The background features a complex abstract design. On the left, there are several concentric circles in shades of blue and grey, some with dashed lines. To the right, a network of blue and grey lines, resembling a circuit board or data paths, extends across the page. Small squares and dots are scattered throughout the design, particularly on the right side.

# **PENITRATION TESTING & SECURING CLOUD NETWORK**

**ROHIT GUPTA**

## CLOUD CREATION



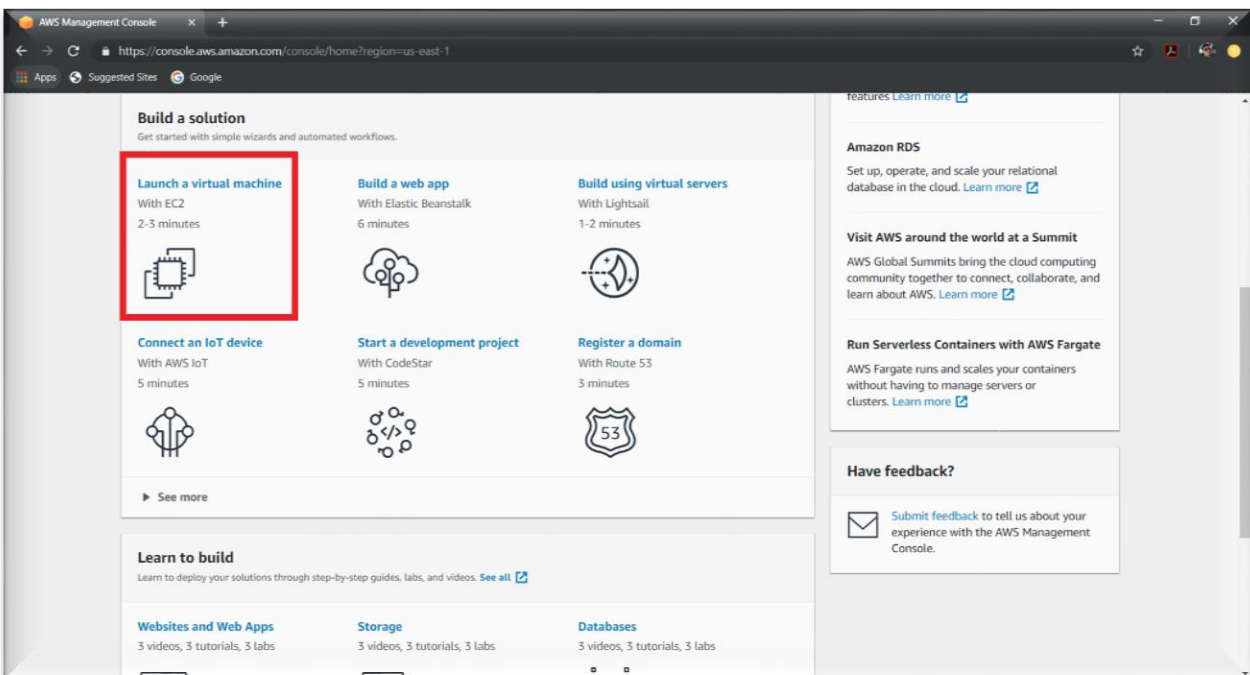
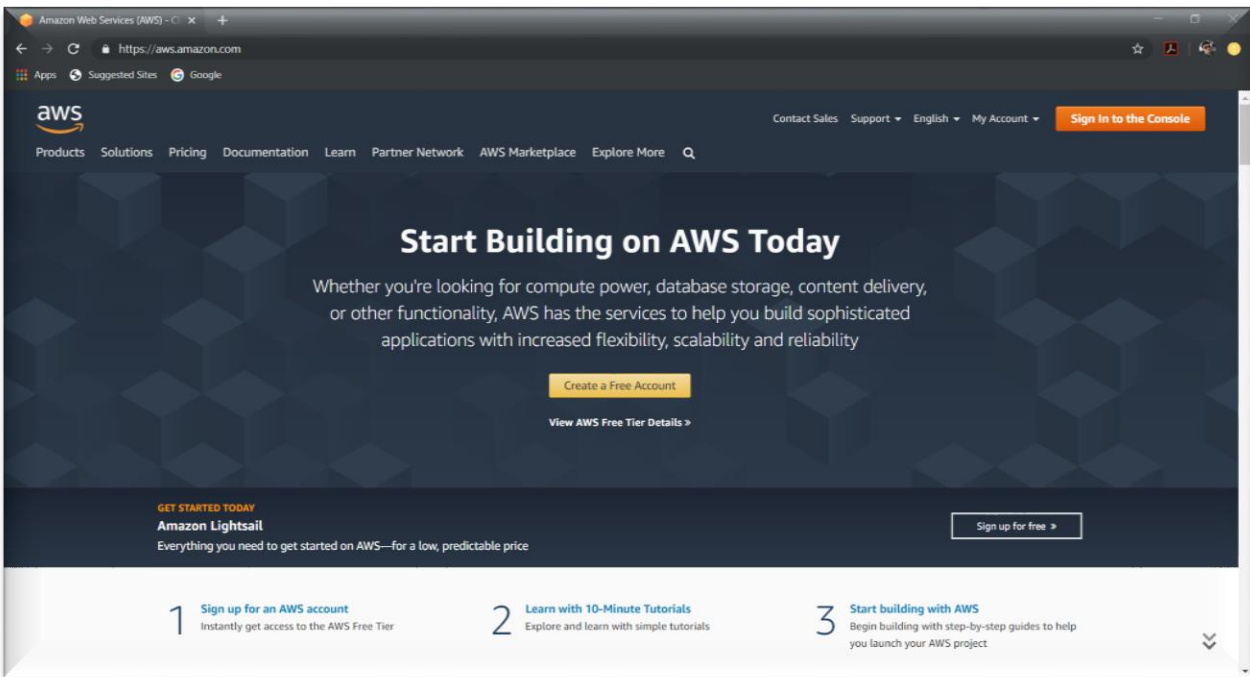
Amazon Web Services (AWS) is a subsidiary of Amazon that provides on-demand cloud computing platforms to individuals, companies and governments, on a metered pay-as-you-go basis. In aggregate, these cloud computing web services provide a set of primitive, abstract technical infrastructure and distributed computing building blocks and tools. One of these services is Amazon Elastic Compute Cloud, which allows users to have at their disposal a virtual cluster of computers, available all the time, through the Internet. AWS's version of virtual computers emulate most of the attributes of a real computer including hardware (CPU(s) & GPU(s) for processing, local/RAM memory, hard-disk/SSD storage); a choice of operating systems; networking; and pre-loaded application software such as web servers, databases, CRM, etc.

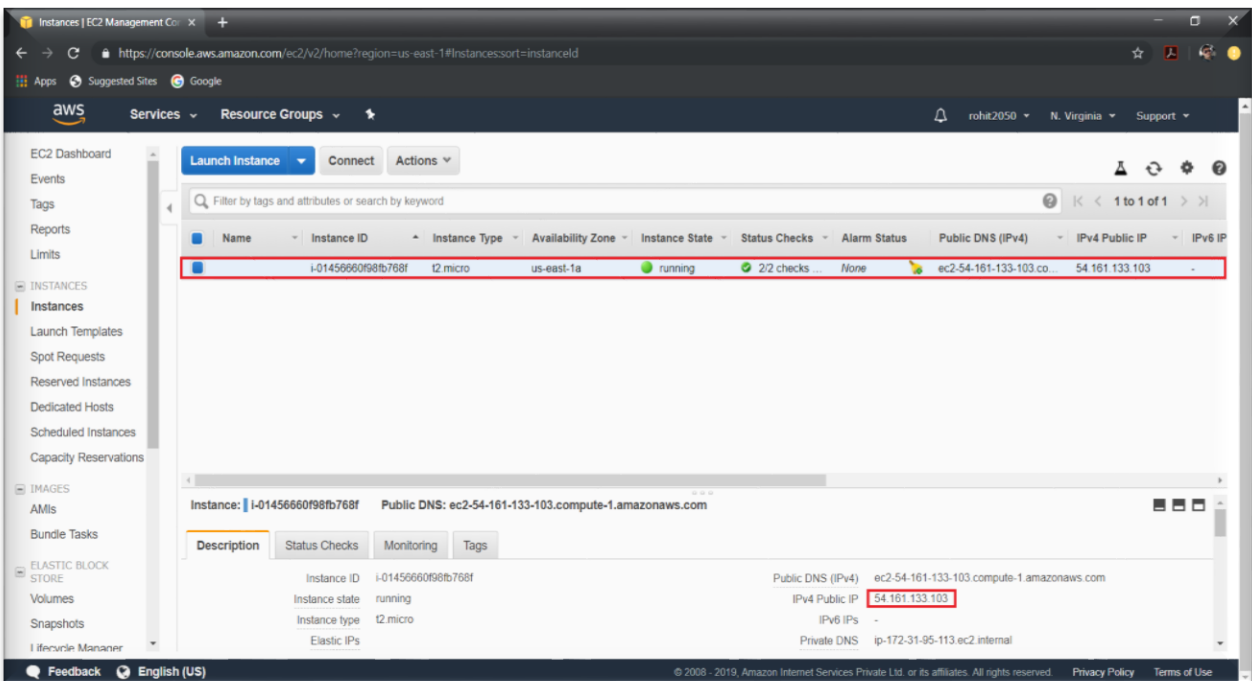
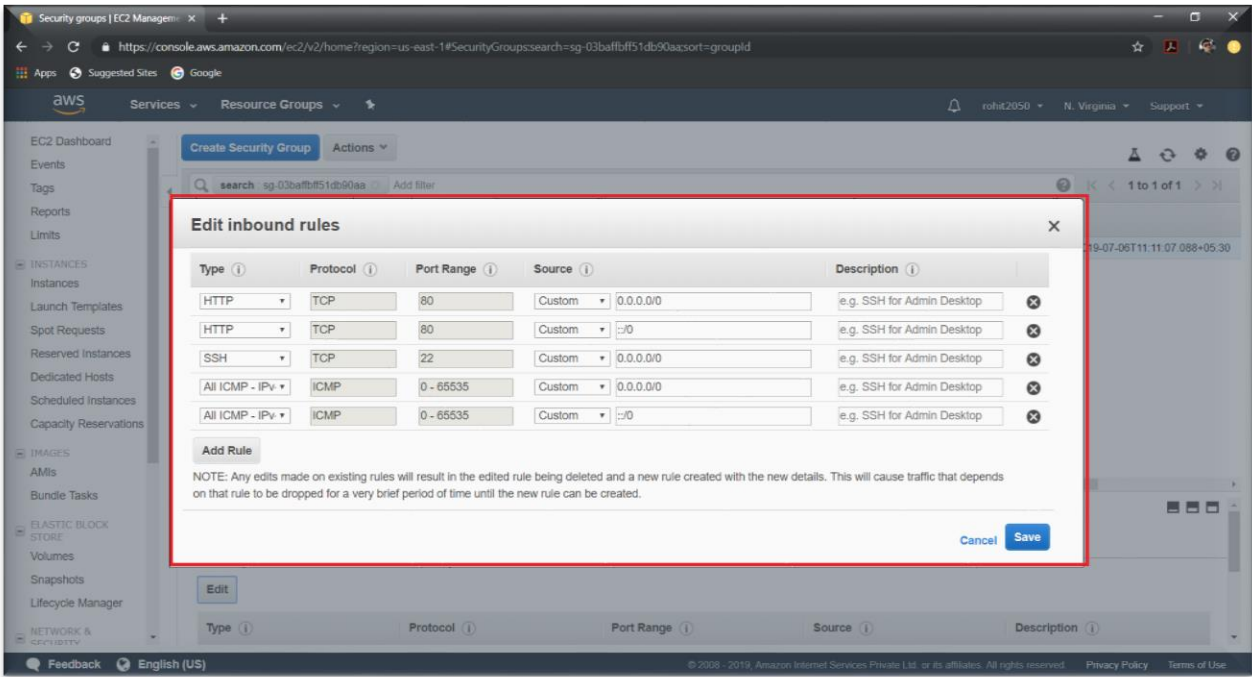
### **EC2**

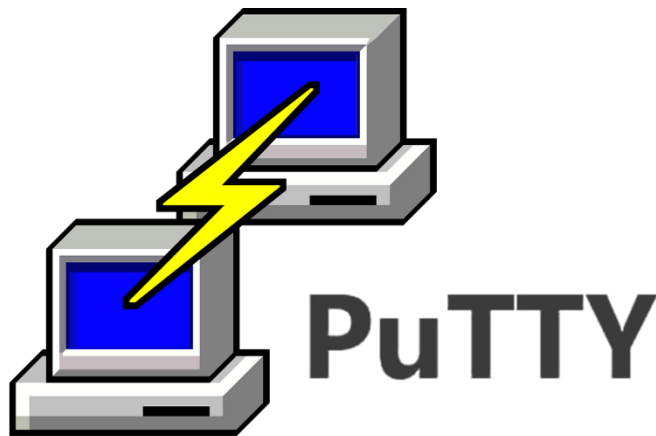
An EC2 instance is a virtual server in Amazon's Elastic Compute Cloud (EC2) for running applications on the Amazon Web Services (AWS) infrastructure. AWS is a comprehensive, evolving cloud computing platform; EC2 is a service that allows business subscribers to run

application programs in the computing environment. The EC2 can serve as a practically unlimited set of virtual machines.

## CREATING INSTANCE







It is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. It can also connect to a serial port. The name "PuTTY" has no official meaning.

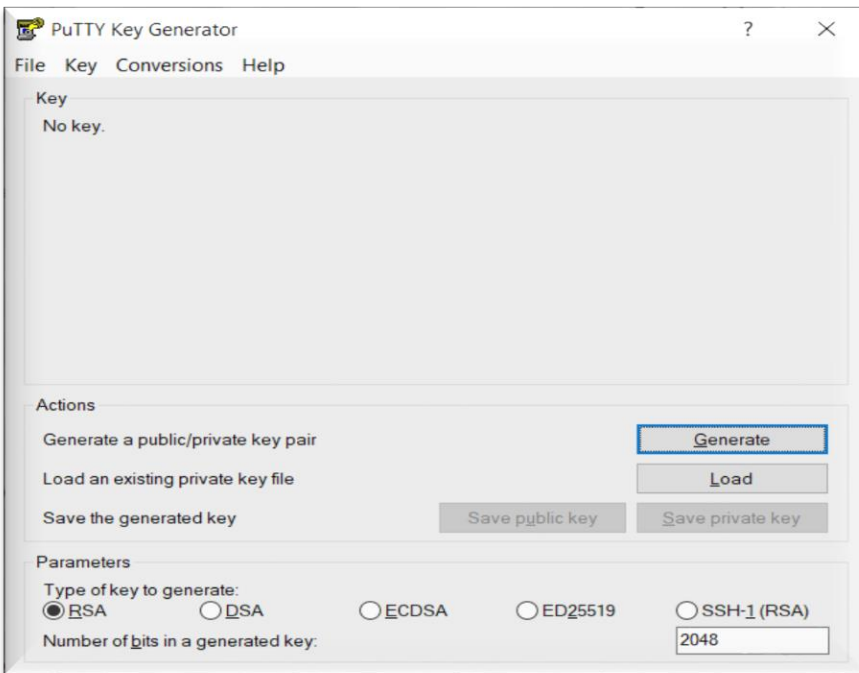
PuTTY was originally written for Microsoft Windows, but it has been ported to various other operating systems. Official ports are available for some Unix-like platforms, with work-in-progress ports to Classic Mac OS and macOS, and unofficial ports have been contributed to platforms such as Symbian, Windows Mobile and Windows Phone.

## **PUTTYGEN**

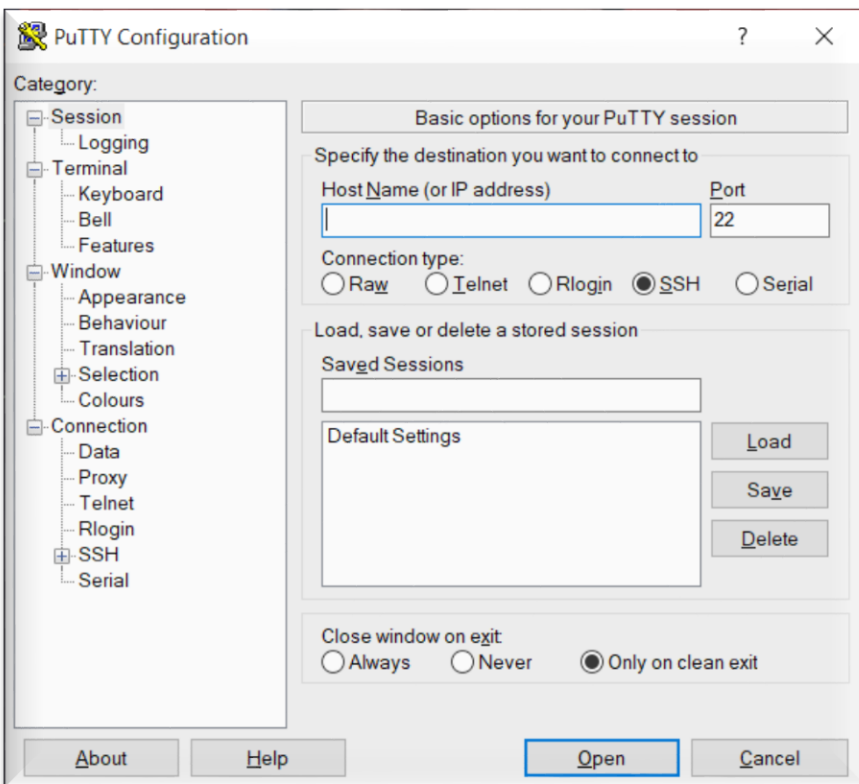
PuTTYgen originates from PuTTY and is also part of the PuTTY installation package. It does not matter if you use PuTTYgen from WinSCP or the PuTTY installation package, they are identical.

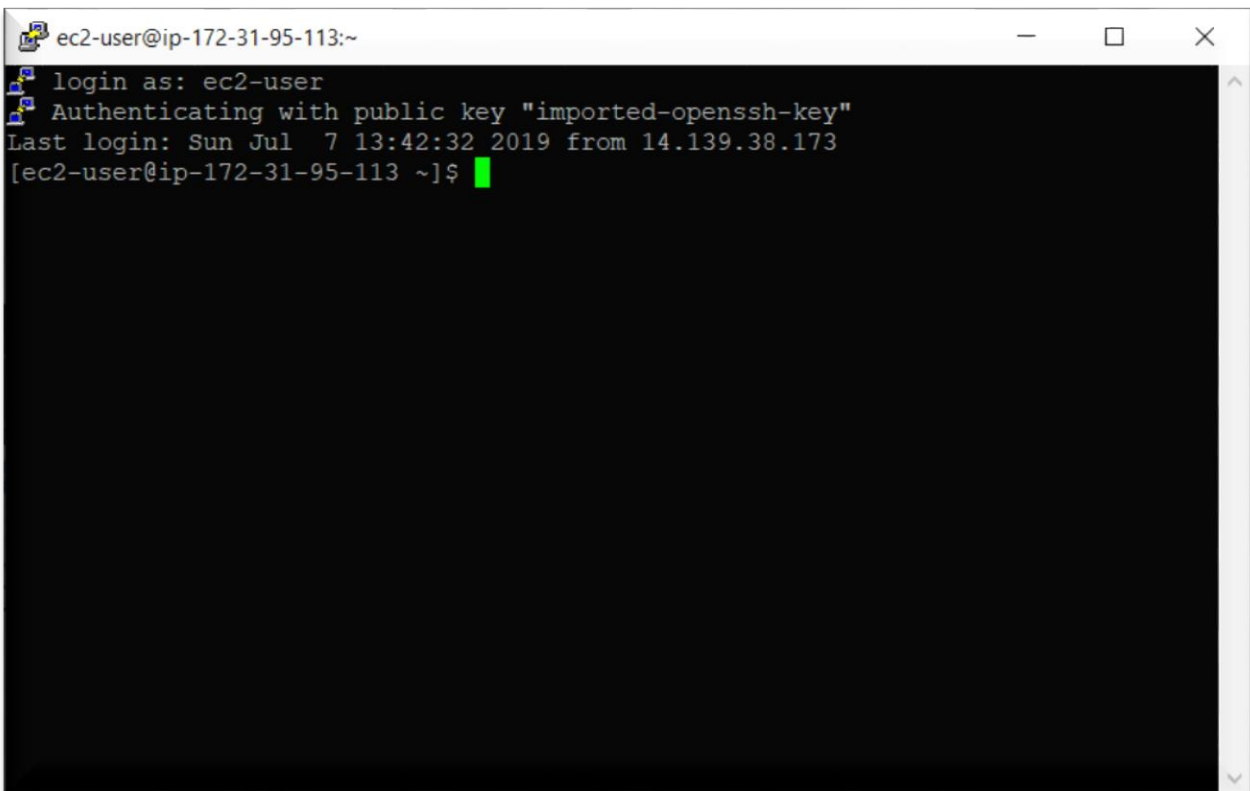
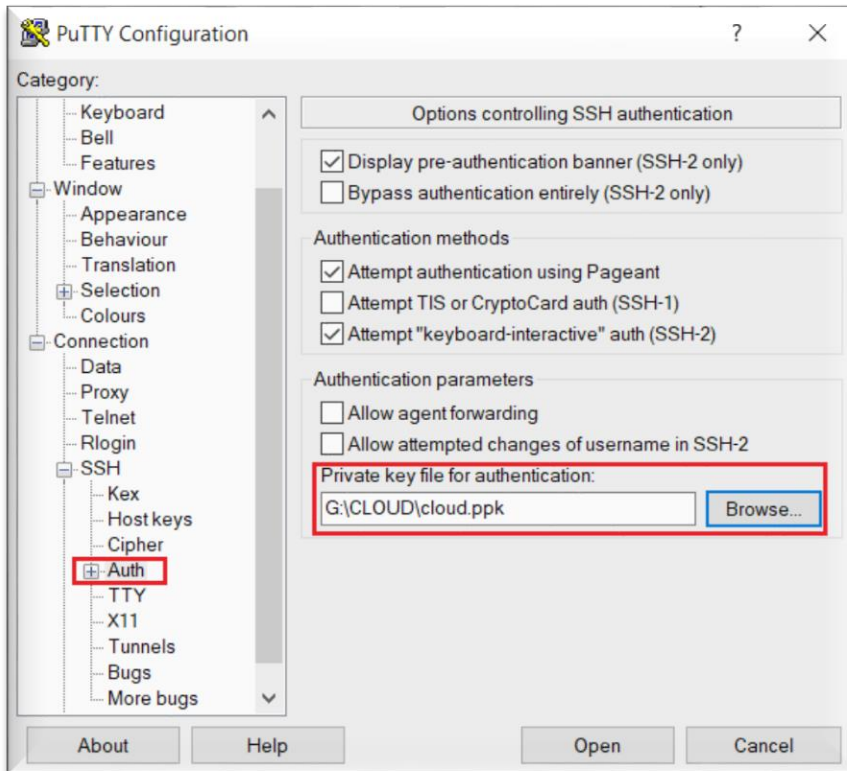
When you run PuTTYgen you will see a window where you have two choices: *Generate*, to generate a new public/private key pair, or *Load* to load in an existing private key.

# GENERATING THE KEY



# SETTING IT UP







# SETTING UP THE LAMP SERVER

## >>Installing httpd

```
root@ip-172-31-95-113:/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# yum install httpd*
Last metadata expiration check: 1:45:25 ago on Sun 07 Jul 2019 12:02:14 PM UTC.
Package httpd-2.4.37-11.module+el8.0.0+2969+90015743.x86_64 is already installed
.
Package httpd-devel-2.4.37-11.module+el8.0.0+2969+90015743.x86_64 is already installed.
Package httpd-filesystem-2.4.37-11.module+el8.0.0+2969+90015743.noarch is already installed.
Package httpd-manual-2.4.37-11.module+el8.0.0+2969+90015743.noarch is already installed.
Package httpd-tools-2.4.37-11.module+el8.0.0+2969+90015743.x86_64 is already installed.
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
httpd-itk x86_64 2.4.7.04-2.el7 epel 22 k
Transaction Summary
=====
Install 1 Package

Total download size: 22 k
Installed size: 33 k
Is this ok [y/N]: y
Downloading Packages:
httpd-itk-2.4.7.04-2.el7.x86_64.rpm
-----
```

## >>Installing mariadb

```
root@ip-172-31-95-113:/home/ec2-user
Is this ok [y/N]: y
Downloading Packages:
httpd-itk-2.4.7.04-2.el7.x86_64.rpm
-----
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :
  Installing     : httpd-itk-2.4.7.04-2.el7.x86_64
  Running scriptlet: httpd-itk-2.4.7.04-2.el7.x86_64
  Verifying      : httpd-itk-2.4.7.04-2.el7.x86_64

Installed:
httpd-itk-2.4.7.04-2.el7.x86_64

Complete!
[root@ip-172-31-95-113 ec2-user]# yum install mariadb*
Last metadata expiration check: 1:57:04 ago on Sun 07 Jul 2019 12:02:14 PM UTC.
Package mariadb-3.10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-backup-3.10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-common-3.10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-connector-c-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-connector-c-config-3.0.7-1.el8.noarch is already installed.
Package mariadb-connector-c-devel-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-connector-odbc-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-devel-3.10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
```



## >>Installing PHP

```
root@ip-172-31-95-113: /home/ec2-user

Installed:
  httpd-itk-2.4.7.04-2.el8.x86_64

Complete!
[root@ip-172-31-95-113 ec2-user]# yum install mariadb*
Last metadata expiration check: 1:57:04 ago on Sun 07 Jul 2019 12:02:14 PM UTC.
Package mariadb-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-backup-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-common-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-connector-c-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-connector-c-config-3.0.7-1.el8.noarch is already installed.
Package mariadb-connector-c-devel-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-connector-odbc-3.0.7-1.el8.x86_64 is already installed.
Package mariadb-devel-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-embedded-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-embedded-devel-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-errmsg-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-gssapi-server-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-java-client-2.2.5-2.el8.noarch is already installed.
Package mariadb-oggraph-engine-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-server-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-server-galera-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-server-utils-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Package mariadb-test-3:10.3.11-2.module+el8+2885+7b8bb354.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-95-113 ec2-user]# yum install php*
```

## >>Starting Services

```
root@ip-172-31-95-113: /home/ec2-user

[root@ip-172-31-95-113 ec2-user]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@ip-172-31-95-113 ec2-user]# service mariadb start
Redirecting to /bin/systemctl start mariadb.service
[root@ip-172-31-95-113 ec2-user]#
```

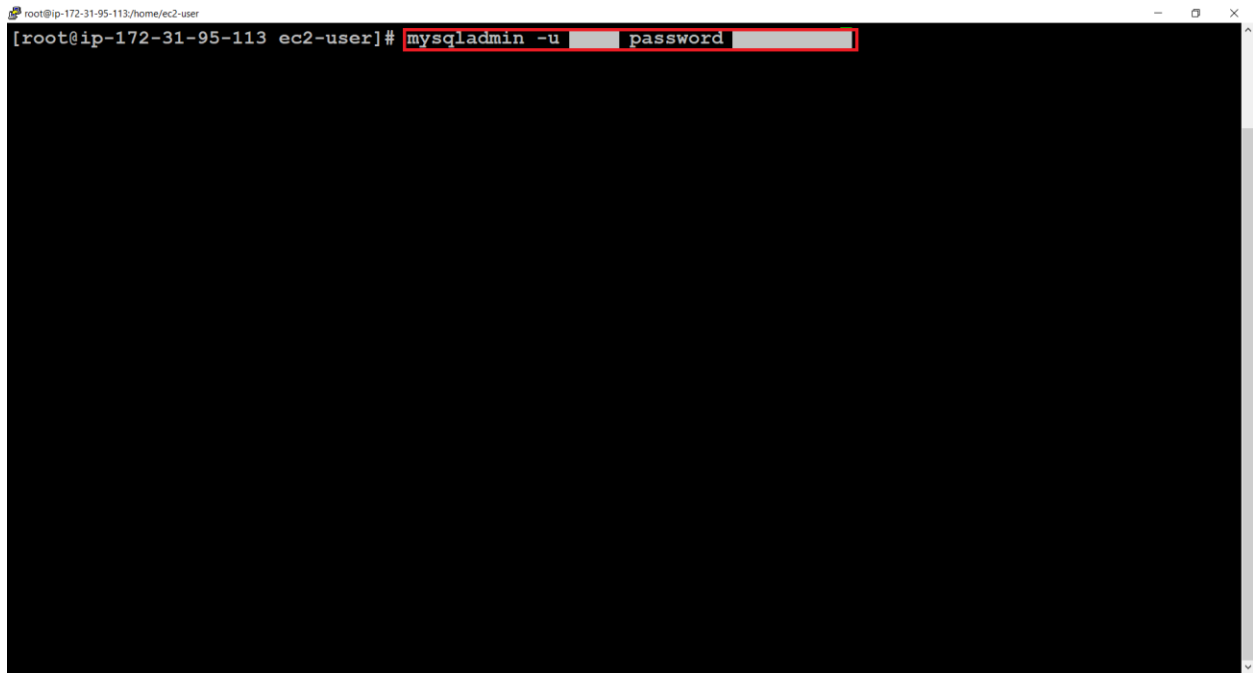
>>Permanently starting the services

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# chkconfig mariadb on
Note: Forwarding request to 'systemctl enable mariadb.service'.
[root@ip-172-31-95-113 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
[root@ip-172-31-95-113 ec2-user]#
```

>>Disabling selinux

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# setenforce 0
```

# CREATING DATABASE

A terminal window with a black background and white text. The title bar at the top reads 'root@ip-172-31-95-113/home/ec2-user'. The command prompt shows '[root@ip-172-31-95-113 ec2-user]#'. The command 'mysqladmin -u' is entered, followed by a redacted username (a grey box), then 'password' is entered, followed by a redacted password (a grey box). The command is enclosed in a red rectangular box.

```
root@ip-172-31-95-113/home/ec2-user  
[root@ip-172-31-95-113 ec2-user]# mysqladmin -u [REDACTED] password [REDACTED]
```

>>Login as root

```
root@ip-172-31-95-113:/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 435
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
```

## >>Creating User

```
root@ip-172-31-95-113:/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 435
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> create user ' ' 'localhost' identified by ' ';
```

## >>Creating owncloud database

```
root@ip-172-31-95-113:/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> create database 
```

>>Giving privileges to the user

```
root@ip-172-31-95-113:/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> GRANT ALL PRIVILEGES ON *.* to '@localhost IDENTIFIED BY 
```

## INSTALLING OWNCLOUD



OwnCloud is a suite of client–server software for creating and using file hosting services. ownCloud functionally has similarities to the widely used Dropbox. The primary functional difference between ownCloud and Dropbox is that ownCloud does not offer data centre capacity to host stored files. The Server Edition of ownCloud is free and open-source,



thereby allowing anyone to install and operate it without charge on their own private server.

>> adding repository

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> exit
Bye
[root@ip-172-31-95-113 ec2-user]# rpm --import https://download.owncloud.org/download/repositories/stable/CentOS_7/repodata/repomd.xml.key
```

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> exit
Bye
[root@ip-172-31-95-113 ec2-user]# curl -L https://download.owncloud.org/download/repositories/stable/CentOS_7/ce:stable.repo -o /etc/yum.repos.d/ownCloud.repo
```

## >>Install OwnCloud

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> exit
Bye
[root@ip-172-31-95-113 ec2-user]# yum install owncloud
```

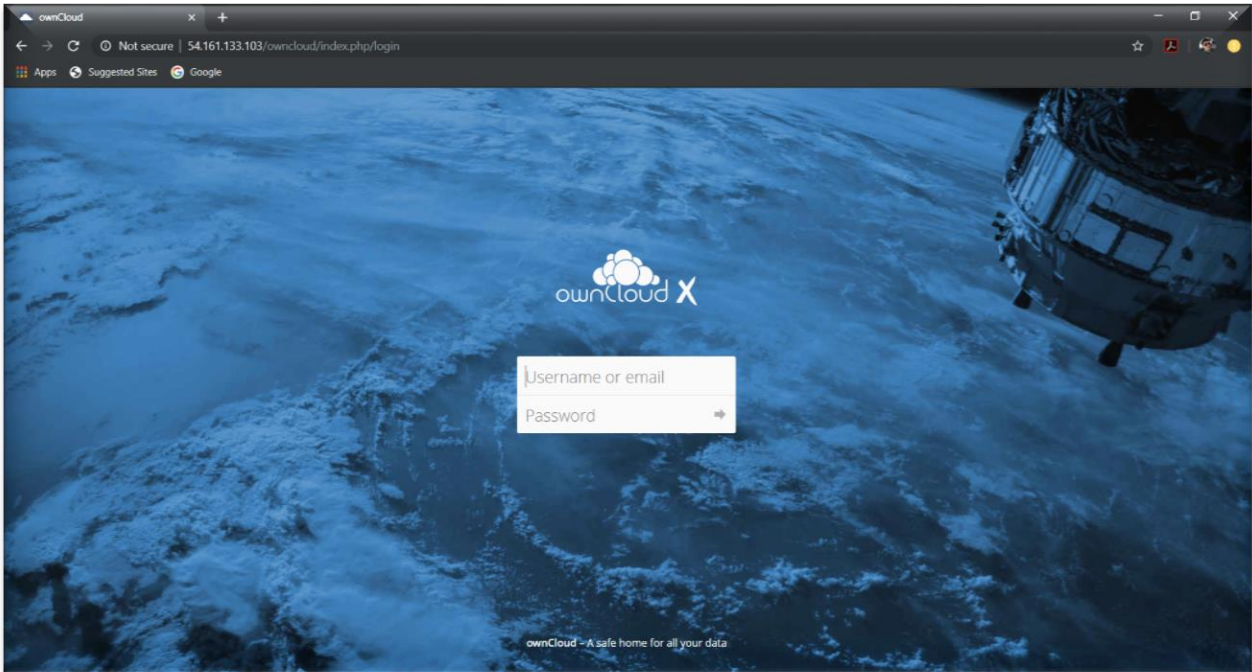
## >>Restarting services

```
root@ip-172-31-95-113/home/ec2-user
[root@ip-172-31-95-113 ec2-user]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 436
Server version: 10.3.11-MariaDB MariaDB Server

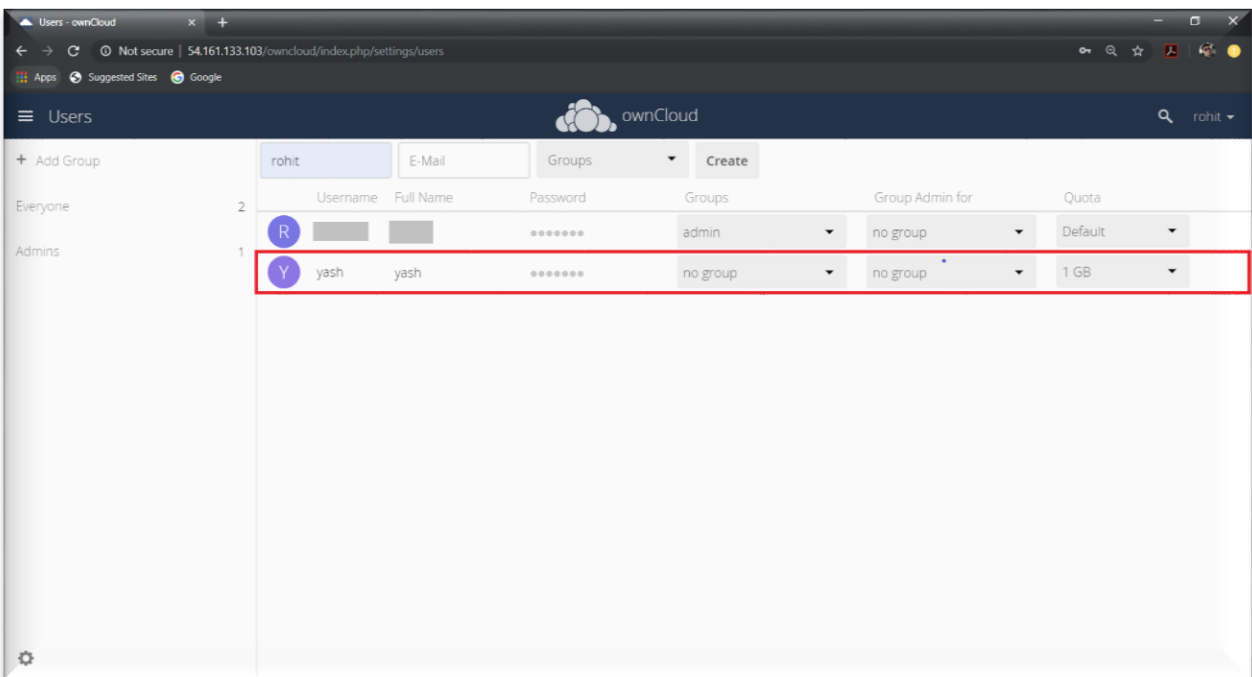
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> exit
Bye
[root@ip-172-31-95-113 ec2-user]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@ip-172-31-95-113 ec2-user]# service mariadb restart
Redirecting to /bin/systemctl restart mariadb.service
[root@ip-172-31-95-113 ec2-user]#
```



## CREATING USERS AND GROUPS



# LIMITING THE DISK USAGE TO 2GB/USER

Users - ownCloud

Not secure | 54.161.133.103/owncloud/index.php/settings/users#

Apps Suggested Sites Google

Users ownCloud

rohit

+ Add Group

rohit E-Mail class Create

	Username	Full Name	Password	Groups	Group Admin for	Quota
Everyone 3	Ayush	Ayush	*****	class	no group	Default
Admins 1	R		*****	admin	class	2 GB
class 2	yash	yash	*****	class	no group	2 GB

gear icon