”];then
echo “user”
elif [“$1” == “user”];then
echo “kernel”
else
echo “usage:/root/program kernel|user”
fi

Test:
chmod a+x /root/program
.root/program kernel
./root/program user
./root/program lll

QUESTION 16
Please visit iscsi shared storage, storage server address is 172.24.30.100, ceded 1500M space, formatted with the ext3 file system, mount / mnt / data, and boot

automatically mount.

Answer:
yum install -y iscsi*
chkconfig iscsid on
chkconfig iscsi on
iscsiadm -m discovery -t st -p 172.24.30.100:3260
iscsiadm -m node -T iqn.2011 -p 172.24.30.100 -|
service iscsi restart
fdisk -|
fdisk /dev/sda
partx -a /dev/sda
partx -a /dev/sda
mkfs.ext3 /dev/sad1
yum -y install tree
cd /var/lib/iscsi
tree . **view** iqn
cd /mnt
mkdir data
blkid /dev/sda1 **(View UUID, UUID mount)**
vim /etc/fstab
UUID=XXX /mnt/data ext3 default, _netdev 0 0
mount -a

QUESTION 17
Configuring the NFS service that will /mnt /storage directory with read-only shared to the example.com domain user when the client as the root user will also have access to the root directory permissions to read-only shared to cracker.org domain users.

Answer:
vim /etc/exports
/mnt/storage *.example.com(ro,sync,no_root_squash)
/mnt/storage *.cracker.org(ro,sync)

QUESTION 18
Example.com only allows access to the local SSH.

Answer:
vim /etc/hosts.allow
sshd: .example.com
vim /etc/hosts.deny

sshd: ALL

QUESTION 19
Samba configuration requirements are as follows:

1. The Working Group called RHCE
2. Types of user authentication
3. Shared / mnt / storage directory share name for the share
4. The shared directory allows user1 and user2 user has write permissions to other users are read-only, if you need password are redhat
5. only allows the user to access the shared directory domain example.com

Answer:
yum install -y samba
vim /etc/samba/smb.conf
[global]
workgroup = RHCE
security = user
[share]
path = /mnt/storage
write list = user1 user2
hosts allow = .example.com
(echo redhat ; echo redhat) | smbpasswd -s -a user1
(echo redhat ; echo redhat) | smbpasswd -s -a user2
service smb start; chkconfig smb on

QUESTION 20
Establish vsftp server, so that only allow user1 user access, and cannot jump out of home directories only allow users to upload and download example domain, allowing only example domains can be accessed.

Answer:
# yum -y install vsftpd
# vim /etc/vsftpd/vsftpd.conf
userlist_deny=NO
userlist_file=/etc/vsftpd/vsftpd.user_list
chroot_list_enable=YES
chroot_list_file= /etc/vsftpd/vsftpd.chroot_list
anon_upload_enable=YES
anonymous_enable=YES
# mkdir -p /var/ftp/incoming; chmod 777 /var/ftp/incoming
# chcon -t public_content_rw_t /var/ftp/incoming

setsebool -P allow_ftpd_anon_write 1
setsebool -P ftp_home_dir 1
vim /etc/vsftpd/vsftpd.user_list
user1
vim /etc/vsftpd/vsftpd.chroot_list
user1
service vsftpd start; chkconfig vsftpd on
vim /etc/hosts.deny
vsftpd: ALL EXCEPT .example.com

QUESTION 21
Create new mail server, the following:

1. Allow localhost and remote hosts can access
2. Allow example.com users can relay to refuse remote test
3. All mail sent to the user3 will be sent to user2
4. Confirm / var/spool/mail/user1 exist
5. Example.com domain only allows the user to receive mail via pop3

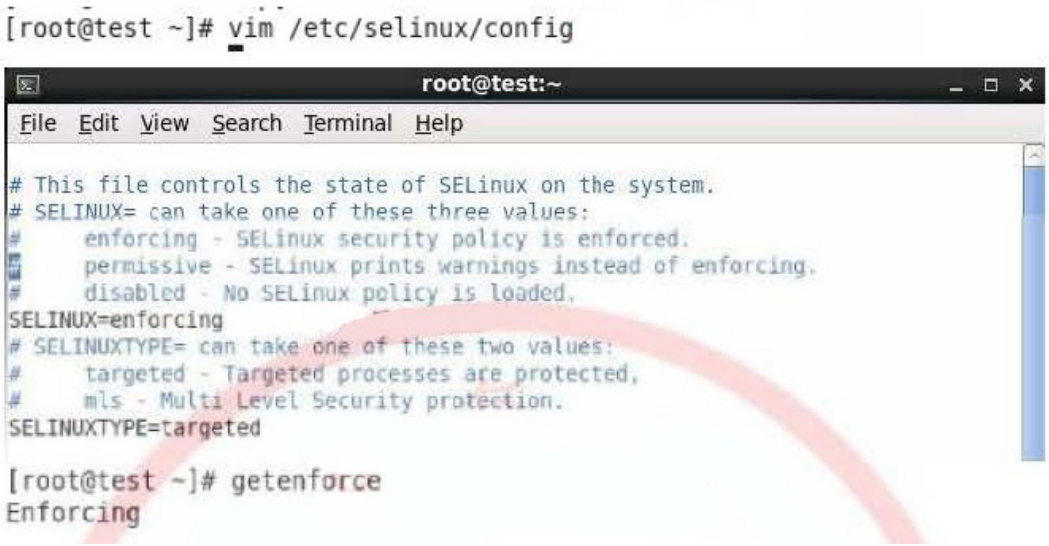
Answer:
# yum install postfix -y
# alternatives --set mta **(Choose postfix)**
# service sendmail stop; chkconfig sendmail off
# cd /etc/postfix
# vim main.cf
myhostname = stationX.example.com
mynetworks_style = subnet
mydestination = $ myhostname
myorigin = $ myhostname
relay_domains = example.com, $mydestination
inet_interfaces = all
smtpd_client_restrictions =
check_client_access hash:/etc/postfix/access,
check_sender_access hash:/etc/postfix/access,
check_recipient_access hash:/etc/postfix/access,
permit_auth_destination,
permit_mynetworks,
vim /etc/postfix/access
remote.test REJECT
vim /etc/aliases
user3: user2
postalias /etc/aliases
postmap hash:/etc/postfix/access

# touch /var/spool/mail/user1 **(Generally exist by default)**
# chown user1:mail /var/spool/mail/user1
# chcon --reference=/var/spool/mail/root /var/spool/mail/user1
# chmod 660 /var/spool/mail/user1
# **Reject remote.test domains can use iptables.**
# iptables -A INPUT -p tcp --dport 25 -s remote.test**(Written IP network segment)** -j REJECT
# service postfix start; chkconfig postfix on
# yum install dovecot
# vim /etc/dovecot.conf
protocols = pop3
# service dovecot start; chkconfig dovecot on
# iptables -A INPUT -p tcp --dport 110 -s 192.168.0.0/24 -j ACCEPT
# iptables -A INPUT -p tcp --dport 110 -j REJECT
# service iptables save; chkconfig iptables on

Laboratory Manual

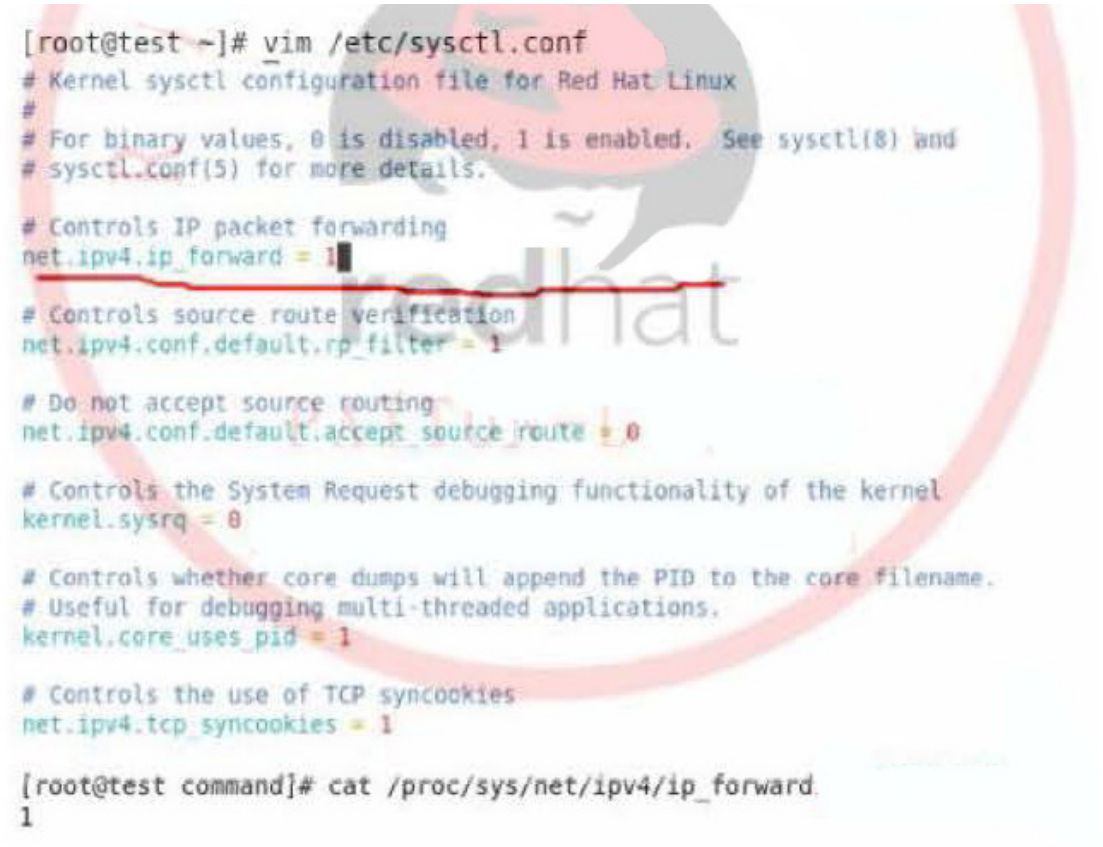
Lab 1

Configure Selinux it should be in enforcing mode.



Lab 2

Turn on your kernel to forward packets function.



```
[root@test ~]# vim /etc/sysctl.conf
# Kernel sysctl configuration file for Red Hat Linux
#
# For binary values, 0 is disabled, 1 is enabled.  See sysctl(8) and
# sysctl.conf(5) for more details.

# Controls IP packet forwarding
net.ipv4.ip_forward = 1

# Controls source route verification
net.ipv4.conf.default.rp_filter = 1

# Do not accept source routing
net.ipv4.conf.default.accept_source_route = 0

# Controls the System Request debugging functionality of the kernel
kernel.sysrq = 0

# Controls whether core dumps will append the PID to the core filename.
# Useful for debugging multi-threaded applications.
kernel.core_uses_pid = 1

# Controls the use of TCP syncookies
net.ipv4.tcp_syncookies = 1

[root@test command]# cat /proc/sys/net/ipv4/ip_forward
1
```

Lab 3

The existing two network segments, example.com for 172.16.0.0/16, crake.com for 172.25.0.0/16, hereby request that the example.com network segment to access the machine cannot access, crake.com segment.

Lab 4

Configure the ftp server, anonymous users can upload and download, reject the 172.25.0.0/26 network segment.