How to Install Nagios on Ubuntu?

written by sysadmin | 12 February 2025

Nagios is an event monitoring system created by Ethan Galstad and first released in 2002, which offers monitoring and alerting services for servers, switches, applications, and services. It alerts users when things go wrong and alerts them again when the problem has been resolved. There are 2 types of Nagios: Nagios XI for the enterprise version and Nagios Core for the free version. This article will explain how to install Nagios Core on Ubuntu.

Problem

How to install Nagios on Ubuntu?

Solution

Here are the steps to install Nagios on Ubuntu, and these steps work on Ubuntu 24.04 and below and I think it should also work on Debian.

1. Download the packages

Install the packages needed to install Nagios using the command below:

```
sudo apt-get install autoconf gcc libc6 make wget unzip apache2 php libapache2-mod-php libgd-dev libssl-dev
```

2. Create a user and a group

After that, create a user and group for Nagios using the commands:

```
sudo useradd nagios
sudo groupadd nagcmd
sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd www-data
```

3. Download Nagios

Use the commands below to download Nagios, where at the time of this writing (February 2025), the latest version of Nagios is version 4.5.9:

```
cd /tmp
wget
https://github.com/NagiosEnterprises/nagioscore/archive/refs/heads/master.zip
-O nagios.zip
unzip nagios.zip
cd nagioscore-master/
```

4. Install Nagios

By default, Linux will create a Nagios folder in the /usr/local folder to save Nagios configuration files. So, use the following commands to install Nagios:

```
sudo ./configure --with-command-group=nagcmd --with-httpd-
conf=/etc/apache2/sites-enabled
```

Info

If you want to save all Nagios files in a non-default folder, for example, in the /data folder, then use the following command: **sudo ./configure –prefix=/data/nagios –with-command-group=nagcmd –with-httpd-conf=/etc/apache2/sites-enabled**

After that, run the following commands:

```
sudo make all
sudo make install
sudo make install-init
sudo make install-daemoninit
sudo make install-config
sudo make install-commandmode
sudo make install-webconf
sudo a2enmod rewrite
sudo a2enmod cgi
```

5. Create the password

Create a password for the user Nagios to access the Nagios application. Nagiosadmin is usually a popular username for Nagios, but you can create another.

```
sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
```

```
sysadmin@ubuntu2404:/tmp/nagioscore-master$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
sysadmin@ubuntu2404:/tmp/nagioscore-master$
```

Create the password

Info

If you installed Nagios in a non-default folder, for example, in the /data folder, execute the below command: **sudo htpasswd -c /data/nagios/etc/htpasswd.users nagiosadmin**

6. Download Nagios Plugins

Plugins are compiled executables or scripts (Perl, shell, Python, PHP, Ruby, etc.) that can be run from a command line to check the status of a host or service. Nagios Core uses the results from plugins to determine the current status of hosts and services on your network. As of this writing (February 2025), the latest version of Nagios plugins is version 2.4.12. You can check the latest version of Nagios plugins on this site. Run the following commands to download Nagios plugins:

```
cd /tmp
wget
https://github.com/nagios-plugins/nagios-plugins/archive/refs/heads/master.zip -O nagios-plugins.zip
unzip nagios-plugins.zip
cd nagios-plugins-master/
```

7. Install Nagios Plugins

After that, install Nagios plugins using the following commands:

```
./tools/setup
sudo ./configure --with-nagios-user=nagios --with-nagios-group=nagios
sudo make
sudo make install
```

8. Check the configuration

After installing Nagios and Nagios plugins, run the following command to check the configuration of Nagios:

```
sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
```

Info

If you installed Nagios in a non-default folder, for example, in the /data folder, execute the below command: **sudo /data/nagios/bin/nagios -v /data/nagios/etc/nagios.cfg**

and make sure there is no error like in the image below:

```
sysadmin@ubuntu2404:/tmp/nagios-plugins-master$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.5.9
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-12-19
License: GPL

Website: https://www.nagios.org
Reading configuration data...
   Read main config file okay...
   Read object config files okay...

Running pre-flight check on configuration data...

Checking objects...
        Checked 8 services.
        Checked 1 hosts.
        Checked 1 host groups.
        Checked 0 service groups.
        Checked 1 contacts.
        Checked 1 contact groups.
        Checked 24 commands.
        Checked 5 time periods.
        Checked 0 host escalations.
        Checked 0 service escalations.
Checking for circular paths...
        Checked 1 hosts
        Checked 0 service dependencies
        Checked 0 host dependencies
        Checked 5 timeperiods
Checking global event handlers...
Checking obsessive compulsive processor commands...
Checking misc settings...

Total Warnings: 0
Total Errors:   0

Things look okay - No serious problems were detected during the pre-flight check
sysadmin@ubuntu2404:/tmp/nagios-plugins-master$
```

Check the Nagios configuration

9. Turn on the services

Turn on the services using the commands below:

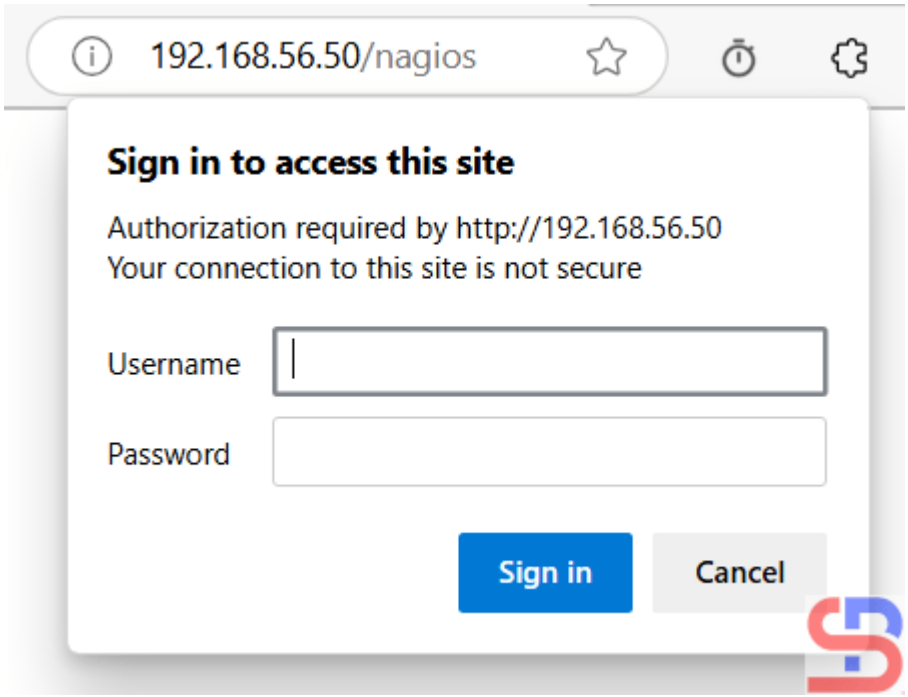
```
sudo systemctl start nagios.service
sudo systemctl enable nagios
sudo systemctl restart apache2.service
```

10. Check the application

Open your browser, and type in your browser:

```
http://your_ip_address_server/nagios
```

And there should be a display like the image below:

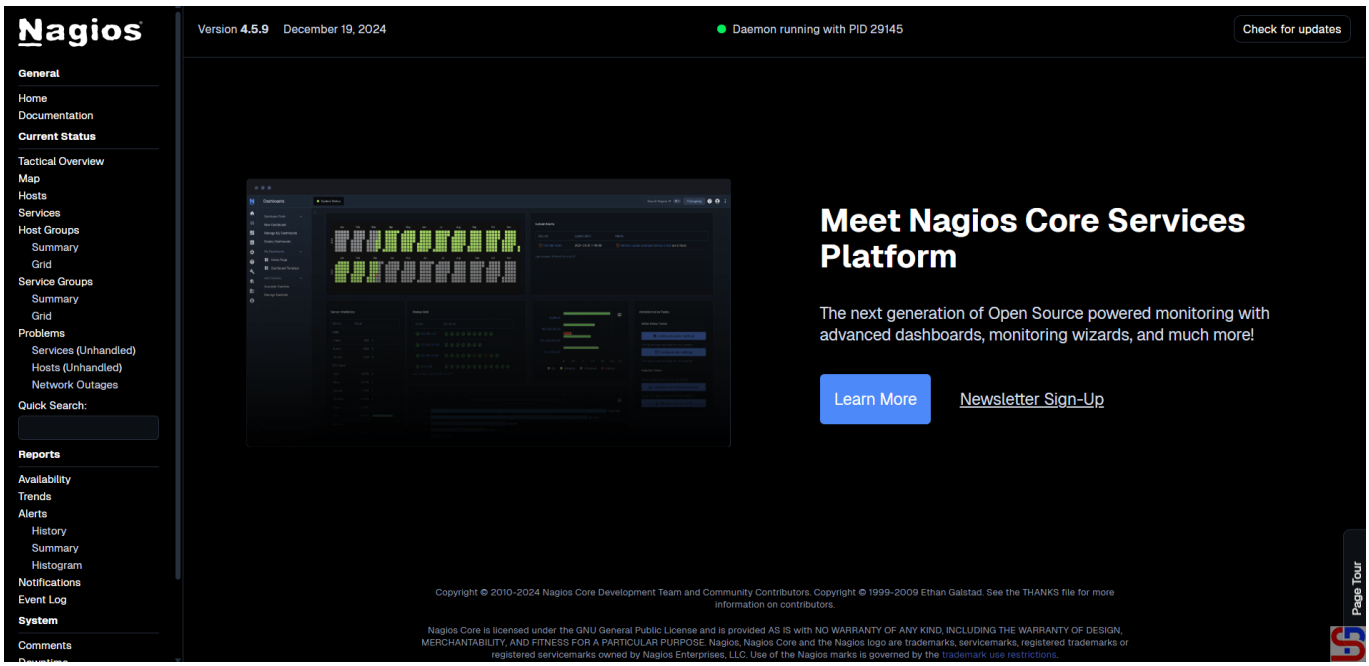


Open Nagios in the browser

If you don’t see the image like the above image in your browser, maybe the Firewall/IPTables is still on your server. Run the following commands:

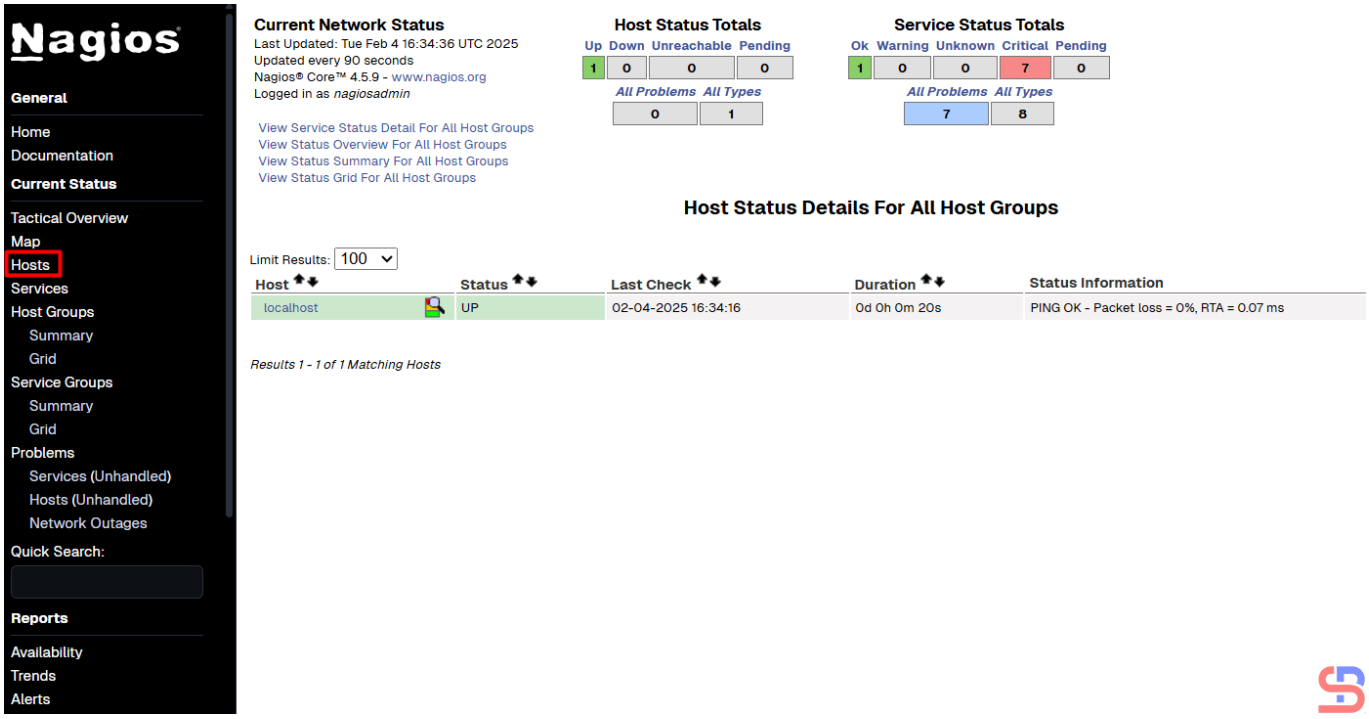
```
sudo ufw allow Apache
sudo ufw reload
```

Back to your browser again, and it should work now. Insert the username (**nagiosadmin**) and the password for Nagios. If the username and the password are right, the Nagios application will appear like this:



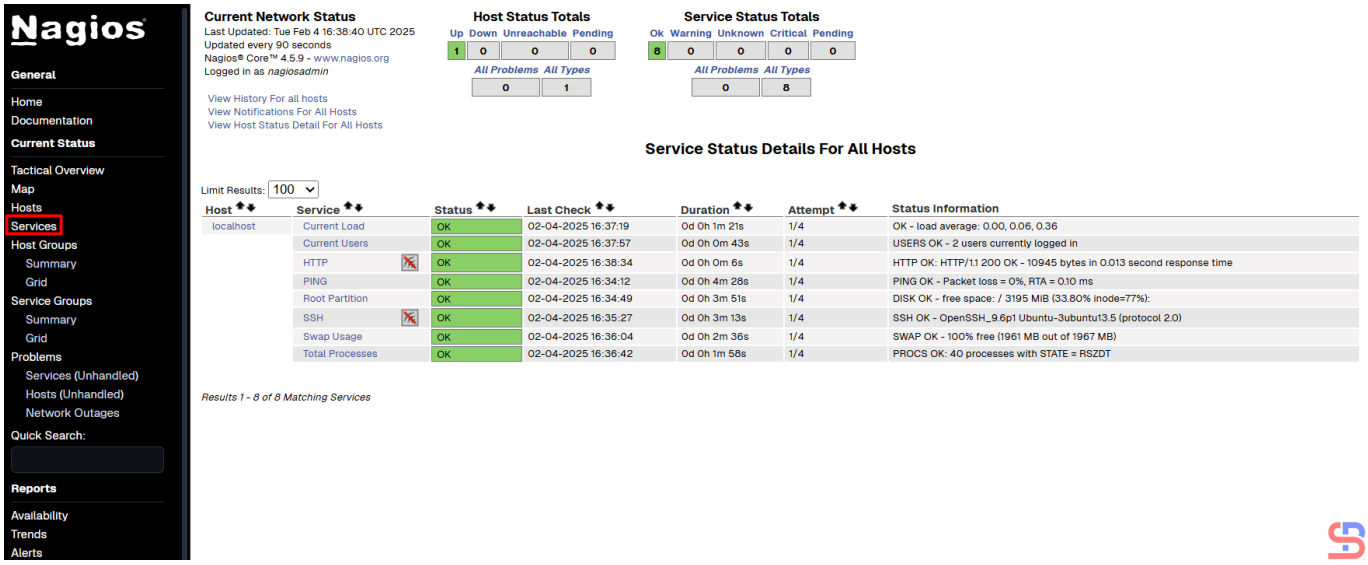
Nagios application

If you want to know which hosts are being monitored by Nagios, click **Hosts,** and Nagios will display the hosts that are being monitored:



Hosts monitored by Nagios

You can see from the picture above, Nagios only monitors the Nagios server or localhost. If you want to know which services are being monitored by Nagios, click **Services** then Nagios will display the services that are being monitored:



Services monitored by Nagios

From the picture above, Nagios monitors 8 services for the Nagios server or localhost.

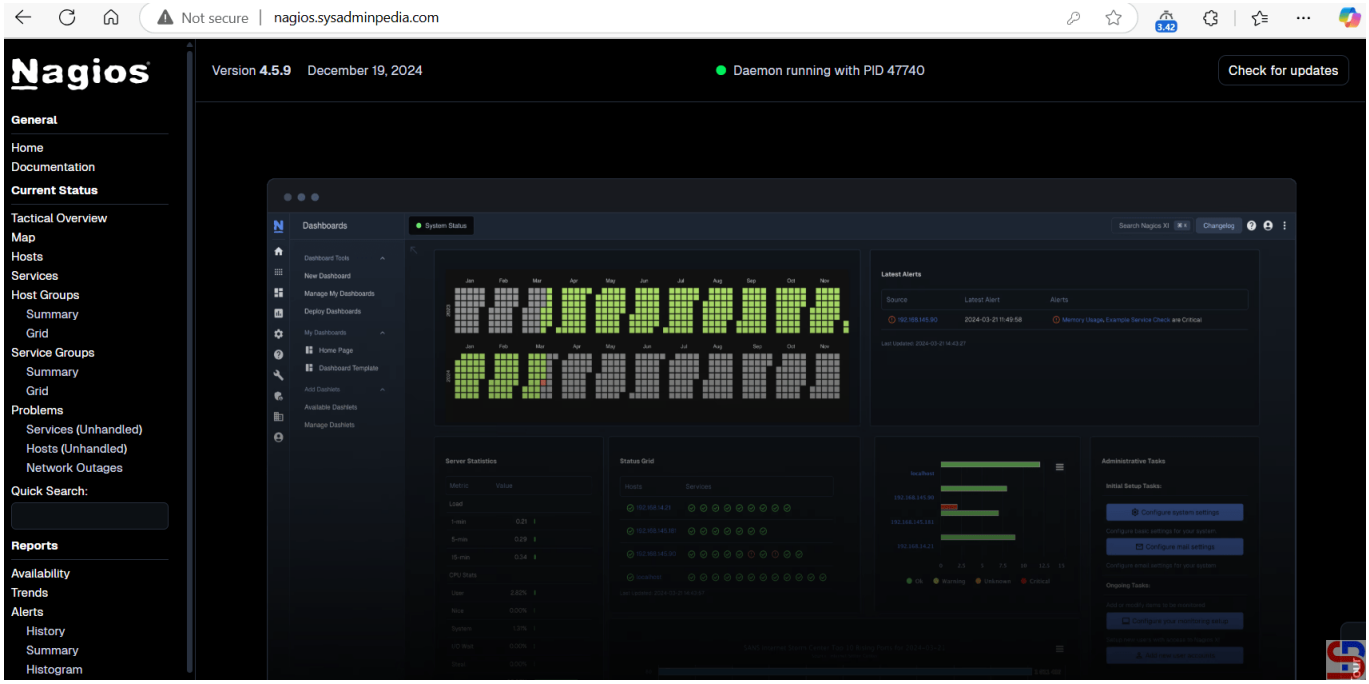
Note

If you have a domain/subdomain and want to use that domain/subdomain for the Nagios application, create a virtual host on your web server. For example, I have the domain sysadminpedia.com and want to use the subdomain nagios.sysadminpedia.com for the Nagios application. So, I created the script below in the file **/etc/apache2/sites-enabled/nagios.sysadminpedia.com.conf**:

```
<VirtualHost *:80>
    ServerName nagios.sysadminpedia.com
    ServerAdmin sysadmin@nagios.sysadminpedia.com
    DocumentRoot /usr/local/nagios/share
    <Directory /usr/local/nagios/share>
         Options -Indexes +FollowSymLinks
```

```
        AllowOverride All
    </Directory>

    ErrorLog /var/log/apache2/nagios.sysadminpedia.com-error.log
    CustomLog /var/log/apache2/nagios.sysadminpedia.com-access.log combined
</VirtualHost>
```

Restart the webserver, open your browser, and type your domain/subdomain for Nagios, and it should be like the image below:



Using a domain/subdomain for the Nagios application

Info

If you installed Nagios in a non-default folder, for example, in the /data folder, you can copy the script above, but you must change the word **/usr/local to /data**

References

en.wikipedia.org
assets.nagios.com
techoverflow.net

How to Make a Linux User Have the sudo Function?

written by sysadmin | 12 February 2025

SUDO stands for "**SuperUser DO**" and it is a program for Unix-like computer operating systems that enables users to run programs with the security privileges of another user, by default, the superuser. With sudo, a normal user can install or delete an application, change the server network, or even reboot or shut down the server.

Problem

How to make a Linux user have the sudo function?

Solution

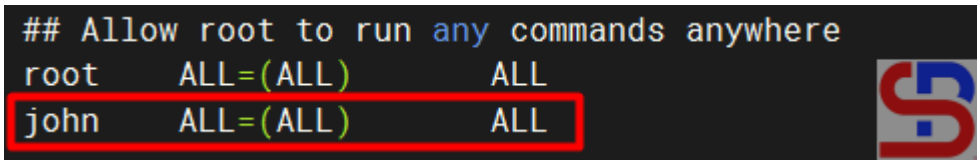
This article will explain how to make a Linux user have the sudo function on RockyLinux/AlmaLinux/CentOS, Ubuntu/Debian, and OpenSUSE distros. For example, you want to add the user john to these distros and want that user to be able to use the sudo function. As far as I know, there are two methods to do it:

1. Change the sudoers file

Open the /etc/sudoers file or use the command below:

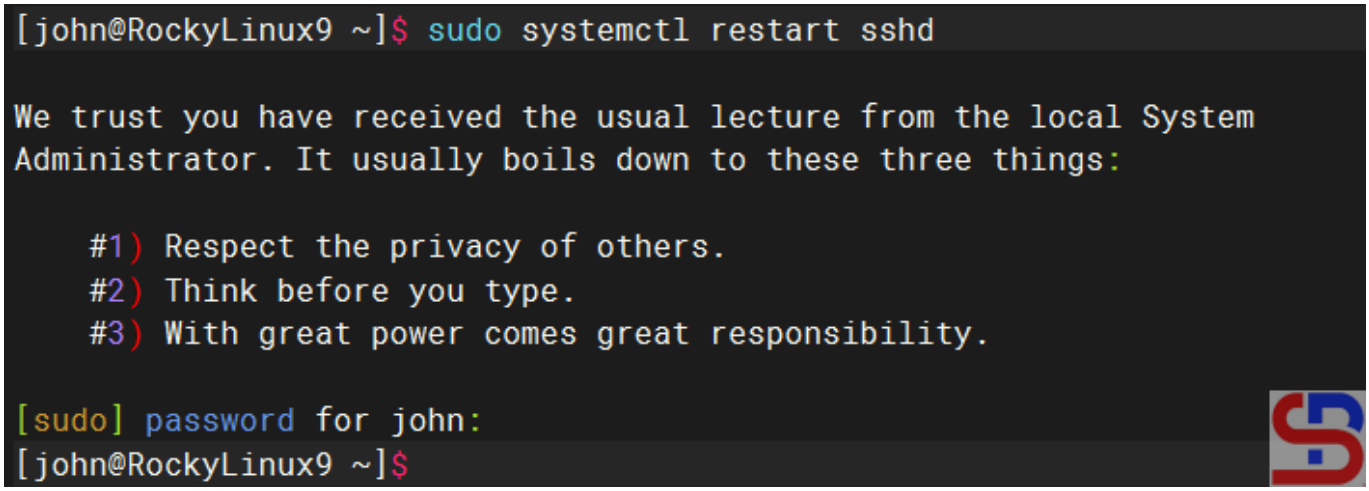
```
visudo
```

Add to the file the user name as in the image below:



Add the user in the sudoers file

After that, save the file and then try to add a new user using the user john, if there is a display like the image below:

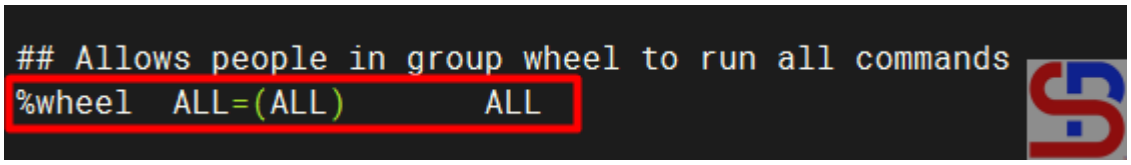


Choose number 1

Then select number **1**, and the user should successfully add a new user as in the image above.

2. Add the user to the sudo group

Add the user to the sudo group, where the name of this sudo group can vary in each distro. To see the name of the sudo group, look in the sudoers file and look for a sentence similar to '**Allows people in group to execute any command**'. For example, in RockyLinux and OpenSUSE, the name of the sudo group is **wheel**, **sudo** in Ubuntu, and don't forget to make sure to uncomment the section as in the image below:



Check the sudo group in the sudoers file

Then type the command below so that a user can use sudo:

RockyLinux & OpenSUSE

```
usermod -aG wheel john
```

```
[root@RockyLinux9 ~]# usermod -aG wheel john
[root@RockyLinux9 ~]#
[root@RockyLinux9 ~]# su - john
Last login: Wed Jan 15 05:51:59 EST 2025 on pts/0
[john@RockyLinux9 ~]$ sudo adduser edward
[sudo] password for john:
[john@RockyLinux9 ~]$
```

Add the user to the sudo group

Ubuntu/Debian

```
usermod -aG sudo john
```

Note

The two methods above can provide the sudo feature to a user on Linux so that the user can run commands that can only be executed by root if the user uses the sudo command by writing down the password. However, if you want the bob user not to have to enter a password when running the sudo command, then in the sudoers file, type the script below:

```
bob             ALL=(ALL)       NOPASSWD: ALL
```

Use the command below if you want the robin user to only be able to perform reboot commands using sudo, but not other commands using sudo:

```
robin           ALL=(ALL)     /usr/sbin/reboot
```

```
[robin@RockyLinux9 ~]$ sudo systemctl restart sshd
[sudo] password for robin:
Sorry, user robin is not allowed to execute '/bin/systemctl restart sshd' as root on RockyLinux9.
[robin@RockyLinux9 ~]$
```

Give the partial sudo function to the user

References

en.wikipedia.org
askubuntu.com
phoenixnap.com

How to Open and Close a Port in Ubuntu?

written by sysadmin | 12 February 2025

The previous article explained how to open and close ports in RockyLinux/AlmaLinux/CentOS. This article will explain how to open and close a port in Ubuntu.

Problem

How to open and close a port in Ubuntu?

Solution

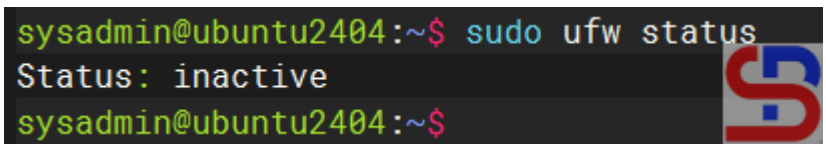
A. Check the firewall

By default, Ubuntu and Debian use the UFW or Uncomplicated Firewall application as the default firewall, and it is installed automatically when you install Ubuntu/Debian. If the firewall is not installed on your Ubuntu/Debian distro, use the command below:

```
sudo apt install ufw
```

To see whether ufw is running or not, use the command below:

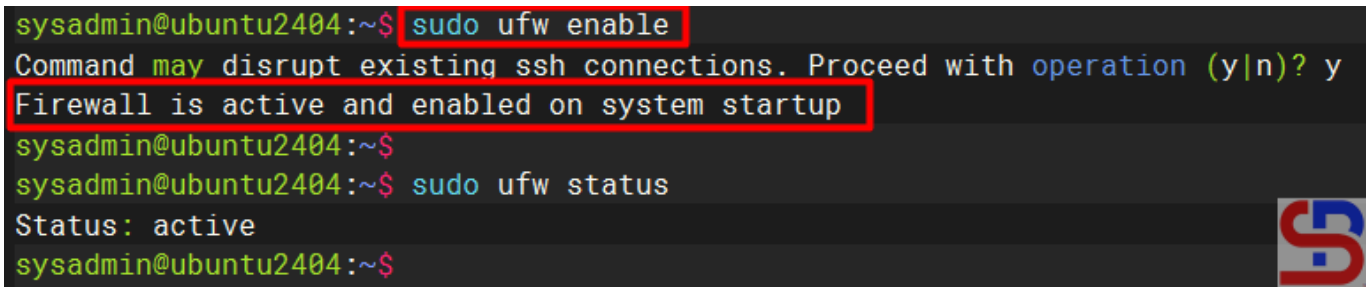
```
sudo ufw status
```



Check status ufw

From the image above, you can see that the application is not yet active. To enable it, type the command below:

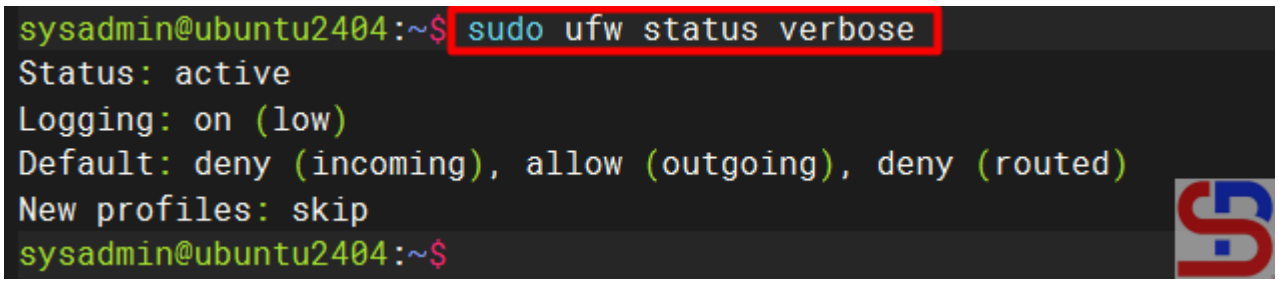
```
sudo ufw enable
```



Enable ufw

If you want to see the complete current status of the firewall, use the command below:

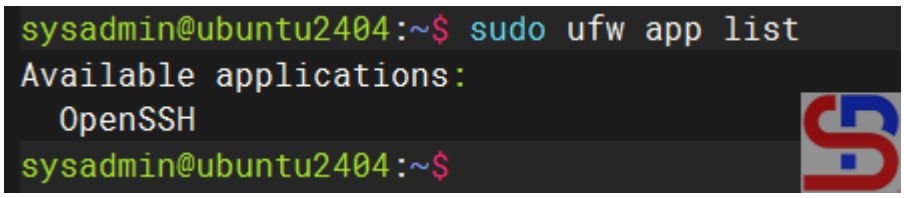
```
sudo ufw status verbose
```



Display the complete current status of the firewall

By default, the firewall only opens the OpenSSH service, which you can view by using the command below:

```
sudo ufw app list
```



Display the service that is open in the firewall

B. Open the port

To open a port, for example, port 43210, use the command below:

```
sudo ufw allow 43210
```

```
sysadmin@ubuntu2404:~$ sudo ufw allow 43210
Rule added
Rule added (v6)
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
43210                      ALLOW IN    Anywhere
43210 (v6)                 ALLOW IN    Anywhere (v6)

sysadmin@ubuntu2404:~$
```

Open the port

WARNING

If you open the port using the command above, it means you will open the port for both TCP and UDP.

To open a port range, for example, from port numbers 45000 to 45010 with the TCP protocol, use the command below:

```
sudo ufw allow 45000:45010/tcp
```

```
sysadmin@ubuntu2404:~$ sudo ufw allow 45000:45010/tcp
Rule added
Rule added (v6)
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
43210                      ALLOW       Anywhere
25/tcp                     ALLOW       Anywhere
22                         ALLOW       192.168.56.1
45000:45010/tcp            ALLOW       Anywhere
43210 (v6)                 ALLOW       Anywhere (v6)
25/tcp (v6)                ALLOW       Anywhere (v6)
45000:45010/tcp (v6)       ALLOW       Anywhere (v6)

sysadmin@ubuntu2404:~$
```

Open the range ports

C. Open the service

You can see from the image above that port 43210 has been opened on your Ubuntu server. You can also use the service name when opening a port. For example, if you want to open the SMTP service on your Ubuntu server, then use the command below:

```
sudo ufw allow smtp
```

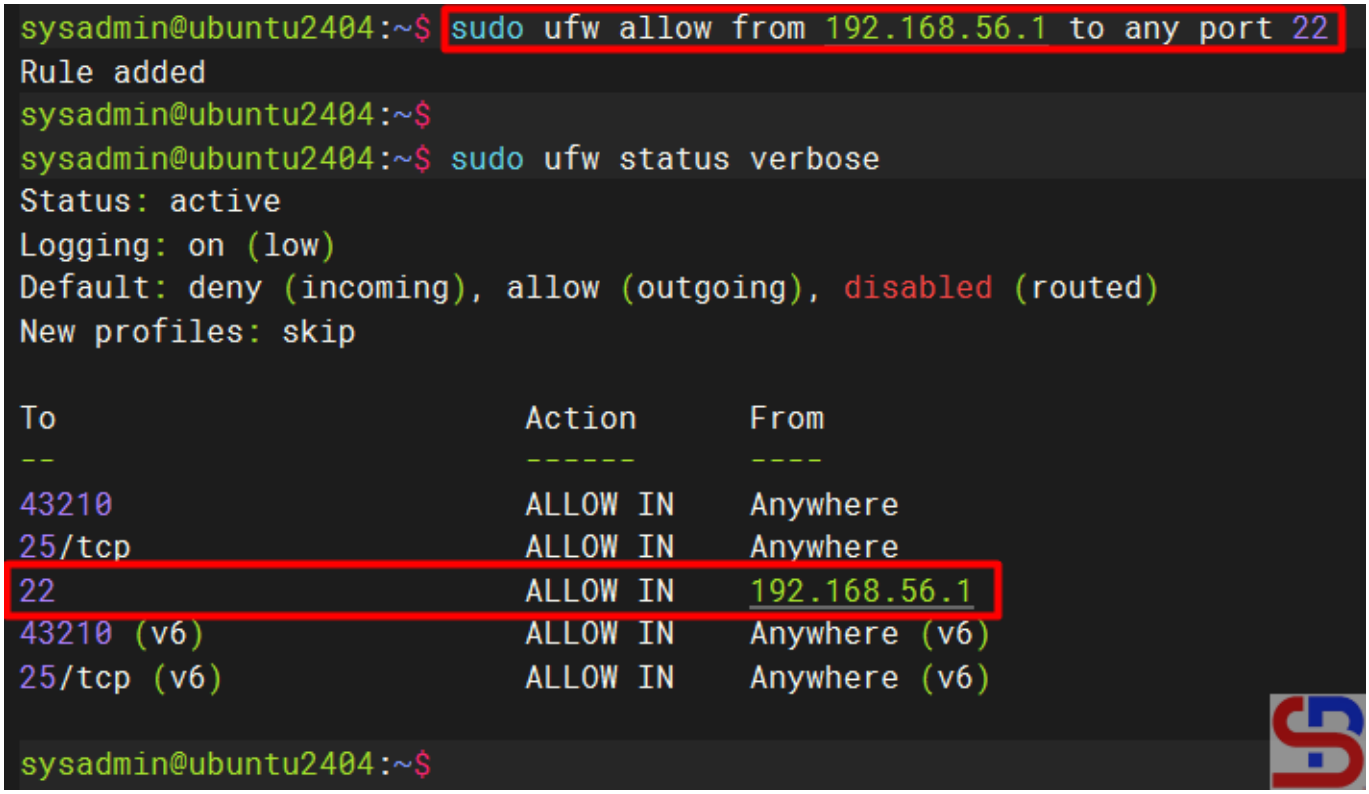
```
sysadmin@ubuntu2404:~$ sudo ufw allow smtp
Rule added
Rule added (v6)
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
43210                      ALLOW       Anywhere
25/tcp                     ALLOW       Anywhere
43210 (v6)                 ALLOW       Anywhere (v6)
25/tcp (v6)                ALLOW       Anywhere (v6)

sysadmin@ubuntu2404:~$
```

Open the SMTP service

D. Open the port from a certain IP

If you want to open a port from a certain IP, for example, you only allow IP 192.168.56.1 to access port 22 on this server, then use the command below:

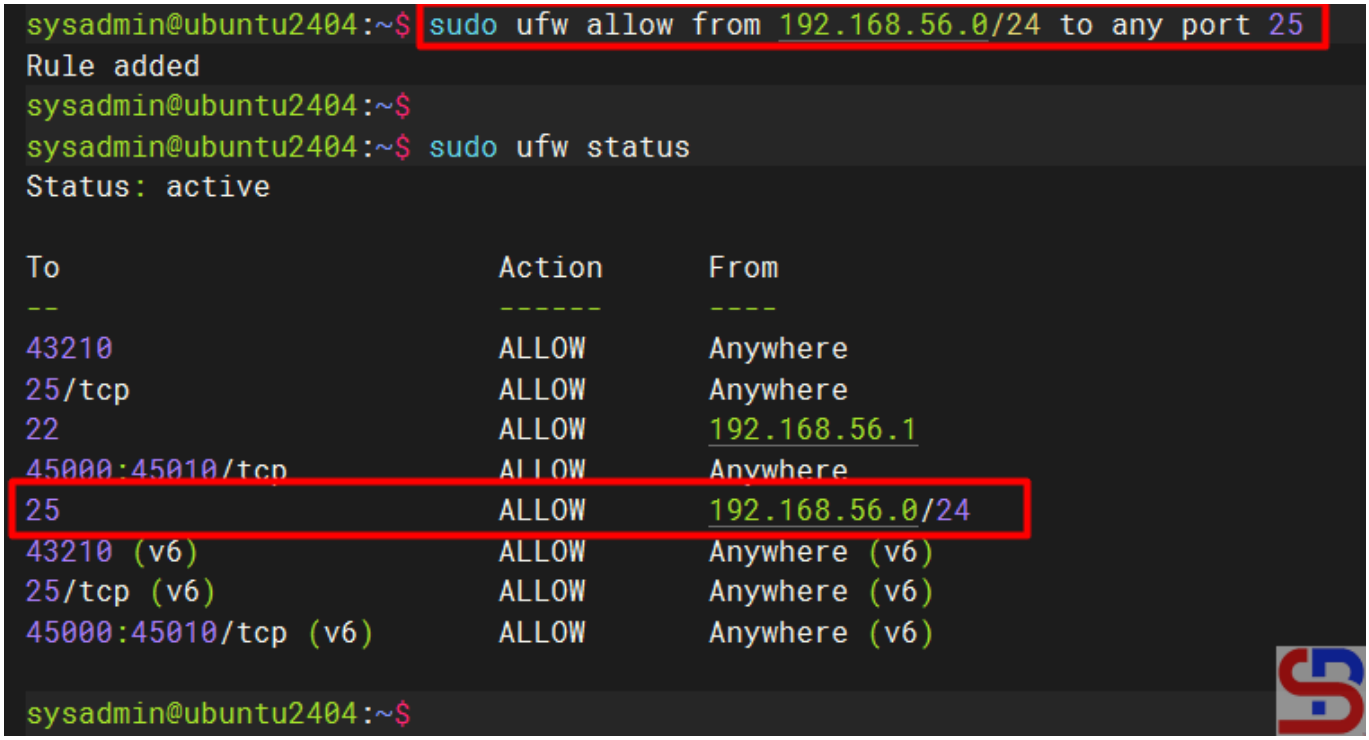
```
sudo ufw allow from 192.168.56.1 to any port 22
```



Allow the IP to a certain port

To allow the 192.168.56.0 subnet to the SMTP service, use the command below:

```
sudo ufw allow from 192.168.56.0/24 to any port 25
```

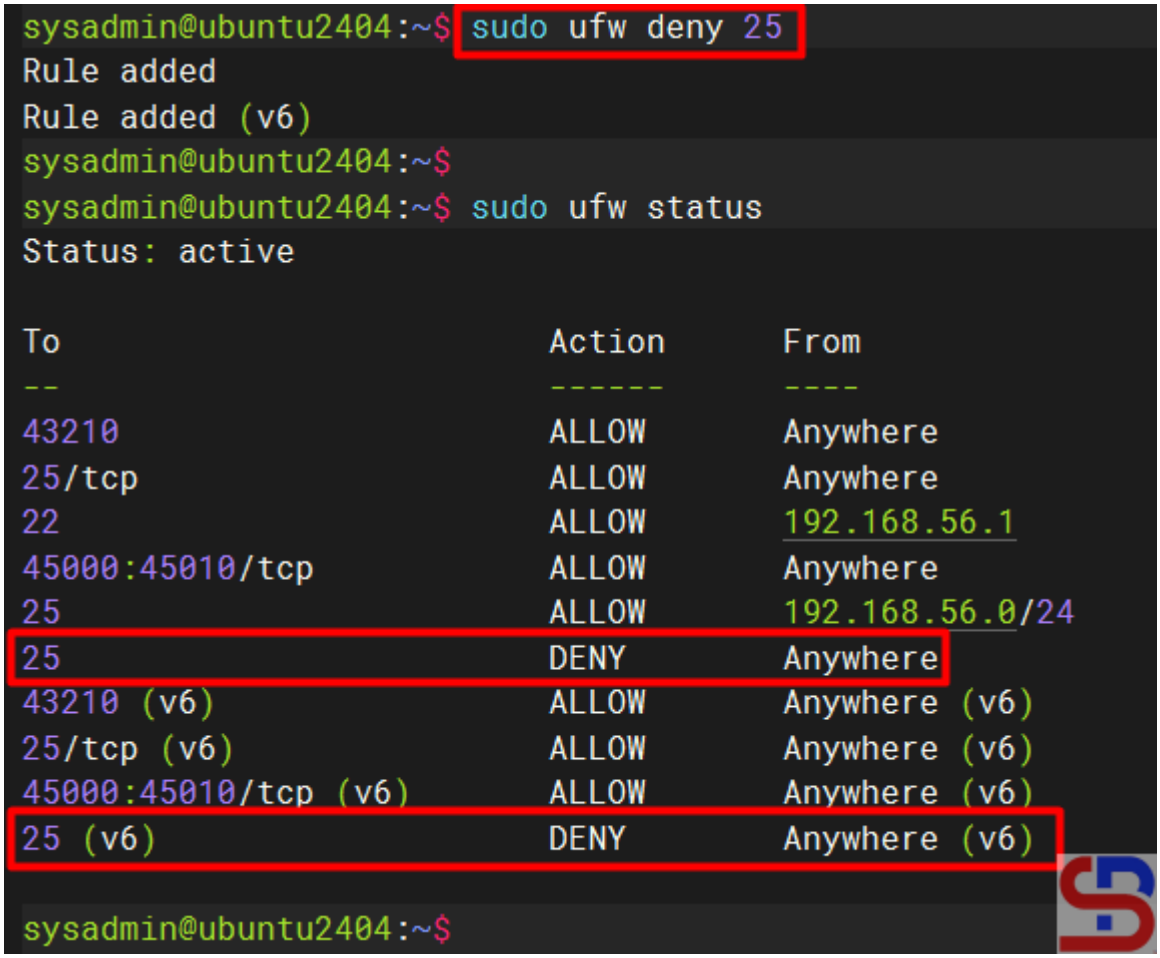


Allow the subnet to a certain port

E. Close the port

To close port 25, use the command below:

```
sudo ufw deny 25
```



Close the port

F. Delete the port

You can also close a port and delete the port that has been opened, for example, port 43210, using the syntax below:

```
sudo ufw delete number
```

```
sysadmin@ubuntu2404:~$ sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 43210                      ALLOW IN    Anywhere
[ 2] 25/tcp                     ALLOW IN    Anywhere
[ 3] 22                         ALLOW IN    192.168.56.1
[ 4] 45000:45010/tcp            ALLOW IN    Anywhere
[ 5] 25                         ALLOW IN    192.168.56.0/24
[ 6] 25                         DENY IN     Anywhere
[ 7] 43210 (v6)                 ALLOW IN    Anywhere (v6)
[ 8] 25/tcp (v6)                ALLOW IN    Anywhere (v6)
[ 9] 45000:45010/tcp (v6)       ALLOW IN    Anywhere (v6)
[10] 25 (v6)                    DENY IN     Anywhere (v6)

sysadmin@ubuntu2404:~$ sudo ufw delete 1
Deleting:
 allow 43210
Proceed with operation (y|n)? y
Rule deleted
sysadmin@ubuntu2404:~$
```

Close and delete the port

WARNING

You don’t need to run **sudo ufw reload** after each rule change using ufw commands (such as ufw allow or ufw deny). However, you will need to run **sudo ufw reload** if you are editing the ufw configuration file manually (such as /etc/ufw/before.rules or /etc/ufw/after.rules), or if you want to make sure all the latest rules and settings are loaded.

Note

You can remove all the rules in ufw by using the command below:

sudo ufw reset

After that, enable the ufw by using the command below:

sudo ufw enable

```
sysadmin@Ubuntu2404:~$ sudo ufw reset
Resetting all rules to installed defaults. This may disrupt existing ssh
connections. Proceed with operation (y|n)? y
Backing up 'user.rules' to '/etc/ufw/user.rules.20250515_081802'
Backing up 'before.rules' to '/etc/ufw/before.rules.20250515_081802'
Backing up 'after.rules' to '/etc/ufw/after.rules.20250515_081802'
Backing up 'user6.rules' to '/etc/ufw/user6.rules.20250515_081802'
Backing up 'before6.rules' to '/etc/ufw/before6.rules.20250515_081802'
Backing up 'after6.rules' to '/etc/ufw/after6.rules.20250515_081802'

sysadmin@Ubuntu2404:~$ sudo ufw status
Status: inactive
sysadmin@Ubuntu2404:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
sysadmin@Ubuntu2404:~$
```

Reset ufw

By default, if you open a port, it will automatically open in IPv4 and IPv6, and likewise, if you close the port. To see the UFW settings, open the **/etc/default/ufw** file.

```
sysadmin@ubuntu2404:~$ cat /etc/default/ufw
# /etc/default/ufw
#

# Set to yes to apply rules to support IPv6 (no means only IPv6 on loopback
# accepted). You will need to 'disable' and then 'enable' the firewall for
# the changes to take affect.
IPV6=yes

# Set the default input policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_INPUT_POLICY="DROP"

# Set the default output policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_OUTPUT_POLICY="ACCEPT"

# Set the default forward policy to ACCEPT, DROP or REJECT.  Please note that
# if you change this you will most likely want to adjust your rules
DEFAULT_FORWARD_POLICY="DROP"

# Set the default application policy to ACCEPT, DROP, REJECT or SKIP. Please
# note that setting this to ACCEPT may be a security risk. See 'man ufw' for
# details
DEFAULT_APPLICATION_POLICY="SKIP"
```

Configuration of ufw

References

cyberciti.biz
phoenixnap.com
digitalocean.com
help.ubuntu.com
askubuntu.com

How to Install gcloud on Ubuntu?

written by sysadmin | 12 February 2025

The previous article explained how the install gcloud on RockyLinux/AlmaLinux/CentOS. This article will explain how to install gcloud on Ubuntu.

Problem

How to install gcloud on Ubuntu?

Solution

Here are the steps to install gcloud on Ubuntu/Debian:

A. Install gcloud

As far as I know, there are 3 methods to install gcloud on Ubuntu/Debian and the methods recommend using a user other than root.

1. Using the script

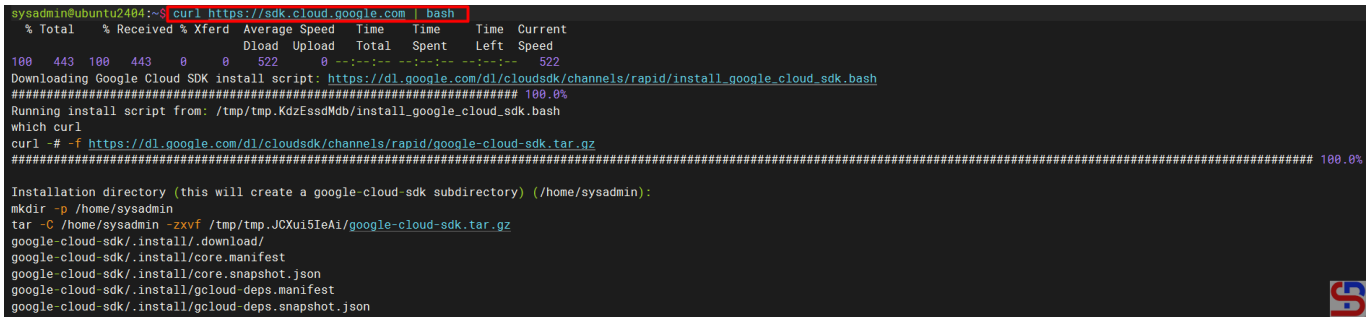
Before you download the script, install the packages using the command below:

```
sudo apt update
sudo apt-get install curl tar
```

Use the below command to download and install the script:

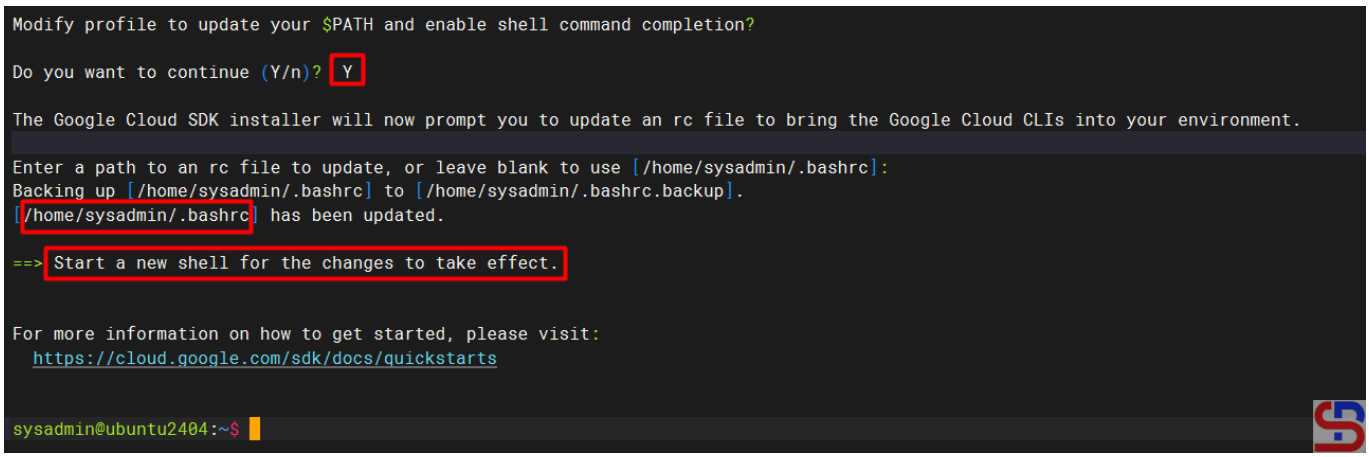
```
curl https://sdk.cloud.google.com | bash
```

Then you will see a display like the one below:



Install gcloud using the script

Wait until it’s finished, and you will see a display like the one below:



Installation complete

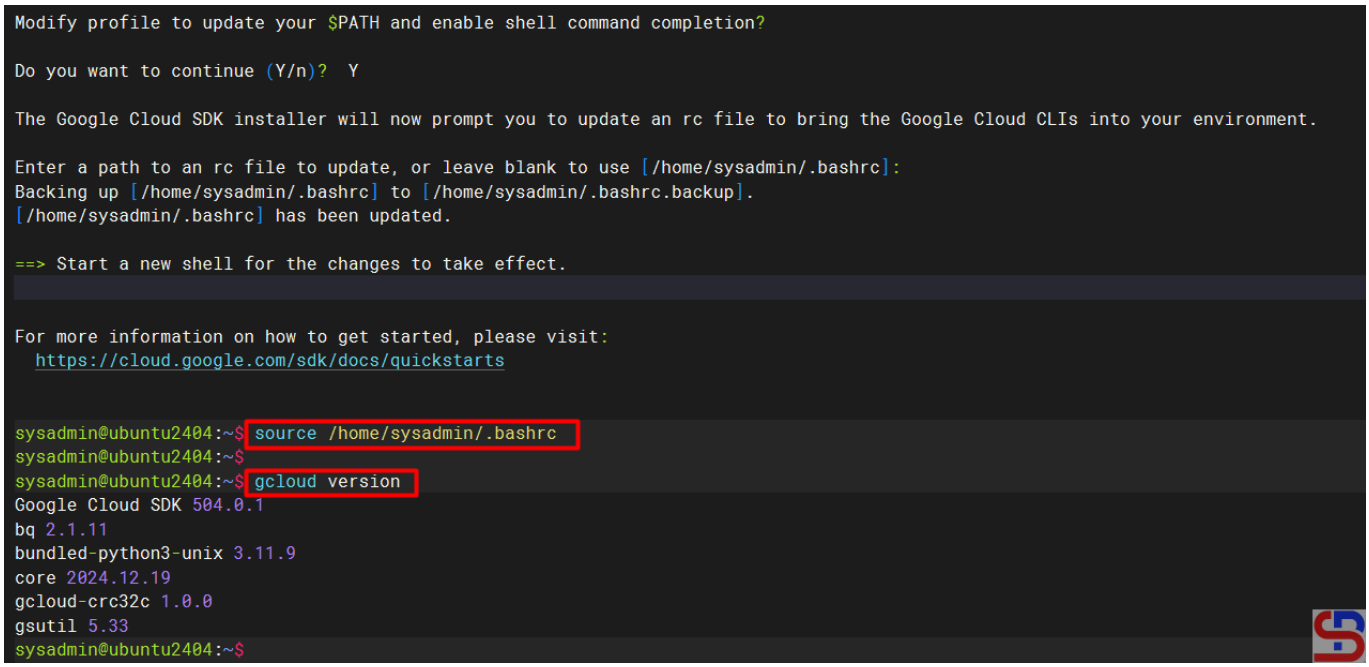
From the image above, you are asked to create a new SSH connection so that the effect can be seen, and type the command below:

```
gcloud version
```

However, you can use the command below:

```
source /home/sysadmin/.bashrc
```

So you don’t need to create a new SSH connection to run the gcloud version command, which results in the image below:



Check the result of the installation

2. Using the repository

Type the following commands to install gcloud on the Ubuntu/Debian distro:

```
sudo apt update
echo 'deb [signed-by=/usr/share/keyrings/cloud.google.gpg]
https://packages.cloud.google.com/apt cloud-sdk main' | sudo tee -a
sudo apt-get -y install apt-transport-https ca-certificates gnupg
curl https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key --
keyring /usr/share/keyrings/cloud.google.gpg add -
sudo apt update
sudo apt-get install -y google-cloud-sdk
```

3. Using the snap

Run the below command to install gcloud:

```
sudo snap install google-cloud-sdk --classic
```

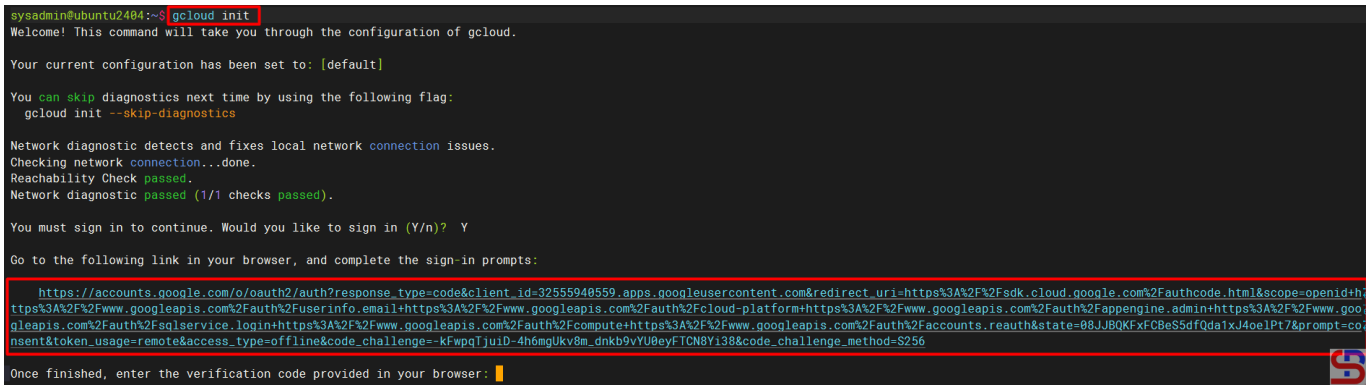
B. Connect to GCP

After you install gcloud on your server, type the command

below:

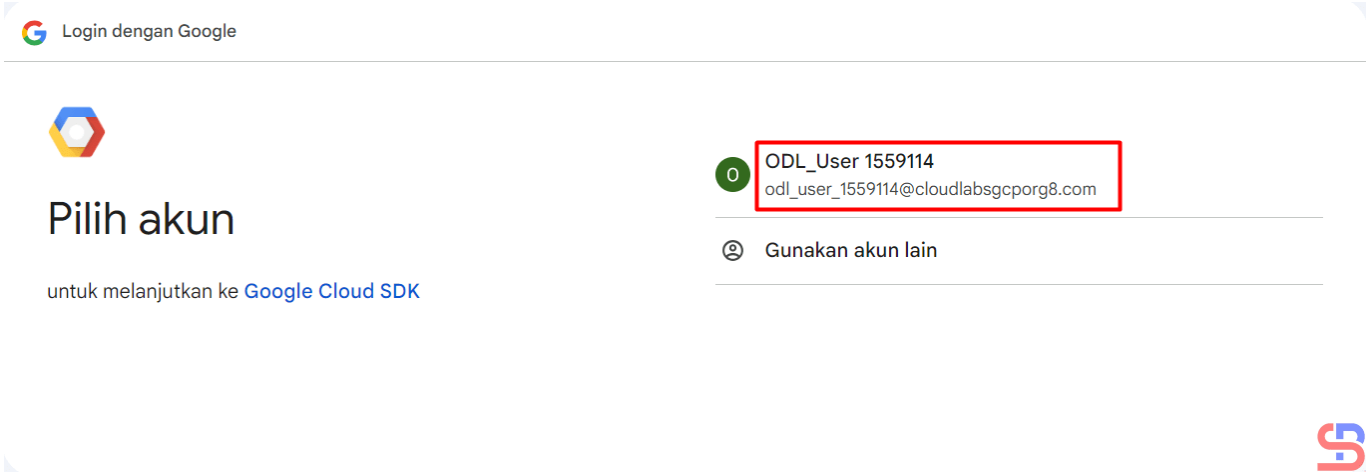
```
gcloud init
```

Then there will be a display like the image below:



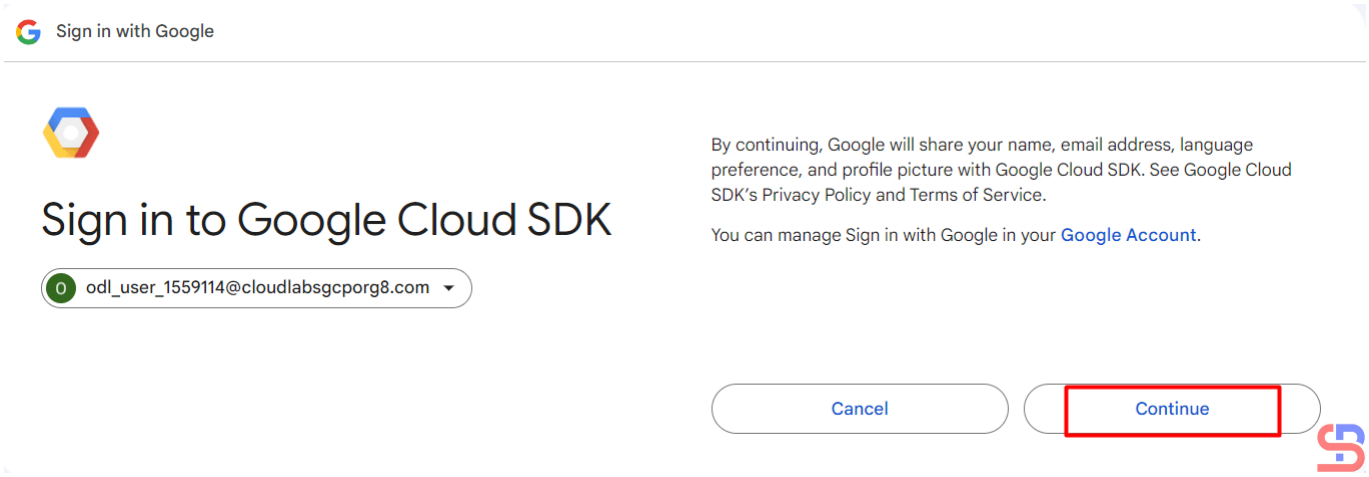
Click the link

You can open the link in a browser by clicking the **Ctrl+Click** button located in the red box. If you are having trouble doing so, copy what is included in the red box and paste it into your browser. This will allow you to view a display similar to the one that is shown below:



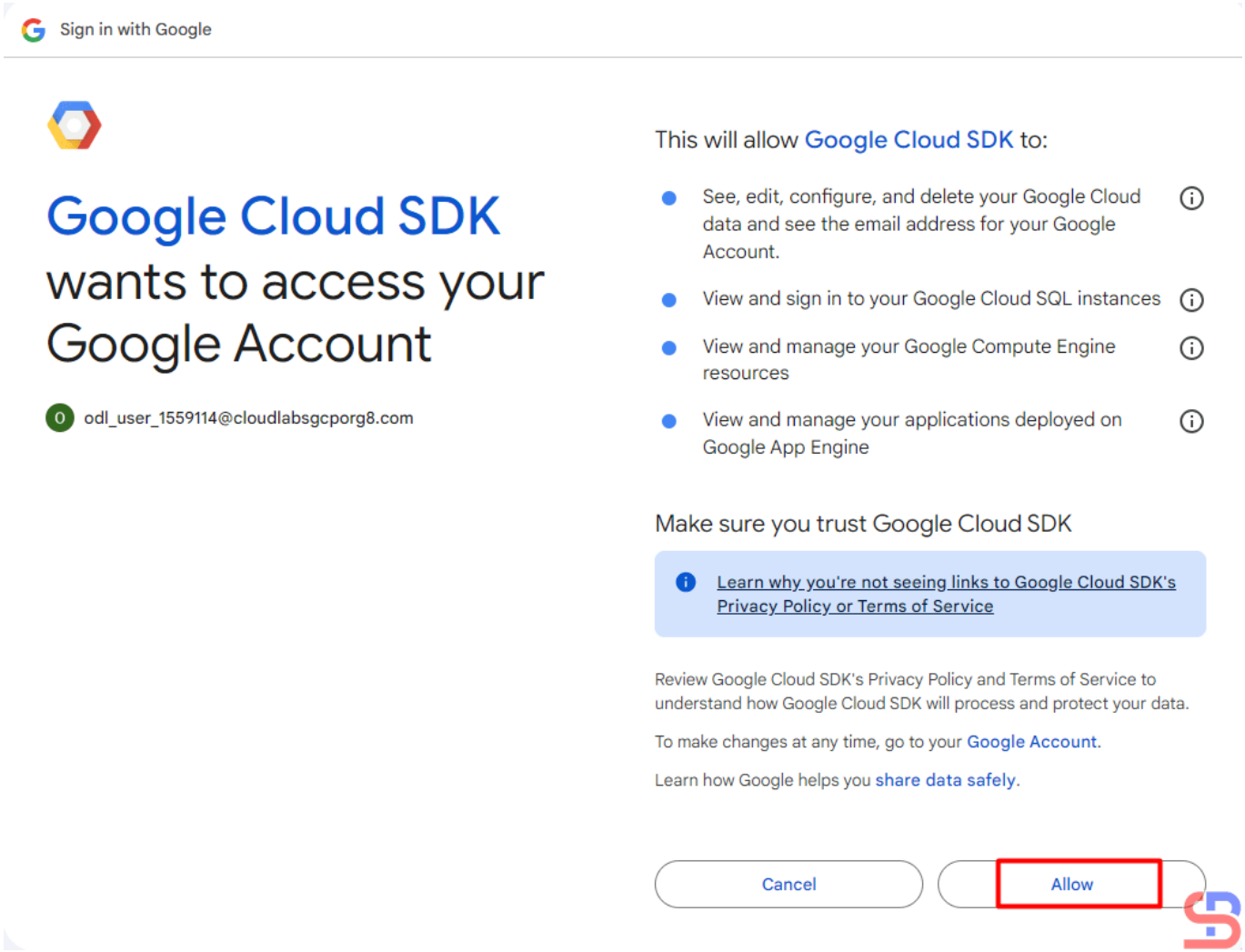
Click the account

When you click on your Google account, that will allow you to access GCP, and a display similar to the one shown below will appear:



Click the Continue button

After you click the **Continue** button, the screen below will show:



Click the Allow button

When you click the **Allow** button, the screen below will show:

Sign in to the gcloud CLI

You are seeing this page because you ran the following command in the gcloud CLI from this or another machine. If this is not the case, close this tab.

```
gcloud auth login --no-launch-browser
```

Enter the following verification code in gcloud CLI on the machine you want to log into. This is a credential **similar to your password** and should not be shared with others.

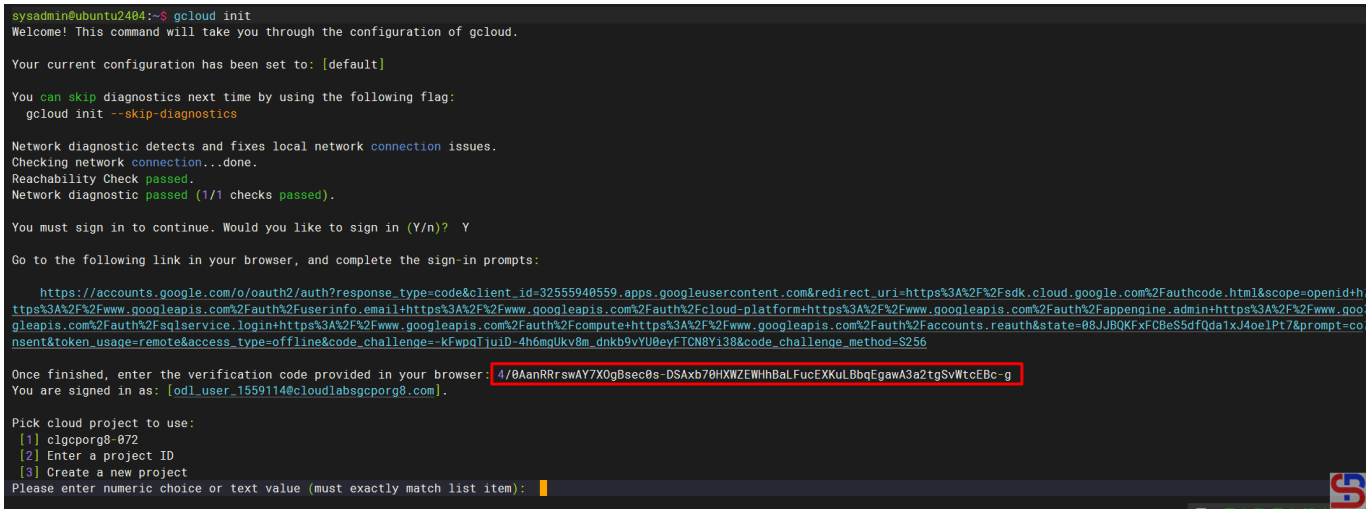
```
4/0AanRRrswAY7XOgBsec0s-DSAxb70HXWZEWH
hBaLFucEXKuLBbqEgawA3a2tgSvWtcEBc-g
```

Copy

You can close this tab when you're done.

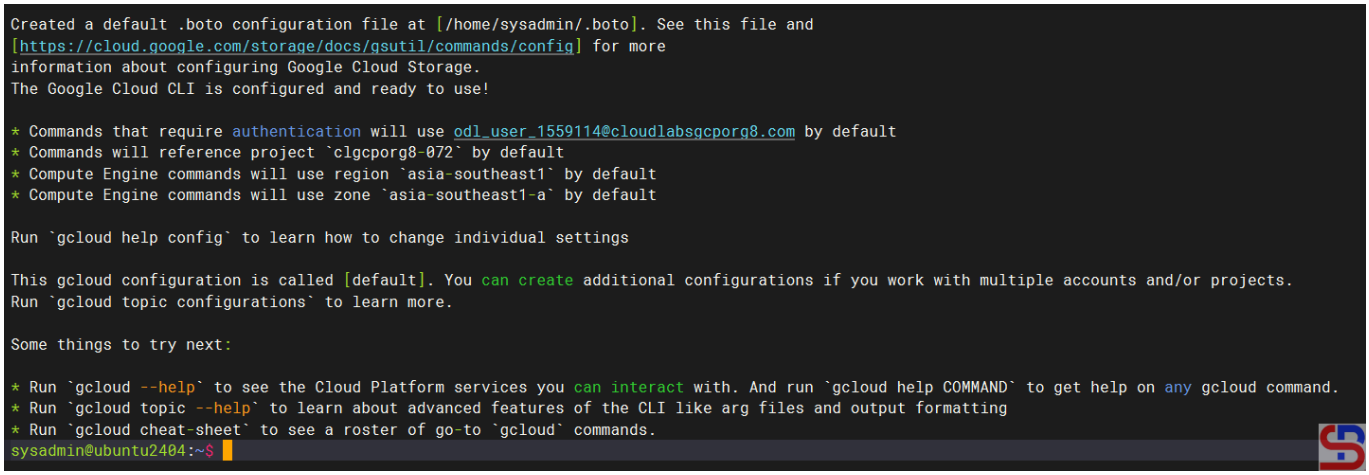
Click the Copy button

Click the **Copy** button, and paste it into the CLI on your server as in the image below:



Paste the code

Select the project and configure the zone as in the image above. After that, the gcloud configuration is complete, like in the image below:



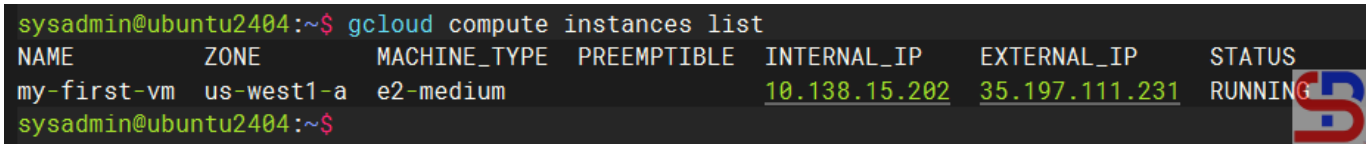
Installation of GCP is complete

C. Test gcloud

Now, try gcloud to access your GCP. I try to list my virtual machine in GCP using the below command:

```
gcloud compute instances list
```

Then the display below will appear:



Display virtual machine in GCP using gcloud

If you get a display like the image above, then you have successfully used your GCloud to access your GCP.

Note

If you have many projects on your GCP, you can choose one of these projects as the starting point for your gcloud on GCP. You can switch projects using the command:

```
gcloud config set project PROJECT_ID
```

Change **PROJECT_ID** to the project ID you want to switch to.

References

cloud.google.com
liquidweb.com
bacancytechnology.com
attuneops.io
tecadmin.net