

第十四週

11127138 林雨臻

1. 安裝 tiger VNC。

```
[s11127138@localhost ~]$ sudo dnf install tigervnc-server
[sudo] password for s11127138:
Rocky Linux 9 - BaseOS                2.9 kB/s | 4.1 kB    00:01
Rocky Linux 9 - AppStream             5.9 kB/s | 4.5 kB    00:00
Rocky Linux 9 - Extras                4.3 kB/s | 2.9 kB    00:00
Dependencies resolved.
=====
Package                               Arch      Version      Repository    Size
=====
Installing:
tigervnc-server                       x86_64    1.14.1-1.el9_5  appstream    251 k
Installing dependencies:
dbus-x11                             x86_64    1:1.12.20-8.el9  appstream     24 k
tigervnc-license                      noarch    1.14.1-1.el9_5  appstream     17 k
tigervnc-selinux                     noarch    1.14.1-1.el9_5  appstream     28 k
tigervnc-server-minimal              x86_64    1.14.1-1.el9_5  appstream    1.2 M
Transaction Summary
=====
Install 5 Packages

Total download size: 1.5 M
Installed size: 3.5 M
Is this ok [y/N]: y
Downloading Packages:
(1/5): dbus-x11-1.12.20-8.el9.x86_64.rpm 517 kB/s | 24 kB    00:00
(2/5): tigervnc-selinux-1.14.1-1.el9_5.noarch.r 638 kB/s | 28 kB    00:00
(3/5): tigervnc-server-1.14.1-1.el9_5.x86_64.rp 2.7 MB/s | 251 kB   00:00
(4/5): tigervnc-license-1.14.1-1.el9_5.noarch.r 525 kB/s | 17 kB    00:00
(5/5): tigervnc-server-minimal-1.14.1-1.el9_5.x 6.0 MB/s | 1.2 MB   00:00
-----
Total                               1.8 MB/s | 1.5 MB    00:00
Rocky Linux 9 - AppStream           1.7 MB/s | 1.7 kB    00:00
Importing GPG key 0x350D275D:
  Userid   : "Rocky Enterprise Software Foundation - Release key 2022 <releng@rockylinux.org>"
  Fingerprint: 21CB 256A E16F C54C 6E65 2949 702D 426D 350D 275D
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-9
Is this ok [y/N]: y
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                1/1
  Installing     : tigervnc-license-1.14.1-1.el9_5.noarch 1/5
```

2. 設定允許 s 學號帳號可以以 vnc 方式連入。

```
[s11127138@localhost ~]$ vncserver

WARNING: vncserver has been replaced by a systemd unit and is now considered deprecated and removed in upstream.
Please read /usr/share/doc/tigervnc/HOWTO.md for more information.

Warning: localhost.localdomain:1 is taken because of /tmp/.X1-lock
Remove this file if there is no X server localhost.localdomain:1

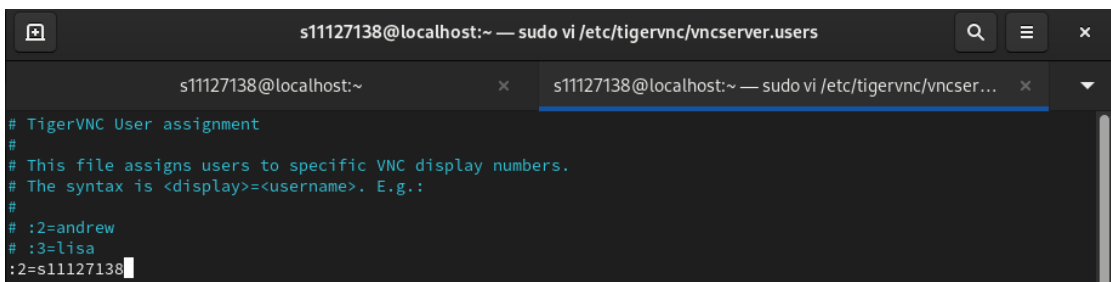
You will require a password to access your desktops.

Password:
Verify:
Would you like to enter a view-only password (y/n)? y
Password:
Verify:

New 'localhost.localdomain:2 (s11127138)' desktop is localhost.localdomain:2

Creating default startup script /home/s11127138/.vnc/xstartup
Creating default config /home/s11127138/.vnc/config
Starting applications specified in /home/s11127138/.vnc/xstartup
Log file is /home/s11127138/.vnc/localhost.localdomain:2.log
```

設定 user 使用的 display · s11127138 用 display2



```
s11127138@localhost:~ — sudo vi /etc/tigervnc/vncserver.users

# TigerVNC User assignment
#
# This file assigns users to specific VNC display numbers.
# The syntax is <display>=<username>. E.g.:
#
# :2=andrew
# :3=lisa
:2=s11127138
```

```
[s11127138@localhost ~]$ sudo vi /etc/tigervnc/vncserver-config-defaults
[s11127138@localhost ~]$
```

```
# Note: change this only when you know what are you doing
session=gnome
alwaysshared
```

```
[s11127138@localhost ~]$ sudo vi /etc/gdm/custom.conf
[s11127138@localhost ~]$
```

```
# GDM configuration storage

[daemon]
# Uncomment the line below to force the login screen to use Xorg
#WaylandEnable=false

[security]

[xdmcp]
Enable=1
[chooser]

[debug]
# Uncomment the line below to turn on debugging
#Enable=true
```

s11127138 設置的是 display2 · 設置幾個 display · @:2 那行就執行幾次。

```
[s11127138@localhost ~]$ sudo systemctl daemon-reload
[sudo] password for s11127138:
[s11127138@localhost ~]$ sudo systemctl enable vncserver@:2.service
sudo: systemctl: command not found
[s11127138@localhost ~]$ sudo systemctl enable vncserver@:2.service
Created symlink /etc/systemd/system/multi-user.target.wants/vncserver@:2.service.service → /usr/lib/systemd/system/vncserver@.service.
[s11127138@localhost ~]$ sudo systemctl start vncserver@:2.service
Failed to start vncserver@:2.service: Unit vncserver@:2.service not found.
[s11127138@localhost ~]$ sudo systemctl start vncserver@:2.service
[s11127138@localhost ~]$
```

```
[s11127138@localhost ~]$ sudo firewall-cmd --permanent --add-port=5902/tcp
[sudo] password for s11127138:
success
[s11127138@localhost ~]$ sudo firewall-cmd --reload
success
[s11127138@localhost ~]$
[s11127138@localhost ~]$ netstat -ant
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 127.0.0.1:631          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN
tcp6       0      0 :::1:631               :::*                    LISTEN
tcp6       0      0 :::22                  :::*                    LISTEN
[s11127138@localhost ~]$
```

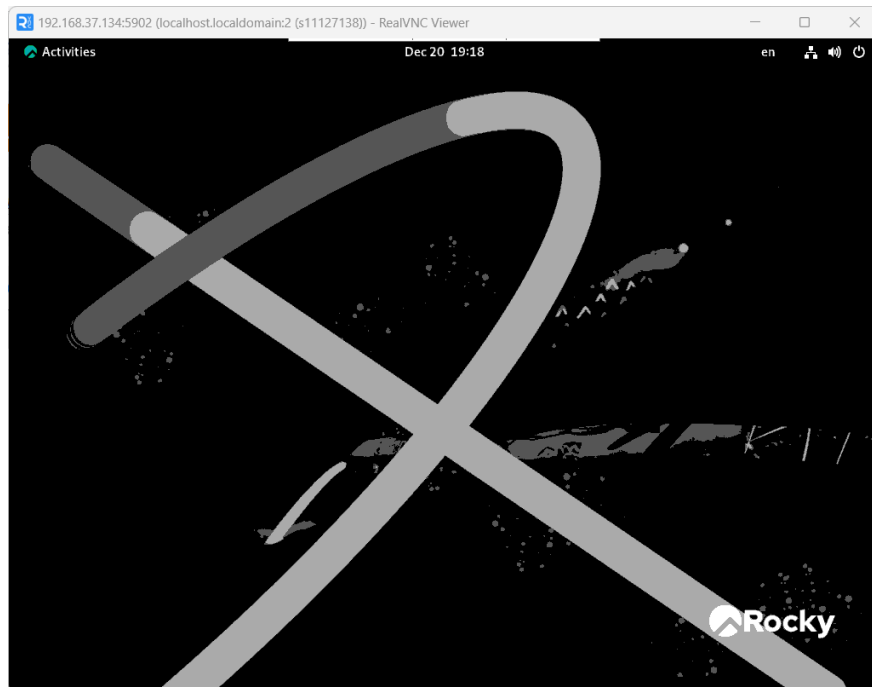
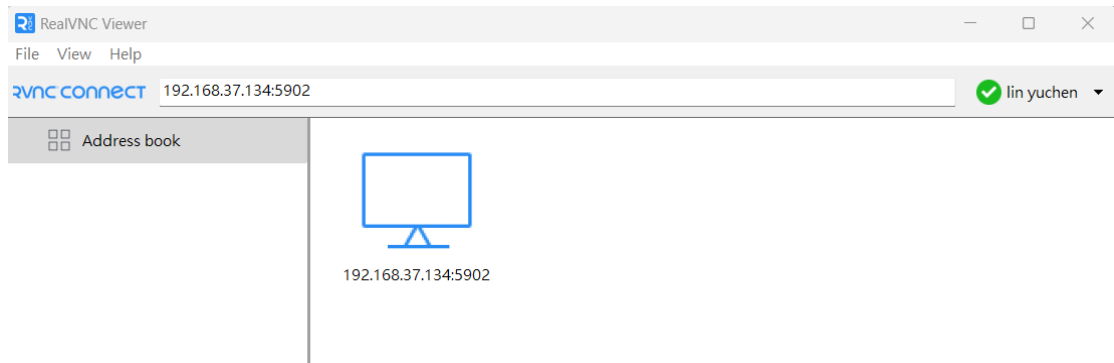
防火牆，display1=5901，display2=5902，以此類推。

```
[s11127138@localhost ~]$ sudo firewall-cmd --permanent --add-service=vnc-server
[sudo] password for s11127138:
success
[s11127138@localhost ~]$ sudo systemctl daemon-reload

[s11127138@localhost ~]$ sudo reboot
```

3. 在 windows 系統安裝 realvnc，以 realvnc 連入虛擬主機。

```
[s11127138@localhost ~]$ netstat -ant
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:631          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:5902           0.0.0.0:*               LISTEN
tcp6       0      0 :::22                  :::*                    LISTEN
tcp6       0      0 :::5902                 :::*                    LISTEN
tcp6       0      0 :::1:631               :::*                    LISTEN
[s11127138@localhost ~]$
```



4. 設定 nfs 分享 /usr/bin 目錄給你的虛擬主機網段的所有主機。

Server 端：

```
[s11127138@localhost ~]$ ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.37.130 netmask 255.255.255.0 broadcast 192.168.37.255
    inet6 fe80::20c:29ff:fe07:2f4 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:07:02:f4 txqueuelen 1000 (Ethernet)
    RX packets 19512 bytes 28490205 (27.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 10022 bytes 580276 (566.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[s11127138@localhost ~]$ sudo dnf install nfs-utils rpcbind
[sudo] password for s11127138:
Rocky Linux 9 - AppStream                    5.9 kB/s | 4.5 kB      00:00
Rocky Linux 9 - AppStream                    3.7 MB/s | 8.3 MB      00:02
```

```
[s11127138@localhost ~]$ sudo systemctl start nfs-server.service
[s11127138@localhost ~]$ sudo systemctl enable nfs-server.service
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service → /usr/lib/systemd/system/nfs-server.service.
[s11127138@localhost ~]$ sudo systemctl status nfs-server.service
● nfs-server.service - NFS server and services
   Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: d)
   Active: active (exited) since Sat 2024-12-28 21:21:45 CST; 1min 12s ago
     Docs: man:rpc.nfsd(8)
           man:exportfs(8)
    Main PID: 5037 (code=exited, status=0/SUCCESS)
      CPU: 25ms

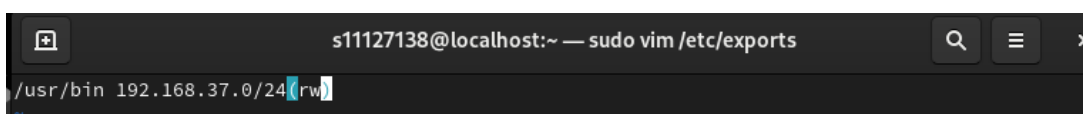
Dec 28 21:21:45 localhost.localdomain systemd[1]: Starting NFS server and services.
Dec 28 21:21:45 localhost.localdomain systemd[1]: Finished NFS server and services.
lines 1-10/10 (END)...skipping...
```

```
[s11127138@localhost ~]$ netstat -ant
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:47467          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:1:631          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:20048          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:35927          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:111            0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:2049           0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN
tcp6       0      0 :::44341               :::*                     LISTEN
tcp6       0      0 :::56261               :::*                     LISTEN
tcp6       0      0 :::20048               :::*                     LISTEN
tcp6       0      0 :::111                 :::*                     LISTEN
tcp6       0      0 :::2049                :::*                     LISTEN
tcp6       0      0 :::1:631               :::*                     LISTEN
tcp6       0      0 :::22                  :::*                     LISTEN
```

```
[s11127138@localhost ~]$ sudo exportfs -o rw 192.168.37.0/24:/usr/bin
[sudo] password for s11127138:
[s11127138@localhost ~]$ sudo exportfs
/usr/bin          192.168.37.0/24
[s11127138@localhost ~]$
```

```
[s11127138@localhost ~]$ sudo firewall-cmd --add-service=nfs --permanent
[sudo] password for s11127138:
success
[s11127138@localhost ~]$ sudo firewall-cmd --add-service=mountd --permanent
success
[s11127138@localhost ~]$ sudo firewall-cmd --reload
success
[s11127138@localhost ~]$
```

```
[s11127138@localhost ~]$ sudo vim /etc/exports
[s11127138@localhost ~]$
```



```
s11127138@localhost:~ — sudo vim /etc/exports
/usr/bin 192.168.37.0/24(rw)
```

5. 以 nfs mount 所分享的 /usr/bin, mount 在 /nfs usr.bin 目錄。

Client 端：

```
[s11127138@localhost ~]$ ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.37.134 netmask 255.255.255.0 broadcast 192.168.37.255
    inet6 fe80::20c:29ff:fe08:49 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:fe:08:49 txqueuelen 1000 (Ethernet)
    RX packets 17961 bytes 25877366 (24.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 9351 bytes 544266 (531.5 KiB)
    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
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 18 bytes 2117 (2.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 18 bytes 2117 (2.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[s11127138@localhost ~]$ ls /
afs boot etc lib media nfs.usr.bin proc run srv tmp usr
bin dev home lib64 mnt opt root sbin sys tonyhome var
[s11127138@localhost ~]$
```

```
[s11127138@localhost ~]$ sudo mount 192.168.37.130:/usr/bin /nfs.usr.bin
[sudo] password for s11127138:
[s11127138@localhost ~]$ ls /nfs.usr.bin/
[' pango-view
ac paperconf
aconnect paps
addr2line passt
adwaita-1-demo passt.avx2
```

6. 設定將 local1 類別 warning 等級以上的 system log 記錄到

/var/log/local_1.log

```
s11127138@localhost:~ — sudo vim /etc/rsyslog.conf
s11127138@localhost:~ — sudo vim /etc/rsyslog.c... x tony@localhost:~ x
cron.* /var/log/cron
# Everybody gets emergency messages
*.emerg :omusrmsg:*
# Save news errors of level crit and higher in a special file.
uucp,news.crit /var/log/spooler
# Save boot messages also to boot.log
local7.* /var/log/boot.log
local1.warning /var/log/local_1.log
# ## sample forwarding rule ##
#action(type="omfwd"

[s11127138@localhost ~]$ sudo vim /etc/rsyslog.conf
[s11127138@localhost ~]$ sudo systemctl restart rsyslog
[sudo] password for s11127138:
[s11127138@localhost ~]$
```

7. 試送 log 內容 Test local 1 critical. local1 類別 critical 等級，看看有無被記錄下來。

```
[s11127138@localhost ~]$ logger -p local1.crit "test local1 critical log"
[s11127138@localhost ~]$ cat /var/log/local_1.log
cat: /var/log/local_1.log: Permission denied
[s11127138@localhost ~]$ sudo cat /var/log/local_1.log
Dec 29 11:35:46 localhost s11127138[8135]: test local1 critical log
```

8. 設定每天凌晨 1 點做網路校時。 time server 為 time.cycu.edu.tw

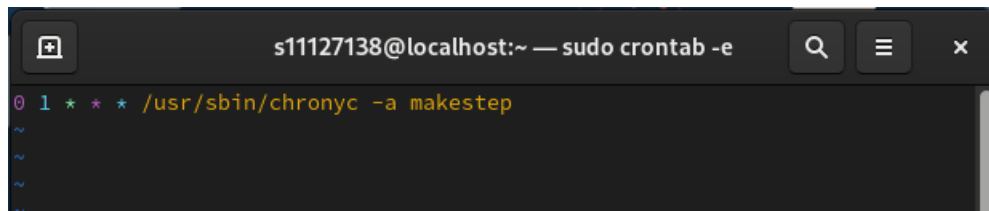
```
[s11127138@localhost ~]$ sudo vim /etc/chrony.conf
[sudo] password for s11127138:
[s11127138@localhost ~]$ sudo crontab -e
no crontab for root - using an empty one
crontab: installing new crontab
[s11127138@localhost ~]$ sudo systemctl restart chronyd
[sudo] password for s11127138:
```

```
s11127138@localhost:~ — sudo vim /etc/chrony.conf
# Insert/delete leap seconds by slewing instead of stepping.
#leapsecmode slew

# Get TAI-UTC offset and leap seconds from the system tz database.
leapsectz right/UTC

# Specify directory for log files.
logdir /var/log/chrony

# Select which information is logged.
#log measurements statistics tracking
server time.cycu.edu.tw
-- INSERT --
51,25 Bot
```



A terminal window titled "s11127138@localhost:~ — sudo crontab -e". The window contains a crontab entry: "0 1 * * * /usr/sbin/chronyc -a makestep". The prompt is "~".

```
s11127138@localhost:~ — sudo crontab -e
0 1 * * * /usr/sbin/chronyc -a makestep
~
~
~
```