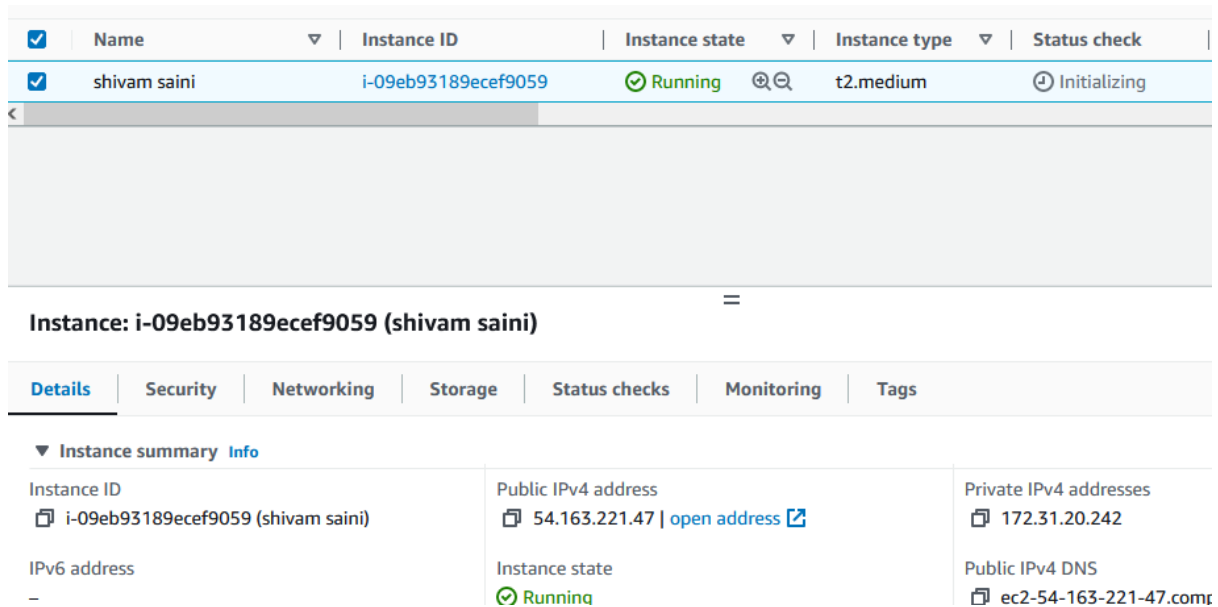


# Launch ec2-instance of RHEL9 in GUI

First open our AWS account:

Launch RHEL9 Instance ::



Name	Instance ID	Instance state	Instance type	Status check
shivam saini	i-09eb93189ecef9059	Running	t2.medium	Initializing

Instance: i-09eb93189ecef9059 (shivam saini)

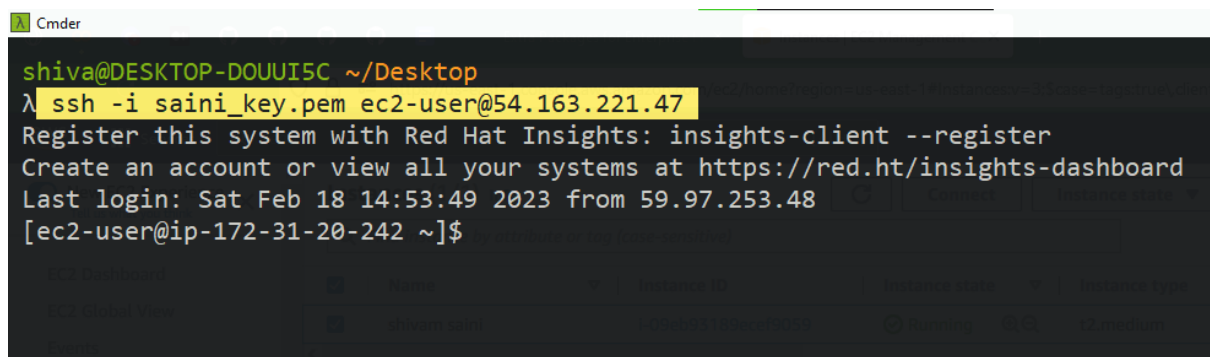
Details | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ Instance summary Info

Instance ID i-09eb93189ecef9059 (shivam saini)	Public IPv4 address 54.163.221.47   <a href="#">open address</a>	Private IPv4 addresses 172.31.20.242
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-54-163-221-47.com

Connect through SSH in my windows machine:

Here I'm using CMDER tool for Commandline:



```
shiva@DESKTOP-DOUUI5C ~/Desktop
λ ssh -i saini_key.pem ec2-user@54.163.221.47
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
Last login: Sat Feb 18 14:53:49 2023 from 59.97.253.48
[ec2-user@ip-172-31-20-242 ~]$
```

Install wget -: it helps to download any file.

```
[ec2-user@ip-172-31-20-242 ~]$ sudo su
[root@ip-172-31-20-242 ec2-user]# yum install wget
Updating Subscription Management repositories.
Unable to read consumer identity

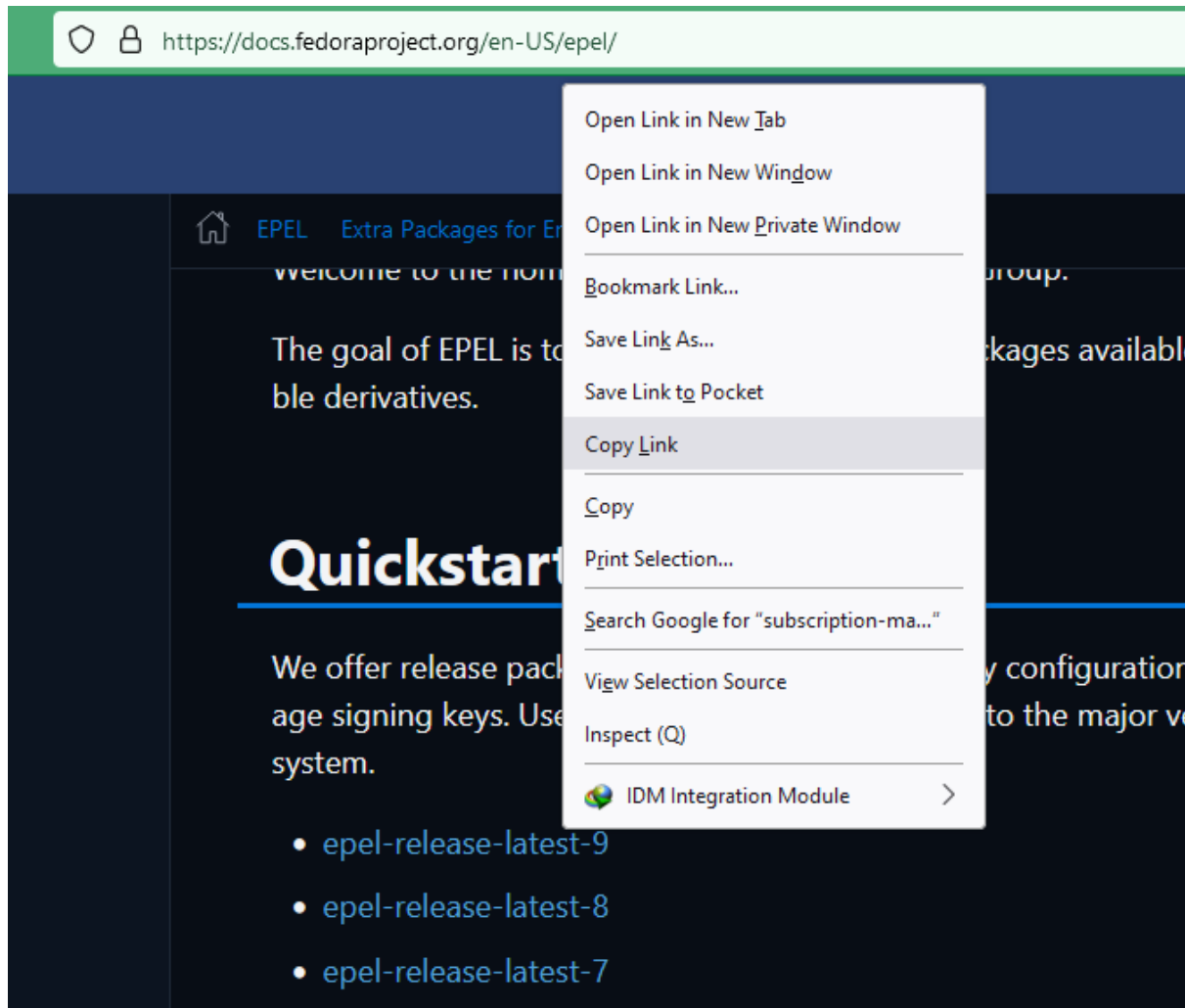
This system is not registered with an entitlement server. You can use
the 'subscription-manager register' command to register the system with
a Red Hat entitlement server. You can also skip the registration process
using '--skip-tls-certificate' or '--skip-tls-certificate=1'.

Red Hat Enterprise Linux 9 for x86_64 - AppStream from RHUI (RPMs)
Red Hat Enterprise Linux 9 for x86_64 - BaseOS from RHUI (RPMs)
Red Hat Enterprise Linux 9 Client Configuration
Dependencies resolved.
=====
Package                Architecture          Version
=====
Installing:
  wget                  x86_64                1.21.1-7.el9

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

Now download : **Extra Packages for Enterprise Linux**

:



```
Cmdr
[root@ip-172-31-20-242 ec2-user]# wget https://dl.fedoraproject.org/pub/epel/epel-release-latest-9.noarch.rpm
--2023-02-18 14:56:20-- https://dl.fedoraproject.org/pub/epel/epel-release-latest-9.noarch.rpm
Resolving dl.fedoraproject.org (dl.fedoraproject.org)... 38.145.60.22, 38.145.60.23
Connecting to dl.fedoraproject.org (dl.fedoraproject.org)|38.145.60.22|:443...
HTTP request sent, awaiting response... 200 OK
Length: 18935 (18K) [application/x-rpm]
Saving to: 'epel-release-latest-9.noarch.rpm'

epel-release-latest-9.noarch.rpm 100%[=====>]
2023-02-18 14:56:20 (40.0 MB/s) - 'epel-release-latest-9.noarch.rpm' saved [18935 bytes]

[root@ip-172-31-20-242 ec2-user]#
```

Now install the epel package through rpm:

RPM-> Redhat Package Manager is used to install any package in Redhat , Behind the scene YUM and DNF use RPM to install any package.

```
[root@ip-172-31-20-242 ec2-user]# ls
epel-release-latest-9.noarch.rpm
[root@ip-172-31-20-242 ec2-user]# rpm -i epel-release-latest-9.noarch.rpm
warning: epel-release-latest-9.noarch.rpm: Header V4 RSA/SHA256 Signature, key ID 322c9bd4: This package is not signed by a registered provider.
Many EPEL packages require the CodeReady Builder (CRB) repository.
It is recommended that you run /usr/bin/crb enable to enable the CRB repository.
[root@ip-172-31-20-242 ec2-user]#
```

Here I enable CodeReady Builder Repository

```
[root@ip-172-31-20-242 ec2-user]# /usr/bin/crb enable
Enabling CRB repo
Repositories disabled by configuration.
CRB repo is disabled
[root@ip-172-31-20-242 ec2-user]#
```

Now we install **XRDP** server for remote login:

```
[root@ip-172-31-20-242 ec2-user]# yum install xrdp -y
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manag

Extra Packages for Enterprise Linux 9 - x86_64                                20 MB/s
Last metadata expiration check: 0:00:04 ago on Sat 18 Feb 2023 02:58:38 PM UTC.
Dependencies resolved.
=====
Package                                Architecture Version                                Repository
=====
Installing:
xrdp                                    x86_64      1:0.9.21-1.el9                          epel
Upgrading:
dbus-common                            noarch      1:1.12.20-7.el9_1                       rhel-9-baseos-rh
dbus-libs                              x86_64      1:1.12.20-7.el9_1                       rhel-9-baseos-rh
dbus-tools                             x86_64      1:1.12.20-7.el9_1                       rhel-9-baseos-rh
Installing dependencies:
```

Here we list the groups of package :

```
[root@ip-172-31-20-242 ec2-user]# yum grouplist
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use
the 'subscription-manager register' command to register this system with
the entitlement server.

Last metadata expiration check: 0:01:06 ago on Sat 18 Feb 2023
Available Environment Groups:
  Server with GUI
  Server
  Minimal Install
  Workstation
  KDE Plasma Workspaces
  Virtualization Host
  Custom Operating System
Available Groups:
  Container Management
  RPM Development Tools
```

>>> **yum groupinstall "Server with GUI"**

if this step fail : restart our instance : again run above command

```
Cmdr
tpm2-tools-5.2-2.el9_1.x86_64
tracker-3.1.2-3.el9_1.x86_64
tree-1.8.0-10.el9.x86_64
udisks2-2.9.4-3.el9.x86_64
udisks2-lvm2-2.9.4-3.el9.x86_64
upower-0.99.13-2.el9.x86_64
urw-base35-c059-fonts-20200910-6.el9.noarch
urw-base35-fonts-20200910-6.el9.noarch
urw-base35-gothic-fonts-20200910-6.el9.noarch
urw-base35-nimbus-roman-fonts-20200910-6.el9.noarch
urw-base35-p052-fonts-20200910-6.el9.noarch
urw-base35-z003-fonts-20200910-6.el9.noarch
usb_modeswitch-data-20191128-6.el9.noarch
util-linux-user-2.37.4-9.el9.x86_64
vim-common-2:8.2.2637-16.el9_0.3.x86_64
vim-filesystem-2:8.2.2637-16.el9_0.3.noarch
vte-profile-0.64.2-2.el9.x86_64
wavpack-5.4.0-5.el9.x86_64
webkit2gtk3-jsc-2.36.7-1.el9_1.1.x86_64
wireless-regdb-2020.11.20-6.el9.noarch
wireplumber-libs-0.4.8-1.el9.x86_64
words-3.0-39.el9.noarch
wpebackend-fdo-1.10.0-3.el9.x86_64
xdg-dbus-proxy-0.1.3-1.el9.x86_64
xdg-desktop-portal-gnome-41.2-1.el9.x86_64
xdg-user-dirs-0.17-10.el9.x86_64
xdg-utils-1.1.3-11.el9.noarch
xml-common-0.6.3-58.el9.noarch
xmlsec1-openssl-1.2.29-9.el9.x86_64
xorg-x11-drv-fbdev-0.5.0-11.el9.x86_64
xorg-x11-drv-vmware-13.2.1-18.el9.x86_64
xorg-x11-drv-wacom-serial-support-1.0.0-1.el9.x86_64
xorg-x11-server-Xwayland-21.1.3-3.el9.x86_64
xorg-x11-utils-7.5-40.el9.x86_64
yajl-2.1.0-21.el9_0.x86_64
yelp-libs-2:40.3-2.el9.x86_64
yelp-xsl-40.2-1.el9.noarch
zip-3.0-33.el9.x86_64
tracer-common-0.7.5-4.el9.noarch
tracker-miners-3.1.2-1.el9.x86_64
twolame-libs-0.3.13-19.el9.x86_64
udisks2-iscsi-2.9.4-3.el9.x86_64
unzip-6.0-56.el9.x86_64
urw-base35-bookman-fonts-20200910-6.el9.noarch
urw-base35-d0500001-fonts-20200910-6.el9.noarch
urw-base35-fonts-common-20200910-6.el9.noarch
urw-base35-nimbus-mono-ps-fonts-20200910-6.el9.noarch
urw-base35-nimbus-sans-fonts-20200910-6.el9.noarch
urw-base35-standard-symbols-ps-fonts-20200910-6.el9.noarch
usb_modeswitch-2.6.1-4.el9.x86_64
usbutils-0.13-4.el9.x86_64
vdo-8.2.0-2-1.el9.x86_64
vim-enhanced-2:8.2.2637-16.el9_0.3.x86_64
volume_key-libs-0.3.12-15.el9.x86_64
vte291-0.64.2-2.el9.x86_64
webkit2gtk3-2.36.7-1.el9_1.1.x86_64
webRTC-audio-processing-0.3.1-8.el9.x86_64
wireplumber-0.4.8-1.el9.x86_64
woff2-1.0.2-15.el9.x86_64
wpa_supplicant-1:2.10-4.el9.x86_64
xcb-util-0.4.0-19.el9.x86_64
xdg-desktop-portal-1.12.4-1.el9.x86_64
xdg-desktop-portal-gtk-1.12.0-3-4.el9.x86_64
xdg-user-dirs-gtk-0.10-22.el9.x86_64
xfsdump-3.1.10-1.el9.x86_64
xmlsec1-1.2.29-9.el9.x86_64
xorg-x11-drv-evdev-2.10.6-12.el9.x86_64
xorg-x11-drv-libinput-1.0.1-3.el9.x86_64
xorg-x11-drv-wacom-1.0.0-1.el9.x86_64
xorg-x11-server-Xorg-1.20.11-11.el9.x86_64
xorg-x11-server-common-1.20.11-11.el9.x86_64
xorg-x11-xinit-session-1.4.0-11.el9.x86_64
yelp-2:40.3-2.el9.x86_64
yelp-tools-40.0-3.el9.noarch
zenity-3.32.0-8.el9.x86_64
Complete!
[root@ip-172-31-20-242 ec2-user]#
```

Now start the XRDP server

```
Cmdr
[root@ip-172-31-20-242 ec2-user]# systemctl enable xrdp --now
Created symlink /etc/systemd/system/multi-user.target.wants/xrdp.service → /usr/lib/systemd/system/xrdp.service
[root@ip-172-31-20-242 ec2-user]#
```

WE check the status of XRDP server

```
[root@ip-172-31-20-242 ec2-user]# systemctl status xrdp --now
● xrdp.service - xrdp daemon
   Loaded: loaded (/usr/lib/systemd/system/xrdp.service; enabled; vendor preset: disabled)
   Active: active (running) since Sat 2023-02-18 15:23:15 UTC; 31s ago
     Docs: man:xrdp(8)
           man:xrdp.ini(5)
  Main PID: 106571 (xrdp)
    Tasks: 1 (limit: 23385)
   Memory: 1.8M
      CPU: 7ms
   CGroup: /system.slice/xrdp.service
           └─106571 /usr/sbin/xrdp --nodaemon

Feb 18 15:23:15 ip-172-31-20-242.ec2.internal systemd[1]: Started xrdp daemon.
Feb 18 15:23:15 ip-172-31-20-242.ec2.internal xrdp[106571]: [INFO ] starting xrdp with pid 106
Feb 18 15:23:15 ip-172-31-20-242.ec2.internal xrdp[106571]: [INFO ] address [0.0.0.0] port [33
Feb 18 15:23:15 ip-172-31-20-242.ec2.internal xrdp[106571]: [INFO ] listening to port 3389 on
Feb 18 15:23:15 ip-172-31-20-242.ec2.internal xrdp[106571]: [INFO ] xrdp_listen_pp done
[root@ip-172-31-20-242 ec2-user]#
```

create a firewall rule for our XRDP server:

>>> **firewall-cmd --permanent --add-port=3389/tcp --zone=public**

```
[root@ip-172-31-20-242 ec2-user]# systemctl enable firewalld --now
[root@ip-172-31-20-242 ec2-user]# firewall-cmd --permanent --add-port=3389/tcp --zone=public
success
[root@ip-172-31-20-242 ec2-user]#
```



Now we check the runlevel of our system:

there are 7 types of runlevel :

after booting process our systemd(first process) start our default runlevel:

Run Level	Mode	Action
0	Halt	Shuts down system
1	Single-User Mode	Does not configure network interfaces
2	Multi-User Mode	Does not configure network interfaces.
3	Multi-User Mode with Networking	Starts the system normally.
4	Undefined	Not used/User-definable
5	X11	As runlevel 3 + display manager(X)
6	Reboot	Reboots the system

```
[root@ip-172-31-20-242 ec2-user]# cd /etc/systemd/system
[root@ip-172-31-20-242 system]# ls
basic.target.wants          Volume ID: vol-0d79c
bluetooth.target.wants      default.target
cloud-init.target.wants     default.target.wants
ctrl-alt-del.target         'dev-virtio\x2dports-org.qemu.guest_agent.0.device.wants'
dbus-org.bluez.service      display-manager.service
dbus-org.fedoraproject.FirewallD1.service  getty.target.wants
dbus-org.freedesktop.Avahi.service  graphical.target.wants
dbus-org.freedesktop.ModemManager1.service  local-fs.target.wants
dbus-org.freedesktop.nm-dispatcher.service  multi-user.target.wants
```

Here our default.target file link with multi-user Runlevel

```
[root@ip-172-31-20-242 system]# ls -l default.target
lrwxrwxrwx. 1 root root 41 Jan 27 05:39 default.target -> /usr/lib/systemd/system/multi-user.target
[root@ip-172-31-20-242 system]#
```

Here we change the default Runlevel:

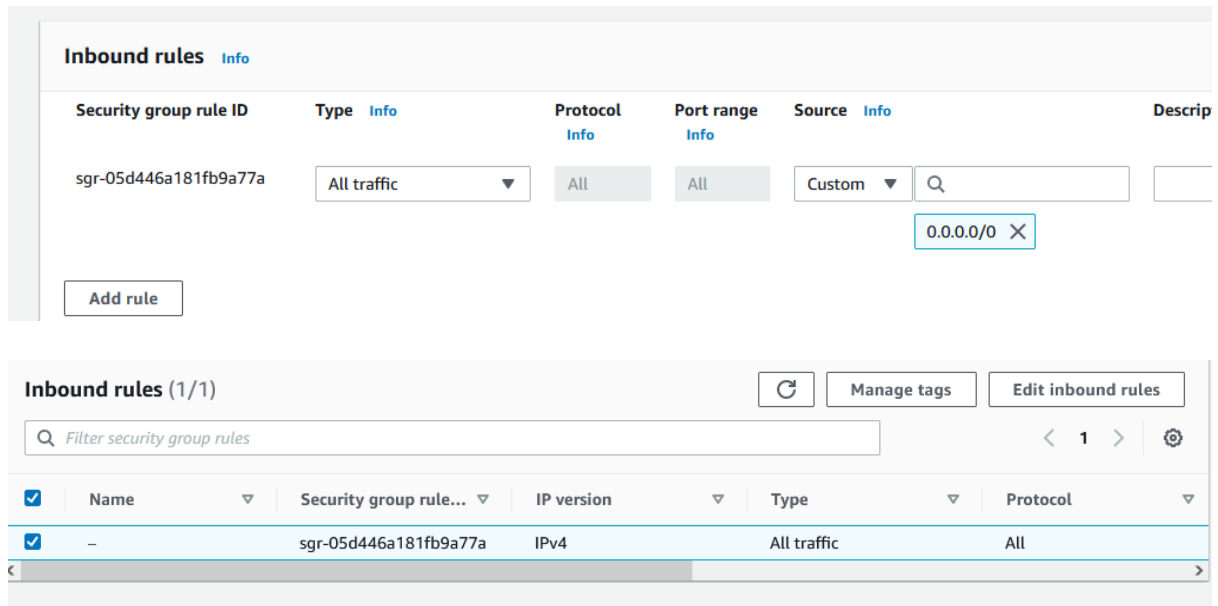
```
[root@ip-172-31-20-242 system]# systemctl set-default graphical.target
Removed "/etc/systemd/system/default.target".
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
[root@ip-172-31-20-242 system]#
```

Now we can see our default.target file link to graphical.target file

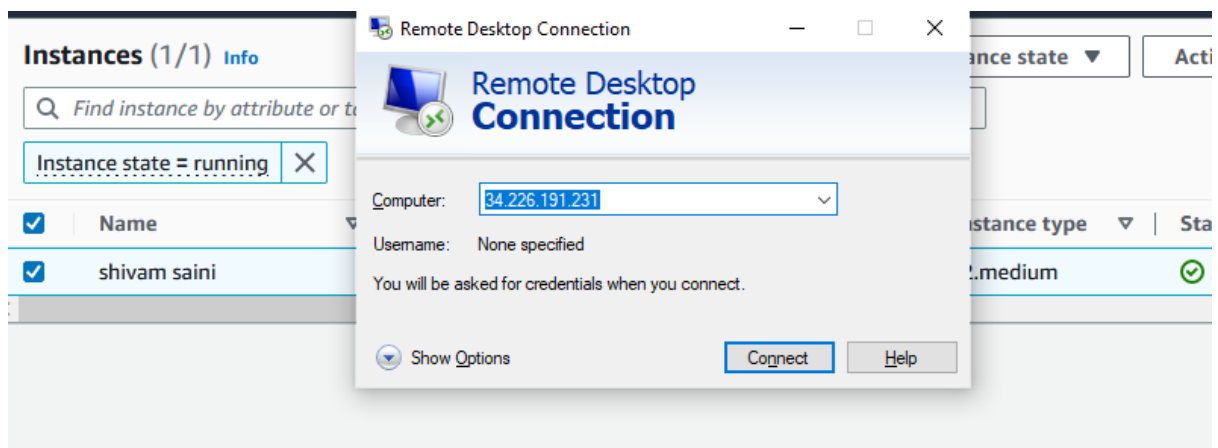
```
Cmdr
[root@ip-172-31-20-242 system]# ls -l default.target
lrwxrwxrwx. 1 root root 40 Feb 18 15:32 default.target -> /usr/lib/systemd/system/graphical.target
[root@ip-172-31-20-242 system]#
```

Here we create an inbound rule for our instance in AWS:

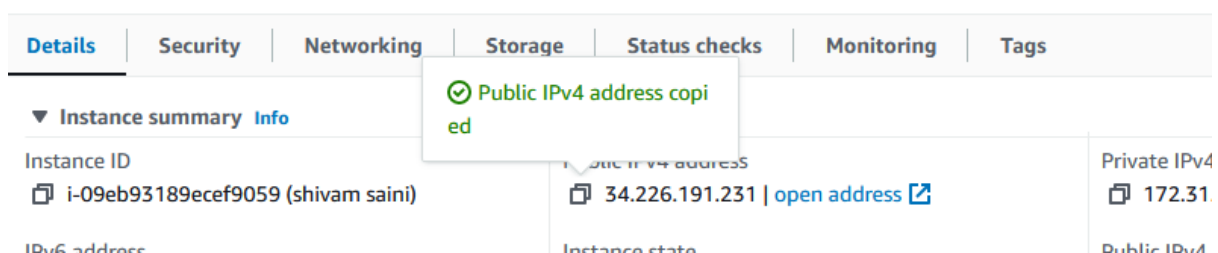
It is an one type of firewall (security group) provided by AWS ,it protect our VM's



Now we open Remote Desktop Connection in Windows:



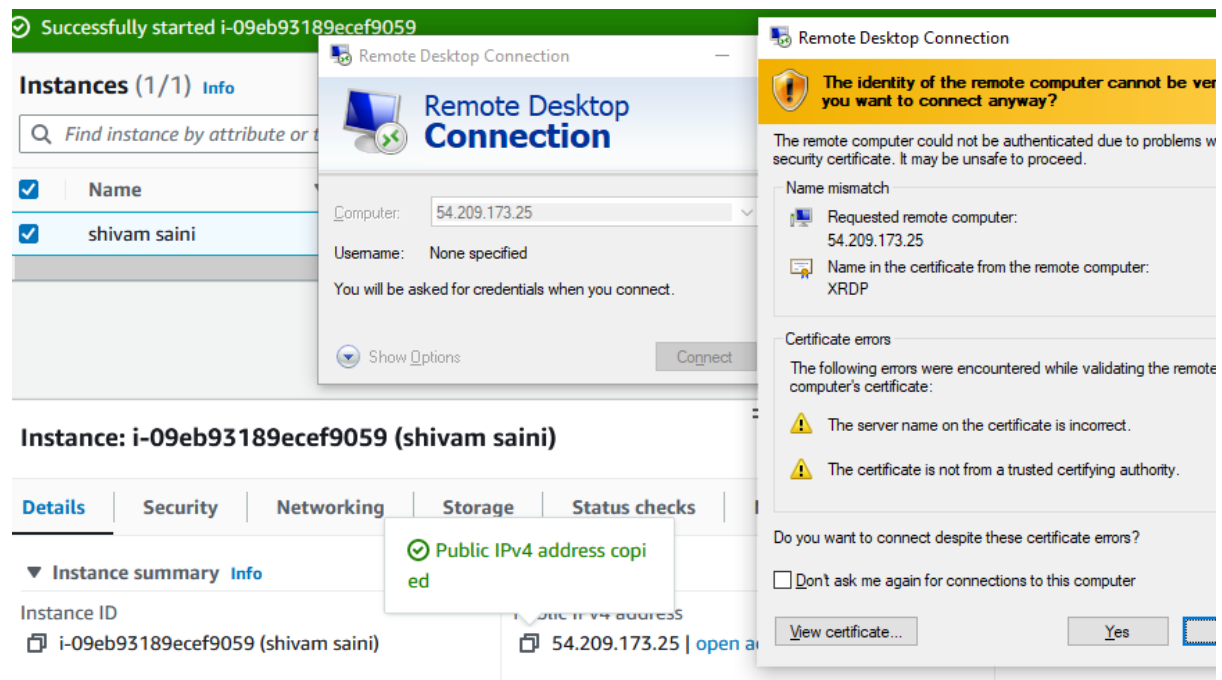
Instance: i-09eb93189ecef9059 (shivam saini)



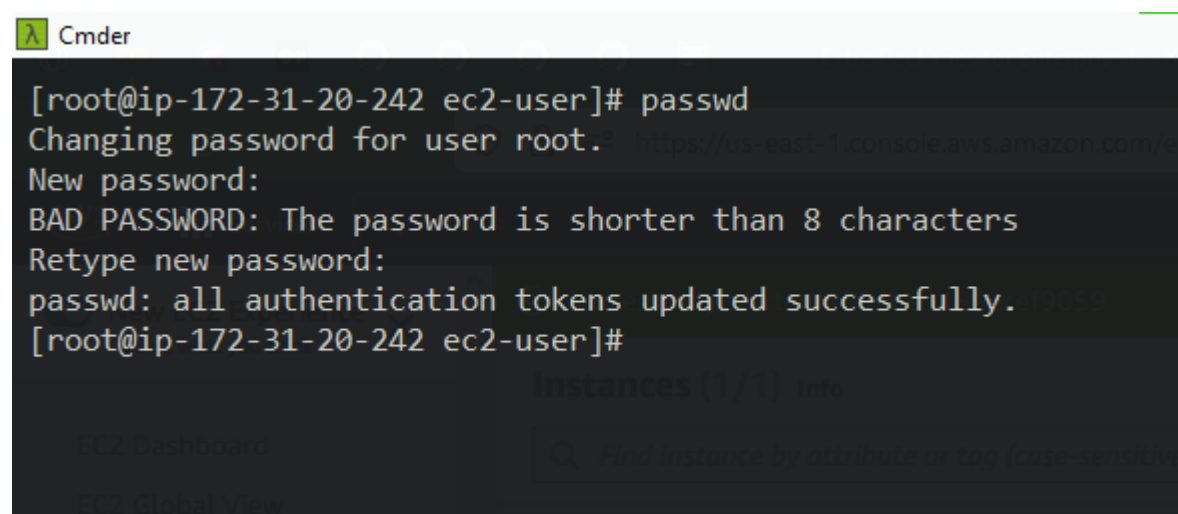
Here I shutdown then restart our system because we install many packages previously:

```
[root@ip-172-31-20-242 system]# init 0
Connection to 34.226.191.231 closed by remote host.
Connection to 34.226.191.231 closed.
shiva@DESKTOP-DOUUI5C ~/Desktop
λ
```

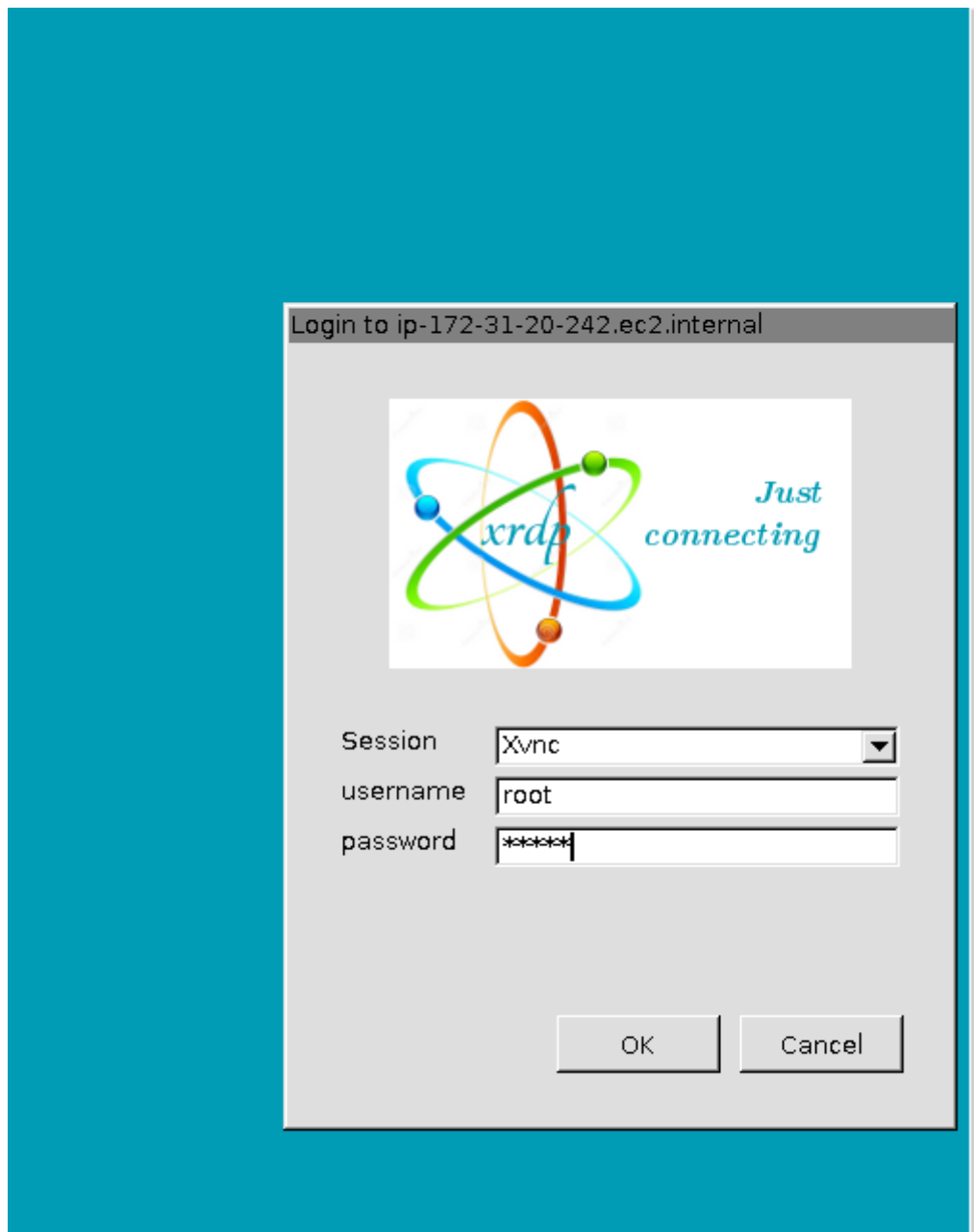
Now I Connect our RDP Server through RDP Client:



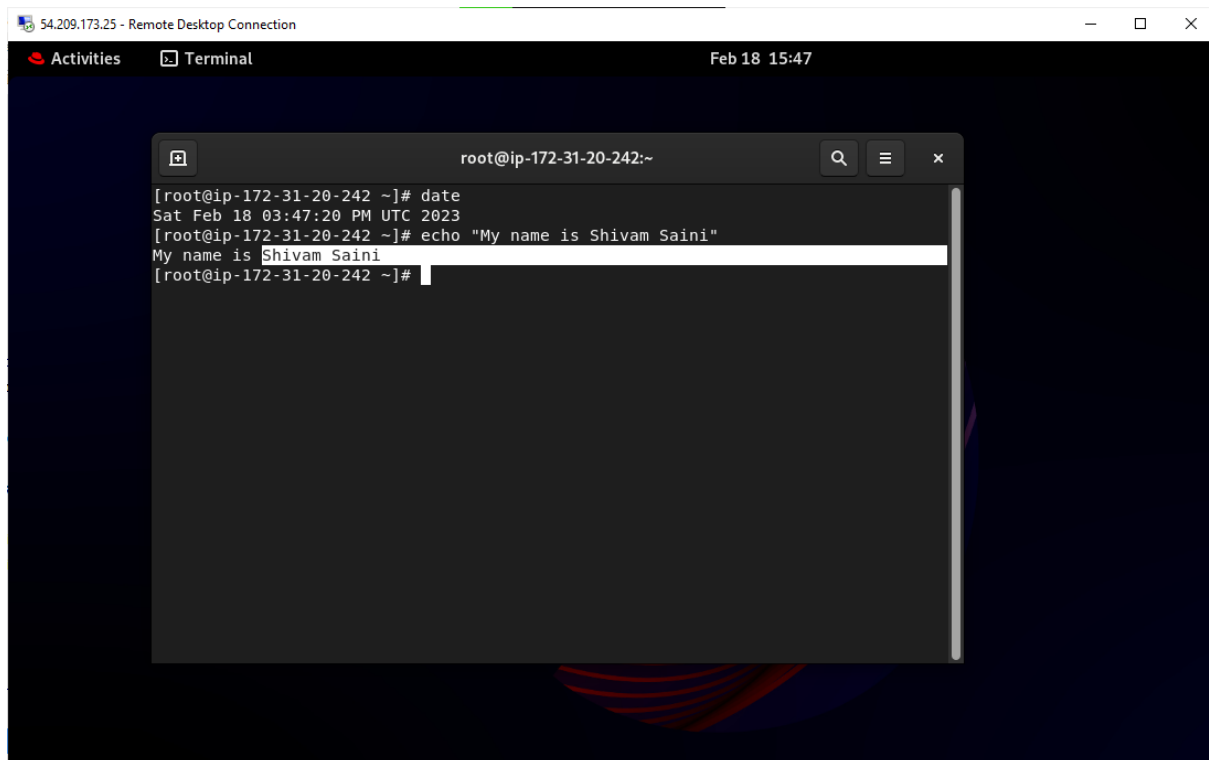
It Require ROOT password so we change it:



Here we enter our User name and password:



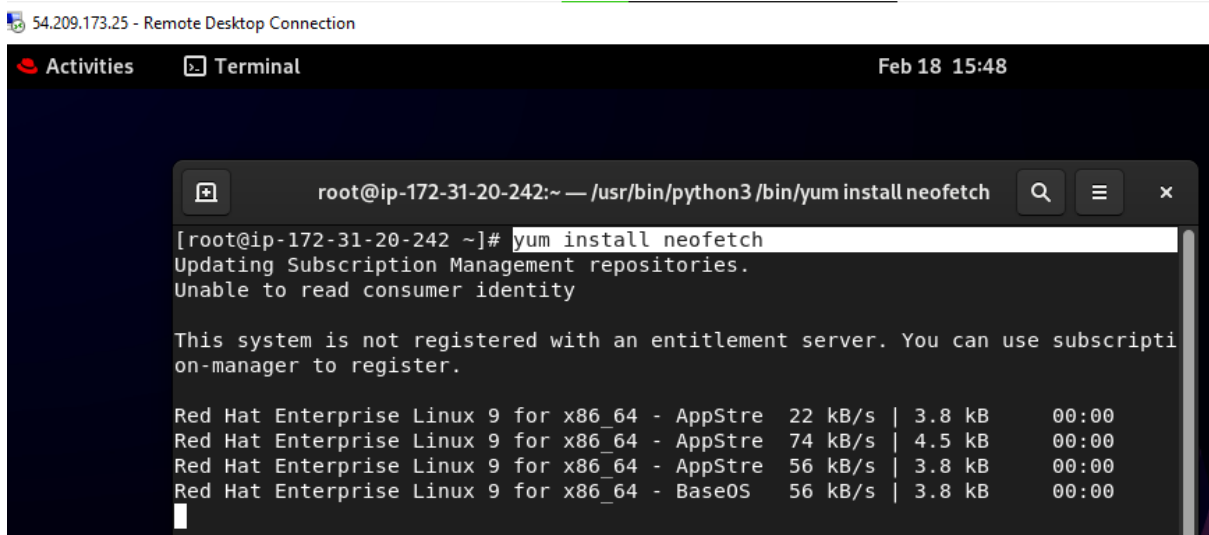
Now we successfully Login in GUI mode:



The screenshot shows a Remote Desktop Connection window titled "54.209.173.25 - Remote Desktop Connection". The window has a top bar with "Activities" and "Terminal" buttons, and a clock showing "Feb 18 15:47". Inside the window is a terminal window titled "root@ip-172-31-20-242:~". The terminal shows the following commands and output:

```
[root@ip-172-31-20-242 ~]# date
Sat Feb 18 03:47:20 PM UTC 2023
[root@ip-172-31-20-242 ~]# echo "My name is Shivam Saini"
My name is Shivam Saini
[root@ip-172-31-20-242 ~]#
```

Here We install Neofetch:



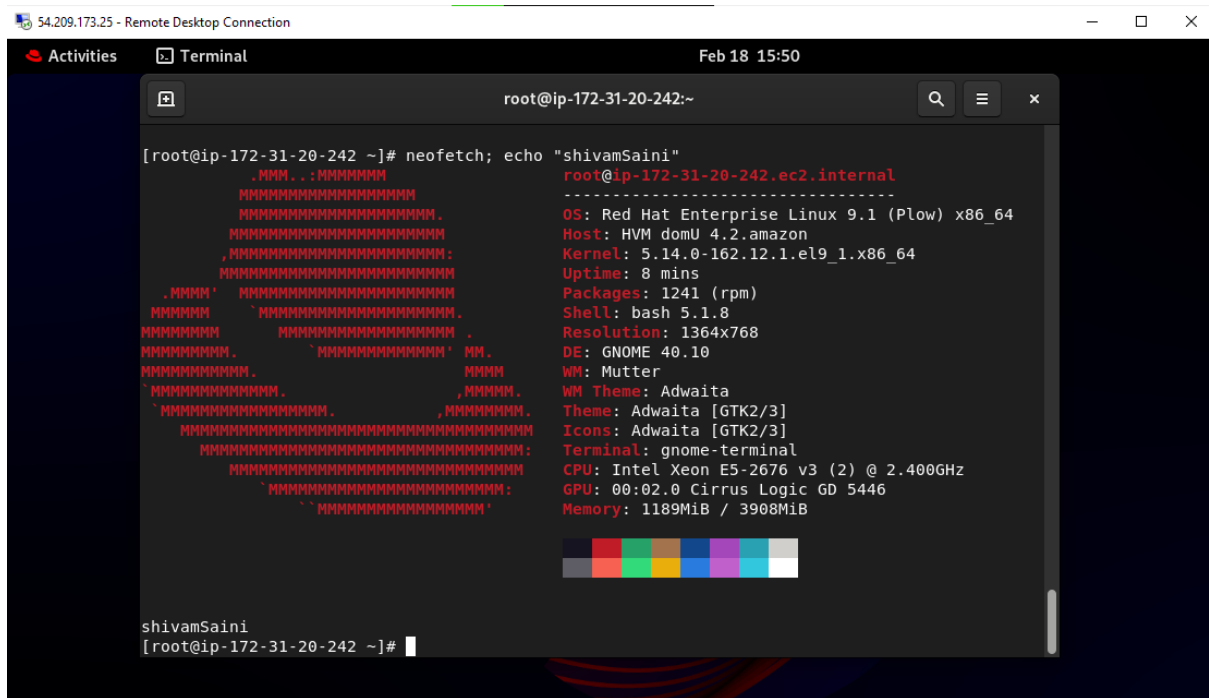
The screenshot shows a Remote Desktop Connection window titled "54.209.173.25 - Remote Desktop Connection". The window has a top bar with "Activities" and "Terminal" buttons, and a clock showing "Feb 18 15:48". Inside the window is a terminal window titled "root@ip-172-31-20-242:~ — /usr/bin/python3/bin/yum install neofetch". The terminal shows the following commands and output:

```
[root@ip-172-31-20-242 ~]# yum install neofetch
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to register.

Red Hat Enterprise Linux 9 for x86_64 - AppStream 22 kB/s | 3.8 kB 00:00
Red Hat Enterprise Linux 9 for x86_64 - AppStream 74 kB/s | 4.5 kB 00:00
Red Hat Enterprise Linux 9 for x86_64 - AppStream 56 kB/s | 3.8 kB 00:00
Red Hat Enterprise Linux 9 for x86_64 - BaseOS 56 kB/s | 3.8 kB 00:00
```

## \* Successfully Launch Instance in GUI Mode\*



```
54.209.173.25 - Remote Desktop Connection
Activities Terminal Feb 18 15:50
root@ip-172-31-20-242:~

[root@ip-172-31-20-242 ~]# neofetch; echo "shivamSaini"
root@ip-172-31-20-242.ec2.internal
-----
OS: Red Hat Enterprise Linux 9.1 (Plow) x86_64
Host: HVM domU 4.2.amazon
Kernel: 5.14.0-162.12.1.el9_1.x86_64
Uptime: 8 mins
Packages: 1241 (rpm)
Shell: bash 5.1.8
Resolution: 1364x768
DE: GNOME 40.10
WM: Mutter
WM Theme: Adwaita
Theme: Adwaita [GTK2/3]
Icons: Adwaita [GTK2/3]
Terminal: gnome-terminal
CPU: Intel Xeon E5-2676 v3 (2) @ 2.400GHz
GPU: 00:02.0 Cirrus Logic GD 5446
Memory: 1189MiB / 3908MiB

shivamSaini
[root@ip-172-31-20-242 ~]#
```

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