



Secure Shell Virtual Network Computing

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Minimal Requirements

- IPv4 Networking
- SSH-2 Client
- VNC Client
- 2 PCs

Recommended Requirements

- IPv4 Networking
- OpenSSH 6.7p1 or later or PuTTY 0.69 or later
- Remmina 1.1.0 or newer or 1.2.1.2 or newer
- Laptop Running
 - Debian 8 or newer or Ubuntu 16.04 or newer
 - Windows 7 or newer
- Raspberry Pi B series
 - Class provided image on SD Card

Get Software

- Windows
 - <http://www.uvnc.com/downloads.html>
 - <http://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
- Debian & Ubuntu
 - ``sudo aptitude update``
 - ``sudo aptitude install ssh remmina``

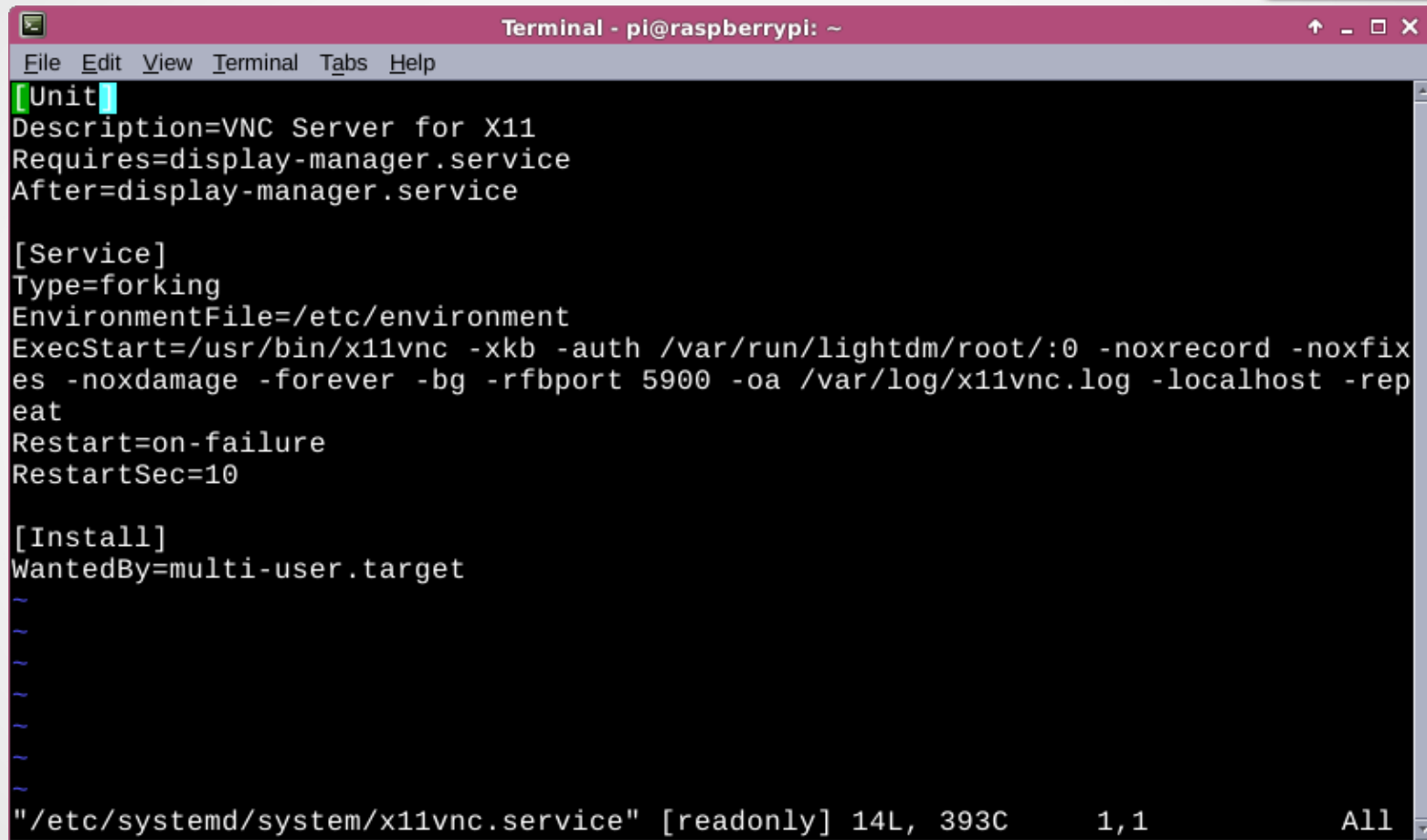
Move the Unit file to the Pi

```
cd sshvnc_ws/src/ansible/template/  
scp x11vnc.service pi@$PINAME:
```

Connect to Pi

```
ssh -t -L 5901:localhost:5900 pi@$PINAME
```

vim x11vnc.service



The image shows a terminal window titled "Terminal - pi@raspberrypi: ~". The window displays the contents of the `x11vnc.service` file, which is being edited in vim. The file content is as follows:

```
[Unit]
Description=VNC Server for X11
Requires=display-manager.service
After=display-manager.service

[Service]
Type=forking
EnvironmentFile=/etc/environment
ExecStart=/usr/bin/x11vnc -xkb -auth /var/run/lightdm/root/:0 -noxrecord -noxfixes -noxdamage -forever -bg -rfbport 5900 -oa /var/log/x11vnc.log -localhost -repeat
Restart=on-failure
RestartSec=10

[Install]
WantedBy=multi-user.target
```

At the bottom of the terminal window, the status bar shows: `"/etc/systemd/system/x11vnc.service" [readonly] 14L, 393C 1,1 All`.

Get Systemd to load file

```
sudo mv x11vnc.service /etc/systemd/system
```

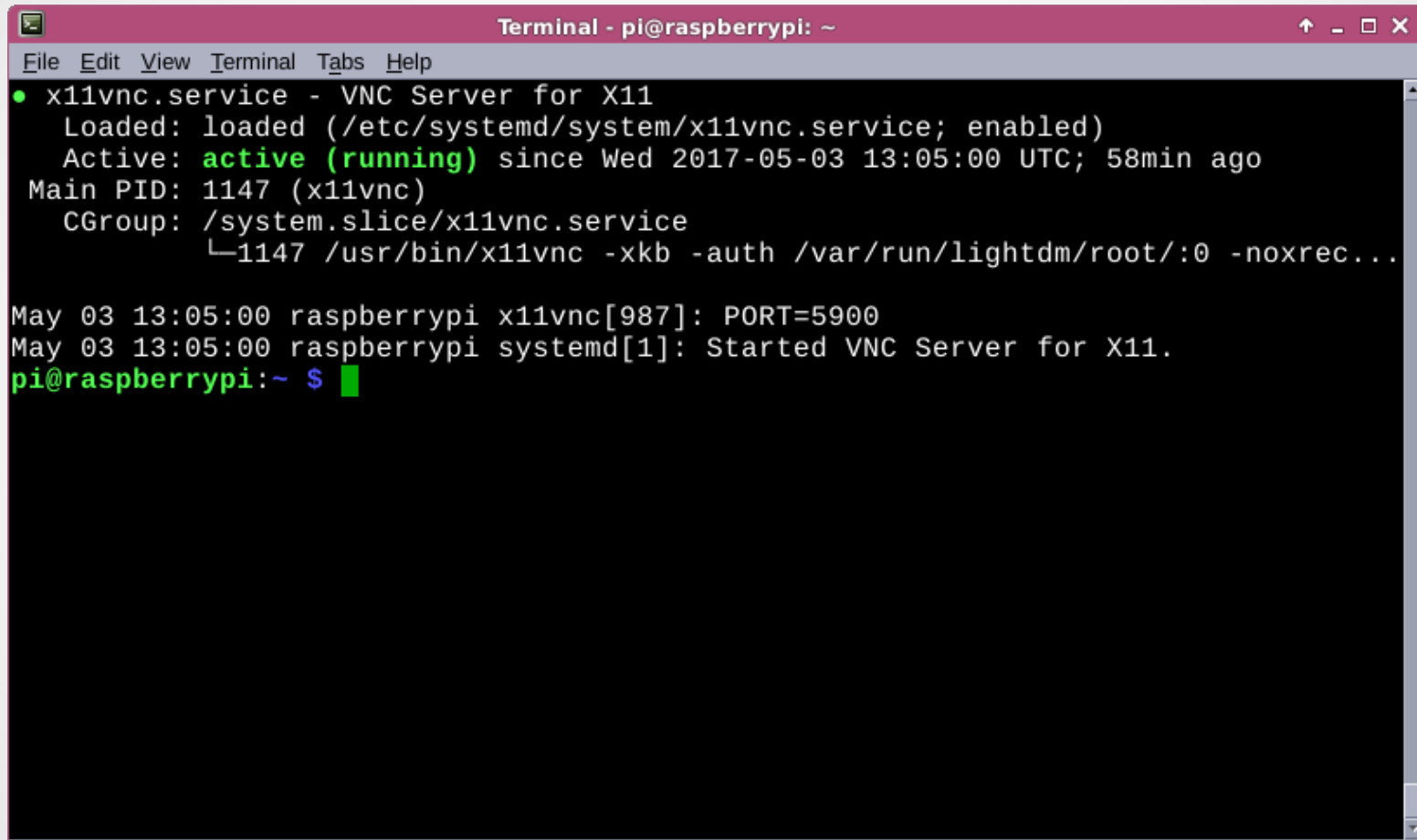
```
sudo systemctl daemon-reload
```

```
systemctl enable x11vnc
```

```
systemctl start x11vnc
```

```
systemctl status x11vnc
```


Status should show running

A terminal window titled "Terminal - pi@raspberrypi: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The terminal output shows the status of the x11vnc.service, which is active (running). It also shows system logs for the service starting on May 03 at 13:05:00 UTC.

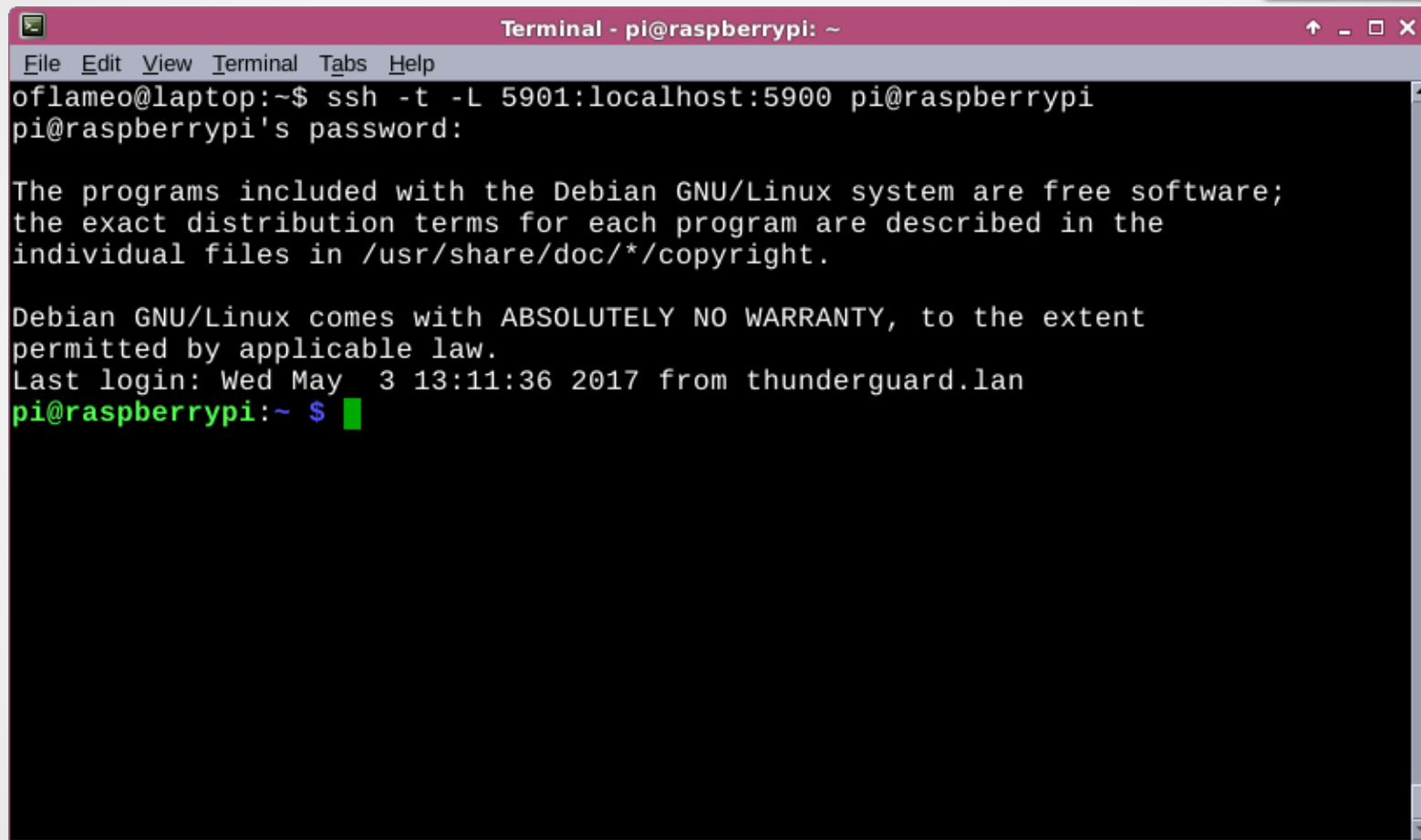
```
Terminal - pi@raspberrypi: ~
File Edit View Terminal Tabs Help
• x11vnc.service - VNC Server for X11
  Loaded: loaded (/etc/systemd/system/x11vnc.service; enabled)
  Active: active (running) since Wed 2017-05-03 13:05:00 UTC; 58min ago
  Main PID: 1147 (x11vnc)
  CGroup: /system.slice/x11vnc.service
          └─1147 /usr/bin/x11vnc -xkb -auth /var/run/lightdm/root/:0 -noxrec...

May 03 13:05:00 raspberrypi x11vnc[987]: PORT=5900
May 03 13:05:00 raspberrypi systemd[1]: Started VNC Server for X11.
pi@raspberrypi:~ $
```

Disconnect from Pi

exit

Connect to Pi Again

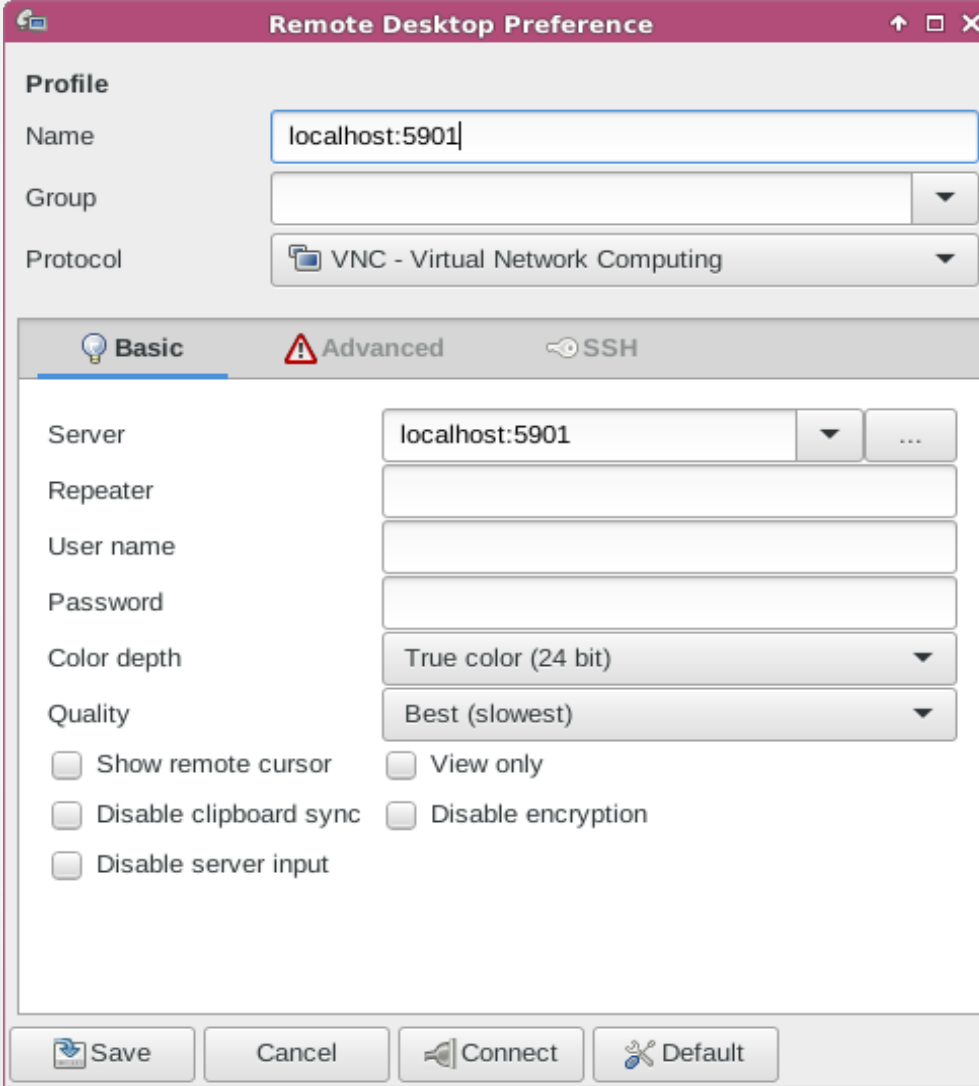
A terminal window titled "Terminal - pi@raspberrypi: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help) and standard window controls. The terminal shows an SSH session initiated from a laptop. The user 'oflameo' runs the command 'ssh -t -L 5901:localhost:5900 pi@raspberrypi'. The terminal displays the password prompt, followed by the Debian GNU/Linux system's free software notice and warranty disclaimer. It also shows the last login time as 'Wed May 3 13:11:36 2017 from thunderguard.lan'. The session ends with the prompt 'pi@raspberrypi:~ \$' and a green cursor.

```
Terminal - pi@raspberrypi: ~
File Edit View Terminal Tabs Help
oflameo@laptop:~$ ssh -t -L 5901:localhost:5900 pi@raspberrypi
pi@raspberrypi's password:

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Wed May 3 13:11:36 2017 from thunderguard.lan
pi@raspberrypi:~ $
```

Configure new VNC connection



The image shows a 'Remote Desktop Preference' dialog box with a purple title bar. It contains a 'Profile' section at the top with fields for Name, Group, and Protocol. Below this are three tabs: 'Basic' (selected), 'Advanced' (with a warning icon), and 'SSH' (with a key icon). The 'Basic' tab contains fields for Server, Repeater, User name, Password, Color depth, and Quality, along with several unchecked checkboxes for advanced options. At the bottom are four buttons: 'Save', 'Cancel', 'Connect', and 'Default'.

Remote Desktop Preference

Profile

Name: localhost:5901

Group:

Protocol: VNC - Virtual Network Computing

Basic **Advanced** **SSH**

Server: localhost:5901

Repeater:

User name:

Password:

Color depth: True color (24 bit)

Quality: Best (slowest)

☐ Show remote cursor ☐ View only

☐ Disable clipboard sync ☐ Disable encryption

☐ Disable server input

Save Cancel Connect Default

Connect to VNC

