# RedHat\_Rhcsa 教材

\*\*Copy\*\*

[Ch1-6](/aoI4yurQSeWtNyizSitvfw)

[ch7-14](/HkDWjorx6)

tar

--

Tar（tape archive）命令是一個在Unix和Linux操作系統中常用的命令，用於將多個文件或目錄打包成一個單一的檔案，通常以.tar擴展名結尾。以下是tar命令的基本用法和一些常見的選項：

1. 創建tar檔案：

```bash

tar -cvf archive.tar file1 file2 directory1

```

這個命令會將指定的文件和目錄打包成一個名為archive.tar的tar檔案。

2. 解壓縮tar檔案：

```bash

tar -xvf archive.tar

```

這個命令會解壓縮名為archive.tar的tar檔案，還原其中的文件和目錄。

3. 查看tar檔案內容：

```bash

tar -tvf archive.tar

```

這個命令會列出名為archive.tar的tar檔案中包含的文件和目錄。

4. 壓縮文件成為.tar.gz或.tar.bz2檔案：

```bash

tar -czvf archive.tar.gz file1 file2

tar -cjvf archive.tar.bz2 file1 file2

```

這兩個命令分別用於將文件壓縮成.tar.gz（Gzip壓縮）或.tar.bz2（Bzip2壓縮）格式的檔案。

5. 解壓縮.tar.gz或.tar.bz2檔案：

```bash

tar -xzvf archive.tar.gz

tar -xjvf archive.tar.bz2

```

這兩個命令分別用於解壓縮.tar.gz或.tar.bz2檔案。

這些是tar命令的一些基本用法和常見選項，你可以使用tar --help命令來查看更多的選項和詳細信息。希望這能幫助你開始使用tar命令。

第十題 - 在每天14:23分把date指令輸出、設定log訊息

--

+ crontab

+ logger

+ at

```bash

crontab -e

23 14 \* \* \* date >> /root/mydate #分時幾月幾號星期幾，呼叫date這個指令，把輸出放到/root/mydate，append - >>，overwrite - >

crontab - l #check

at now+2days

at> logger hello

at> ctrl+d

at -c 1 #最後要看到一個logger hello

```

第十五題-建立vdo裝置、格式化、永久掛載

--

+ 題目15

(server2)

Create a voo device on /dev/sdc named myvdo1 with a logical size of 50G.

Format it to xfs filesystem and persistently mount it in a directory called /myvdol.

```bash

#建立裝置

yum serch vdo #搜尋和vdo有關的套件

yum install vdo kmod-kvdo

systemctl start/enable/status vdo

vdo craete --name myvdo1 --device /dev/vdb(sdc) --vdoLogicalSize=50G(3G) #教室沒有sdc因此以vdb代替,Size不夠因此以3G代替

vdostats 查看

#格式化

mkfs -t xfs /dev/mapper/myvdo1

#永久掛載

mkdir /myvdo1

vim /etc/fstab

/dev/mapper/myvdo1 /myvdo1 xfs defaults,x-systemd.requires=vdo.service 0 0 #x-systemd.requires=vdo.service取代default做參數

mount -a

lsblk

```

第十四題-掛載磁碟

---

+ 題目14

(server2) Create a volume group called group, and set to 16M extends. Create a logical volume on the group called Ivolume that uses 50 extends. Create a vfat file

system on the logical volume and mount persistently at /IvolumeO.

```bash

lsblk #先知道自己有沒有磁碟可以用

fbdisk /dev/vdb #(老師自選的磁碟)

出現 command (m for help): n

select (default p):p

partition nmuber: enter

first sector: enter

last sector : enter

出現 command (m for help): p #(查看磁碟)

#linux 格式: 用l列出

出現 command (m for help): l

會找到Linux LVM #(影片中位於8e)

出現 command (m for help): t

Hex code (type L to list all codes):8e

出現 command (m for help): p

#type 應更改為linux LVM

出現 command (m for help): w #(寫入)

partprobe

pvcreate /dev/vdb1

vgcreate -s 16m vgroup0 /dev/vdb1 #-s:physical extend sizes

vgdisplay #(查看檢查 PE Size:16)

lvcreate -n lvolume0 -l 50 vgroup0# -l:指定extend的數量,從vgroup0

lvdisplay #(檢查 LV Path是否是 /dev/vgroup0/lvolume0)

#分割好後進行格式化的動作

mkfs -t vfat /dev/vgroup0/lvolume0

mkdir /lvolume0

vim /etc/fstab

在最後一行輸入 /dev/vgroup0/lvolume0 /lvolume0(將前面那串掛載到後面資料夾) vfat(題目給定的格式) defaults 0 0

#完成後WQ

#測試檢查

mount -a #(編輯fstab再用mount -a可以確保下次開機可以載入進去)

lsblk #看一下最下面vdb->vdb1->vgroup0-lvolume0=>是否掛載到 /lvolume0

```

# Rhcsa

## Q

[Exam topic Rhcsa](https://www.examtopics.com/exams/redhat/ex200/view/)

## 考古複習班

### First

break root

### Second

nmcli connection.autoconnect

### Third

yum repolist

### Fourth

```bash=

$/etc/skel : 在建立使用者時會自動新增的檔案

$useradd -G <user>

```

### Fifth

```bash=

$chmod 3770 accounting

$chgrp accounting accounting <group dir>

$useradd imspecial

$getfacl

$setfacl -m user:imspecial accounting r-x :進入資料夾需要執行權限

```

### Sixth

```bash=

$getfacl <dir>

```

### Seventh

```bash=

$grep abcd > /etc/tmpfile

```

### Eighth

tar -cjvf <dir>

### Ninth

passwd

### Tenth

```bash=

$crontab -e

$at now +2 days

$logger <hello>

$atq

```

### Eleventh

systemctl status chronyd

vim /etc/chrony.conf

### Twelfth

```bash=

$systemctl start httpd

$touch web/index.html

$semanage fcontext -a -t httpd\_sys\_cpmtent\_t '/web(/.\*)?'

$restorecon -Rv /web

$semanage port -l | grep http

$semanage port -a -t http\_port\_t <82> -p tcp

$vim /etc/httpd/conf/httpd.conf

$document root /web <directory "/web">

$firewall-cmd -permanent —add-port=82/tcp

$firewall-cmd --reload

$systemctl restart httpd

```

### Thirteenth

swapon | free

lsblk

mkswap /dev/vdb1

vim /etc/fstab → /dev/vdb1 swap swap defaults 0 0

swapon -a (mount)

[ mkswap - 建立一個linux交換區 ](https://manpages.ubuntu.com/manpages/focal/zh\_TW/man8/mkswap.8.html)

### Fourteenth

```bash=

$vgcreate -s 16m vgroup /dev/vdb1

$lvcreate -n lvolume0 -l 50 vgroup0

$mkfs -t vfat /dev/vgroup/lvolmue0

$vim /etc/fstab

$mount -a

```

### Fifteenth

### Sixteenth

### Seventeenth

### Eighteenth

### Nineteenth

### Twentieth

考古

==

```

Create a simple user named harry, with custom uid 12000, and a primary group consultants, also set the

password into h4rr7K3yFlyvv

Answer :

# useradd harry -u 12000 -g consultants

# passwd harry # then add the password

2. Create a simple group named consultants, with id 10000

# groupdadd consultants –g 10000

3. Create a simple folder that can be shared by anyone on consultants group, on /shared/, and the group

ownership always consultants, and the user owner of the folder is consultant1 and only the user and the

designed group can access it, others can’t. And last thing, only the owner can delete the files, others can’t

# mkdir /shared

# chown consultant1:consultants /shared

# chmod g+s /shared # special permissions to special group

# chmod o= /shared # set same as chmod xx0, so other can’t access

# chmod o+t /shared # set only the owner can delete the file

4. There are a rouge process that kept using CPU til 100%, please kill it imidietly

# ps -ax --sort -pcpu -o pid,pcpu,cmd | head -10 # take highest 10 CPU usage, took one

PID %CPU CMD

31674 99.0 /home/student/rouge-process:

31653 39.0 php-fpm:

8530 38.3 /usr/sbin/mysqld --daemonize --pid-file=/run/mysqld/mysqld.pid

31494 24.6 php-fpm:

31480 24.3 php-fpm:

31560 21.0 php-fpm:

31481 19.6 php-fpm:

31395 18.7 php-fpm:

31500 18.5 php-fpm:

# kill -9 31674

5. Link an apache configuration, to enable the available sites in /etc/httpd/sites-available into /etc/httpd/sites-

enabled, and make sure those virtual host works as intented.

# for i in $(ls /etc/httpd/sites-available); do ln -s /etc/httpd/sites-available/$i /etc/httpd/sites-enabled/$i;

done

# systemctl restart httpd

# curl https://check-some-host.local # only for testing based on conf inside site-enabled

6. The developers are using the debug priority to log their apps using rsyslog, but they need us to redirect the

priority to specific file, named debug-log in /var/log. Create a configuration for it so we can take the stream

from it into that file.

# vim /etc/rsyslog.d/debug.conf

# # put \*.debug /var/log/debug-log

# # save, then edit

# systemctl restart rsyslog

# tail –f /var/log/debug-log # to check the result

7. Disable root login, and only enable publickey login using SSH

# vim /etc/ssh/sshd\_config

# # change the PasswordAuth\* to false

# # change the PermitRootLogin to false

# # save the file, edit

# systemctl restart sshd

8. Create a ssh key located in /home/student/.ssh/exam.pub, then put it as the authentication key into

operator1@serverb.

# ssh-keygen -f /home/student/.ssh/exam

# ssh-copy-id -i /home/student/.ssh/exam operator1@serverb

9. Force users under consultants group to change their password when they first login!

# grep “consultans” /etc/group

consultans:x:888:consultant1,consultant2

# chage -d 0 consultant1

# chage -d 0 consultant2

10. Change servera hostname to servera.redhat.co.id

# hostnamectl set-hostname servera.redhat.co.od

11. We need a simple temp folder for student user in their home folder as tmp, but it should be mapped to

/tmp/student. Create a simple solution for it, and make sure the destination folder is created

# mkdir -p /tmp/student

# ln -s /tmp/student /home/student/tmp

12. Server B can’t be connected via SSH, you need to troubleshoot why it happen, fix the SSH Service and make

sure it can allow people to connect

# sudo systemctl is-active sshd

dead

# sudo systemctl start sshd

# sudo firewall-cmd --list-active

service: mdns dhcpv6-client

# sudo firewall-cmd --add-service=ssh –permanent

Then after that check again the result, can the server be reached from other computer

13. The server B is located in Singapore, but the business in located in East Indonesia/Jayapura. All log time

cames out wrong, and cause some service hard to debug, especially the transaction with database. Please fix

this, so the data time log will be changed to Jayapura. Also change the NTP into local singapore

sg.pool.ntp.org

# sudo timedatectl set-timezone Asia/Jayapura

# # manually open /etc/chrony.conf

# vim /etc/chrony.conf

# # add pool sg.pool.ntp.org, then save

# sudo systemctl restart chronyd

# # check the result

# sudo chronyc source -v

# # check the log

# journalctl --since=-2hours

14. Locate any file with .conf inside /run and owned by root and put the result into /home/student/result.txt.

After that, also copy all the data to folder /tmp/found.

# sudo find /run -user root -iname \*.conf > /home/student/result.txt

# sudo find /run -user root -iname \*.conf -exec cp {} /tmp/found \;

15. Disable root login in sshd service at server b, so people only can’t remote server b with root user

# sudo vim /etc/ssh/sshd\_config

# # Change the PermitRootLogin prohibit-password into PermitRootLogin Yes

# sudo systemctl restart sshd

# # test the SSH again

16. User need httpd and mysql-server package, make sure to install the package on server b, and make user

thoser service are up and running!

# ssh student@serverb

# sudo dnf install httpd mysql-server

# sudo systemctl enable --now httpd

# sudo systemctl enable --now mysqld

# sudo systemctl is-active httpd

active

# sudo systemctl is-active mysqld

active

17. Create a local user, with username freesudo with uid 888, and gid 888 (create the group if the isn’t exist yet).

This user created for making simple sudo but only limited to podman, systemctl, and nano. Create an

appropriate sudoer.d file, and test this user only can sudo to those config.

# sudo groupadd freesudo -g 888

# sudo useradd freesudo -u 888 -g 888

# touch /etc/sudoers.d/freesudo.conf

# echo “freesudo ALL=(root) /usr/bin/podman” >> /etc/sudoers.d/freesudo.conf

# echo “freesudo ALL=(root) /usr/bin/nano” >> /etc/sudoers.d/freesudo.conf

# echo “freesudo ALL=(root) /usr/bin/systemctl” >> /etc/sudoers.d/freesudo.conf

18. Journald isn’t persistent between boot, please enable the persistent so the journald log will be persist

between boot, using config!

# sudo vim /etc/systemd/journald.conf

# # edit Storage=auto

# # change it into Storage=persistent, then do

# sudo systemctl restart systemd-journald

# sudo systemctl reboot

# # after boot check is there a new folder /var/log/journal, and does it has content? If yes then done

19. You need to add secondary group consultants into reddy user, so reddy user can have access to /share/

directory. 2nd, make sure that any files created on /share directory are owned by consultants group!

# sudo usermod -aG consultants reddy

# sudo chown :consultants /share

# sudo chown -R :consultants /share/\* # just to make sure all old files owned by consultants group

# sudo chmod g+s /share # make special, so any new files created under the folder group owner

20. Please backup and sync the /data folder in servera to serverb on /tmp/data!

# sudo rsync -av /data student@serverb:/tmp/data

# # check if all the data is copied!

21. You need to backup only /etc/systemd folder in servera and pack it into /home/student/etc-systemd-

servera.tar.gz on serverb!

# cd /tmp

# sudo tar cfz etc-systemd-servera.tar.gz /etc/systemd

# sudo scp /tmp/etc-systemd-servera.tar.gz student@serverb:/home/student/etc-systemd-servera.tar.gz

22. A network configuration are specified as follows:

Server A : 172.25.250.10/24

Server B : 172.25.250.11/24

DNS Server : 172.25.250.254

Please set these IP configuration directly into each machine!

# # Server A

# ip -br link

lo UNKNOWN 00:00:00:00:00:00 <LOOPBACK,UP,LOWER\_UP>

enp0s25 DOWN f0:de:f1:c9:17:dd <NO-CARRIER,BROADCAST,MULTICAST,UP>

# nmcli con add con-name servera ipv4.addresses 172.25.250.10/24 ipv4.dns 172.25.250.254

type ethernet connection.interface-name enp0s25

# nmcli con up servera

# # Server B

# ip -br link

lo UNKNOWN 00:00:00:00:00:00 <LOOPBACK,UP,LOWER\_UP>

enp0s25 DOWN f0:de:f1:c9:17:dd <NO-CARRIER,BROADCAST,MULTICAST,UP>

# nmcli con add con-name serverb ipv4.addresses 172.25.250.11/24 ipv4.dns 172.25.250.254

type ethernet connection.interface-name enp0s25

# nmcli con up servera

23. Create a diagnostic report at server A, and upload it from server A to workstation

# sos report

sosreport (version 4.3)

This command will collect system configuration and diagnostic

information from this RHEL ... output ommited...

# ls /var/tmp/sos\*

/var/tmp/sosreport-TP-X220-2022-10-29-ptxohlw.tar.xz

/var/tmp/sosreport-TP-X220-2022-10-29-ptxohlw.tar.xz.sha256

# scp /var/tmp/sos\* student@workstation:/home/student

24. Do a simple user alter to consultant10, change the UID to 12101, and only allow it to run sudo on systemctl,

only, so user can start and stop services

# sudo usermod -u 12101 consultant10

# sudo vim /etc/sudoers.d/consultant10 # fill with code below

consultant10 ALL=(root) /usr/bin/systemctl

# su – consultant10

$ sudo systemctl start sshd

25. Server A came with unknown root password, and there are no wheel user on that server! reset the root

password into redhat, so we can install and update the server!

Use rd.break on linux kernel param on RESCUE KERNEL BOOT!

Boot into rescue mode

# mount -o remount,rw /sysroot

# chroot /sysroot

# echo redhat | passwd --stdin

# touch /.autorelabel

# exit

26. Locate any file with .conf inside /run and owned by root and put the result into /home/student/result.txt.

After that, also copy all the data to folder /tmp/found.

# find /run -iname .conf -u root > /home/student/result.txt

# mkdir /tmp/found

# find /run -iname .conf -u root -exec cp {} /tmp/found \;

27. 8. Locate any file with .conf inside /run and owned by root and put the result into /home/student/result.txt.

After that, also copy all the data to folder /tmp/found.

# find /run -iname .conf -u root > /home/student/result.txt

# mkdir /tmp/found

# find /run -iname .conf -u root -exec cp {} /tmp/found \;

28. 10. SELINUX in serverB is disabled, you need to enable it so the security will be harden!

# vim /etc/selinux/config

# # SELINUX=enforcing

# # don't forget to check using grubby! If there are SELINUX=0 then..remove it!

# sudo grubby --update-kernel=ALL --remove-args=SELINUX

See More https://www.golinuxcloud.com/grubby-command-examples/#4\_Remove\_kernel\_arguments

This is very important, as enabling enforcing doesn’t automatically enabled if the kernel param existed

29. An SSHD port need to be moved from 22 to 9022, you need to configure this until the service is up and

running!

# vim /etc/ssh/sshd\_config

# # change Port 22 → Port 9022

# semanage port -a -t ssh\_port\_t -p tcp 9022

# firewall-cmd –add-port=9022/tcp –permanent

# firewall-cmd –reload

# systemctl restart sshd

30. There are need to create a stratis pool, you need to create simple stratis pool and inhibit whole /dev/vdb

(5GB), after that make sure you mount it persistently.

31. Server B need startis block storage in size of 10gb, with specs botakpool as the pool name, and botakfs as it’s

filesystem

# dnf install stratisd stratis-cli

# systemctl enable --now stratisd

# # check first does vdb and vdc is 5gb, if yes then proceed with this code

# stratis pool create botakpool /dev/vdb /dev/vdc

# stratis fs create botakpool botakfs

32. The stratis pool is drained, and you need to add more storage, please add more 5GB into it using /dev/vdc,

make sure it work properly!

# stratis pool add-data pool1 /dev/vdc

# # you don’t need to make a more move, as the size is automatically extended, and don’t use df to look into

it, but use stratis pool to see the actual file system size and usage!

33. You need to run docker.io/library/mysql, mount it's port to 13306, and mount it's data folder to

/home/student/mysql, name mysql8. Make sure it works and make it accesible from other machine!

$ # Beware! The Podman Container tools, are KNOWN TO WORK AS ROOTLESS SERVICE!

$ sudo dnf group install "Container Management"

$ podman pull docker.io/library/mysql

$ mkdir /home/student/mysql

$ podman run -it docker.io/library/mysql grep mysql /etc/passwd

$ # This is because mysql container is not same as mariadb container, using user 27:27,

instead it use 999:999

$ podman unshare chown 999:999 -R /home/student/mysql

$ podman run -d --name mysql8 -e MYSQL\_USER=user1 -e MYSQL\_PASSWORD=pass -e

MYSQL\_DATABASE=db -e MYSQL\_ROOT\_PASSWORD=redhat -v /home/student/mysql:/var/lib/mysql:Z -p

13306:3306 docker.io/library/mysql

34. Create a systemd unit service for mysql8, and enable it so each time it's reboot, it always start as it's. (make

precaution by removing the container, so it will work as it's)

$ # in server a

$ # as user student

$ podman stop mysql8

$ podman rm mysql8

$ podman generate systemd --name mysql8 --files --new

$ mkdir -p ~/.config/systemd/user

$ mv container-mysql8.service ~/.config/systemd/user/

$ systemctl --user enable --now container-mysql8.service

35. There are some repo that you need to install into your computer, from microsoft to install dotnet core that’s

build by Microsoft (you need the fast ring package). The Repo URL is

https://packages.microsoft.com/rhel/9.0/prod/, and the gpg key is

https://packages.microsoft.com/keys/microsoft.asc. Please add this to Red Hat Workstation and then you

can install dotnet-sdk-6.0 from it.

# sudo vim /etc/yum.repo.d/ms-prod.repo

# # fill the file with config on other server or foundation0/kiosk, on /etc/yum.repo.d/\*

# # or use yum-config-manager

name=ms-pkg-prod

baseurl=https://packages.microsoft.com/rhel/9.0/prod/

enabled=1

gpgcheck=1

gpgkey= https://packages.microsoft.com/keys/microsoft.asc

# # then save!

# sudo dnf update

# sudo dnf install dotnet-sdk-6.0 -y

# dnf list dotnet-sdk-6.0

Last metadata expiration check: 1:22:01 ago on Wed 12 Oct 2022 07:58:16 PM WIB.

Installed Packages

dotnet-sdk-6.0.x86\_64 6.0.402-1 @ms-pkg-prod

# dotnet –version

6.0.402

```