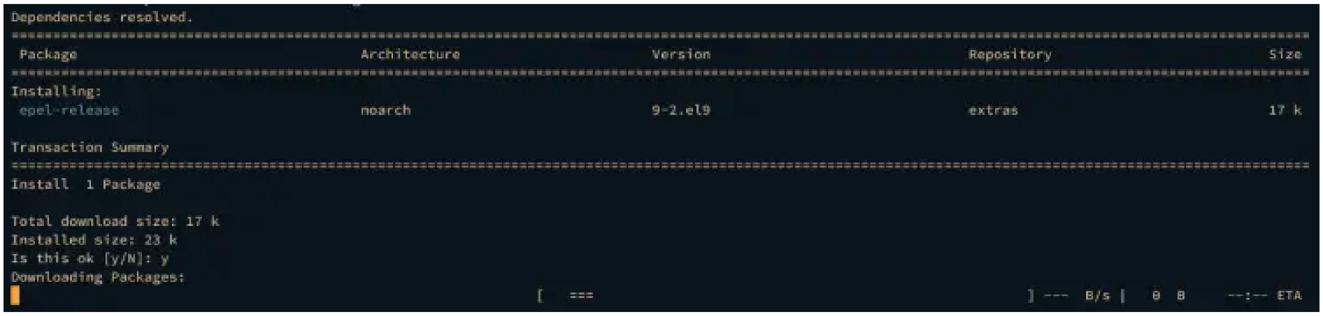
Guide to Install VNC Server on AlmaLinux 9

howtoforge.com/guide-to-install-vnc-server-on-almalinux-9/

Arvid L



```
Dependencies resolved.
==================================================================================================================
 Package                     Architecture              Version                    Repository                 Size
==================================================================================================================
Installing:
 epel-release                noarch                    9-2.el9                    extras                     17 k

Transaction Summary
==================================================================================================================
Install  1 Package

Total download size: 17 k
Installed size: 23 k
Is this ok [y/N]: y
Downloading Packages:
█                                        [   ===                                ] ---  B/s |   0  B     --:-- ETA
```

Virtual Network Computing (VNC) is a desktop sharing protocol allowing you to remotely control a computer using VNC client software. VNC is working on GUI (Graphical User Interface) environments, it transmits movements of your mouse and keyboard input over the network using the Remote Frame Buffer (RFB) protocol.

Commonly, VNC is used for technicians to control client desktops or by someone who needs to access their Desktops in the office from their home. VNC can be used securely through a VPN network or SSH tunneling connection.

The following guide will walk you through installing a VNC Server on an AlmaLinux 9 server. You will set up VNC Server with TigerVNC and XFCE on your AlmaLinux server.

Prerequisite

To complete this guide, ensure you have the following:

- An AlmaLinux 9 server - This demo will be using AlmaLinux 9 server with hostname **alma9** and IP address **192.168.10.20**.
- A non-root user with administrator privileges.

Installing Desktop Environment

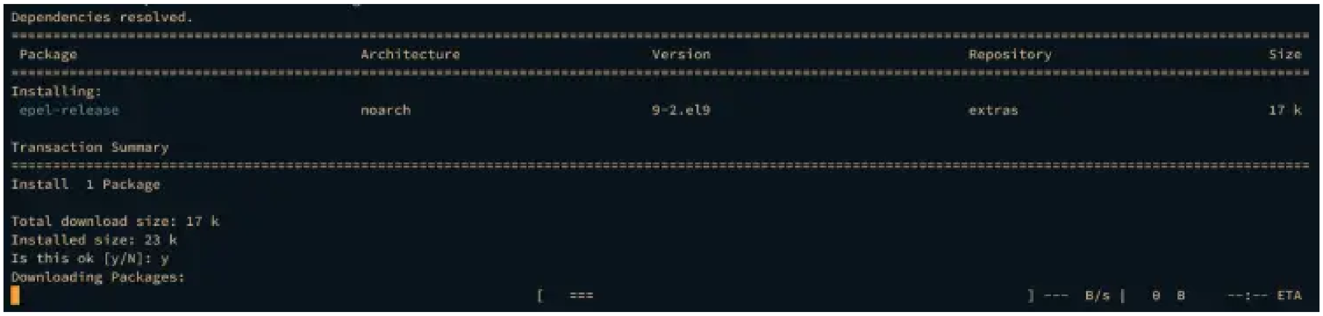
The first step you need to do before installing VNC Server is to decide which Desktop Environment you want to use. On Linux, there are multiple Desktop Environments that you can use, each DE has pros and cons.

If you're running a Linux server within 2/4 of memory, you can use lightweight DEs such as XFCE, Mate, and Cinnamon. But, if you have more memory like 8 GB, then you can use Gnome as your default DE on your server.

The rest of this guide will show you how to set up VNC Server with XFCE as the default DE, which is suitable for any resources that you have. It can run lightweight with small memory on your server.

First, run the dnf command below to add the EPEL repository to your system. When prompted, input y to confirm and press ENTER.

```
sudo dnf install epel-release
```



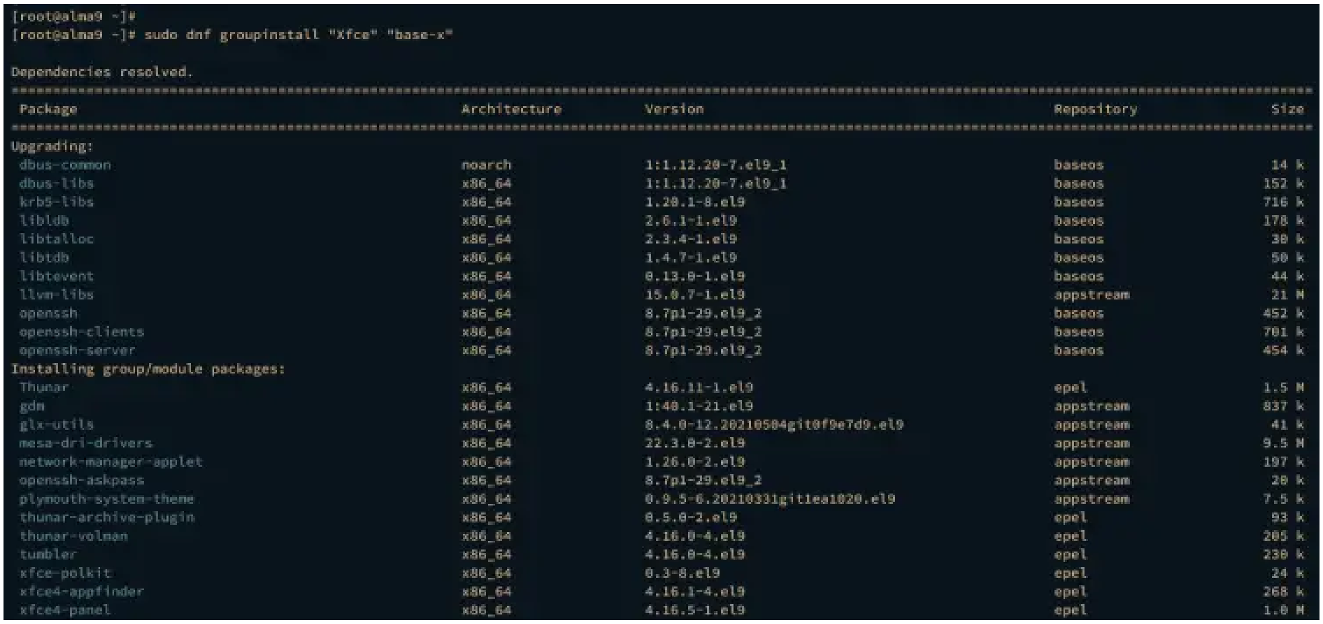
```
Dependencies resolved.
==========================================================================================================================================
 Package                              Architecture                  Version                         Repository                     Size
==========================================================================================================================================
Installing:
 epel-release                         noarch                        9-2.el9                         extras                         17 k

Transaction Summary
==========================================================================================================================================
Install  1 Package

Total download size: 17 k
Installed size: 23 k
Is this ok [y/N]: y
Downloading Packages:
█                                                 [   ===                                     ] ---  B/s |   0  B     --:-- ETA
```

Now, run the following command to install your system's XFCE Desktop and Xorg packages. Input y to confirm the installation, then press ENTER to proceed.

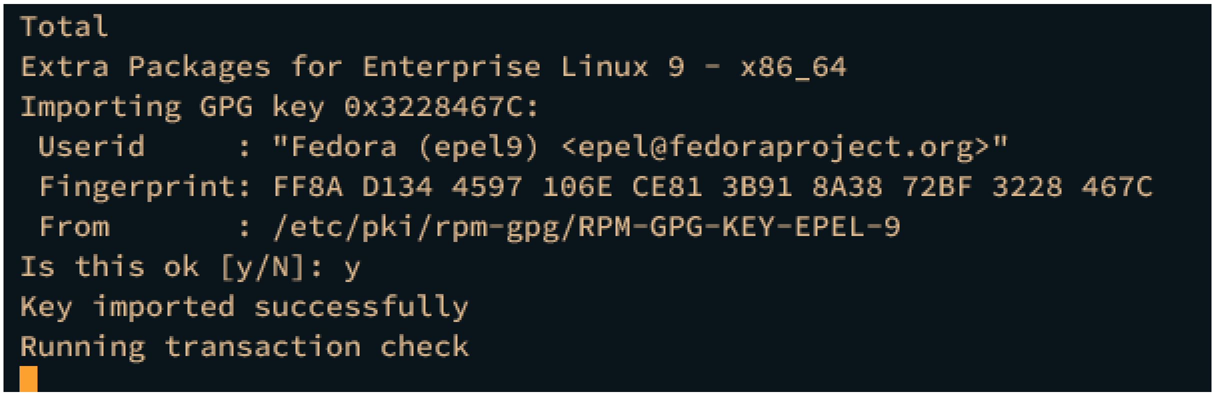
```
sudo dnf groupinstall "Xfce" "base-x"
```



```
[root@alma9 ~]#
[root@alma9 ~]# sudo dnf groupinstall "Xfce" "base-x"

Dependencies resolved.
==========================================================================================================================================
 Package                         Architecture         Version                                         Repository                 Size
==========================================================================================================================================
Upgrading:
 dbus-common                     noarch               1:1.12.20-7.el9_1                               baseos                     14 k
 dbus-libs                       x86_64               1:1.12.20-7.el9_1                               baseos                    152 k
 krb5-libs                       x86_64               1.20.1-8.el9                                    baseos                    716 k
 libldb                          x86_64               2.6.1-1.el9                                     baseos                    178 k
 libtalloc                       x86_64               2.3.4-1.el9                                     baseos                     30 k
 libtdb                          x86_64               1.4.7-1.el9                                     baseos                     50 k
 libtevent                       x86_64               0.13.0-1.el9                                    baseos                     44 k
 llvm-libs                       x86_64               15.0.7-1.el9                                    appstream                  21 M
 openssh                         x86_64               8.7p1-29.el9_2                                  baseos                    452 k
 openssh-clients                 x86_64               8.7p1-29.el9_2                                  baseos                    701 k
 openssh-server                  x86_64               8.7p1-29.el9_2                                  baseos                    454 k
Installing group/module packages:
 Thunar                          x86_64               4.16.11-1.el9                                   epel                      1.5 M
 gdm                             x86_64               1:40.1-21.el9                                   appstream                 837 k
 glx-utils                       x86_64               8.4.0-12.20210504git0f9e7d9.el9                 appstream                  41 k
 mesa-dri-drivers                x86_64               22.3.0-2.el9                                    appstream                 9.5 M
 network-manager-applet          x86_64               1.26.0-2.el9                                    appstream                 197 k
 openssh-askpass                 x86_64               8.7p1-29.el9_2                                  appstream                  20 k
 plymouth-system-theme           x86_64               0.9.5-6.20210331git1ea1020.el9                  appstream                 7.5 k
 thunar-archive-plugin           x86_64               0.5.0-2.el9                                     epel                       93 k
 thunar-volman                   x86_64               4.16.0-4.el9                                    epel                      205 k
 tumbler                         x86_64               4.16.0-4.el9                                    epel                      230 k
 xfce-polkit                     x86_64               0.3-8.el9                                       epel                       24 k
 xfce4-appfinder                 x86_64               4.16.1-4.el9                                    epel                      268 k
 xfce4-panel                     x86_64               4.16.5-1.el9                                    epel                      1.0 M
```

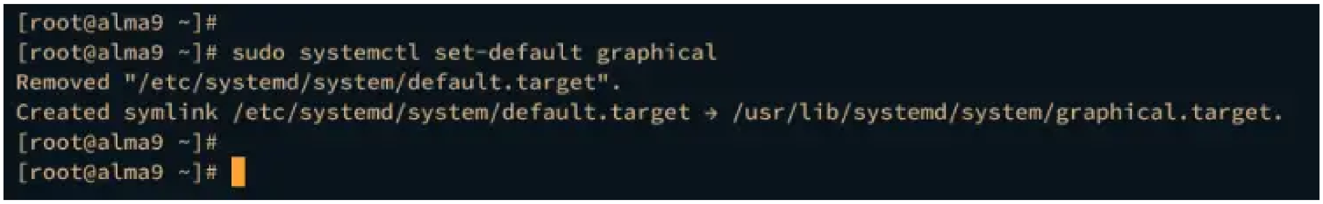
Furthermore, if prompted to confirm the GPGP key for the EPEL repository, input y, and press ENTER again.



```
Total
Extra Packages for Enterprise Linux 9 - x86_64
Importing GPG key 0x3228467C:
 Userid     : "Fedora (epel9) <epel@fedoraproject.org>"
 Fingerprint: FF8A D134 4597 106E CE81 3B91 8A38 72BF 3228 467C
 From       : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-9
Is this ok [y/N]: y
Key imported successfully
Running transaction check
```

Once the XFCE and Xorg are installed, run the following command to set up the default startup of your server to use GUI or a graphical environment.

```
sudo systemctl set-default graphical
```



```
[root@alma9 ~]#
[root@alma9 ~]# sudo systemctl set-default graphical
Removed "/etc/systemd/system/default.target".
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
[root@alma9 ~]#
[root@alma9 ~]#
```

If you prefer to use another Desktop Environment, use the following command to install it:

Install Gnome Desktop Environment.

```
sudo dnf groupinstall "Server with GUI"
```

Installing KDE Desktop Environment.

```
sudo dnf groupinstall "KDE Plasma Workspaces"
```

Installing and Configuring TigerVNC Server

After installing the Desktop Environment, the next step is to install the VNC Server on your AlmaLinux server. In this example, you will be using TigerVNC Server to create your VNC Server.

Below are some step-by-steps that you must do:

- Adding New User
- Installing TigerVNC Server
- Configuring VNC Server with TigerVNC Server

Adding New User

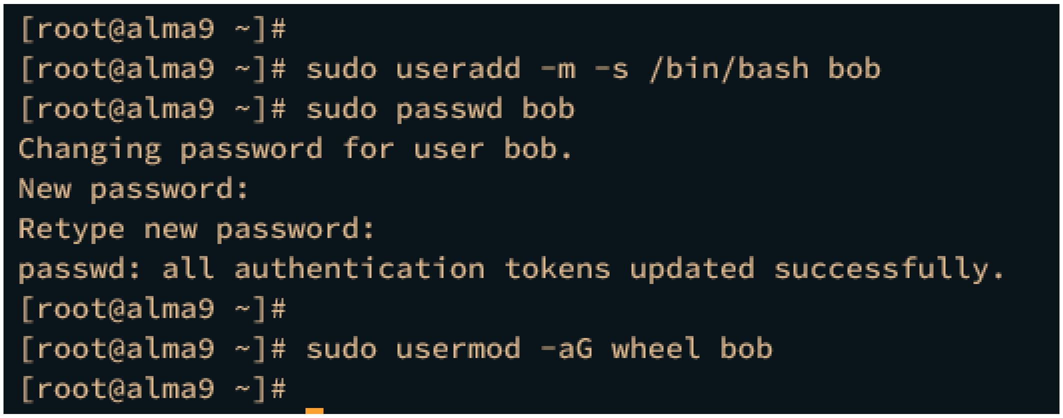
First, you need to create a new user that will be used to run the VNC Server. The following example will show you how to create a new user and set up sudo privileges on your system.

Run the following command to create a new user and password. In this demo, you will create a new user **bob**.

```
sudo useradd -m -s /bin/bash bob
sudo passwd bob
```

Now execute the following command to add user bob to the group wheel. This action allows the user bob to run and execute the sudo command to get the root privileges.

```
sudo usermod -aG wheel bob
```



```
[root@alma9 ~]#
[root@alma9 ~]# sudo useradd -m -s /bin/bash bob
[root@alma9 ~]# sudo passwd bob
Changing password for user bob.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[root@alma9 ~]#
[root@alma9 ~]# sudo usermod -aG wheel bob
[root@alma9 ~]#
```

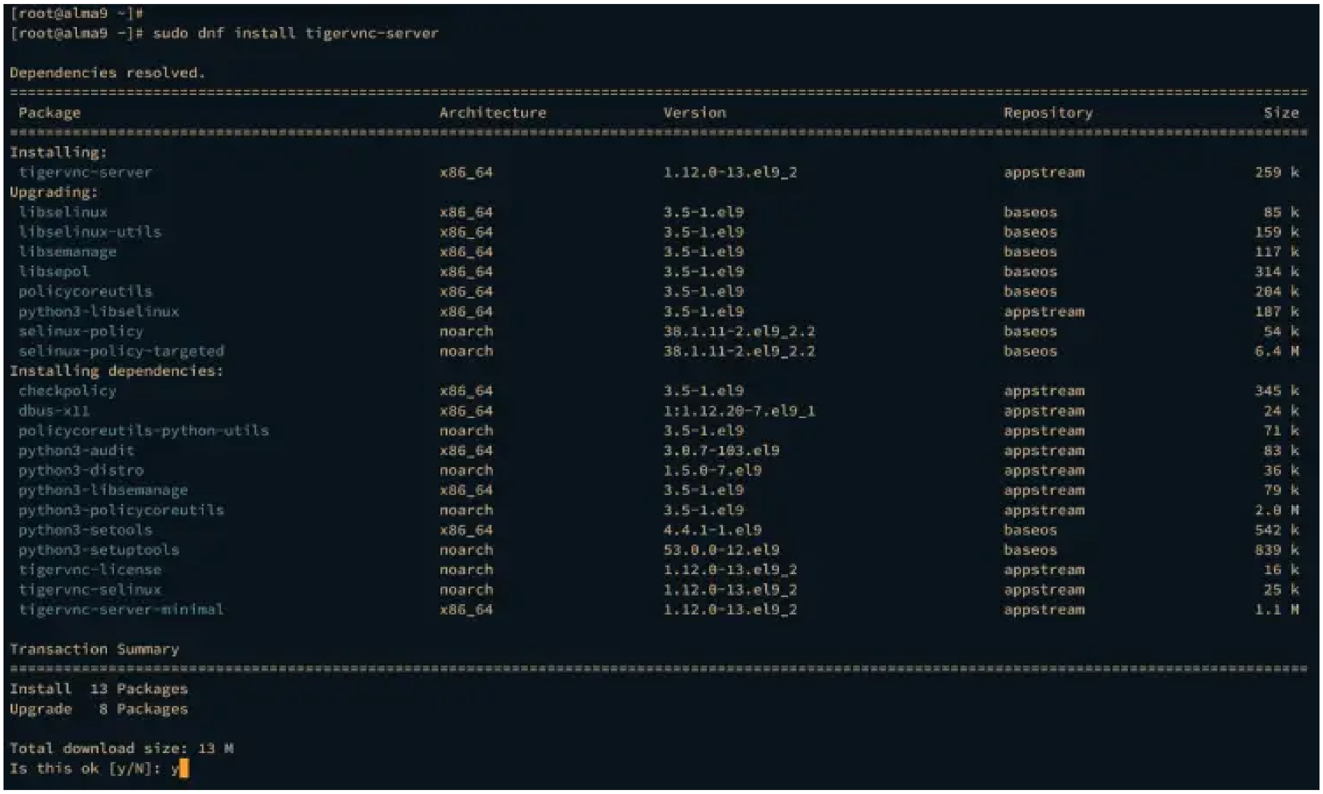
Installing TigerVNC Server

With the new user created, you now will be installing the TigerVNC Server package to your system. The package is available by default on the appstream repository, you can install it via the DNF package manager.

Next, run the dnf command below to install the TigerVNC Server package to your system.

```
sudo dnf install tigervnc-server
```

Input y to confirm the installation and press ENTER.



```
[root@alma9 ~]#
[root@alma9 ~]# sudo dnf install tigervnc-server

Dependencies resolved.
==================================================================================================================================================
 Package                                         Architecture             Version                                Repository                    Size
==================================================================================================================================================
Installing:
 tigervnc-server                                 x86_64                   1.12.0-13.el9_2                        appstream                    259 k
Upgrading:
 libselinux                                      x86_64                   3.5-1.el9                              baseos                        85 k
 libselinux-utils                                x86_64                   3.5-1.el9                              baseos                       159 k
 libsemanage                                     x86_64                   3.5-1.el9                              baseos                       117 k
 libsepol                                        x86_64                   3.5-1.el9                              baseos                       314 k
 policycoreutils                                 x86_64                   3.5-1.el9                              baseos                       204 k
 python3-libselinux                              x86_64                   3.5-1.el9                              appstream                    187 k
 selinux-policy                                  noarch                   38.1.11-2.el9_2.2                      baseos                        54 k
 selinux-policy-targeted                         noarch                   38.1.11-2.el9_2.2                      baseos                       6.4 M
Installing dependencies:
 checkpolicy                                     x86_64                   3.5-1.el9                              appstream                    345 k
 dbus-x11                                        x86_64                   1:1.12.20-7.el9_1                      appstream                     24 k
 policycoreutils-python-utils                    noarch                   3.5-1.el9                              appstream                     71 k
 python3-audit                                   x86_64                   3.0.7-103.el9                          appstream                     83 k
 python3-distro                                  noarch                   1.5.0-7.el9                            appstream                     36 k
 python3-libsemanage                             x86_64                   3.5-1.el9                              appstream                     79 k
 python3-policycoreutils                         noarch                   3.5-1.el9                              appstream                    2.0 M
 python3-setools                                 x86_64                   4.4.1-1.el9                            baseos                       542 k
 python3-setuptools                              noarch                   53.0.0-12.el9                          baseos                       839 k
 tigervnc-license                                noarch                   1.12.0-13.el9_2                        appstream                     16 k
 tigervnc-selinux                                noarch                   1.12.0-13.el9_2                        appstream                     25 k
 tigervnc-server-minimal                         x86_64                   1.12.0-13.el9_2                        appstream                    1.1 M

Transaction Summary
==================================================================================================================================================
Install  13 Packages
Upgrade   8 Packages

Total download size: 13 M
Is this ok [y/N]: y
```

With the new user created and TigerVNC Server installed you're now ready to set up VNC Server via TigerVNC Server.

Configuring VNC Server with TigerVNC Server

In the following section, you will set up VNC Server on your AlmaLinux server with TigerVNC and XFCE Desktop.

Execute the following command to log in as user bob.

```
su - bob
```

Run the following command to create a new directory **~/.vnc/** and a new VNC configuration file **~/.vnc/config**.

```
mkdir -p ~/.vnc/
nano ~/.vnc/config
```

Insert the following configuration. In the session parameter, you can specify the Desktop Environment that will be used. Check the list of files within */usr/share/xsessions* directory to get the list of available Desktop Environments on your system.

```
session=xfce
securitytypes=vncauth,tlsvnc
geometry=1920x1200
localhost
alwaysshared
```

Save and close the file when you're done.

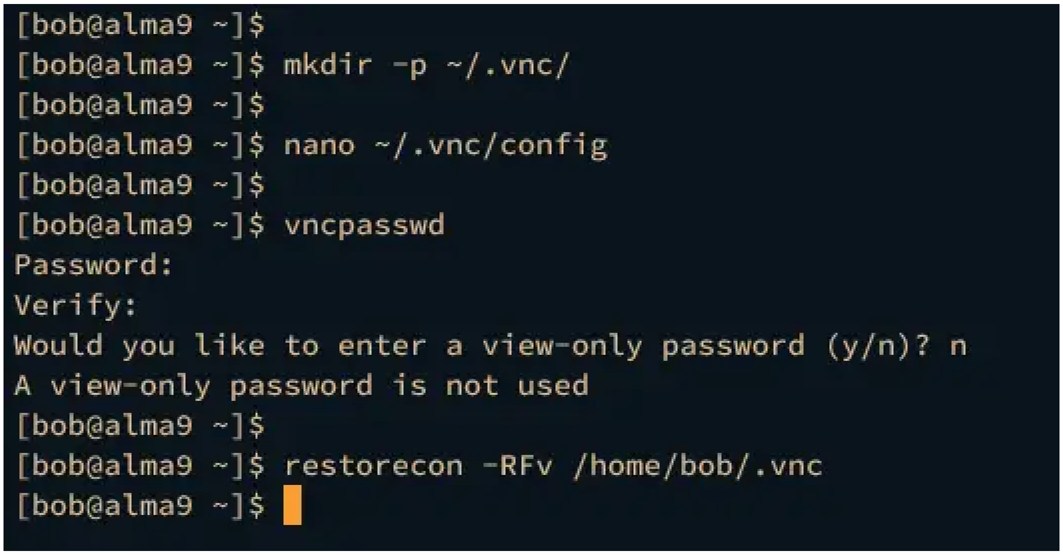
Next, run the vncpasswd command below to create a new password for your VNC Server.

```
vncpasswd
```

Input the new password and repeat. When asked to set up a view-only password, input n to disable it or y to configure it.

Now run the following command to set up the SELinux context for the */home/bob/.vnc* directory.

```
restorecon -RFv /home/bob/.vnc
```



```
[bob@alma9 ~]$
[bob@alma9 ~]$ mkdir -p ~/.vnc/
[bob@alma9 ~]$
[bob@alma9 ~]$ nano ~/.vnc/config
[bob@alma9 ~]$
[bob@alma9 ~]$ vncpasswd
Password:
Verify:
Would you like to enter a view-only password (y/n)? n
A view-only password is not used
[bob@alma9 ~]$
[bob@alma9 ~]$ restorecon -RFv /home/bob/.vnc
[bob@alma9 ~]$
```

After that, open the file */etc/tigervnc/vncserver.users* using the following nano editor command.

```
sudo nano /etc/tigervnc/vncserver.users
```

Add the following line to the file. With this, you will create the VNC Server for display **:1** for the user bob.

```
:1=bob
```

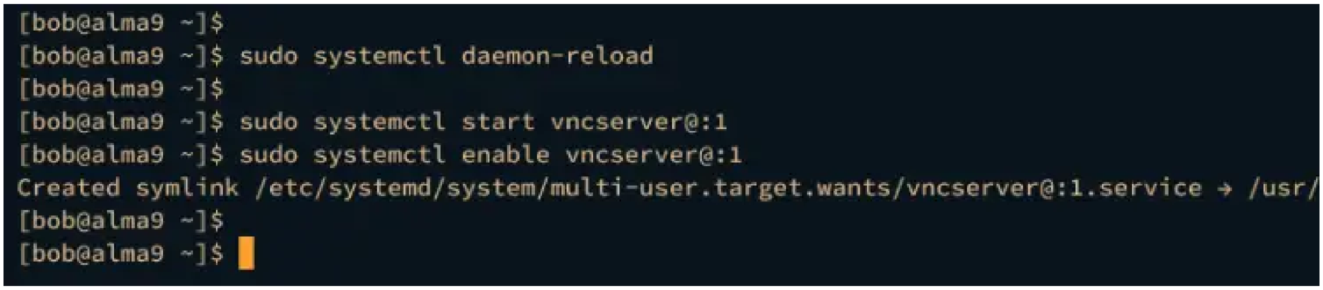
Save the file and close the editor when finished.

Next, run the systemctl command below to reload the systemd manager.

```
sudo systemctl daemon-reload
```

Then start and enable the VNC Server for display **:1** using the command below. At the end of the service name is the display number of the VNC Server, and it allows you to create multiple displays on a single server such as **vncserver@:2** for VNC Server display **:2** and so on.

```
sudo systemctl start vncserver@:1
sudo systemctl enable vncserver@:1
```

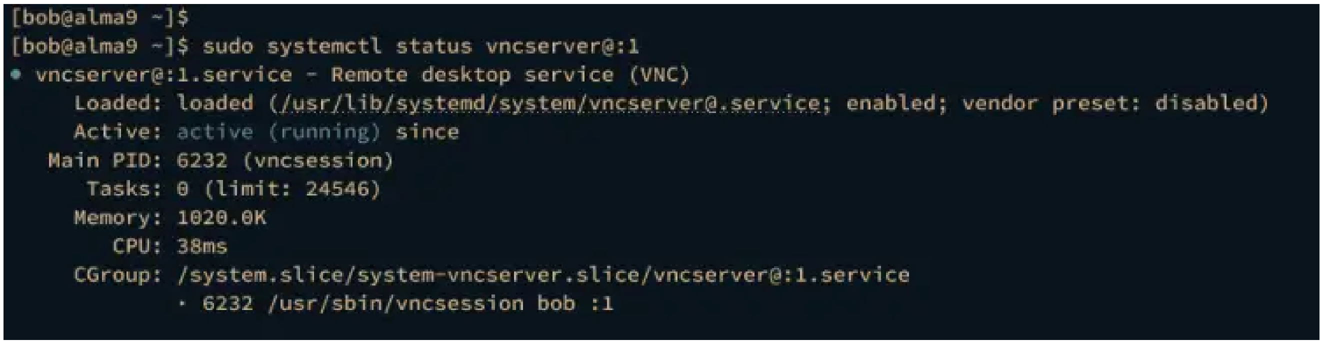


```
[bob@alma9 ~]$
[bob@alma9 ~]$ sudo systemctl daemon-reload
[bob@alma9 ~]$
[bob@alma9 ~]$ sudo systemctl start vncserver@:1
[bob@alma9 ~]$ sudo systemctl enable vncserver@:1
Created symlink /etc/systemd/system/multi-user.target.wants/vncserver@:1.service → /usr/
[bob@alma9 ~]$
[bob@alma9 ~]$
```

Lastly, run the following command to verify the VNC Server status for display **:1**.

```
sudo systemctl status vncserver@:1
```

If everything goes well, you should see the VNC Server display **:1** status **active (running)**.



```
[bob@alma9 ~]$
[bob@alma9 ~]$ sudo systemctl status vncserver@:1
● vncserver@:1.service - Remote desktop service (VNC)
     Loaded: loaded (/usr/lib/systemd/system/vncserver@.service; enabled; vendor preset: disabled)
     Active: active (running) since
   Main PID: 6232 (vncsession)
      Tasks: 0 (limit: 24546)
     Memory: 1020.0K
        CPU: 38ms
     CGroup: /system.slice/system-vncserver.slice/vncserver@:1.service
             · 6232 /usr/sbin/vncsession bob :1
```

Configuring Firewalld

If you followed this guide so far, you have finished the configuration of the VNC Server with TigerVNC and XFCE Desktop. The next step that you must do is to open the VNC Server port on firewalld.

Be sure that the firewalld is activated, or you can run the following command to start it.

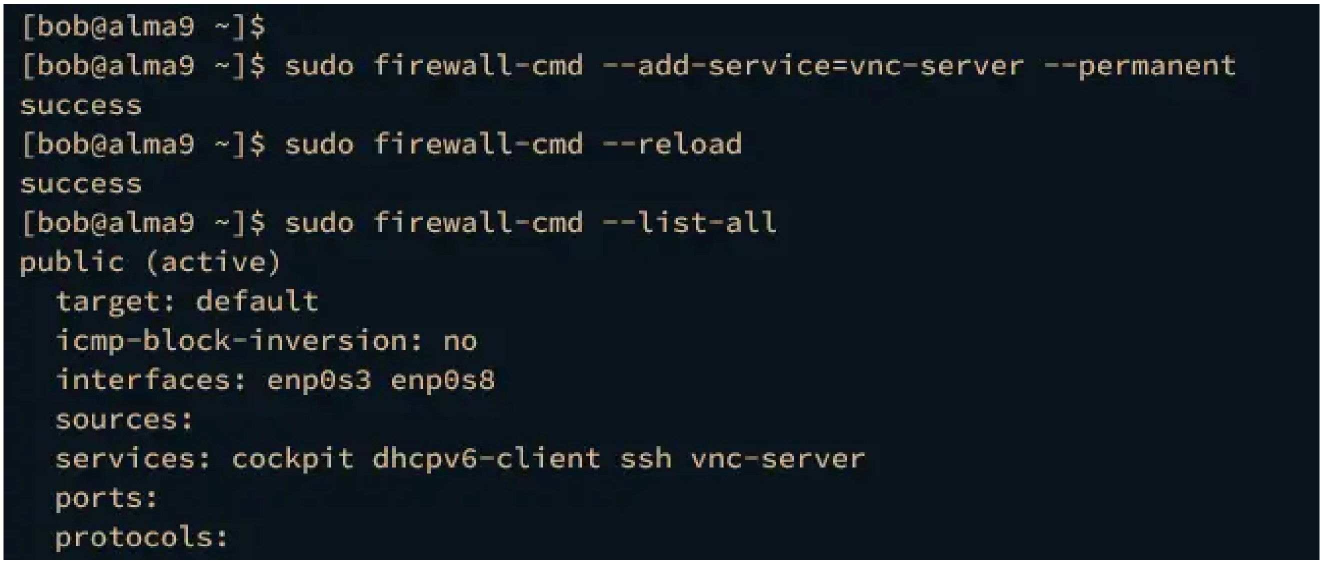
```
sudo systemctl start firewalld
```

Now run the firewall-cmd commands below to add the **vnc-server** to the firewalld and reload the firewalld to apply the changes.

```
sudo firewall-cmd --add-service=vnc-server --permanent
sudo firewall-cmd --reload
```

Then verify the list of enabled services on firewalld using the command below. The output should indicate that the **vnc-server** is added to firewalld.

```
sudo firewall-cmd --list-all
```



```
[bob@alma9 ~]$
[bob@alma9 ~]$ sudo firewall-cmd --add-service=vnc-server --permanent
success
[bob@alma9 ~]$ sudo firewall-cmd --reload
success
[bob@alma9 ~]$ sudo firewall-cmd --list-all
public (active)
  target: default
  icmp-block-inversion: no
  interfaces: enp0s3 enp0s8
  sources:
  services: cockpit dhcpv6-client ssh vnc-server
  ports:
  protocols:
```

Accessing VNC Server via SSH Tunneling

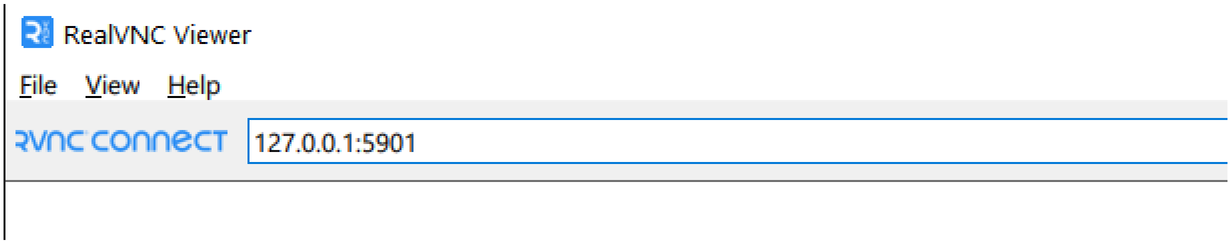
In this section, you will learn how to connect to VNC Server securely via SSH tunneling. So, before you begin, ensure that the VNC Client software is installed on your local machine. You can use VNC Clients like UltraVNC for Windows or RealVNC if you are using Linux or macOS.

On your local machine, run the ssh command below to create an SSH tunneling to the VNC Server. In this demo, the VNC Server has an IP address of **192.168.10.20** and we'll be using user **bob** to create the tunneling.

```
ssh -L 5901:127.0.0.1:5901 -N -f -l bob 192.168.10.20
```

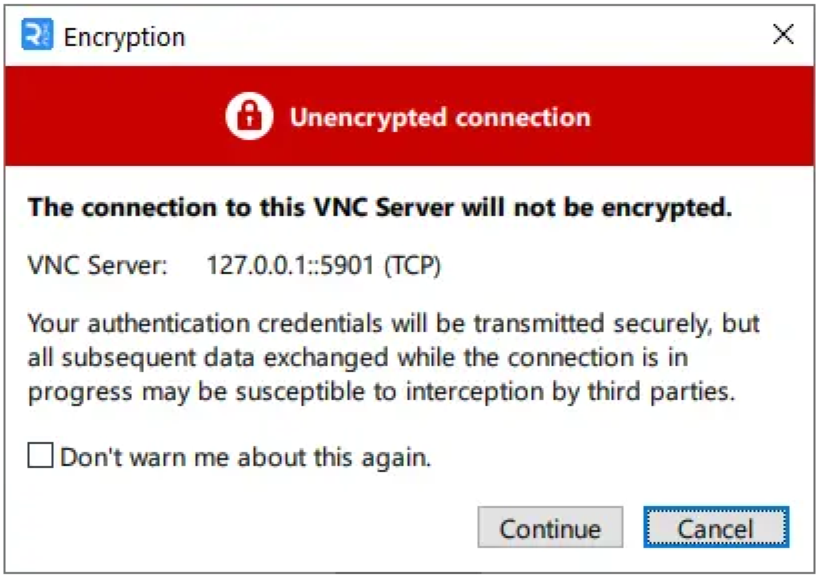
When the password for user bob when prompted.

Now, open the VNC client application on your local machine and connect to **127.0.0.1** with port **5901**. You can access the VNC Server via localhost because you have created a secure SSH tunnel to the VNC Server with port **5901**.



127.0.0.1:5901

When you get the warning about unencrypted connections, click **Continue**.



Encryption

Unencrypted connection

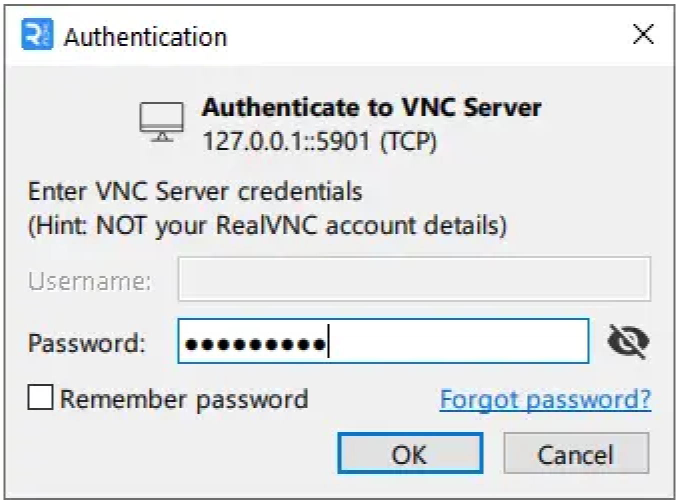
The connection to this VNC Server will not be encrypted.

VNC Server: 127.0.0.1::5901 (TCP)

Your authentication credentials will be transmitted securely, but all subsequent data exchanged while the connection is in progress may be susceptible to interception by third parties.

□ Don't warn me about this again.

Input the VNC Server password when prompted and click **OK** to confirm.



Authentication

Authenticate to VNC Server
127.0.0.1::5901 (TCP)

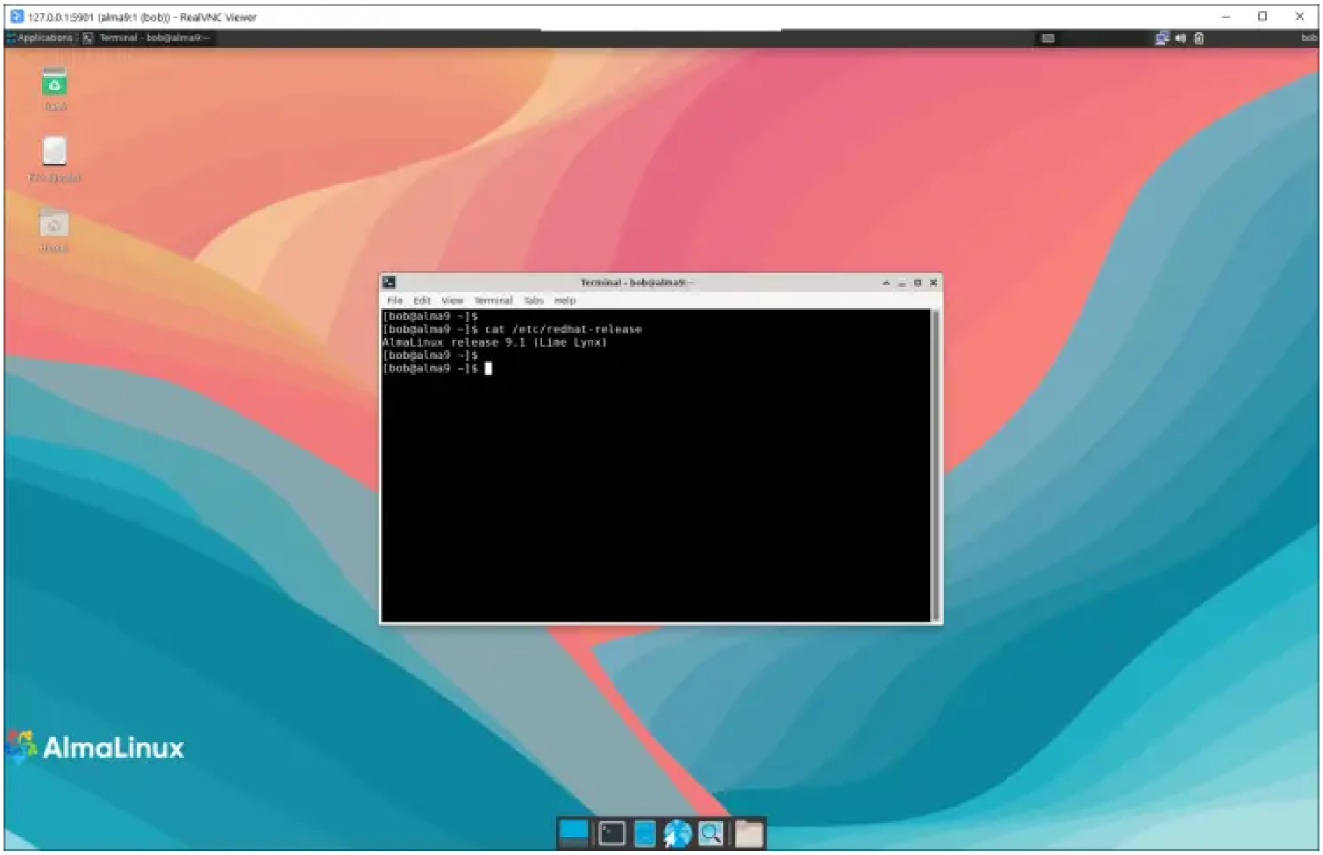
Enter VNC Server credentials
(Hint: NOT your RealVNC account details)

Username:

Password: ●●●●●●●●●

□ Remember password

If you have the correct password for your VNC Server, you should get the default Desktop Environment that you're using. In this demo, the default Desktop Environment is XFCE.



127.0.0.1:5901 (alma9:1 (bob)) - RealVNC Viewer
Applications
Terminal - bob@alma9:~
Terminal - bob@alma9:~
File Edit View Terminal Tabs Help
AlmaLinux

```
[bob@alma9 ~]$
[bob@alma9 ~]$ cat /etc/redhat-release
AlmaLinux release 9.1 (Lime Lynx)
[bob@alma9 ~]$
[bob@alma9 ~]$ 
```

Conclusion

And with that, you've successfully installed VNC Server with TIgerVNC Server and XFCE Desktop on your AlmaLinux 9 machine. You have also learned how to connect to VNC Server securely with SSH Tunneling from your local machine. You can now start using your VNC Server for your main working space.

view as pdf | print

0 Comment(s)