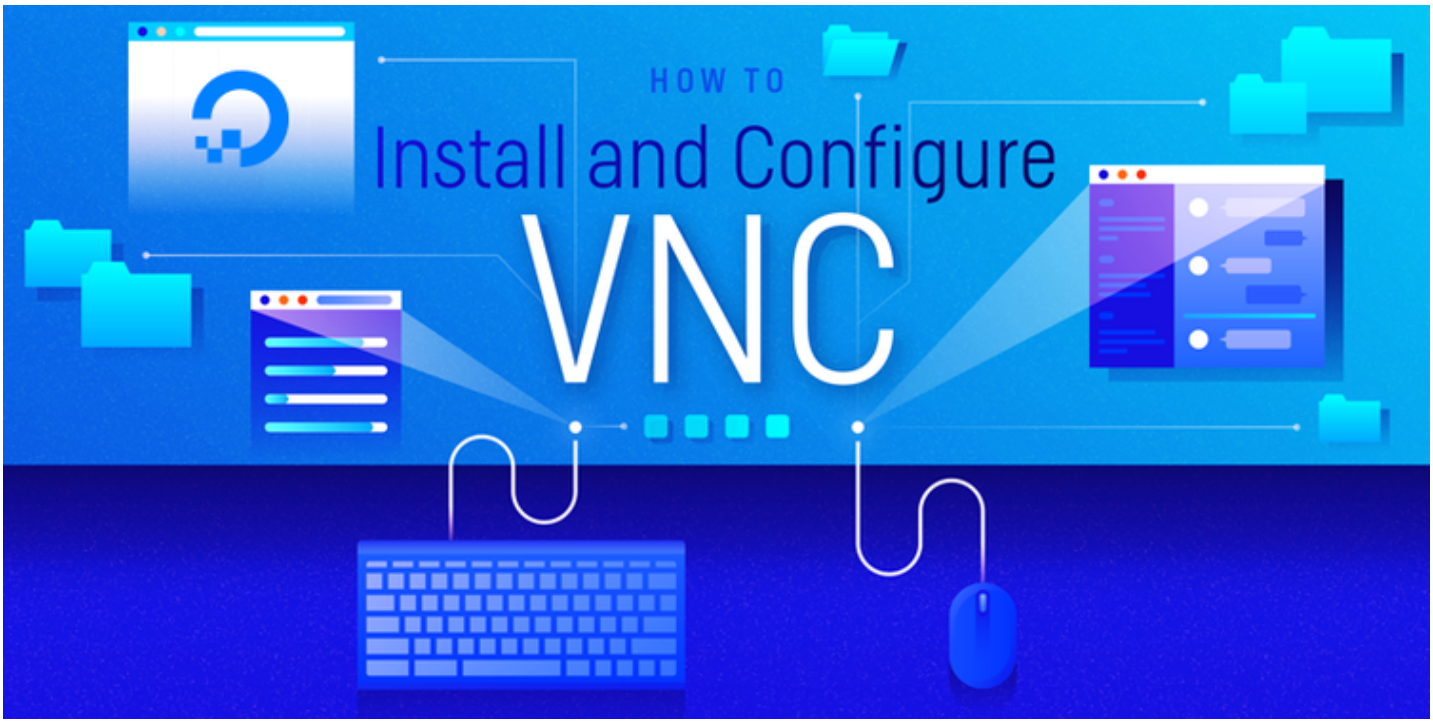


How to Install and Configure VNC on Ubuntu 16.04

Posted April 26, 2016 130.6k MISCELLANEOUS UBUNTU UBUNTU 16.04

Introduction

VNC, or "Virtual Network Computing", is a connection system that allows you to use your keyboard and mouse to interact with a graphical desktop environment on a remote server. It makes managing files, software, and settings on a remote server easier for users who are not yet comfortable with the command line.

In this guide, we will be setting up VNC on a Ubuntu 16.04 server and connecting to it securely through an SSH tunnel. The VNC server we will be using is TightVNC, a fast and lightweight remote control package. This choice will ensure that our VNC connection will be smooth and stable even on slower internet connections.

Prerequisites

To complete this tutorial, you'll need:

- An Ubuntu 16.04 Droplet set up via the Ubuntu 16.04 initial server setup tutorial, which includes having a sudo non-root user
- A local computer with a VNC client installed that supports VNC connections over SSH tunnels. If you are using Windows, you could use TightVNC, RealVNC, or UltraVNC. Mac OS X users can use the built-in Screen Sharing program, or can use a cross-platform app like RealVNC. Linux users can many options: `vinagre`, `krdc`, RealVNC, TightVNC, and more.

Step 1 — Installing the Desktop Environment and VNC Server

By default, an Ubuntu 16.04 Droplet does not come with a graphical desktop environment or a VNC server installed, so we'll begin by installing those. Specifically, we will install packages for the latest Xfce desktop environment and the TightVNC package available in the official Ubuntu repository.

On your server, install the Xfce and TightVNC packages.

```
$ sudo apt install xfce4 xfce4-goodies tightvncserver
```

To complete the VNC server's initial configuration after installation, use the `vncserver` command to set up a secure password.

```
$ vncserver
```

You'll be promoted to enter and verify a password, and also a view-only password. Users who log in with the view-only password will not be able to control the VNC instance with their mouse or keyboard. This is a helpful option if you want to demonstrate something to other people using your VNC server, but isn't necessary.

Running `vncserver` completes the installation of VNC by creating default configuration files and connection information for our server to use. With these packages installed, you are now ready to configure your VNC server.

Step 2 — Configuring the VNC Server

First, we need to tell our VNC server what commands to perform when it starts up. These commands are located in a configuration file called `xstartup` in the `.vnc` folder under your home directory. The startup script was created when you ran the `vncserver` in the previous step, but we need modify some of the commands for the Xfce desktop.

When VNC is first set up, it launches a default server instance on port 5901. This port is called a display port, and is referred to by VNC as `:1`. VNC can launch multiple instances on other display ports, like `:2`, `:3`, etc. When working with VNC servers, remember that `:X` is a display port that refers to `5900+X`.

Because we are going to be changing how the VNC server is configured, we'll need to first stop the VNC server instance that is running on port 5901.

```
$ vncserver -kill :1
```

The output should look like this, with a different PID:

```
Output
Killing Xtightvnc process ID 17648
```

Before we begin configuring the new `xstartup` file, let's back up the original.

```
$ mv ~/.vnc/xstartup ~/.vnc/xstartup.bak
```

Now create a new `xstartup` file with `nano` or your favorite text editor.

```
$ nano ~/.vnc/xstartup
```

Paste these commands into the file so that they are performed automatically whenever you start or restart the VNC server, then save and close the file.

```
~/.vnc/xstartup
#!/bin/bash
xrdb $HOME/.Xresources
startxfce4 &
```

The first command in the file, `xrdb $HOME/.Xresources`, tells VNC's GUI framework to read the server user's `.Xresources` file. `.Xresources` is where a user can make changes to certain settings of the graphical desktop, like terminal colors, cursor themes, and font rendering. The second command simply tells the server to launch Xfce, which is where you will find all of the graphical software that you need to comfortably manage your server.

To ensure that the VNC server will be able to use this new startup file properly, we'll need to grant executable privileges to it.

```
$ sudo chmod +x ~/.vnc/xstartup
```

Now, restart the VNC server.

```
$ vncserver
```

The server should be started with an output similar to this:

```
Output
New 'X' desktop is your_server_name.com:1

Starting applications specified in /home/sammy/.vnc/xstartup
Log file is /home/sammy/.vnc/liniverse.com:1.log
```

Step 3 — Testing the VNC Desktop

In this step, we'll test the connectivity of your VNC server.

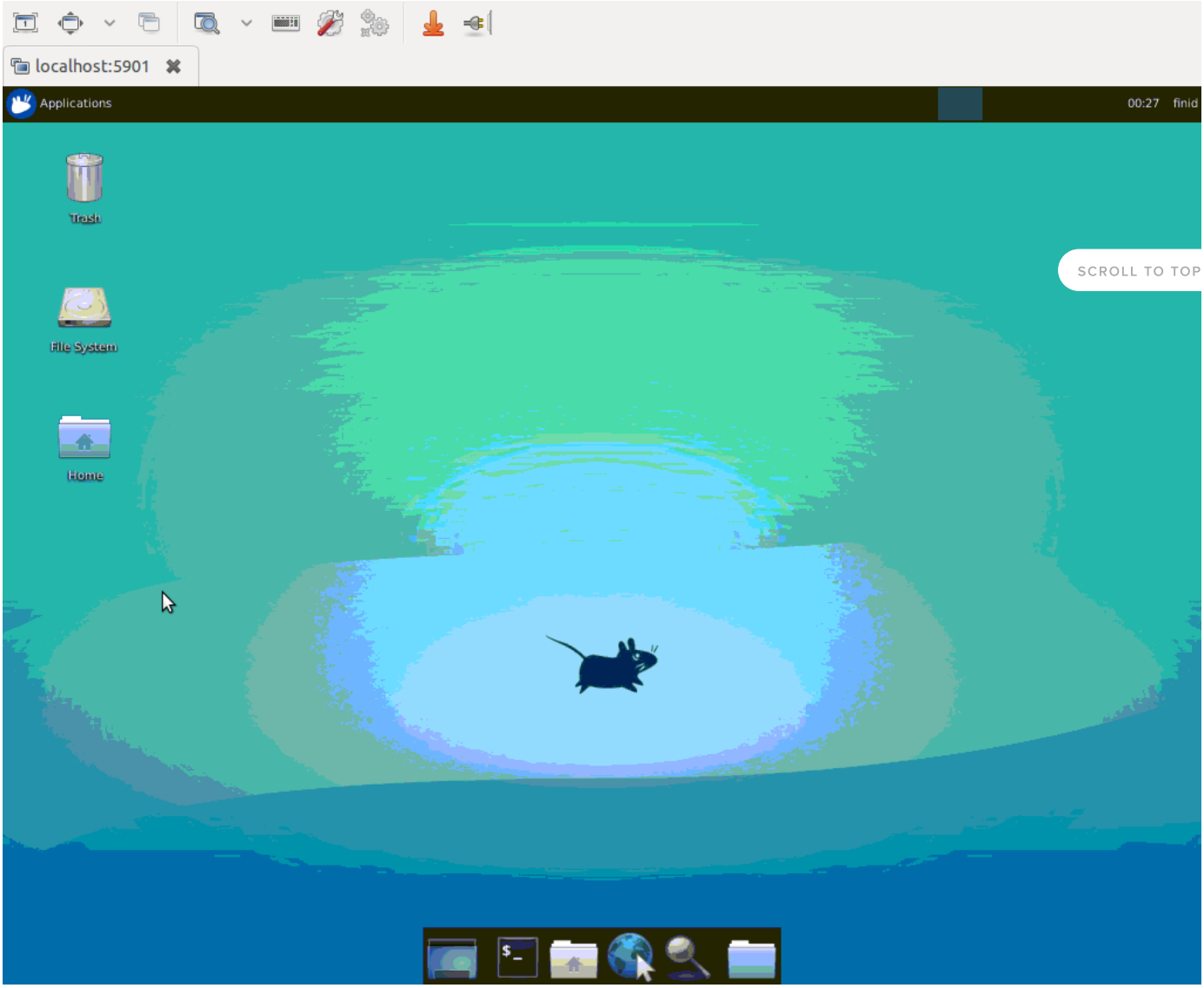
First, we need to create an SSH connection on your local computer that securely forwards to the `localhost` connection for VNC. You can do this via the terminal on Linux or OS X with following command. Remember to replace `user` and `server_ip_address` with the sudo non-root username and IP address of your server.

```
$ ssh -L 5901:127.0.0.1:5901 -N -f -l username server_ip_address
```

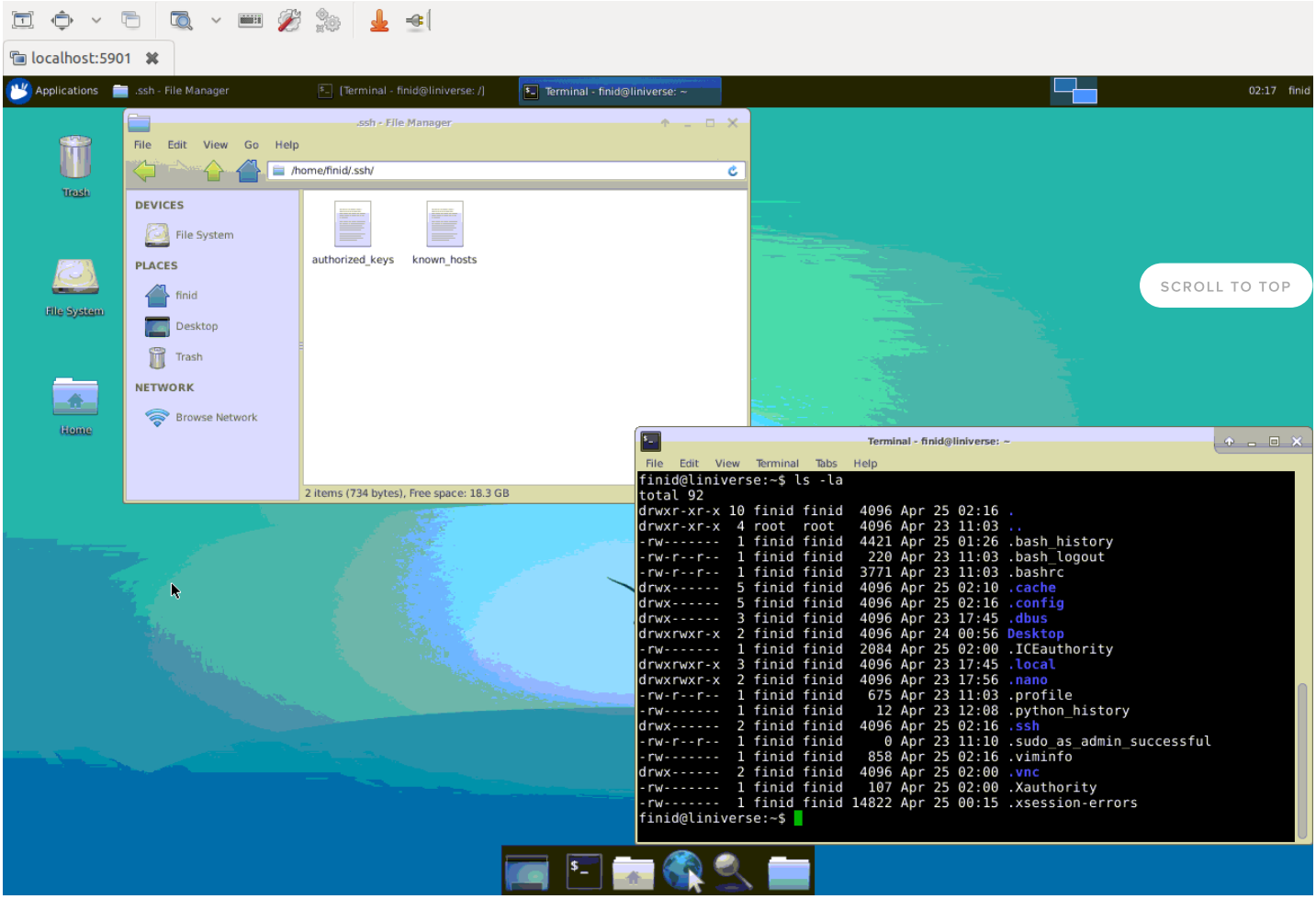
If you are using a graphical SSH client, like PuTTY, use `server_ip_address` as the connection IP, and set `localhost:5901` as a new forwarded port in the program's SSH tunnel settings.

Next, you may now use a VNC client to attempt a connection to the VNC server at `localhost:5901`. You'll be prompted to authenticate. The correct password to use is the one you set in Step 1.

Once you are connected, you should see the default Xfce desktop. It should look something like this:



You can access files in your home directory with the file manager or from the command line, as seen here:



Step 4 — Creating a VNC Service File

Next, we'll set up the VNC server as a systemd service. This will make it possible to start, stop, and restart it as needed, like any other systemd service.

First, create a new unit file called `/etc/systemd/system/vncserver@.service` using your favorite text editor:

```
$ sudo nano /etc/systemd/system/vncserver@.service
```

Copy and paste the following into it. Be sure to change the value of **User** and the username in the value of **PIDFILE** to match your username.

```
/etc/systemd/system/vncserver@.service
[Unit]
Description=Start TightVNC server at startup
After=syslog.target network.target

[Service]
Type=forking
User=sammy
PAMName=login
PIDFile=/home/sammy/.vnc/%H:%i.pid
ExecStartPre=-/usr/bin/vncserver -kill :%i > /dev/null 2>&1
ExecStart=/usr/bin/vncserver -depth 24 -geometry 1280x800 :%i
ExecStop=/usr/bin/vncserver -kill :%i

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

Save and close the file.

Next, make the system aware of the new unit file.

```
$ sudo systemctl daemon-reload
```

Enable the unit file.


```
$ sudo systemctl enable vncserver@1.service
```

Stop the current instance of the VNC server if it's still running.

```
$ vncserver -kill :1
```

Then start it as you would start any other systemd service.

```
$ sudo systemctl start vncserver@1
```

You can verify that it started with this command:

```
$ sudo systemctl status vncserver@1
```

If it started correctly, the output should look like this:

Output

```
vncserver@1.service - TightVNC server on Ubuntu 16.04
   Loaded: loaded (/etc/systemd/system/vncserver@.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2016-04-25 03:21:34 EDT; 6s ago
  Process: 2924 ExecStop=/usr/bin/vncserver -kill :%i (code=exited, status=0/SUCCESS)

...

 systemd[1]: Starting TightVNC server on Ubuntu 16.04...
 systemd[2938]: pam_unix(login:session): session opened for user finid by (uid=0)
 systemd[2949]: pam_unix(login:session): session opened for user finid by (uid=0)
 systemd[1]: Started TightVNC server on Ubuntu 16.04.
```

Conclusion

You should now have a secured VNC server up and running on your Ubuntu 16.04 server. Now you'll be able to manage your files, software, and settings with an easy-to-use and familiar graphical interface.

By: finid

Editor:
Hazel Virdó

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18 Comments

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kbitson *May 4, 2016*

0 Awesome, worked like a charm. I would like to note, though, that I did not need step 3 (tunneling via PuTTY) -- I was able to connect directly to my droplet (IP:port) using VNC Viewer. Thank you!

guntbert *May 13, 2016*

0 You are missing the key point here: accessing your server over an unencrypted connection is Not A Good Idea™.

guntbert *May 13, 2016*

0 Thank you for the great article. I especially like how you always provide a *little* more information than essentially necessary to accomplish the goal.

This way you enable us to see the context - I really enjoyed it.

pikadudeno1 *June 3, 2016*

0 How do I enable clipboard-sharing after following these instructions?

eNORm *June 20, 2016*

0

```
sudo systemctl enable vncserver@1.service
```

should be?

```
sudo systemctl enable vncserver@.service
```

or not, @1 means its a parameter "1" that is passed to the service, so to start a service on display 1? Can I use

```
sudo systemctl enable vncserver@1.service
```

```
sudo systemctl enable vncserver@2.service
```

```
sudo systemctl enable vncserver@3.service
```

To have 3 vnc displays running?

GreatWall *June 21, 2016*

0

Excellent Tutorial!! I got "connection refused" on ssh command in Step 3. It may be due to I tried to set up xRDP before.

mirkotebaldi *July 13, 2016*

0

sudo systemctl daemon-reload

sudo: systemctl: command not found

So ... now ?

dylanh724 *July 16, 2016*

0

```
sudo apt-get install xfce4 xfce4-goodies tightvncserver
Reading package lists... Done
Building dependency tree
Reading state information... Done
Some packages could not be installed. This may mean that you have
requested an impossible situation or if you are using the unstable
distribution that some required packages have not yet been created
or been moved out of Incoming.
The following information may help to resolve the situation:

The following packages have unmet dependencies:
 tightvncserver : Depends: x11-utils
 xfce4 : Depends: xfce4-panel (>= 4.10.0) but it is not going to be installed
         Depends: xfce4-mixer (>= 4.10.0) but it is not going to be installed
         Depends: orage (>= 4.8.0) but it is not going to be installed
         Recommends: xorg but it is not going to be installed
 xfce4-goodies : Depends: xfce4-battery-plugin but it is not going to be installed
                 Depends: xfce4-clipman-plugin but it is not going to be installed
                 Depends: xfce4-cpufreq-plugin but it is not going to be installed
                 Depends: xfce4-cpugraph-plugin but it is not going to be installed
                 Depends: xfce4-datetime-plugin but it is not going to be installed
                 Depends: xfce4-diskperf-plugin but it is not going to be installed
                 Depends: xfce4-fsguard-plugin but it is not going to be installed
                 Depends: xfce4-genmon-plugin but it is not going to be installed
                 Depends: xfce4-mailwatch-plugin but it is not going to be installed
                 Depends: xfce4-mount-plugin but it is not going to be installed
                 Depends: xfce4-netload-plugin but it is not going to be installed
                 Depends: xfce4-notes-plugin but it is not going to be installed
                 Depends: xfce4-places-plugin but it is not going to be installed
                 Depends: xfce4-quicklauncher-plugin but it is not going to be installed
```

```
                Depends: xfce4-sensors-plugin but it is not going to be installed
                Depends: xfce4-smartbookmark-plugin but it is not going to be installed
                Depends: xfce4-systemload-plugin but it is not going to be installed
                Depends: xfce4-timer-plugin but it is not going to be installed
                Depends: xfce4-verve-plugin but it is not going to be installed
                Depends: xfce4-wavelan-plugin but it is not going to be installed
                Depends: xfce4-weather-plugin but it is not going to be installed
                Depends: xfce4-xkb-plugin but it is not going to be installed
                Depends: thunar-media-tags-plugin but it is not going to be installed
                Depends: mousepad but it is not going to be installed
                Depends: xfce4-dict but it is not going to be installed
                Depends: xfce4-screenshooter but it is not going to be installed
E: Unable to correct problems, you have held broken packages.
```


dylanh724 *July 17, 2016*

0

Can you offer more details about the SSH tunnel settings? I can't get this working with PuttY

EDIT: Found a better description here:
http://www.liquidweb.com/kb/how-to-configure-a-vnc-server-to-use-an-ssh-tunnel-on-ubuntu-14-04-lts/

To Connect via PuTTy

Under Connection -> SSH -> Tunnels add:

Source port: 5901
Destination: localhost:5901

And connect to your server at its IP address and port 22 via PuTTY.

And then connect to localhost:5901 via a VNC viewer such as TightVNC.

dylanh724 *July 17, 2016*

0

Hmm when I login with the tunneling, it just throws me into a normal SSH session. Is it because I'm using ssl keys login ? Does this effect what happens?

francorossini19 *August 17, 2016*

1

I have 3 problems

1) After "sudo systemctl start vncserver@1" command

I have an error

```
Job for vncserver@1.service failed because the control process exited with error code. See "systemctl status vncserver@1
```

I update with sudo apt-get update but problem persist

Error Log

2) how can i login into VNC changing user from root to normal user in ubuntu 16,04?

3) Some UI XFCE4 elements are missed - why happens?
sudo apt install xfce4 xfce4-goodies tightvncserver command is uncomplete?

I solve with this plus command

```
sudo apt-get install gnome-icon-theme-full tango-icon-theme
```

ronniem71 *August 20, 2016*

0 This guide is totally useless, went through every step EXACTLY and get errors at ssh -L 5901:127.0.0.1:5901 -N -f -l username server*ip*address and sudo systemctl enable vncserver@1.service and so far the support from DigitalOcean via support ticket has NOT BE up to par.

---

hrskrs *September 9, 2016*

0

```
sudo systemctl start vncserver@1
```

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gives **Invalid Argument**

---

afermon *October 7, 2016*

0 Check the file `/etc/systemd/system/vncserver@.service`

It should not have the path in the top.

```
[Unit]
Description=Start TightVNC server at startup
After=syslog.target network.target

[Service]
Type=forking
User=USER
PAMName=login
PIDFile=/home/USER/.vnc/%H:%i.pid
ExecStartPre=-/usr/bin/vncserver -kill :%i > /dev/null 2>&1
ExecStart=/usr/bin/vncserver -depth 24 -geometry 1280x800 :%i
ExecStop=/usr/bin/vncserver -kill :%i

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

---

marcgirondot *September 13, 2016*

0 Thanks for this great tutorial. The only change that I have been force to do was here:
ssh -L 5901:127.0.0.1:5901 -N -f -l username server*ip*address

It didn't work for me but

ssh -L 8080:127.0.0.1:5901 -N -f -l username server*ip*address

works great with
vmc://localhost:8080

Thanks again !

GoldenSun *October 1, 2016*

0

```
sudo systemctl enable vncserver@1.service
```

gives an output below:

```
Failed to execute operation: Invalid argument
```

I have tried using username as my login name and root, neither of them worked.

saaamkookie *October 13, 2016*

0

So as soon as i remote is with the VNC session (the xfce4 desktop is displayed) but with errors.

xfce unable to determine failsafe session name. possible causes: xfconfd isn't running (D-Bus setup problem); environment variable $XDG*CONFIG*DIRS is set incorrectly (must include... and so on.

Read elsewhere that this is a permissions problem of some kind and was wondering if someone could explain how to resolve?

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admin109651 *October 17, 2016*

0

I recorded my screen while setting up VNC on Ubuntu 16.04. Here's the YouTube video if anyone want to watch and learn.
https://www.youtube.com/watch?v=f-NS4IM3NEI