CentOS

Group member:

Chong Hong Yao	2370277-DCS
Wong Chee Hang	2370088-DCS
Ng Kah Dung	2370282-DCS
Quee You Xin	2370283-DCS

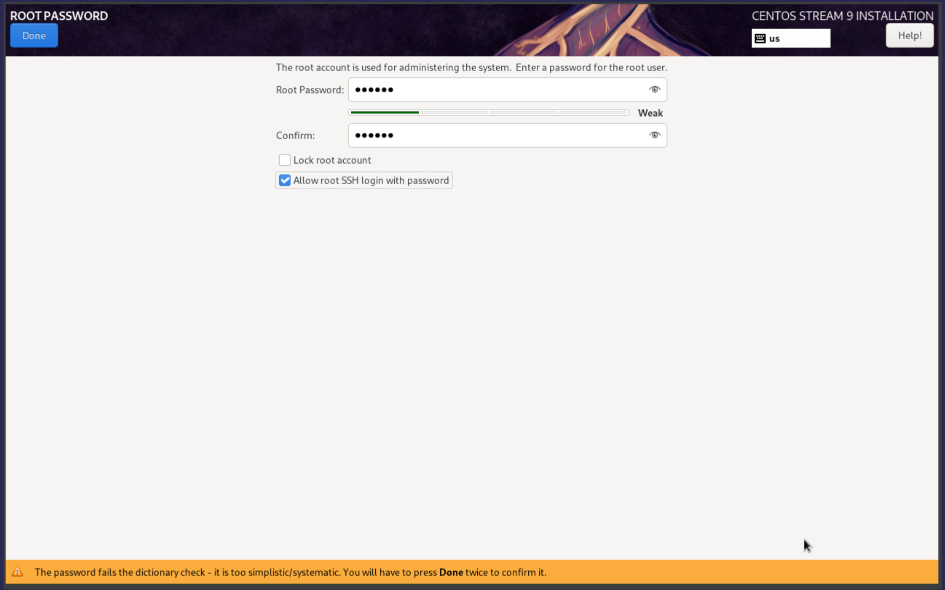
SSH Configuration

The use of ssh is to a method for securely sending commands to a computer over an unsecured network.

Example:

1. How to setup.
2.How to access.
3.How to test SSH.
2.

Setup SSH



The root account is used for administering the system. Enter a password for the root user.

Root Password: ••••••

Weak

Confirm: ••••••

□ Lock root account

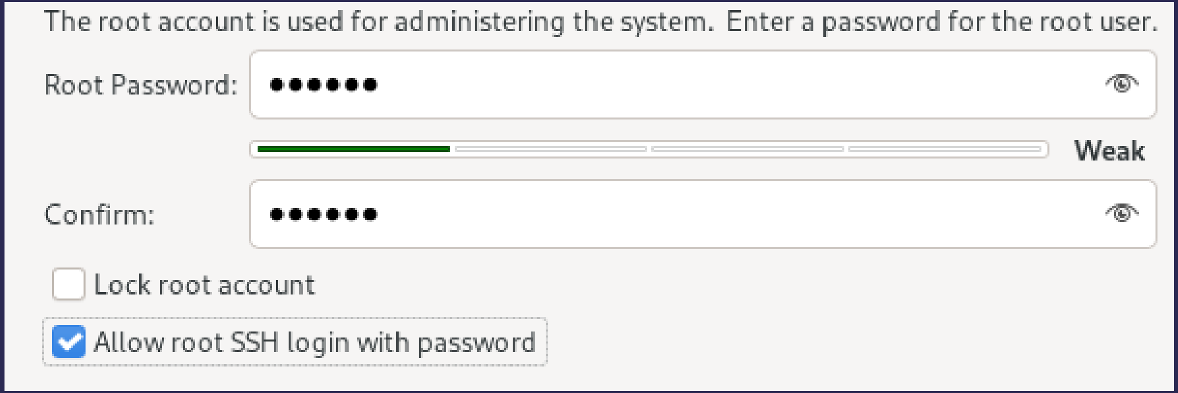
☑ Allow root SSH login with password

The password fails the dictionary check - it is too simplistic/systematic. You will have to press **Done** twice to confirm it.

To allowed root access

enable root SSH login with password allowed you to have full access of the system.

Setup SSH



The root account is used for administering the system. Enter a password for the root user.

Root Password: ●●●●●●

Weak

Confirm: ●●●●●●

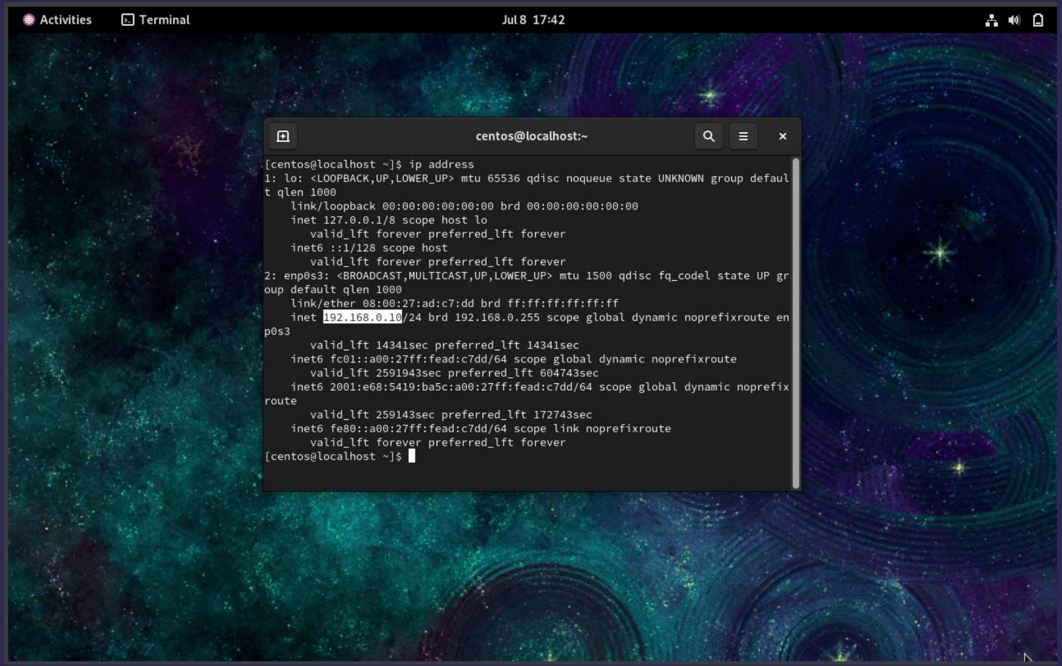
☐ Lock root account

☑ Allow root SSH login with password

To allowed root access

enable root SSH login with password allowed you to have full access of the system.

Access SSH

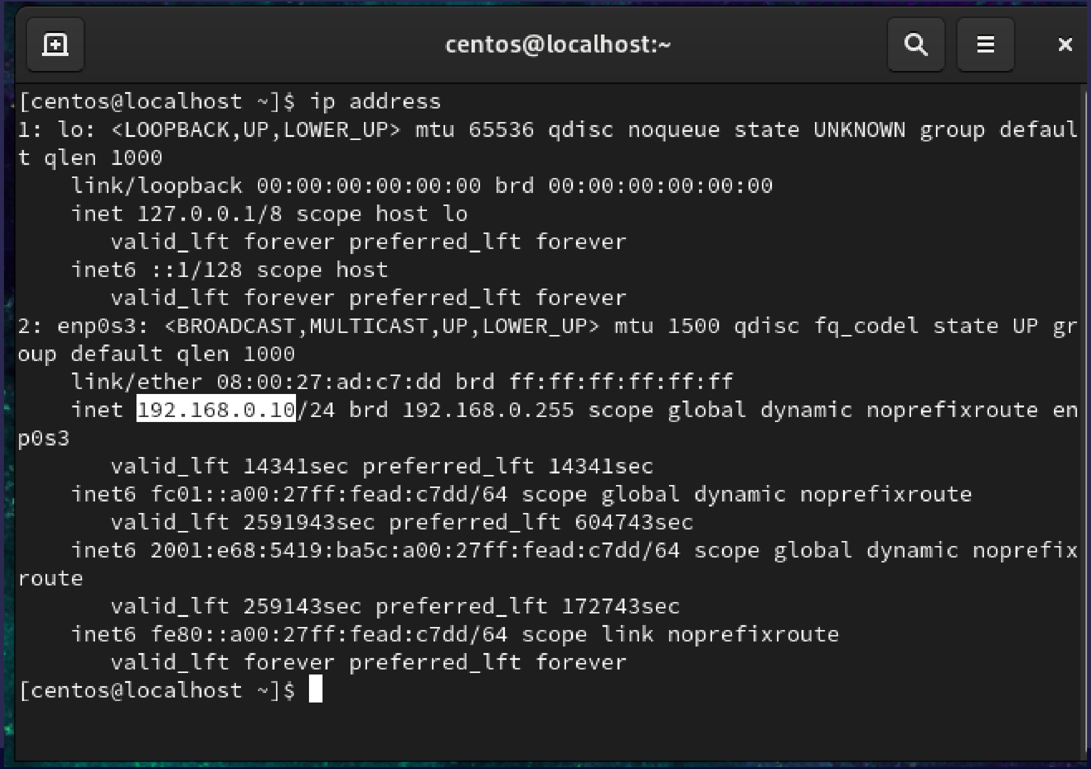


```
[centos@localhost ~]$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:ad:c7:dd brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.10/24 brd 192.168.0.255 scope global dynamic noprefixroute en
p0s3
       valid_lft 14341sec preferred_lft 14341sec
    inet6 fc01::a00:27ff:fead:c7dd/64 scope global dynamic noprefixroute
       valid_lft 2591943sec preferred_lft 604743sec
    inet6 2001:e68:5419:ba5c:a00:27ff:fead:c7dd/64 scope global dynamic noprefix
route
       valid_lft 259143sec preferred_lft 172743sec
    inet6 fe80::a00:27ff:fead:c7dd/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[centos@localhost ~]$ 
```

First, open the Terminal then, find the ip address by typing "ip address"

```
#EXPLAIN
#to get find the Ip address for centos.
#COMMAND: "ip address"
```

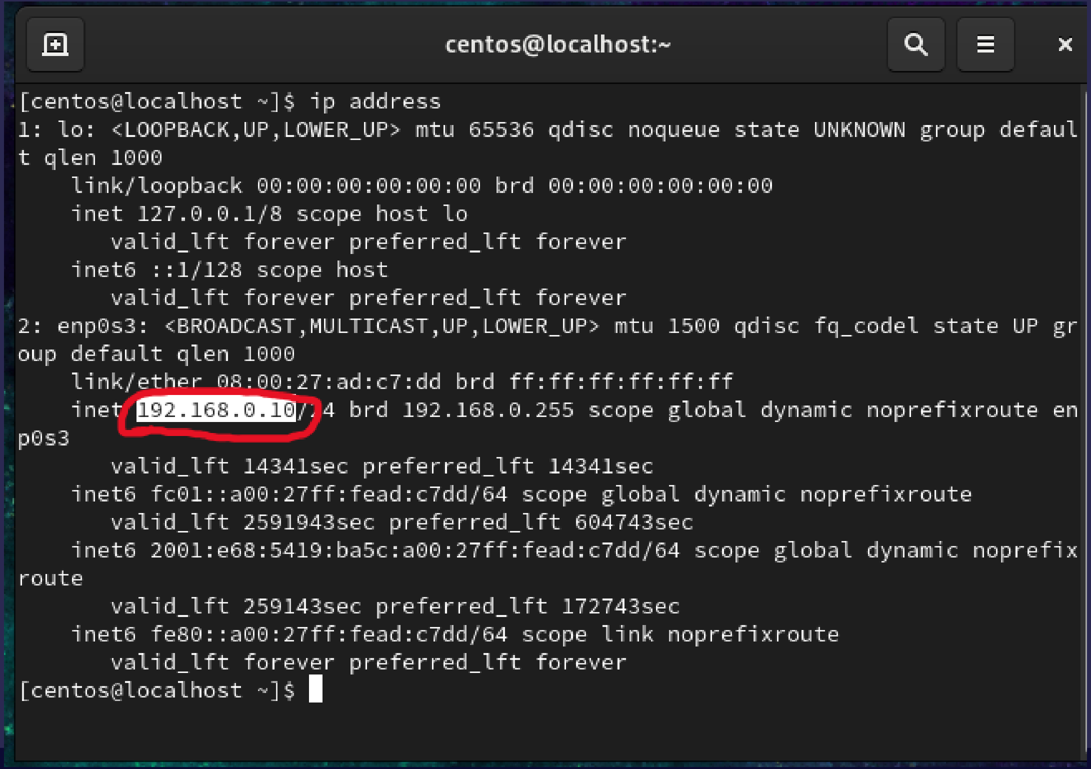
Access SSH



```
[centos@localhost ~]$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:ad:c7:dd brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.10/24 brd 192.168.0.255 scope global dynamic noprefixroute en
p0s3
       valid_lft 14341sec preferred_lft 14341sec
    inet6 fc01::a00:27ff:fead:c7dd/64 scope global dynamic noprefixroute
       valid_lft 2591943sec preferred_lft 604743sec
    inet6 2001:e68:5419:ba5c:a00:27ff:fead:c7dd/64 scope global dynamic noprefix
route
       valid_lft 259143sec preferred_lft 172743sec
    inet6 fe80::a00:27ff:fead:c7dd/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[centos@localhost ~]$
```

First, open the Terminal then, find the ip address by typing "ip address"

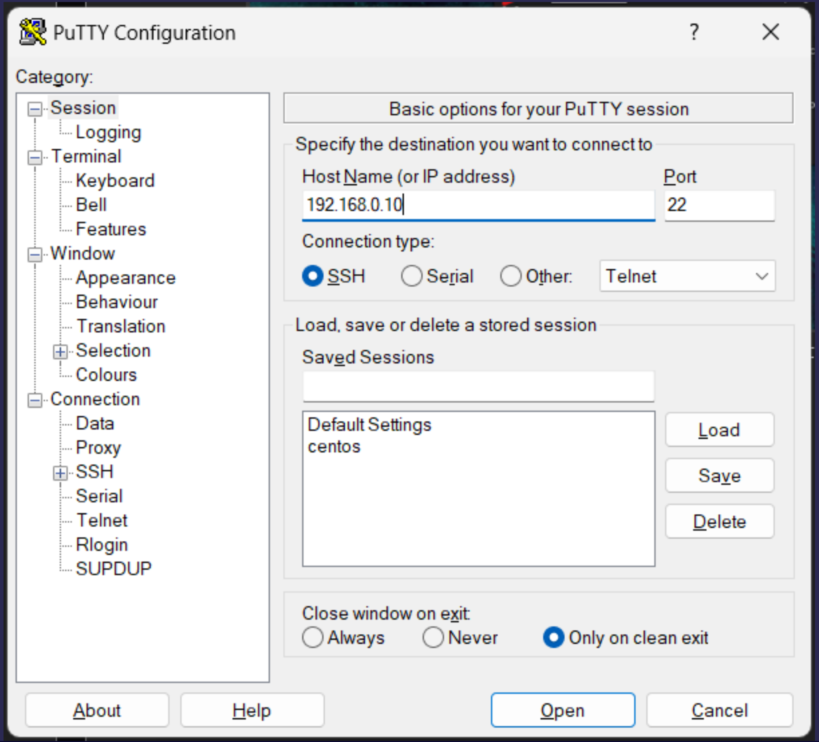
Access SSH



```
[centos@localhost ~]$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:ad:c7:dd brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.10/24 brd 192.168.0.255 scope global dynamic noprefixroute en
p0s3
       valid_lft 14341sec preferred_lft 14341sec
    inet6 fc01::a00:27ff:fead:c7dd/64 scope global dynamic noprefixroute
       valid_lft 2591943sec preferred_lft 604743sec
    inet6 2001:e68:5419:ba5c:a00:27ff:fead:c7dd/64 scope global dynamic noprefix
route
       valid_lft 259143sec preferred_lft 172743sec
    inet6 fe80::a00:27ff:fead:c7dd/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[centos@localhost ~]$
```

Second, remember the ip address.

Access SSH



Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): 192.168.0.10

Port: 22

Connection type:

● SSH ○ Serial ○ Other: Telnet

Load, save or delete a stored session

Saved Sessions

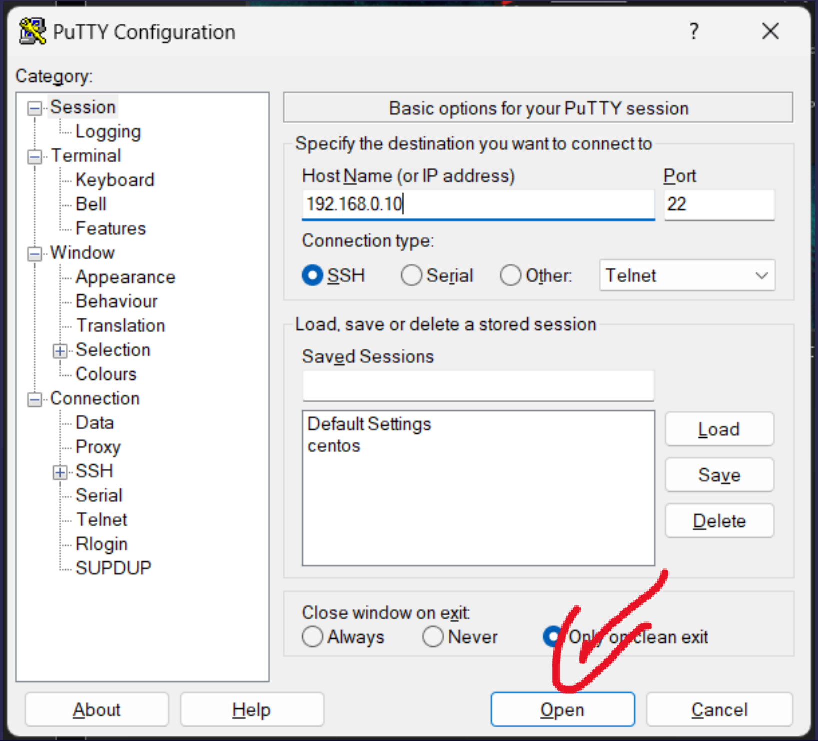
Default Settings
centos

Close window on exit:

○ Always ○ Never ● Only on clean exit

Third, open PuTTY on windows and type the ip address you remembered.

Access SSH



PuTTY Configuration

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): 192.168.0.10

Port: 22

Connection type: ● SSH ○ Serial ○ Other: Telnet

Load, save or delete a stored session

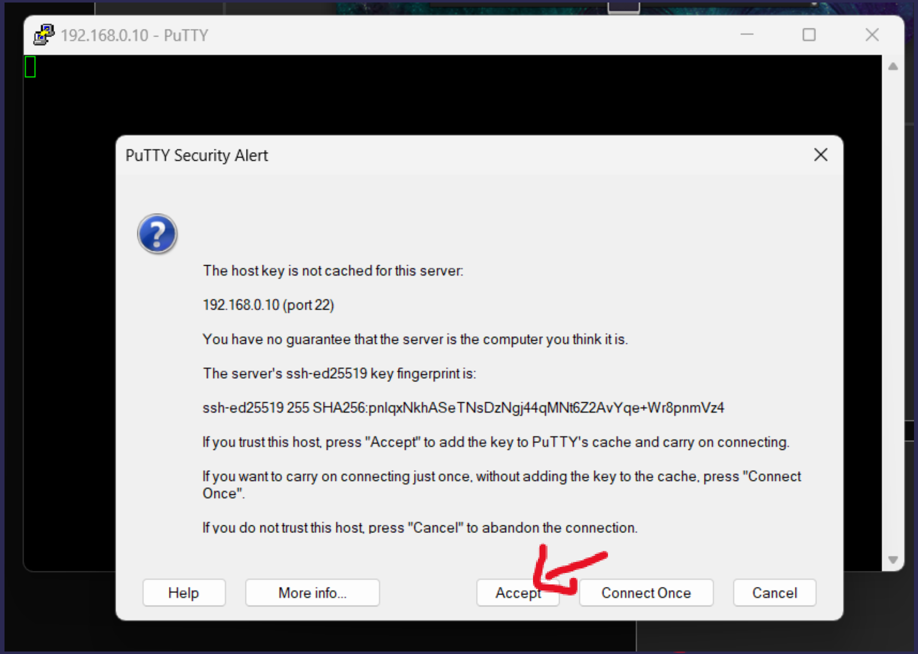
Saved Sessions

Default Settings
centos

Close window on exit: ○ Always ○ Never ● Only on clean exit

Fourth, click open

Access SSH



PuTTY Security Alert

The host key is not cached for this server:

192.168.0.10 (port 22)

You have no guarantee that the server is the computer you think it is.

The server's ssh-ed25519 key fingerprint is:

ssh-ed25519 255 SHA256:pnlqxNkhASeTNsDzNgj44qMNt6Z2AvYqe+Wr8pnmVz4

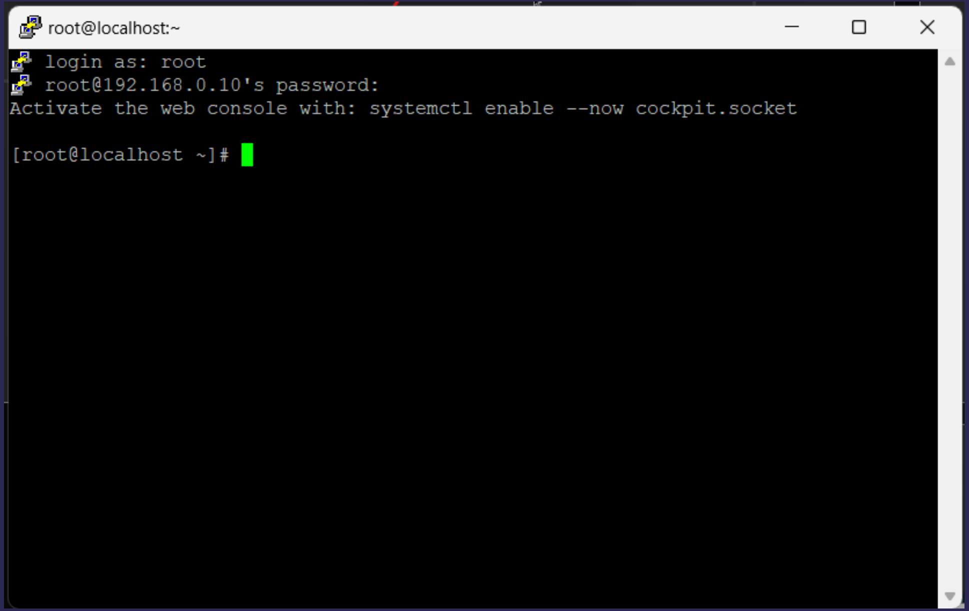
If you trust this host, press "Accept" to add the key to PuTTY's cache and carry on connecting.

If you want to carry on connecting just once, without adding the key to the cache, press "Connect Once".

If you do not trust this host, press "Cancel" to abandon the connection.

This will popup and need to click accept.

Access SSH

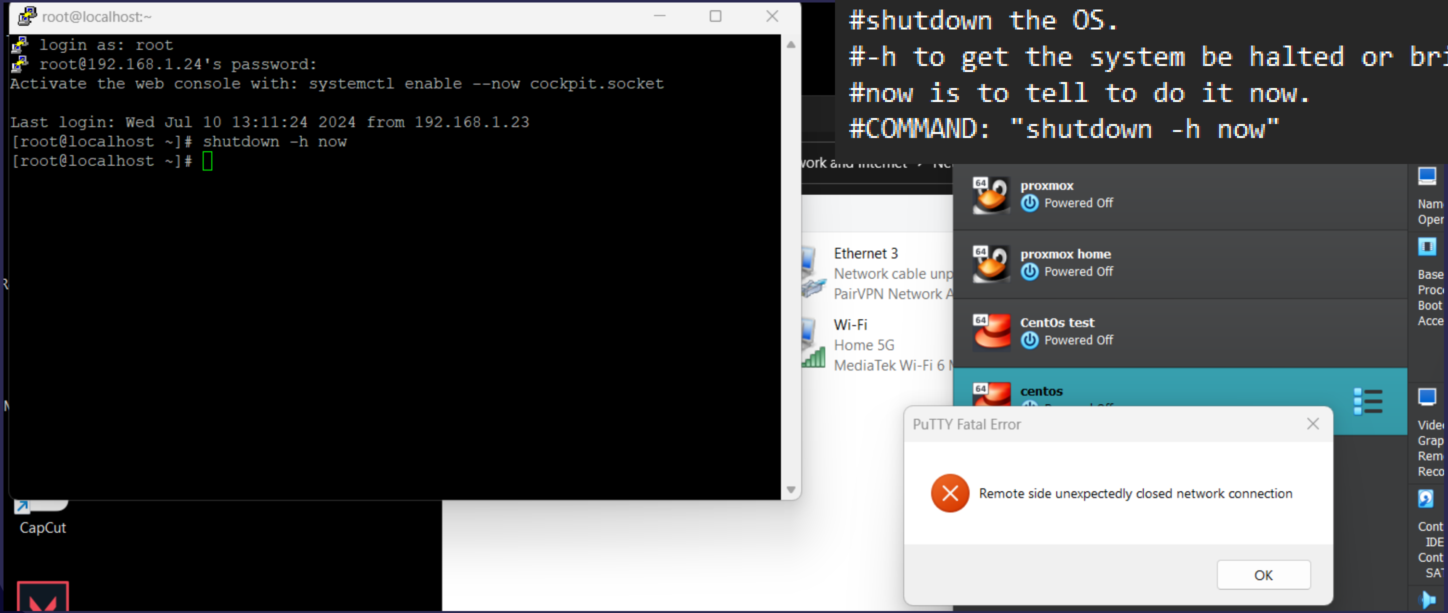


```
login as: root
root@192.168.0.10's password:
Activate the web console with: systemctl enable --now cockpit.socket

[root@localhost ~]#
```

Now you are in SSH type your user name and password to login.

1st Test SSH (shutdown)

Use the command "shutdown –h now" to test it the shutdown –h now command only work in root.



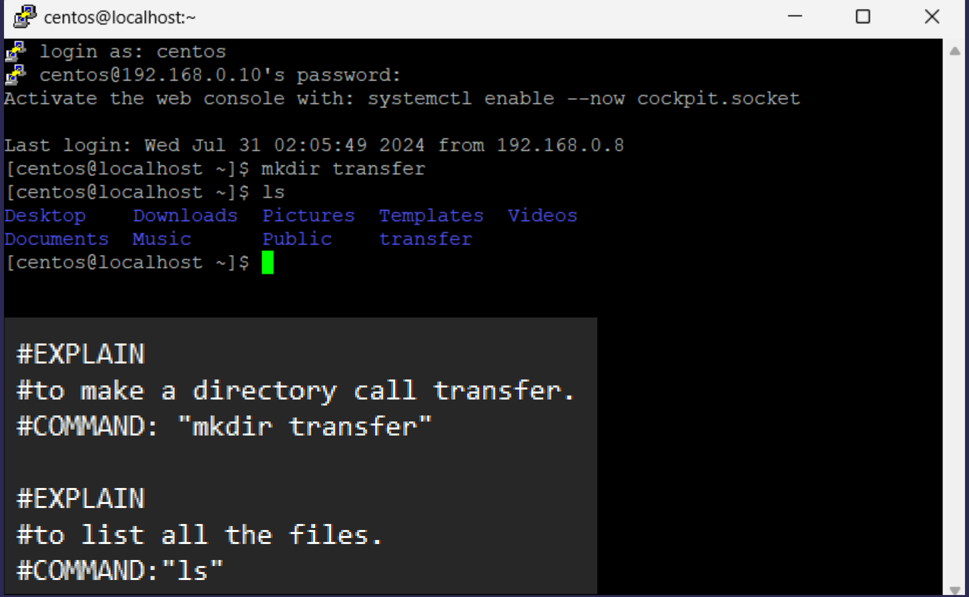
```
login as: root
root@192.168.1.24's password:
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Wed Jul 10 13:11:24 2024 from 192.168.1.23
[root@localhost ~]# shutdown -h now
[root@localhost ~]#
```

PuTTY Fatal Error

Remote side unexpectedly closed network connection

```
#EXPLAIN
#shutdown the OS.
#-h to get the system be halted or bring it to a abrupt stop.
#now is to tell to do it now.
#COMMAND: "shutdown -h now"
```

2th Test SSH(windows to centos)



```
login as: centos
centos@192.168.0.10's password:
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Wed Jul 31 02:05:49 2024 from 192.168.0.8
[centos@localhost ~]$ mkdir transfer
[centos@localhost ~]$ ls
Desktop    Downloads  Pictures  Templates  Videos
Documents  Music      Public    transfer
[centos@localhost ~]$
```

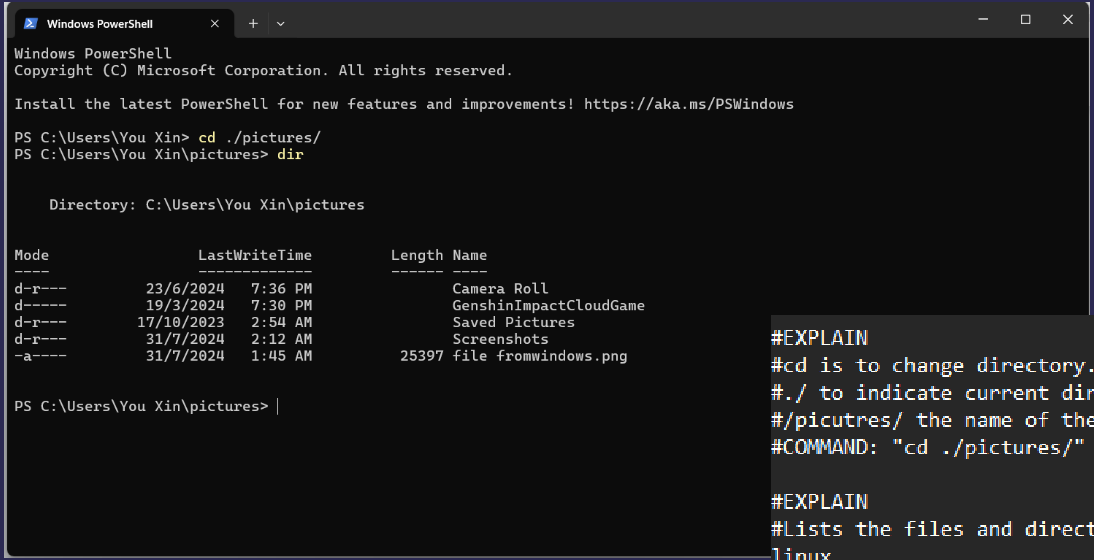
```
#EXPLAIN
#to make a directory call transfer.
#COMMAND: "mkdir transfer"

#EXPLAIN
#to list all the files.
#COMMAND:"ls"
```

First, you are in SSH type your user name and password to login.

Second, type "mkdir transfer" to make a folder name transfer.

Third, use the command "ls" to see the folder you have made.

2th Test SSH (windows to centos)



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\You Xin> cd ./pictures/
PS C:\Users\You Xin\pictures> dir


    Directory: C:\Users\You Xin\pictures


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-r---         23/6/2024   7:36 PM                Camera Roll
d-----         19/3/2024   7:30 PM                GenshinImpactCloudGame
d-r---        17/10/2023   2:54 AM                Saved Pictures
d-r---         31/7/2024   2:12 AM                Screenshots
-a----         31/7/2024   1:45 AM          25397 file fromwindows.png


PS C:\Users\You Xin\pictures> 
```

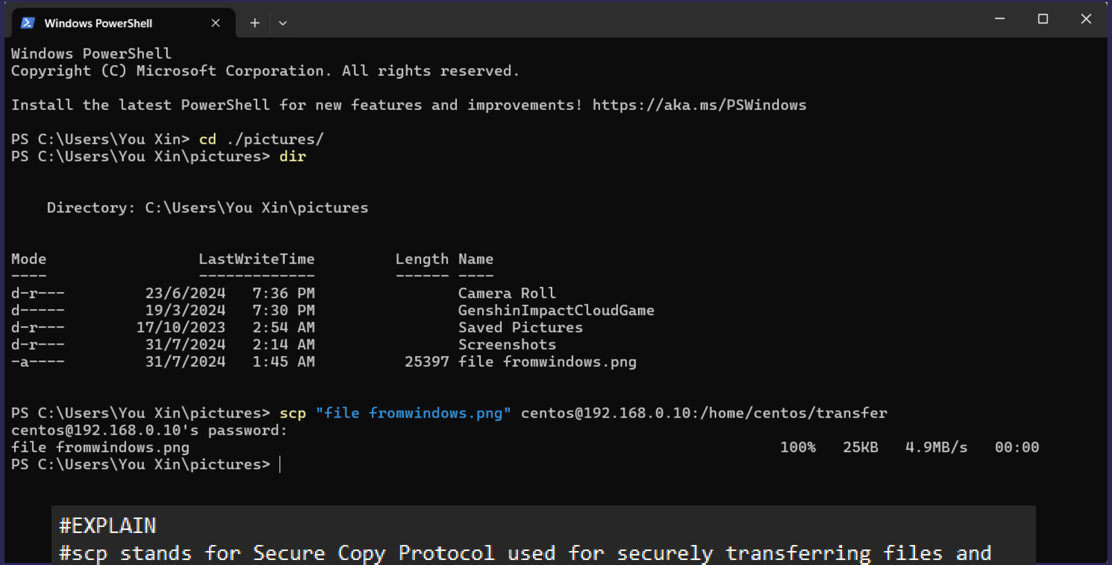
First open Windows PowerShell.

Second, type "cd ./pictures/" to change directory then select a file you want to transfer to centos.

```
#EXPLAIN
#cd is to change directory.
#./ to indicate current directory.
#/picutres/ the name of the folder.
#COMMAND: "cd ./pictures/"

#EXPLAIN
#Lists the files and directories in the specified directory same as "ls" in
linux.
#COMMAND:"dir"
```

2th Test SSH (windows to centos)



```
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PS C:\Users\You Xin> cd ./pictures/
PS C:\Users\You Xin\pictures> dir


    Directory: C:\Users\You Xin\pictures


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-r---         23/6/2024   7:36 PM                Camera Roll
d-----         19/3/2024   7:30 PM                GenshinImpactCloudGame
d-r---        17/10/2023   2:54 AM                Saved Pictures
d-r---         31/7/2024   2:14 AM                Screenshots
-a----         31/7/2024   1:45 AM          25397 file fromwindows.png


PS C:\Users\You Xin\pictures> scp "file fromwindows.png" centos@192.168.0.10:/home/centos/transfer
centos@192.168.0.10's password:
file fromwindows.png                                                                  100%   25KB   4.9MB/s   00:00
PS C:\Users\You Xin\pictures> |
```
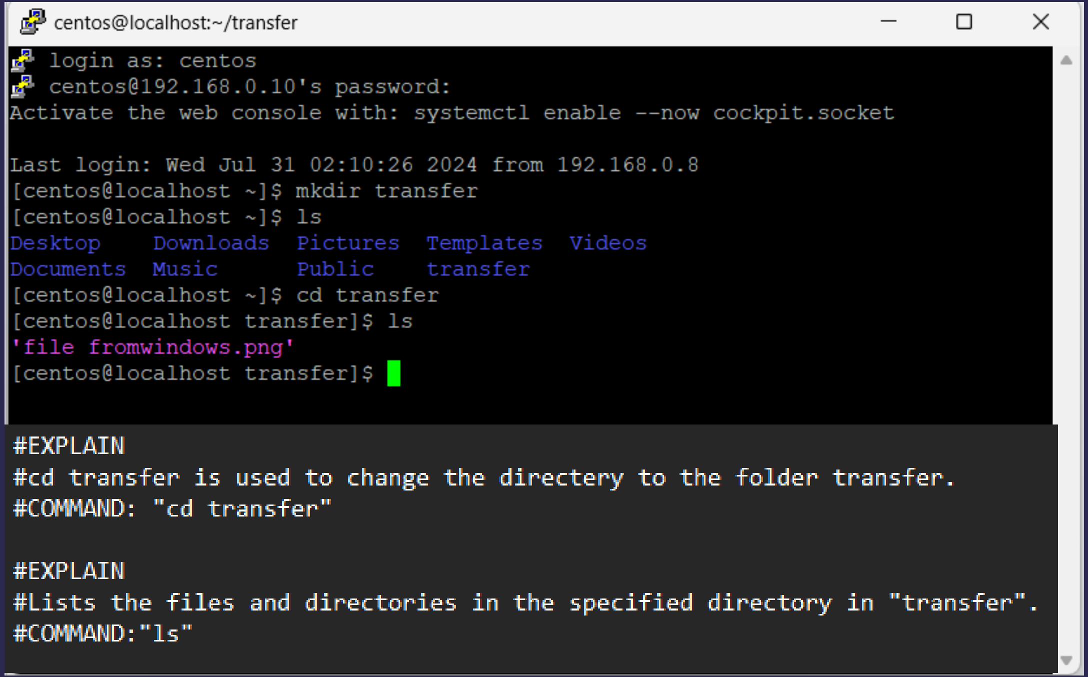

```
#EXPLAIN
#scp stands for Secure Copy Protocol used for securely transferring files and
directories between computers over a network.
#"file fromwindows.png" is the file you want to transfer.
#centos@192.168.0.10:/home/centos/transfer is where you want to send to and what
folder you want your sent file to be in.
#/picutres/ the name of the folder.
#COMMAND: "scp "file fromwindows.png" centos@192.168.0.10:/home/centos/transfer"
```

First Type "scp "file fromwindows.png" centos@192.168.0.10:/home/centos/transfer" to transfer the file to centos then wait the progress bar to finish.

2th Test SSH (windows to centos)



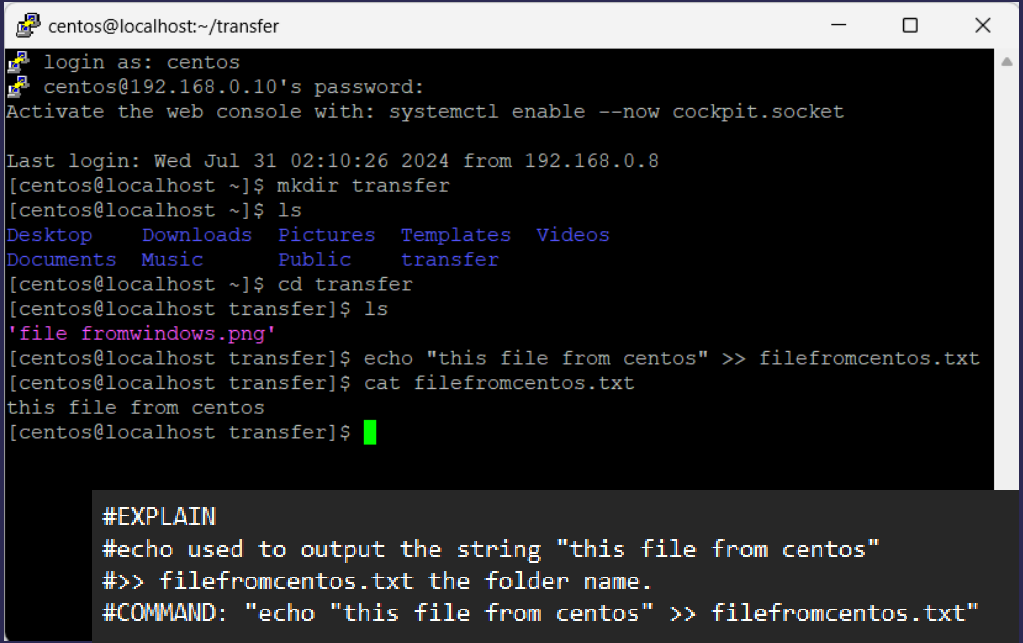
```
login as: centos
centos@192.168.0.10's password:
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Wed Jul 31 02:10:26 2024 from 192.168.0.8
[centos@localhost ~]$ mkdir transfer
[centos@localhost ~]$ ls
Desktop    Downloads  Pictures  Templates  Videos
Documents  Music      Public    transfer
[centos@localhost ~]$ cd transfer
[centos@localhost transfer]$ ls
'file fromwindows.png'
[centos@localhost transfer]$
```

```
#EXPLAIN
#cd transfer is used to change the directery to the folder transfer.
#COMMAND: "cd transfer"

#EXPLAIN
#Lists the files and directories in the specified directory in "transfer".
#COMMAND:"ls"
```

To check the file you have transfer go back to PuTTy. First, type "cd transfer" to go to change directory.

Second, type "ls" to see list the file in transfer.

2th Test SSH (Centos To Windows)



centos@localhost:~/transfer

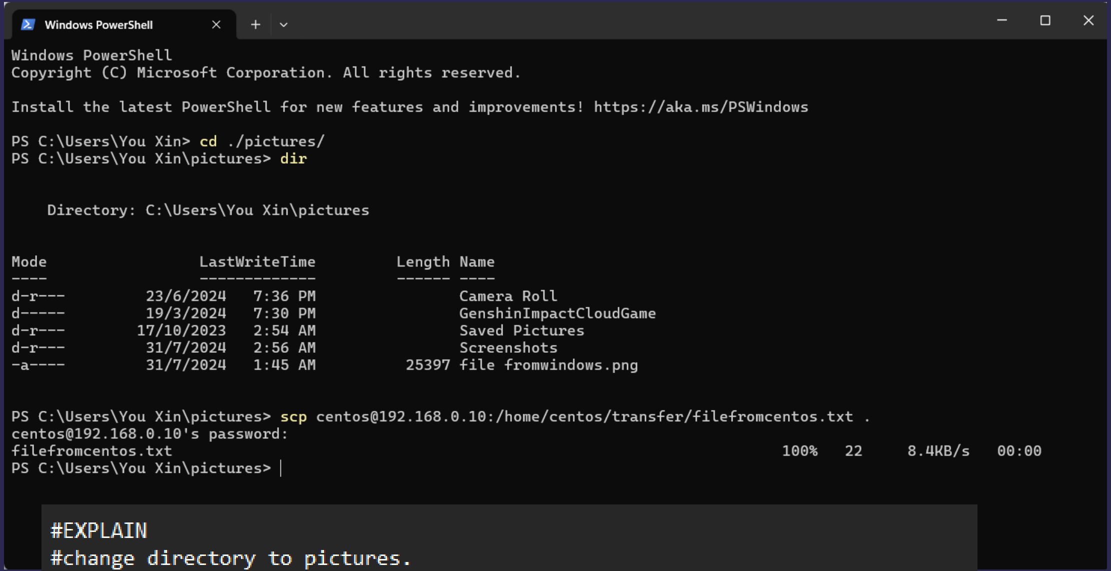
```
login as: centos
centos@192.168.0.10's password:
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Wed Jul 31 02:10:26 2024 from 192.168.0.8
[centos@localhost ~]$ mkdir transfer
[centos@localhost ~]$ ls
Desktop    Downloads  Pictures  Templates  Videos
Documents  Music      Public    transfer
[centos@localhost ~]$ cd transfer
[centos@localhost transfer]$ ls
'file fromwindows.png'
[centos@localhost transfer]$ echo "this file from centos" >> filefromcentos.txt
[centos@localhost transfer]$ cat filefromcentos.txt
this file from centos
[centos@localhost transfer]$
```

```
#EXPLAIN
#echo used to output the string "this file from centos"
#>> filefromcentos.txt the folder name.
#COMMAND: "echo "this file from centos" >> filefromcentos.txt"

#EXPLAIN
#to display the contents of the file form filefromcentos.txt.
#COMMAND:"cat filefromcentos.txt"
```

First create a file with the word this file is from centos inside the file and the file name is filefromcentos.txt by using the command "echo "this file from centos" >> fielfromcentos.txt"

Second, use the command "cat filefromcentos.txt" to read the file contents.

2th Test SSH (Centos To Windows)



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\You Xin> cd ./pictures/
PS C:\Users\You Xin\pictures> dir


    Directory: C:\Users\You Xin\pictures


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-r---         23/6/2024   7:36 PM                Camera Roll
d-----         19/3/2024   7:30 PM                GenshinImpactCloudGame
d-r---        17/10/2023   2:54 AM                Saved Pictures
d-r---         31/7/2024   2:56 AM                Screenshots
-a----         31/7/2024   1:45 AM          25397 file fromwindows.png


PS C:\Users\You Xin\pictures> scp centos@192.168.0.10:/home/centos/transfer/filefromcentos.txt .
centos@192.168.0.10's password:
filefromcentos.txt                                                                    100%   22     8.4KB/s   00:00
PS C:\Users\You Xin\pictures> |
```
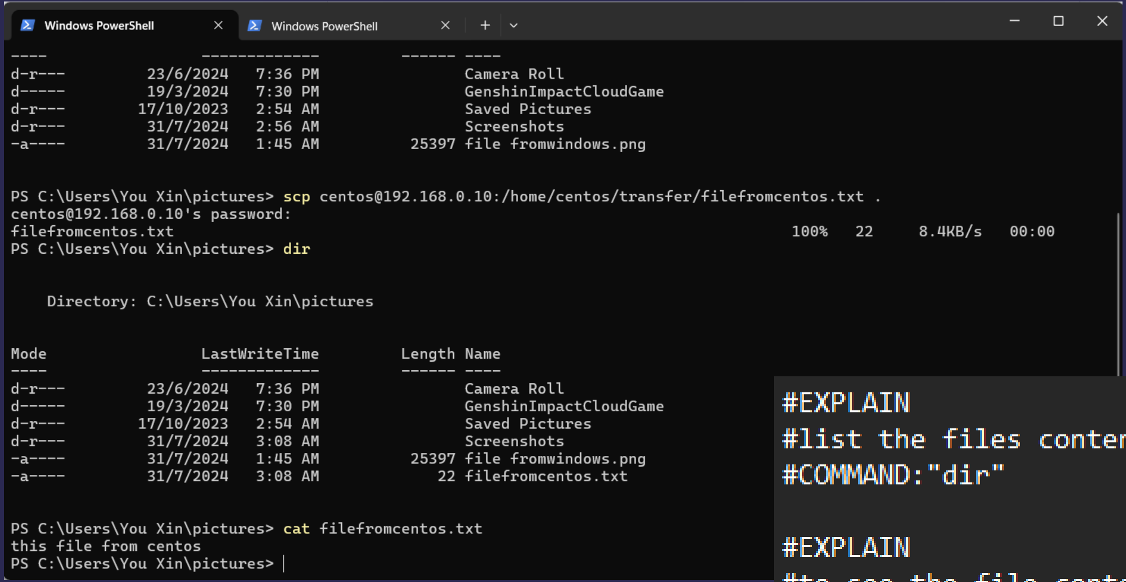

```
#EXPLAIN
#change directory to pictures.
#COMMAND: "cd ./pictures/"

#EXPLAIN
#list the files contents.
#COMMAND:"dir"

#EXPLAIN
#to transfer the file"filefromcentos.txt" from centos to windows.
#COMMAND:"scp centos@192.168.0.10:/home/centos/transfer/filefromcentos.txt"
```

First go back to Windows PowerShell

type "cd ./pictures/" to change direcerty.

Second, type "scp centos@192.168.0.10:/home/centos/transfer/filefromcentos.txt ." Then type password the file will transfer.

2th Test SSH (Centos To Windows)



```
----                 -------------         ------ ----
d-r---          23/6/2024   7:36 PM                Camera Roll
d-----          19/3/2024   7:30 PM                GenshinImpactCloudGame
d-r---         17/10/2023   2:54 AM                Saved Pictures
d-r---          31/7/2024   2:56 AM                Screenshots
-a----          31/7/2024   1:45 AM          25397 file fromwindows.png


PS C:\Users\You Xin\pictures> scp centos@192.168.0.10:/home/centos/transfer/filefromcentos.txt .
centos@192.168.0.10's password:
filefromcentos.txt                                                                    100%   22     8.4KB/s   00:00
PS C:\Users\You Xin\pictures> dir


    Directory: C:\Users\You Xin\pictures


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-r---          23/6/2024   7:36 PM                Camera Roll
d-----          19/3/2024   7:30 PM                GenshinImpactCloudGame
d-r---         17/10/2023   2:54 AM                Saved Pictures
d-r---          31/7/2024   3:08 AM                Screenshots
-a----          31/7/2024   1:45 AM          25397 file fromwindows.png
-a----          31/7/2024   3:08 AM             22 filefromcentos.txt


PS C:\Users\You Xin\pictures> cat filefromcentos.txt
this file from centos
PS C:\Users\You Xin\pictures> |
```

To check the file has been transfer or not

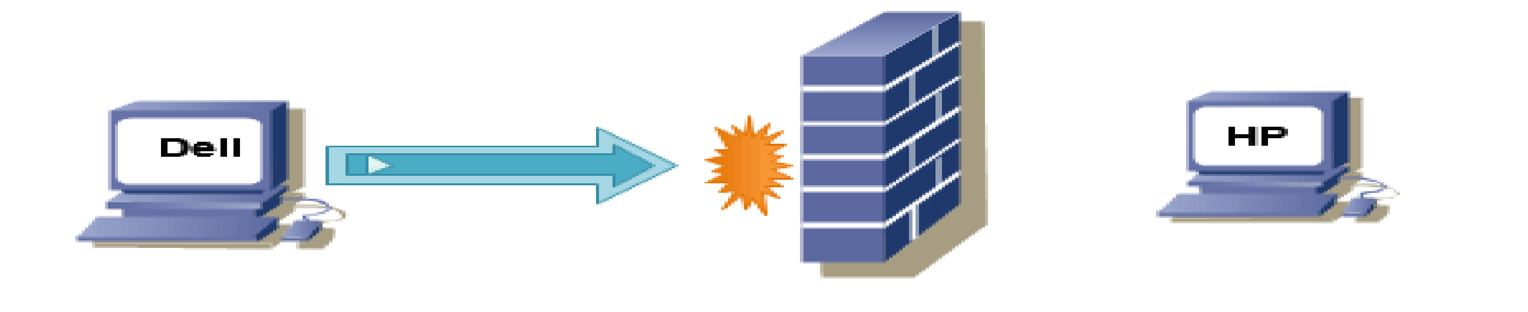
First, type "dir" to check.

Second, type "cat filefromcentos.txt" to read the file contents.

```
#EXPLAIN
#list the files contents.
#COMMAND:"dir"

#EXPLAIN
#to see the file contents in filefromcentos.txt.
#COMMAND:"cat filefromcentos.txt"
```

Firewall Configuration

Firewall Configuration on CentOS

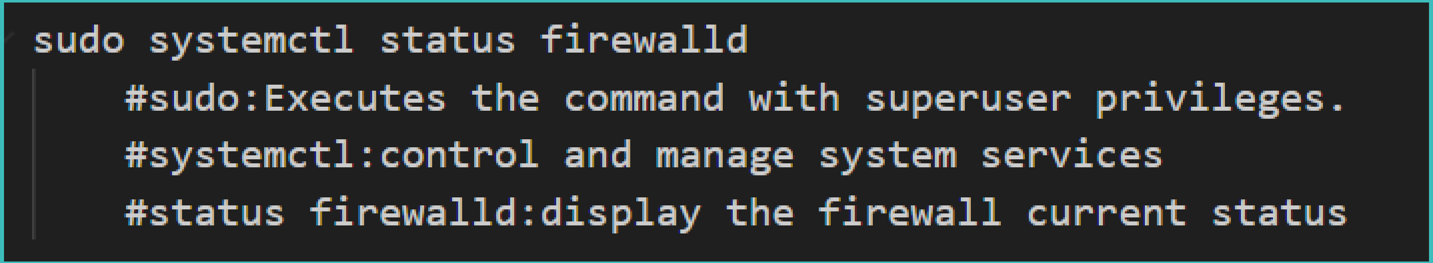


Example :

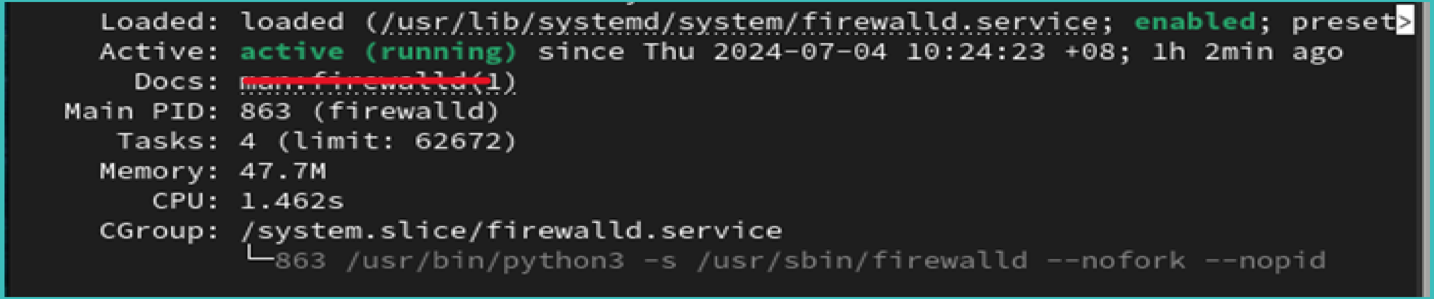
1.Blocking and unblocking SHH Remote Access

2.blocking and unblocking IP Address

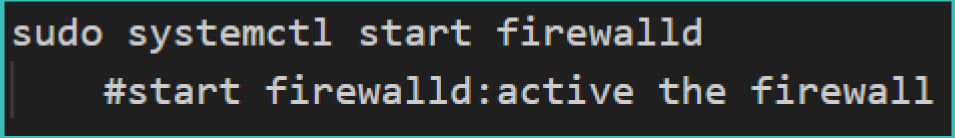
Firewall Status Checking



```
sudo systemctl status firewalld
     #sudo:Executes the command with superuser privileges.
     #systemctl:control and manage system services
     #status firewalld:display the firewall current status
```



```
     Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; preset>
     Active: active (running) since Thu 2024-07-04 10:24:23 +08; 1h 2min ago
       Docs: ~~man:firewalld~~(1)
   Main PID: 863 (firewalld)
      Tasks: 4 (limit: 62672)
     Memory: 47.7M
        CPU: 1.462s
     CGroup: /system.slice/firewalld.service
             └─863 /usr/bin/python3 -s /usr/sbin/firewalld --nofork --nopid
```

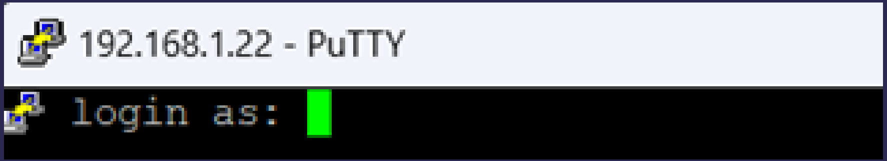


```
sudo systemctl start firewalld
     #start firewalld:active the firewall
```

Example 1

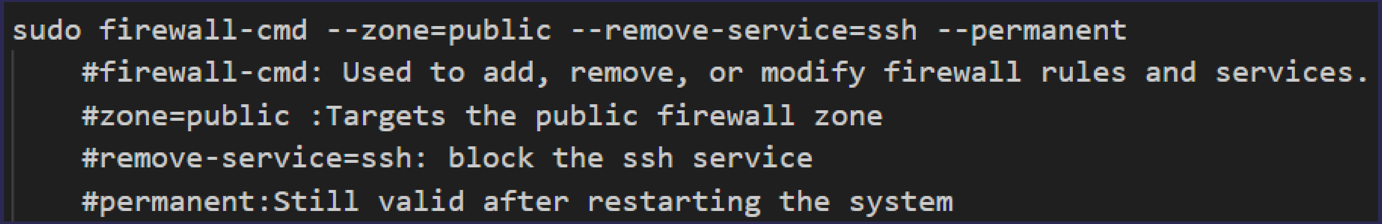
Blocking SHH Remote Access

1



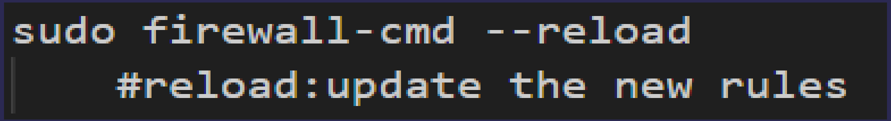
```
192.168.1.22 - PuTTY
login as:
```

2



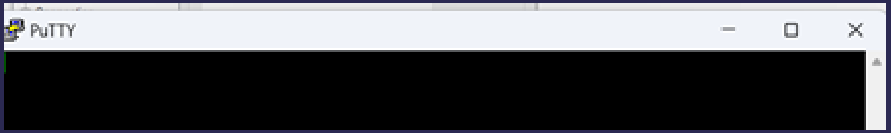
```
sudo firewall-cmd --zone=public --remove-service=ssh --permanent
    #firewall-cmd: Used to add, remove, or modify firewall rules and services.
    #zone=public :Targets the public firewall zone
    #remove-service=ssh: block the ssh service
    #permanent:Still valid after restarting the system
```

3



```
sudo firewall-cmd --reload
    #reload:update the new rules
```

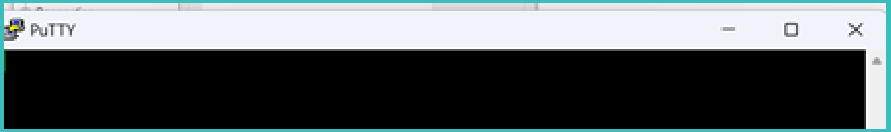
4



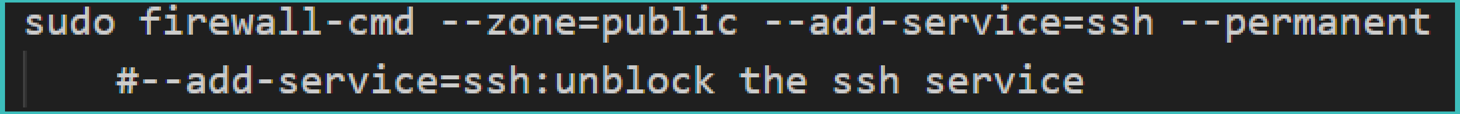
Example 1

Unblocking SHH Remote Access

1

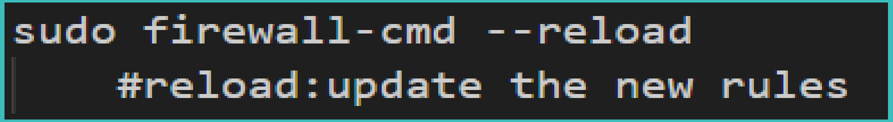


2



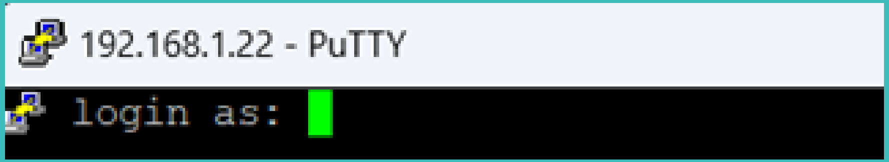
```
sudo firewall-cmd --zone=public --add-service=ssh --permanent
    #--add-service=ssh:unblock the ssh service
```

3



```
sudo firewall-cmd --reload
    #reload:update the new rules
```

4

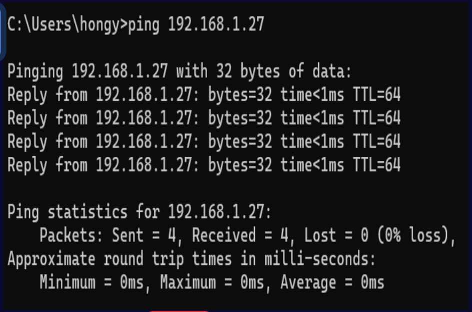


```
login as: 
```

Example 2

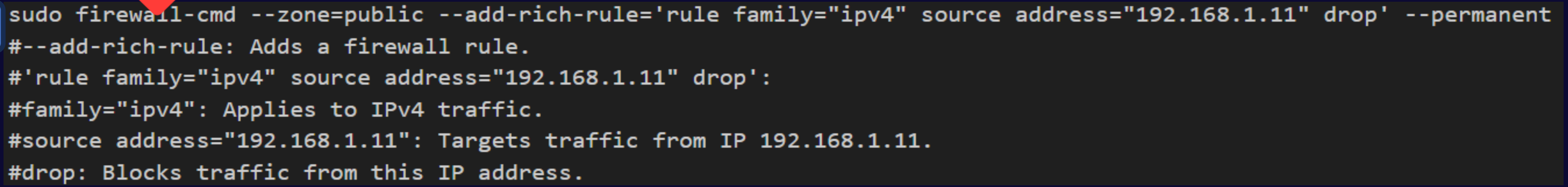
Blocking and unblock from a specific IP address (192.168.1.11)

1



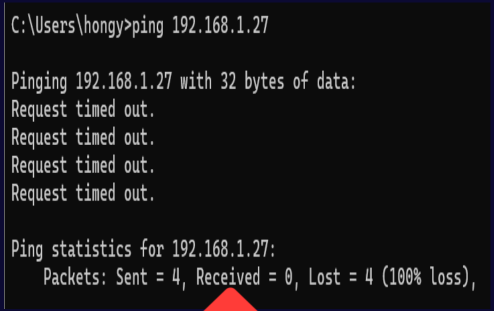
```
C:\Users\hongy>ping 192.168.1.27

Pinging 192.168.1.27 with 32 bytes of data:
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.27:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

2



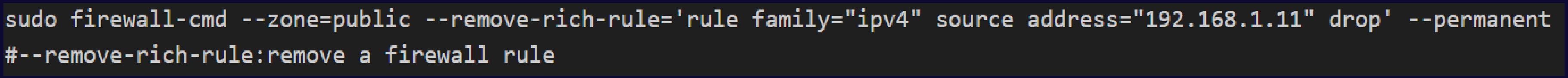
```
sudo firewall-cmd --zone=public --add-rich-rule='rule family="ipv4" source address="192.168.1.11" drop' --permanent
#--add-rich-rule: Adds a firewall rule.
#'rule family="ipv4" source address="192.168.1.11" drop':
#family="ipv4": Applies to IPv4 traffic.
#source address="192.168.1.11": Targets traffic from IP 192.168.1.11.
#drop: Blocks traffic from this IP address.
```

3



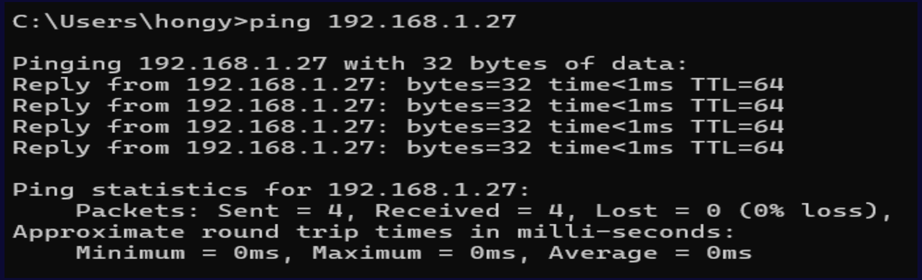
```
C:\Users\hongy>ping 192.168.1.27

Pinging 192.168.1.27 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.27:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

4



```
sudo firewall-cmd --zone=public --remove-rich-rule='rule family="ipv4" source address="192.168.1.11" drop' --permanent
#--remove-rich-rule:remove a firewall rule
```

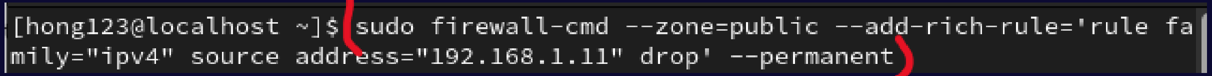
Example 2



```
C:\Users\hongy>ping 192.168.1.27

Pinging 192.168.1.27 with 32 bytes of data:
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64
Reply from 192.168.1.27: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.27:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

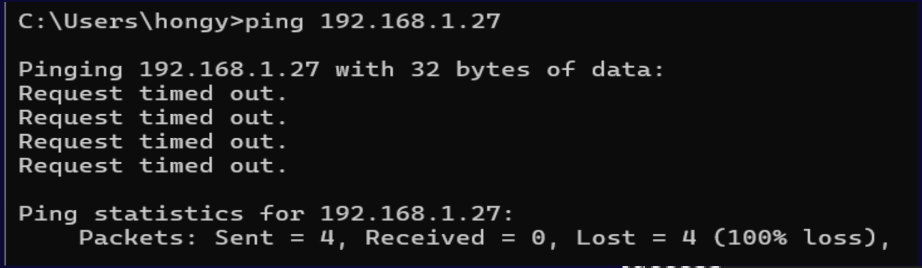
Confirm that the IP connection is successful

Add Firewall Rule to Block IP



```
[hong123@localhost ~]$ sudo firewall-cmd --zone=public --add-rich-rule='rule fa
mily="ipv4" source address="192.168.1.11" drop' --permanent
```

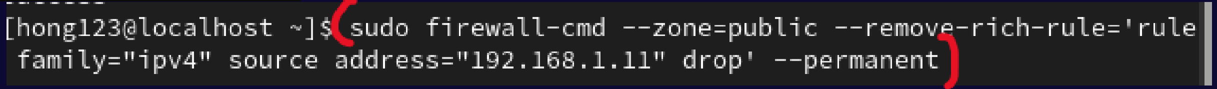
Confirm IP Connection is Blocked



```
C:\Users\hongy>ping 192.168.1.27

Pinging 192.168.1.27 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.27:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

1 2 3 4

Remove Firewall Rule

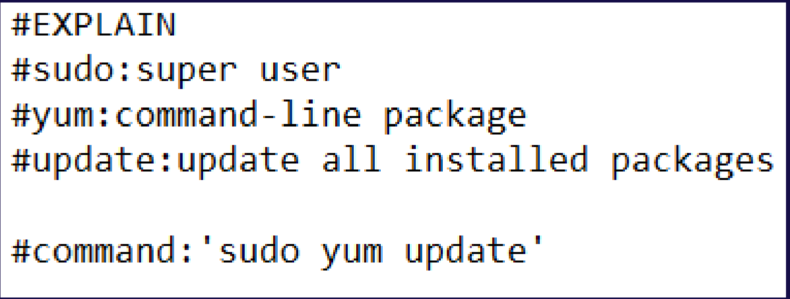


```
[hong123@localhost ~]$ sudo firewall-cmd --zone=public --remove-rich-rule='rule
 family="ipv4" source address="192.168.1.11" drop' --permanent
```

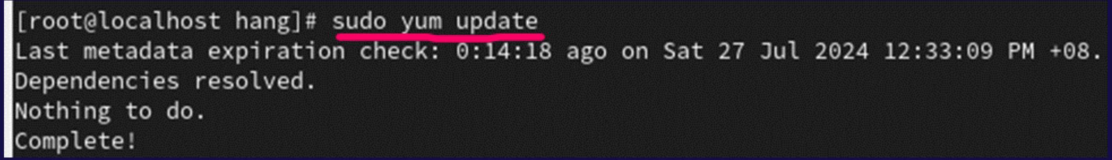
SQL Configuration

1. How to install basic SQL-server
2. How to insert sample data to the SQL-server

Update our system by using cmd ‘sudo yum update’.

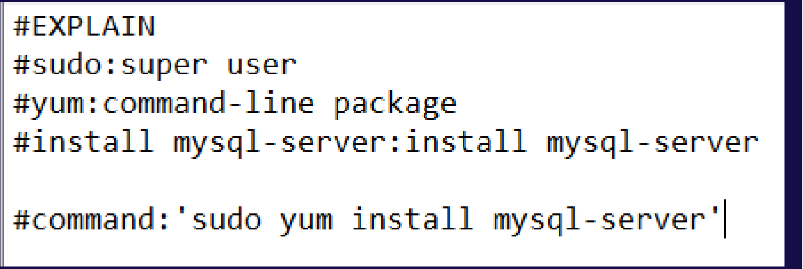


```
#EXPLAIN
#sudo:super user
#yum:command-line package
#update:update all installed packages

#command:'sudo yum update'
```

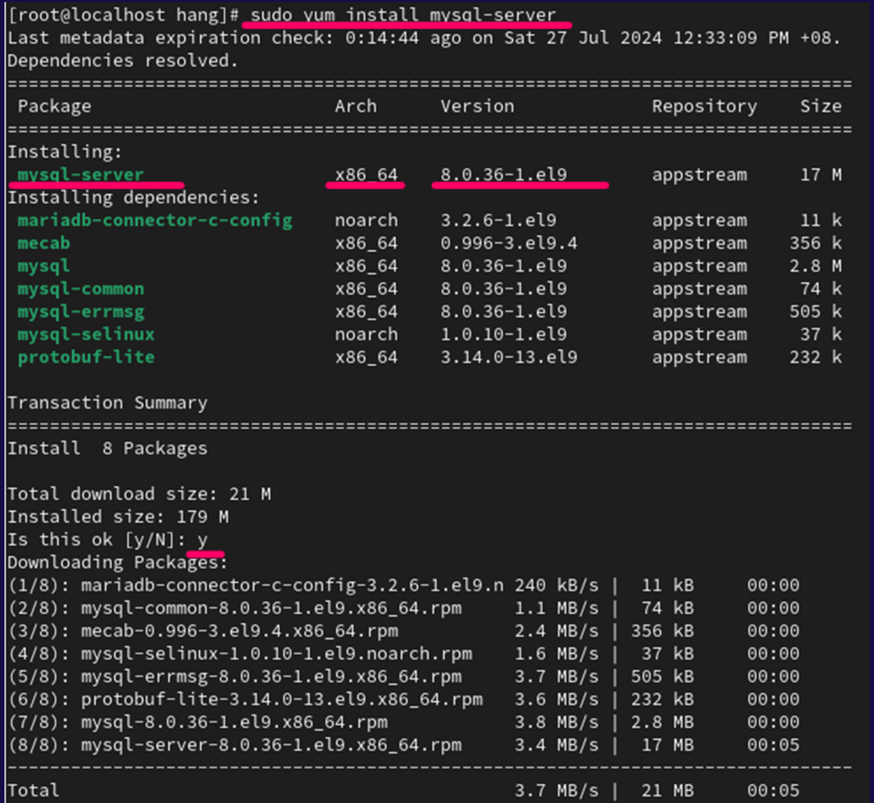


```
[root@localhost hang]# sudo yum update
Last metadata expiration check: 0:14:18 ago on Sat 27 Jul 2024 12:33:09 PM +08.
Dependencies resolved.
Nothing to do.
Complete!
```

Instal mysql server by using cmd ’sudo yum install mysql-server’ and enter ‘Y’ to start installation.



```
#EXPLAIN
#sudo:super user
#yum:command-line package
#install mysql-server:install mysql-server

#command:'sudo yum install mysql-server'
```



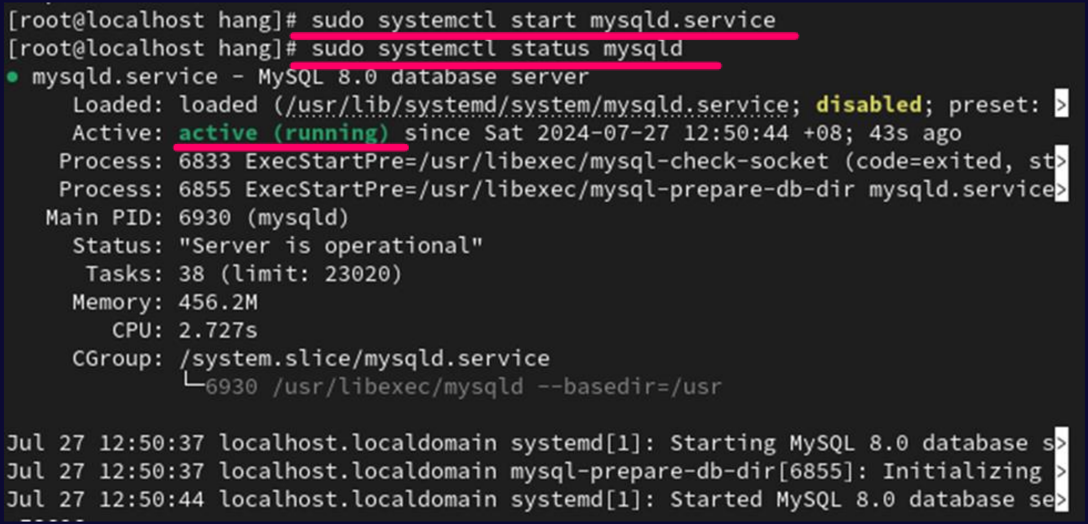
```
[root@localhost hang]# sudo yum install mysql-server
Last metadata expiration check: 0:14:44 ago on Sat 27 Jul 2024 12:33:09 PM +08.
Dependencies resolved.
================================================================================
 Package                       Arch        Version              Repository  Size
================================================================================
Installing:
 mysql-server                  x86_64      8.0.36-1.el9         appstream   17 M
Installing dependencies:
 mariadb-connector-c-config    noarch      3.2.6-1.el9          appstream   11 k
 mecab                         x86_64      0.996-3.el9.4        appstream  356 k
 mysql                         x86_64      8.0.36-1.el9         appstream  2.8 M
 mysql-common                  x86_64      8.0.36-1.el9         appstream   74 k
 mysql-errmsg                  x86_64      8.0.36-1.el9         appstream  505 k
 mysql-selinux                 noarch      1.0.10-1.el9         appstream   37 k
 protobuf-lite                 x86_64      3.14.0-13.el9        appstream  232 k

Transaction Summary
================================================================================
Install  8 Packages

Total download size: 21 M
Installed size: 179 M
Is this ok [y/N]: y
Downloading Packages:
(1/8): mariadb-connector-c-config-3.2.6-1.el9.n 240 kB/s |  11 kB     00:00
(2/8): mysql-common-8.0.36-1.el9.x86_64.rpm     1.1 MB/s |  74 kB     00:00
(3/8): mecab-0.996-3.el9.4.x86_64.rpm           2.4 MB/s | 356 kB     00:00
(4/8): mysql-selinux-1.0.10-1.el9.noarch.rpm    1.6 MB/s |  37 kB     00:00
(5/8): mysql-errmsg-8.0.36-1.el9.x86_64.rpm     3.7 MB/s | 505 kB     00:00
(6/8): protobuf-lite-3.14.0-13.el9.x86_64.rpm   3.6 MB/s | 232 kB     00:00
(7/8): mysql-8.0.36-1.el9.x86_64.rpm            3.8 MB/s | 2.8 MB     00:00
(8/8): mysql-server-8.0.36-1.el9.x86_64.rpm     3.4 MB/s |  17 MB     00:05
--------------------------------------------------------------------------------
Total                                           3.7 MB/s |  21 MB     00:05
```

Start sql service and check the status is that function or not?

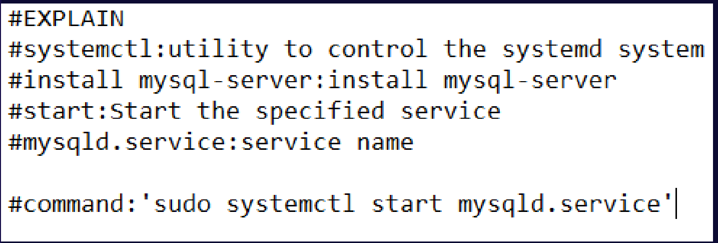
1.For start the sql service, we need to use cmd ‘sudo systemctl start mysqld.service’.

2.For check the status, we can use the cm ‘sudo systemctl status mysqld’.

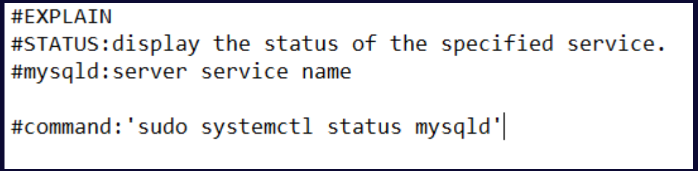
3.If there has a error, we can checking the sql server intallation by using cmd ‘sudo journalctl -u mysql-server’.



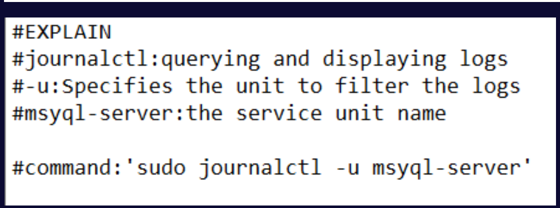
```
[root@localhost hang]# sudo systemctl start mysqld.service
[root@localhost hang]# sudo systemctl status mysqld
● mysqld.service - MySQL 8.0 database server
     Loaded: loaded (/usr/lib/systemd/system/mysqld.service; disabled; preset: >
     Active: active (running) since Sat 2024-07-27 12:50:44 +08; 43s ago
    Process: 6833 ExecStartPre=/usr/libexec/mysql-check-socket (code=exited, st>
    Process: 6855 ExecStartPre=/usr/libexec/mysql-prepare-db-dir mysqld.service>
   Main PID: 6930 (mysqld)
     Status: "Server is operational"
      Tasks: 38 (limit: 23020)
     Memory: 456.2M
        CPU: 2.727s
     CGroup: /system.slice/mysqld.service
             └─6930 /usr/libexec/mysqld --basedir=/usr

Jul 27 12:50:37 localhost.localdomain systemd[1]: Starting MySQL 8.0 database s>
Jul 27 12:50:37 localhost.localdomain mysql-prepare-db-dir[6855]: Initializing >
Jul 27 12:50:44 localhost.localdomain systemd[1]: Started MySQL 8.0 database se>
```



```
#EXPLAIN
#systemctl:utility to control the systemd system
#install mysql-server:install mysql-server
#start:Start the specified service
#mysqld.service:service name

#command:'sudo systemctl start mysqld.service'
```

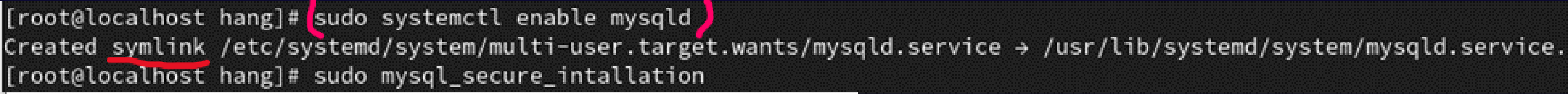


```
#EXPLAIN
#STATUS:display the status of the specified service.
#mysqld:server service name

#command:'sudo systemctl status mysqld'
```

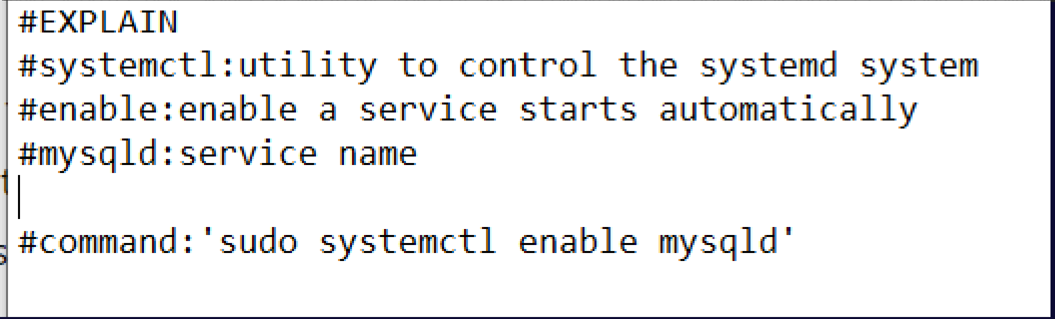


```
#EXPLAIN
#journalctl:querying and displaying logs
#-u:Specifies the unit to filter the logs
#msyql-server:the service unit name

#command:'sudo journalctl -u msyql-server'
```

Create a symlink to enable the service with every login by using the cmd ‘sudo systemctl enable mysqld’.

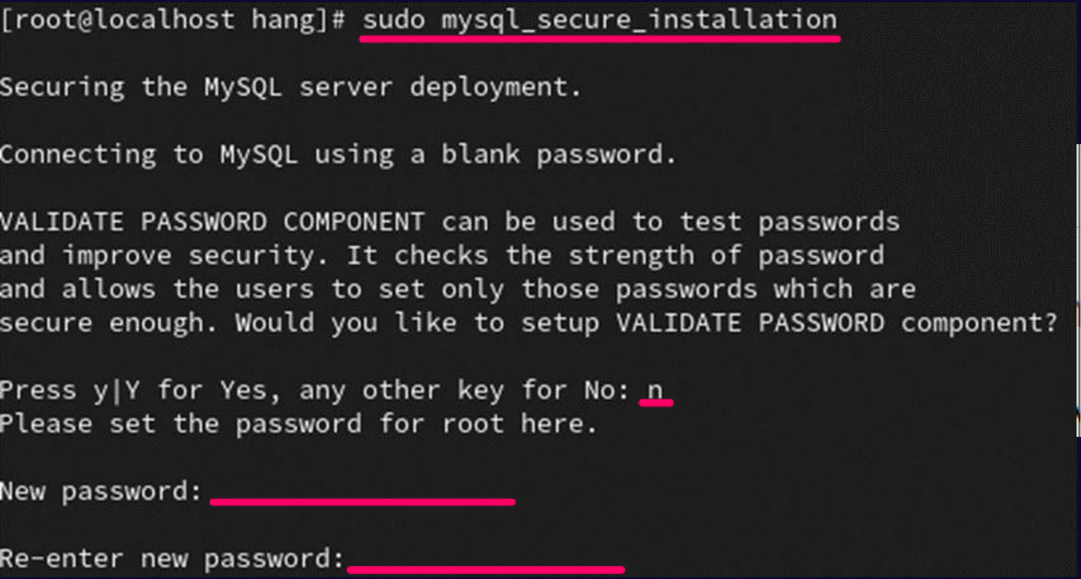


```
[root@localhost hang]# sudo systemctl enable mysqld
Created symlink /etc/systemd/system/multi-user.target.wants/mysqld.service → /usr/lib/systemd/system/mysqld.service.
[root@localhost hang]# sudo mysql_secure_intallation
```

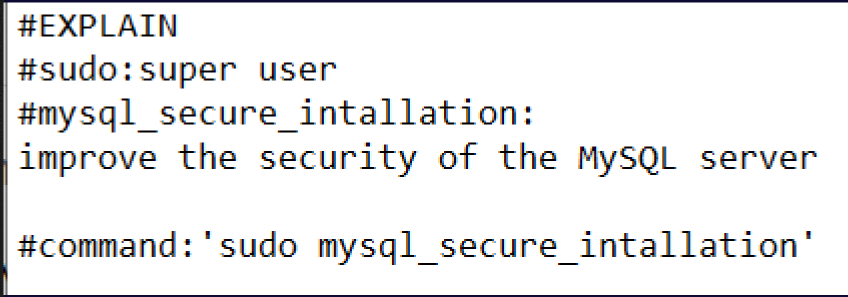


```
#EXPLAIN
#systemctl:utility to control the systemd system
#enable:enable a service starts automatically
#mysqld:service name

#command:'sudo systemctl enable mysqld'
```

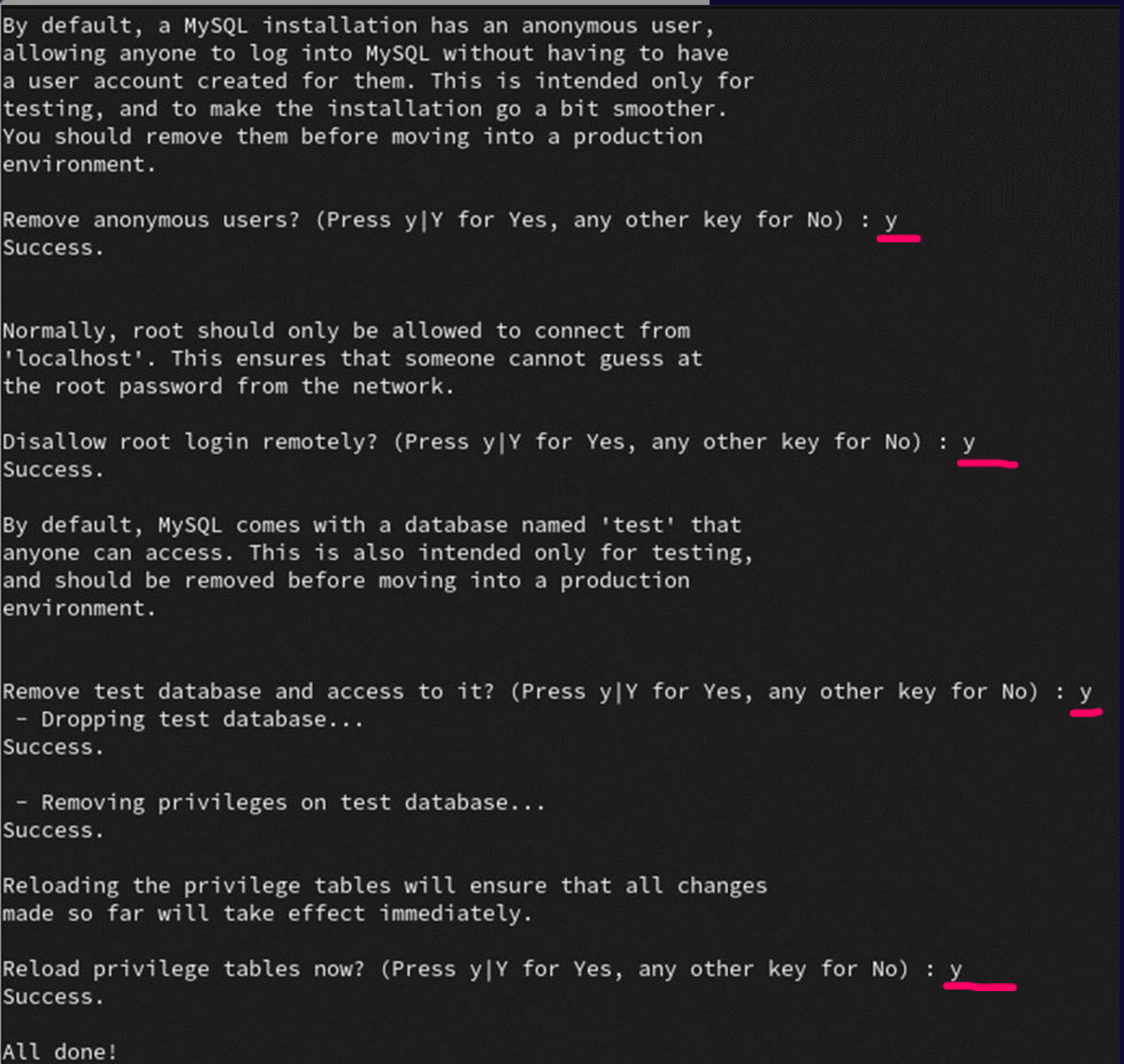
secure our MYsql intallation. We can using the cmd ‘sudo mysql_secure_intallation’ to do this.Next, enter ‘N’ and set up a password.



```
[root@localhost hang]# sudo mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: n
Please set the password for root here.

New password:

Re-enter new password:
```



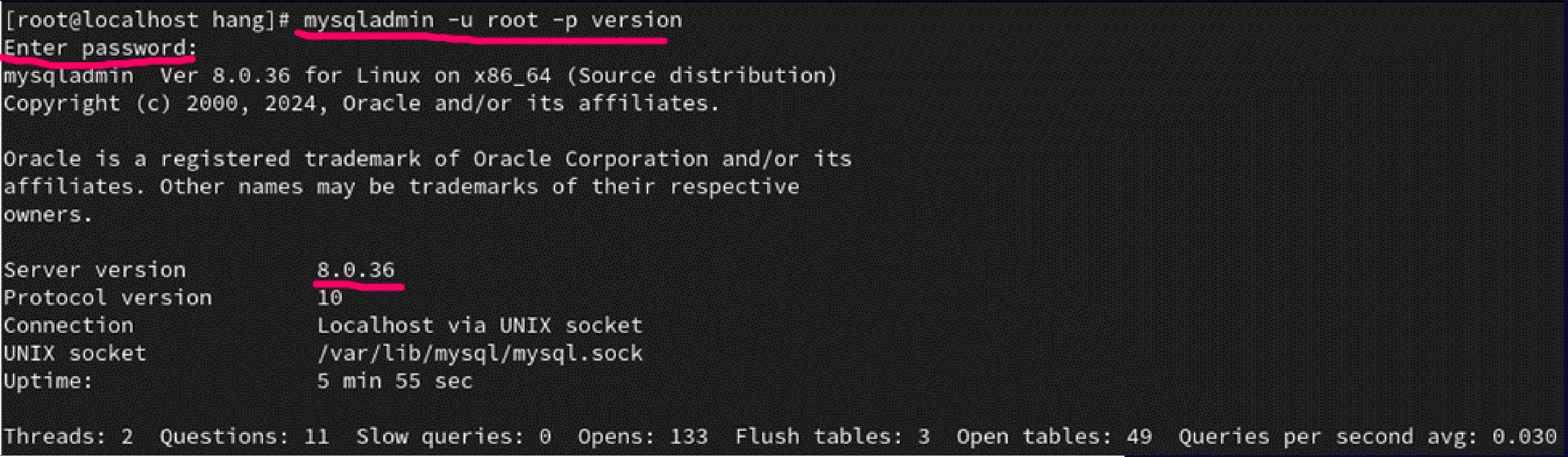
```
#EXPLAIN
#sudo:super user
#mysql_secure_intallation:
improve the security of the MySQL server

#command:'sudo mysql_secure_intallation'
```



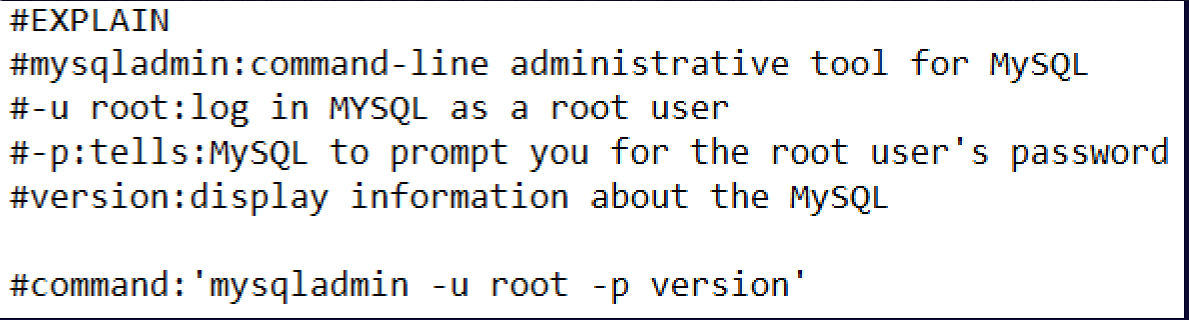
```
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.


Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.


Remove test database and access to it? (Press y|Y for Yes, any other key for No) : y
 - Dropping test database...
Success.

 - Removing privileges on test database...
Success.

Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
```

After set up the password, it will asking for some requirement, enter "y" to allow all the statement

Now we can login (enter the password u create just now)and validate information. We can use cmd ‘mysqladmin -u root -p version’ to do this.



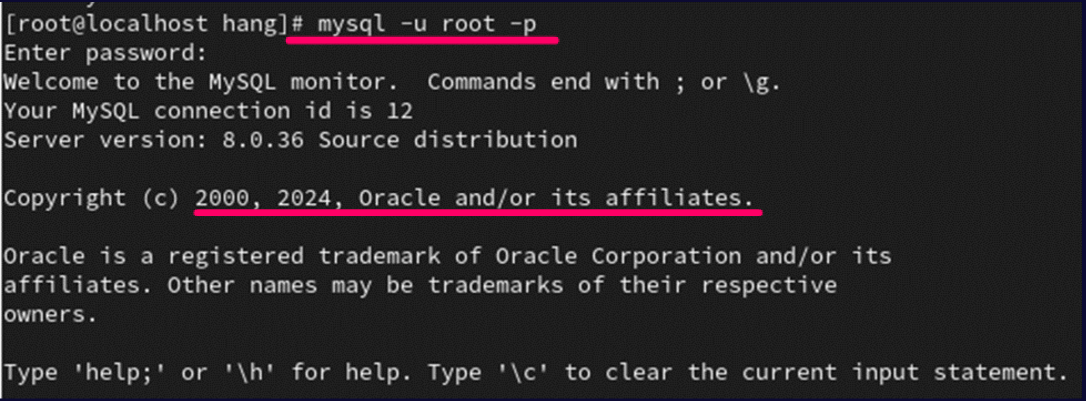
```
[root@localhost hang]# mysqladmin -u root -p version
Enter password:
mysqladmin  Ver 8.0.36 for Linux on x86_64 (Source distribution)
Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Server version          8.0.36
Protocol version        10
Connection              Localhost via UNIX socket
UNIX socket             /var/lib/mysql/mysql.sock
Uptime:                 5 min 55 sec

Threads: 2  Questions: 11  Slow queries: 0  Opens: 133  Flush tables: 3  Open tables: 49  Queries per second avg: 0.030
```



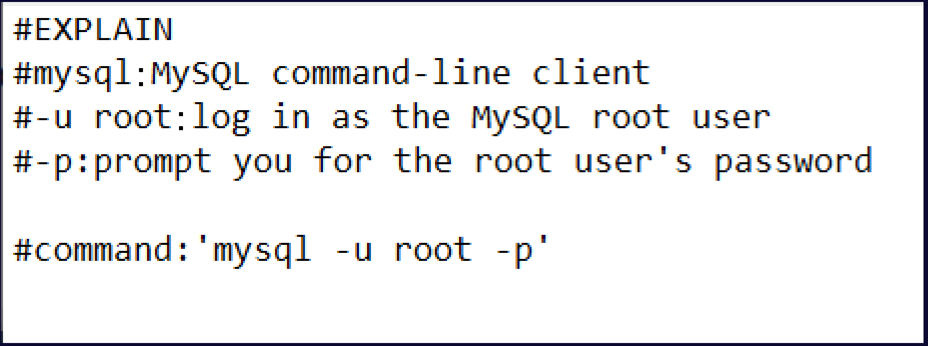
```
#EXPLAIN
#mysqladmin:command-line administrative tool for MySQL
#-u root:log in MYSQL as a root user
#-p:tells:MySQL to prompt you for the root user's password
#version:display information about the MySQL

#command:'mysqladmin -u root -p version'
```

Establish the connection with mysql using cmd ‘mysql -u root -p’

Now we can use mysql to create database.



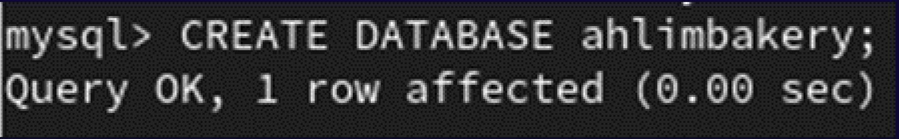
```
[root@localhost hang]# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.36 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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



```
#EXPLAIN
#mysql:MySQL command-line client
#-u root:log in as the MySQL root user
#-p:prompt you for the root user's password

#command:'mysql -u root -p'
```

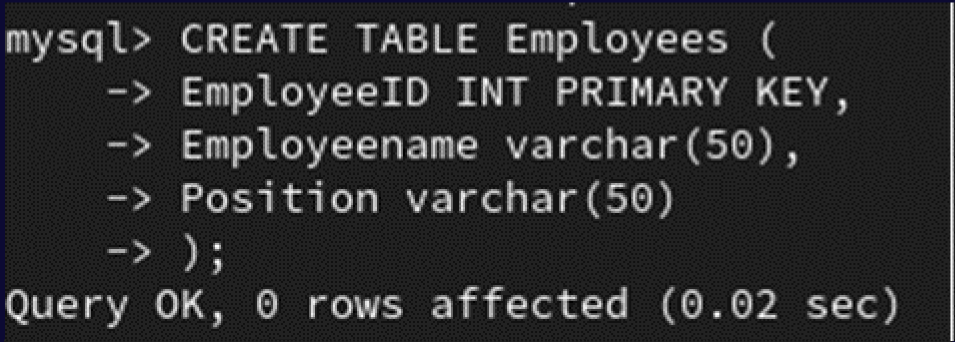
Function testing

Create Database

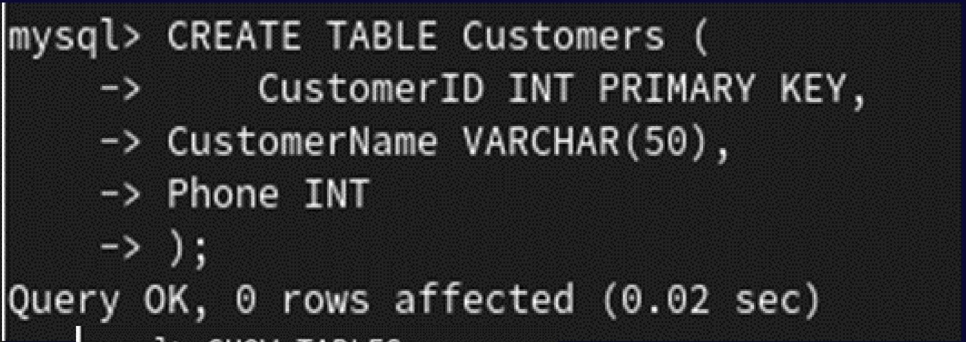


```
mysql> CREATE DATABASE ahlimbakery;
Query OK, 1 row affected (0.00 sec)
```

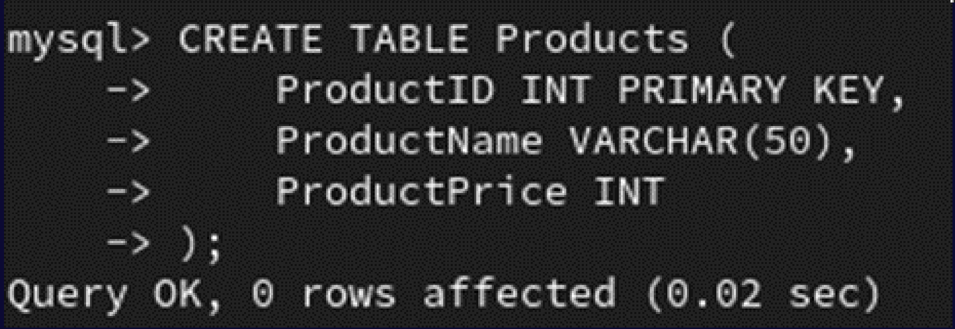
Create table



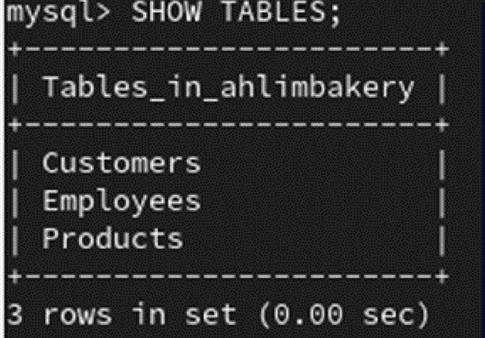
```
mysql> CREATE TABLE Employees (
    -> EmployeeID INT PRIMARY KEY,
    -> Employeename varchar(50),
    -> Position varchar(50)
    -> );
Query OK, 0 rows affected (0.02 sec)
```



```
mysql> CREATE TABLE Customers (
    ->     CustomerID INT PRIMARY KEY,
    -> CustomerName VARCHAR(50),
    -> Phone INT
    -> );
Query OK, 0 rows affected (0.02 sec)
```

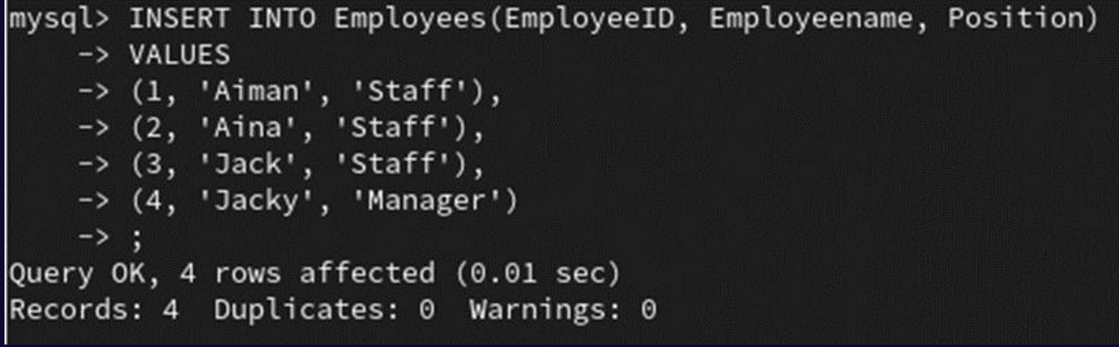


```
mysql> CREATE TABLE Products (
    ->     ProductID INT PRIMARY KEY,
    ->     ProductName VARCHAR(50),
    ->     ProductPrice INT
    -> );
Query OK, 0 rows affected (0.02 sec)
```

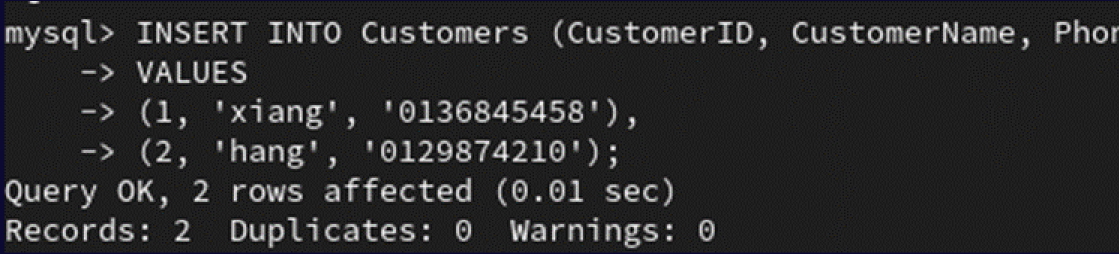


```
mysql> SHOW TABLES;
+-----------------------+
| Tables_in_ahlimbakery |
+-----------------------+
| Customers             |
| Employees             |
| Products              |
+-----------------------+
3 rows in set (0.00 sec)
```

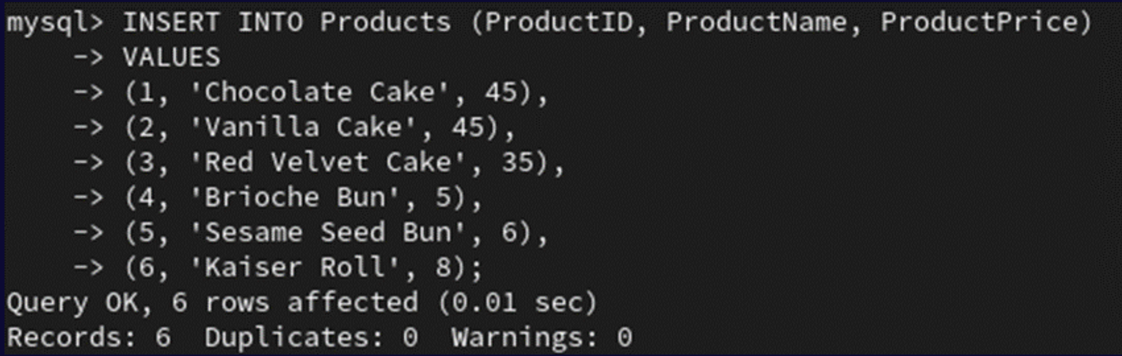
Insert some simple data to the table



```
mysql> INSERT INTO Employees(EmployeeID, Employeename, Position)
    -> VALUES
    -> (1, 'Aiman', 'Staff'),
    -> (2, 'Aina', 'Staff'),
    -> (3, 'Jack', 'Staff'),
    -> (4, 'Jacky', 'Manager')
    -> ;
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```



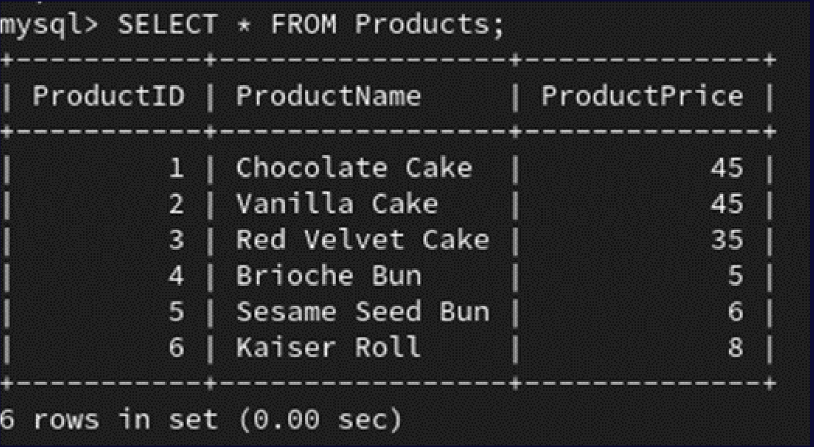
```
mysql> INSERT INTO Customers (CustomerID, CustomerName, Phor
    -> VALUES
    -> (1, 'xiang', '0136845458'),
    -> (2, 'hang', '0129874210');
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0
```



```
mysql> INSERT INTO Products (ProductID, ProductName, ProductPrice)
    -> VALUES
    -> (1, 'Chocolate Cake', 45),
    -> (2, 'Vanilla Cake', 45),
    -> (3, 'Red Velvet Cake', 35),
    -> (4, 'Brioche Bun', 5),
    -> (5, 'Sesame Seed Bun', 6),
    -> (6, 'Kaiser Roll', 8);
Query OK, 6 rows affected (0.01 sec)
Records: 6  Duplicates: 0  Warnings: 0
```

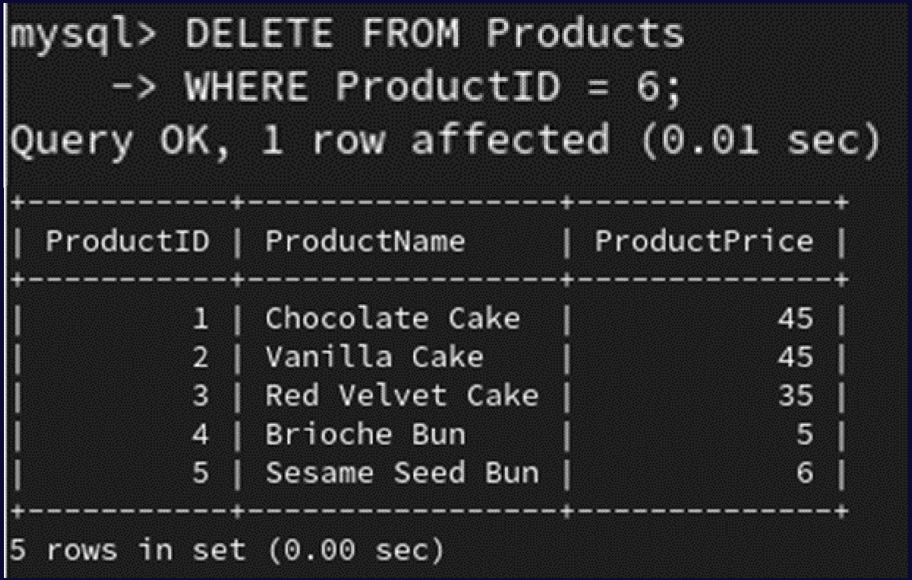
STATEMENT

SELECT STATMENT



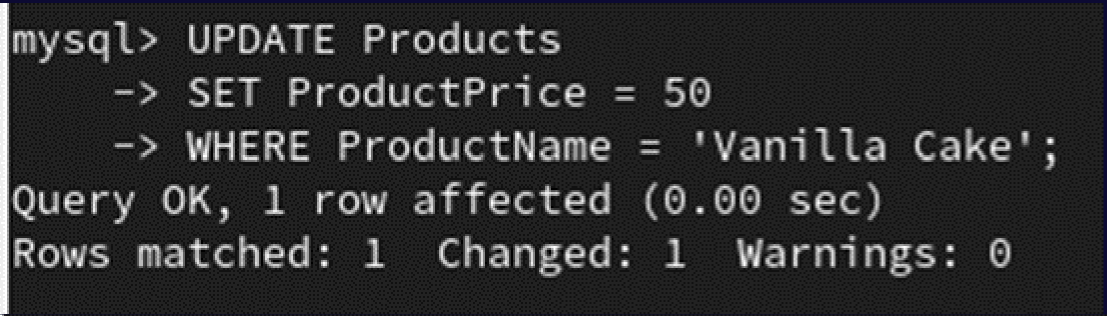
```
mysql> SELECT * FROM Products;
+-----------+------------------+--------------+
| ProductID | ProductName      | ProductPrice |
+-----------+------------------+--------------+
|         1 | Chocolate Cake   |           45 |
|         2 | Vanilla Cake     |           45 |
|         3 | Red Velvet Cake  |           35 |
|         4 | Brioche Bun      |            5 |
|         5 | Sesame Seed Bun  |            6 |
|         6 | Kaiser Roll      |            8 |
+-----------+------------------+--------------+
6 rows in set (0.00 sec)
```

DELETE STATMENT

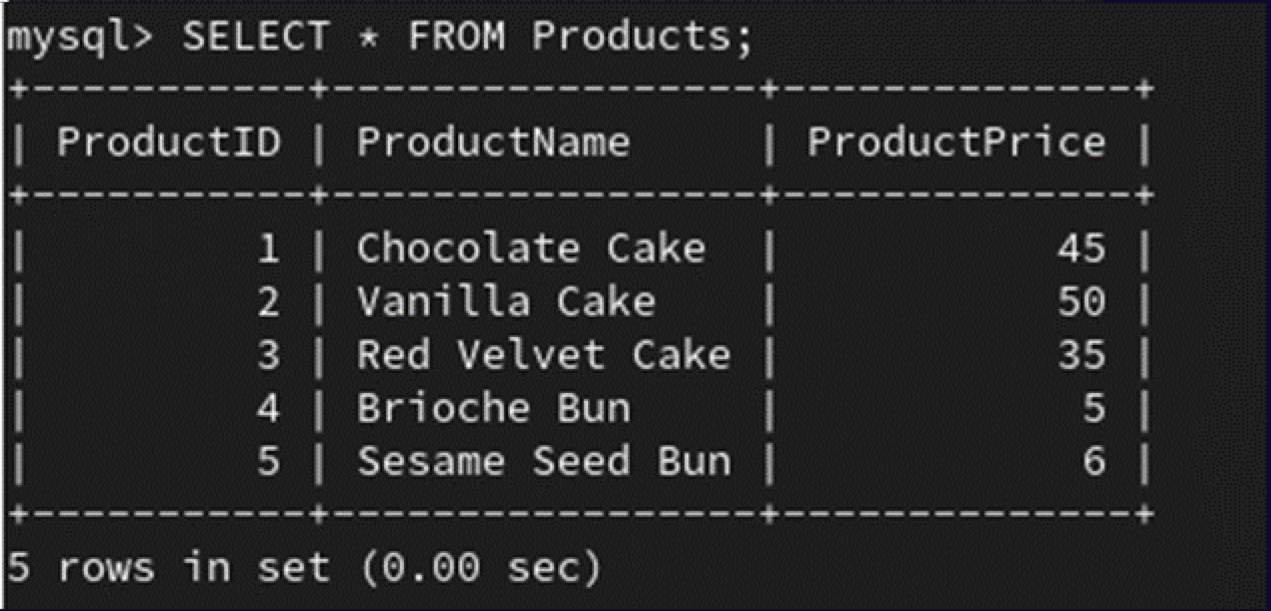


```
mysql> DELETE FROM Products
    -> WHERE ProductID = 6;
Query OK, 1 row affected (0.01 sec)

+-----------+------------------+--------------+
| ProductID | ProductName      | ProductPrice |
+-----------+------------------+--------------+
|         1 | Chocolate Cake   |           45 |
|         2 | Vanilla Cake     |           45 |
|         3 | Red Velvet Cake  |           35 |
|         4 | Brioche Bun      |            5 |
|         5 | Sesame Seed Bun  |            6 |
+-----------+------------------+--------------+
5 rows in set (0.00 sec)
```

UPDATE STATEMENT



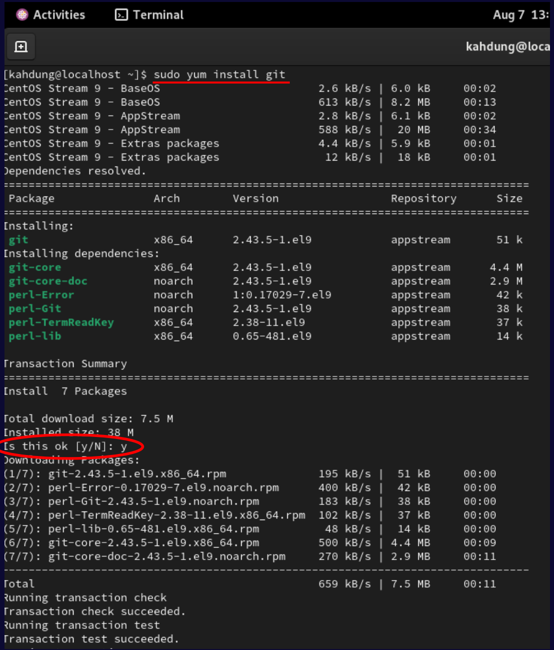
```
mysql> UPDATE Products
    -> SET ProductPrice = 50
    -> WHERE ProductName = 'Vanilla Cake';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```



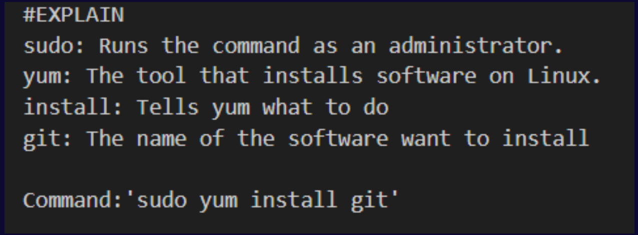
```
mysql> SELECT * FROM Products;
+-----------+-----------------+--------------+
| ProductID | ProductName     | ProductPrice |
+-----------+-----------------+--------------+
|         1 | Chocolate Cake  |           45 |
|         2 | Vanilla Cake    |           50 |
|         3 | Red Velvet Cake |           35 |
|         4 | Brioche Bun     |            5 |
|         5 | Sesame Seed Bun |            6 |
+-----------+-----------------+--------------+
5 rows in set (0.00 sec)
```

Git Configuration and Usage

1. Download git on CentOS. Type the command “sudo yum install git” and type y to confirm.



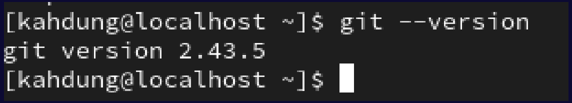
```
[kahdung@localhost ~]$ sudo yum install git
CentOS Stream 9 - BaseOS                         2.6 kB/s | 6.0 kB     00:02
CentOS Stream 9 - BaseOS                         613 kB/s | 8.2 MB     00:13
CentOS Stream 9 - AppStream                      2.8 kB/s | 6.1 kB     00:02
CentOS Stream 9 - AppStream                      588 kB/s |  20 MB     00:34
CentOS Stream 9 - Extras packages                4.4 kB/s | 5.9 kB     00:01
CentOS Stream 9 - Extras packages                 12 kB/s |  18 kB     00:01
Dependencies resolved.
================================================================================
 Package               Arch         Version                 Repository     Size
================================================================================
Installing:
 git                   x86_64       2.43.5-1.el9            appstream      51 k
Installing dependencies:
 git-core              x86_64       2.43.5-1.el9            appstream     4.4 M
 git-core-doc          noarch       2.43.5-1.el9            appstream     2.9 M
 perl-Error            noarch       1:0.17029-7.el9         appstream      42 k
 perl-Git              noarch       2.43.5-1.el9            appstream      38 k
 perl-TermReadKey      x86_64       2.38-11.el9             appstream      37 k
 perl-lib              x86_64       0.65-481.el9            appstream      14 k

Transaction Summary
================================================================================
Install  7 Packages

Total download size: 7.5 M
Installed size: 38 M
Is this ok [y/N]: y
Downloading Packages:
(1/7): git-2.43.5-1.el9.x86_64.rpm               195 kB/s |  51 kB     00:00
(2/7): perl-Error-0.17029-7.el9.noarch.rpm       400 kB/s |  42 kB     00:00
(3/7): perl-Git-2.43.5-1.el9.noarch.rpm          183 kB/s |  38 kB     00:00
(4/7): perl-TermReadKey-2.38-11.el9.x86_64.rpm   102 kB/s |  37 kB     00:00
(5/7): perl-lib-0.65-481.el9.x86_64.rpm           48 kB/s |  14 kB     00:00
(6/7): git-core-2.43.5-1.el9.x86_64.rpm          500 kB/s | 4.4 MB     00:09
(7/7): git-core-doc-2.43.5-1.el9.noarch.rpm      270 kB/s | 2.9 MB     00:11
--------------------------------------------------------------------------------
Total                                            659 kB/s | 7.5 MB     00:11
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
```



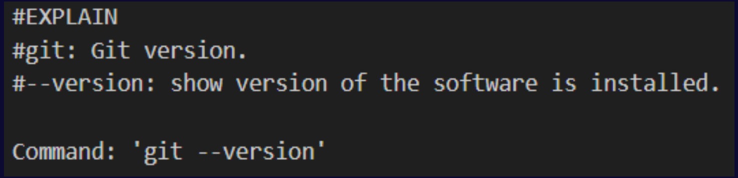
#EXPLAIN
sudo: Runs the command as an administrator.
yum: The tool that installs software on Linux.
install: Tells yum what to do
git: The name of the software want to install

Command:'sudo yum install git'

2. Check version.



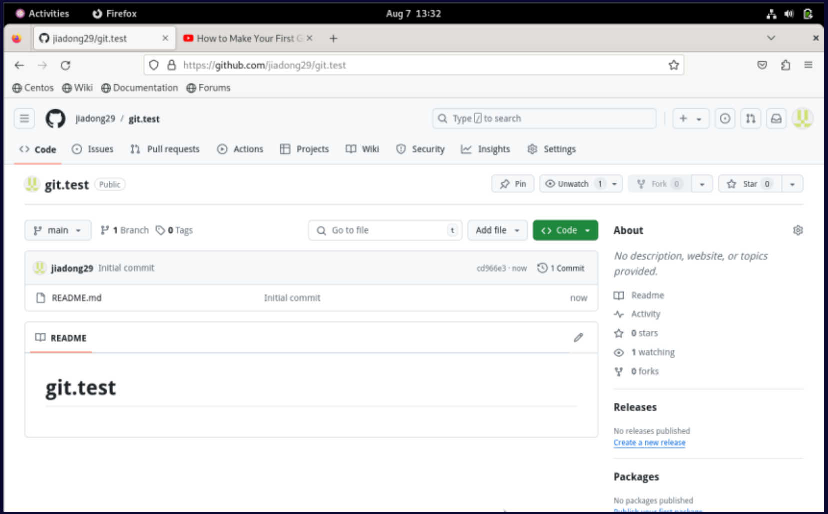
```
[kahdung@localhost ~]$ git --version
git version 2.43.5
[kahdung@localhost ~]$ 
```



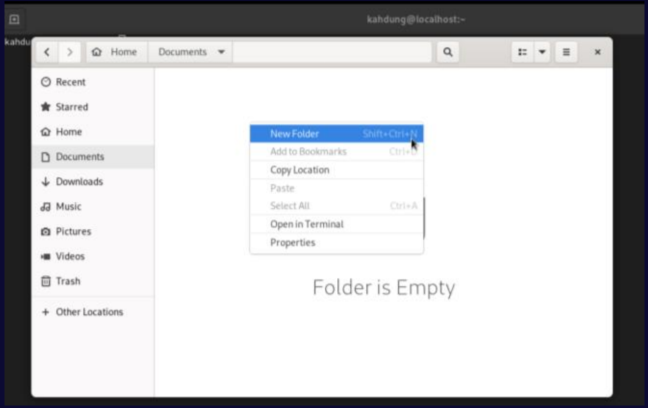
#EXPLAIN
#git: Git version.
#--version: show version of the software is installed.

Command: 'git --version'

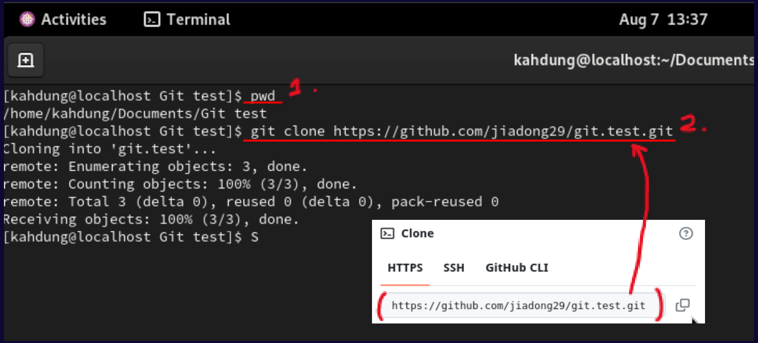
3. Create a new repository.



4. Open the file to create a new folder.

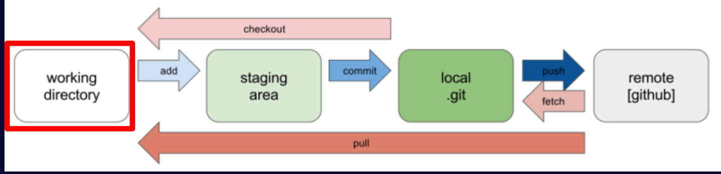


5. Open the Terminal view the current directory in the terminal. Clone a git repository Because we don't have a local repository yet, not even a working directory, So we need to create a version and upload it.

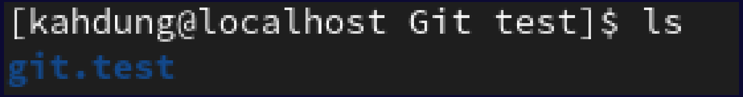


```
[kahdung@localhost Git test]$ pwd
/home/kahdung/Documents/Git test
[kahdung@localhost Git test]$ git clone https://github.com/jiadong29/git.test.git
Cloning into 'git.test'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
[kahdung@localhost Git test]$ S
```

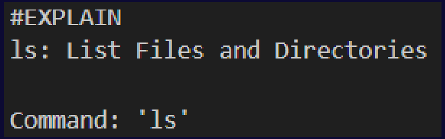
```
https://github.com/jiadong29/git.test.git
```



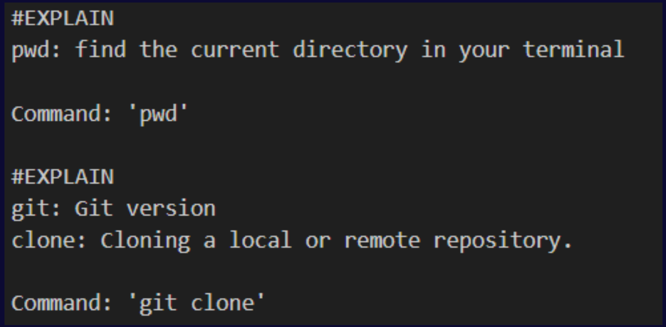
6. Type ‘ls’ to check the git file.



```
[kahdung@localhost Git test]$ ls
git.test
```

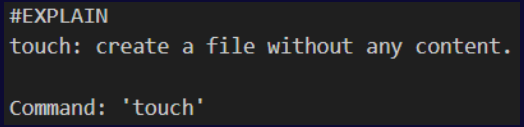


```
#EXPLAIN
ls: List Files and Directories

Command: 'ls'
```

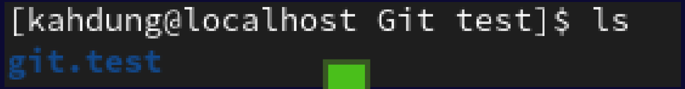


```
#EXPLAIN
pwd: find the current directory in your terminal

Command: 'pwd'

#EXPLAIN
git: Git version
clone: Cloning a local or remote repository.

Command: 'git clone'
```

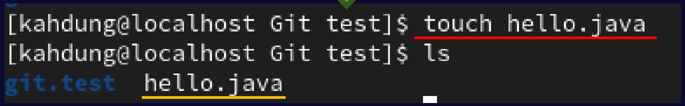
7. Type’ touch’ file name (hello.java) to create a folder and put some things in folder.



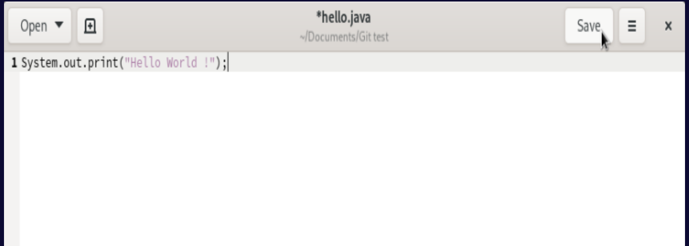
```
#EXPLAIN
touch: create a file without any content.

Command: 'touch'
```



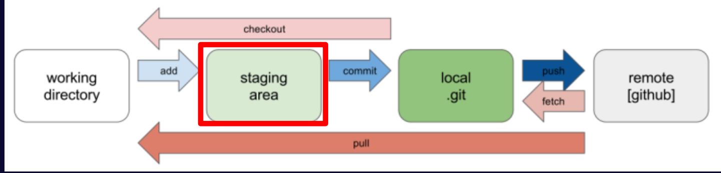
```
[kahdung@localhost Git test]$ ls
git.test
```



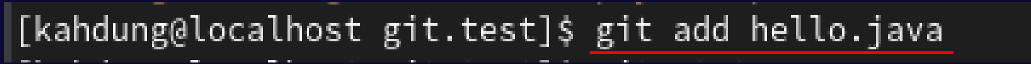
```
[kahdung@localhost Git test]$ touch hello.java
[kahdung@localhost Git test]$ ls
git.test  hello.java
```



```
1 System.out.print("Hello World !");
```



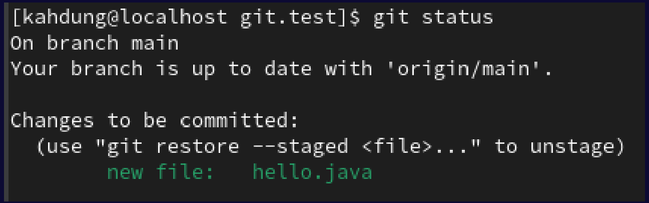
8. Type ‘git add’ file name (hello.java) to adds the content from the working directory to the staging area for the next commit.



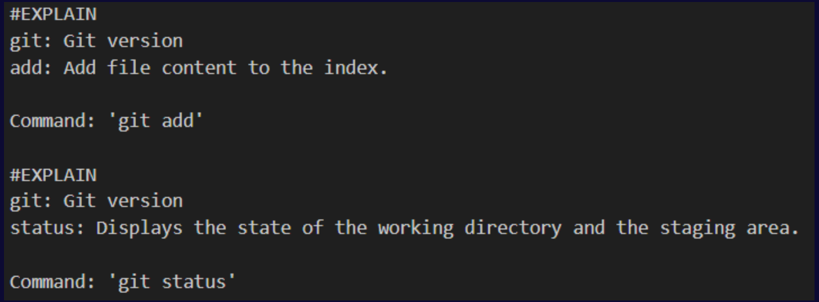
```
[kahdung@localhost git.test]$ git add hello.java
```

Check the status of the working directory and staging area.

Successfully !

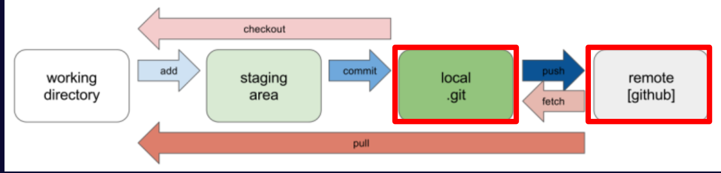


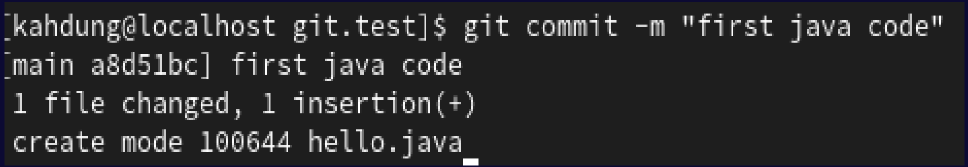
```
[kahdung@localhost git.test]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   hello.java
```



```
#EXPLAIN
git: Git version
add: Add file content to the index.

Command: 'git add'

#EXPLAIN
git: Git version
status: Displays the state of the working directory and the staging area.

Command: 'git status'
```

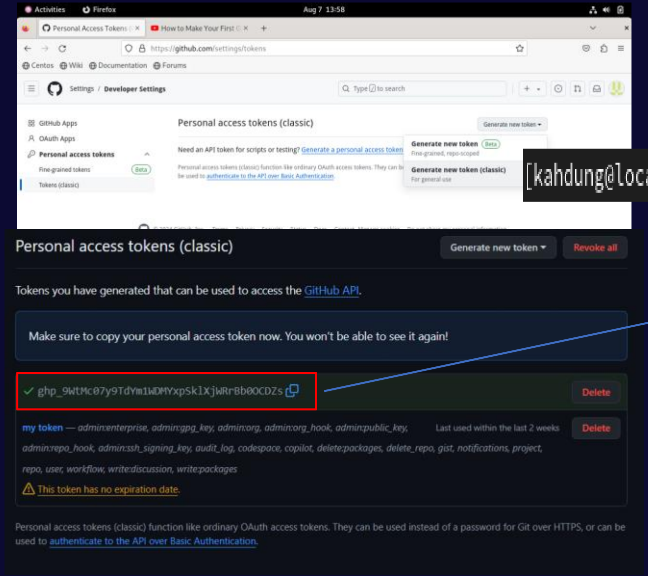
9. Type 'git commit -m' it will save changes the file we made and add a commit message indicating that a new feature has been added to the login page.





```
[kahdung@localhost git.test]$ git commit -m "first java code"
[main a8d51bc] first java code
 1 file changed, 1 insertion(+)
 create mode 100644 hello.java_
```

10. Create a new TOKEN in the Github settings.



Personal access tokens (classic)

Need an API token for scripts or testing? Generate a personal access token

Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used to authenticate to the API over Basic Authentication.

Personal access tokens (classic)

Tokens you have generated that can be used to access the GitHub API.

Make sure to copy your personal access token now. You won't be able to see it again!

✓ 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

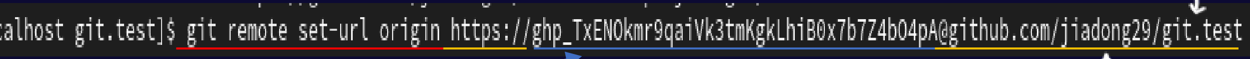
my token — admin:enterprise, admin:gpg_key, admin:org, admin:org_hook, admin:public_key, admin:repo_hook, admin:ssh_signing_key, audit_log, codespace, copilot, delete:packages, delete_repo, gist, notifications, project, repo, user, workflow, write:discussion, write:packages Last used within the last 2 weeks

⚠ This token has no expiration date.

Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

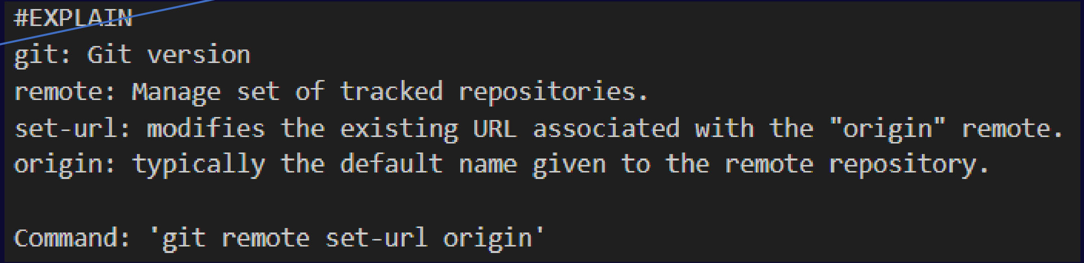
Type ' git remote set-url origin' to manage set of tracked repositories.

repositories



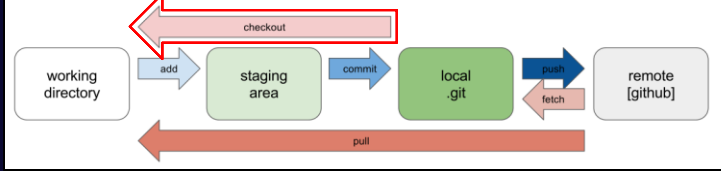
```
[kahdung@localhost git.test]$ git remote set-url origin https://ghp_TxENOkmr9qaiVk3tmKgkLhiB0x7b7Z4b04pA@github.com/jiadong29/git.test
```

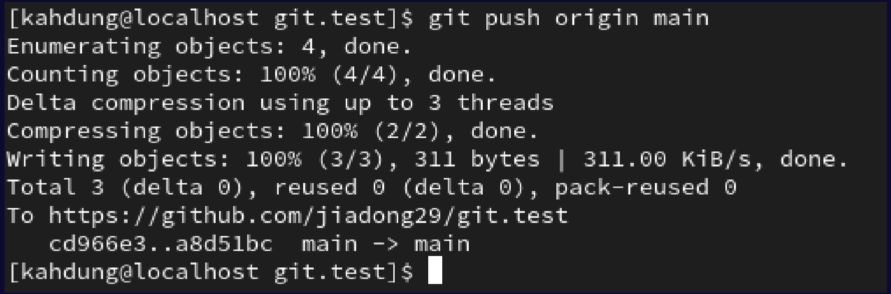
User name



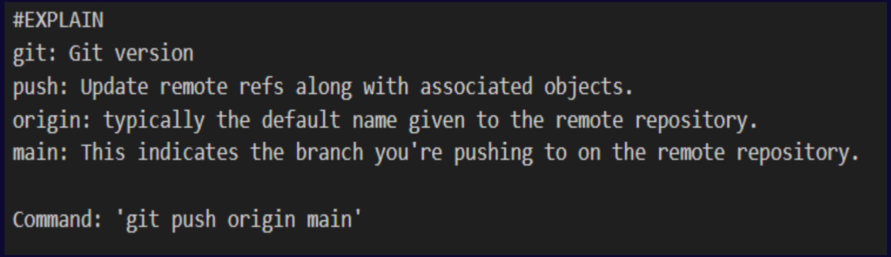
```
#EXPLAIN
git: Git version
remote: Manage set of tracked repositories.
set-url: modifies the existing URL associated with the "origin" remote.
origin: typically the default name given to the remote repository.

Command: 'git remote set-url origin'
```

12. Pushes local changes (commits) to the remote repository name "origin" on the branch called "main".



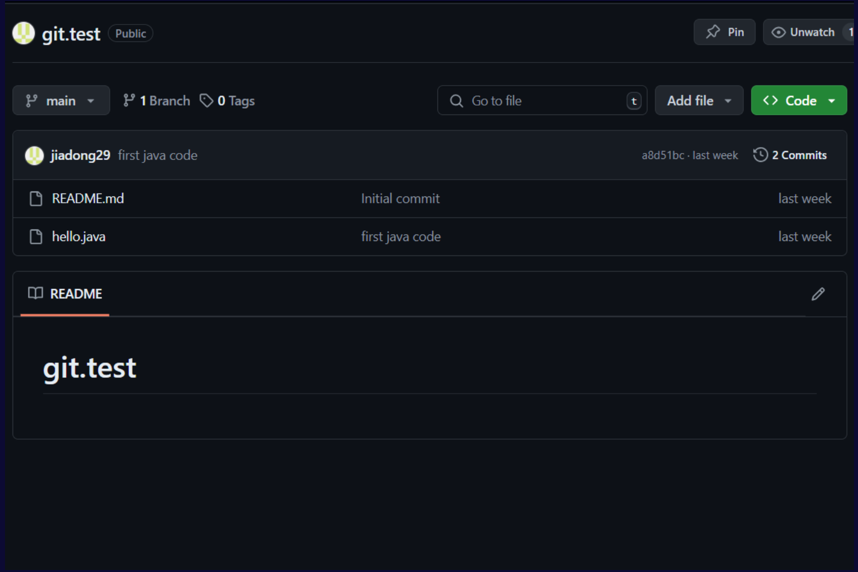


```
[kahdung@localhost git.test]$ git push origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 3 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 311 bytes | 311.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/jiadong29/git.test
   cd966e3..a8d51bc  main -> main
[kahdung@localhost git.test]$ 
```



```
#EXPLAIN
git: Git version
push: Update remote refs along with associated objects.
origin: typically the default name given to the remote repository.
main: This indicates the branch you're pushing to on the remote repository.

Command: 'git push origin main'
```

After git push, Open Github as you can see the folders was success uploaded.



git.test Public

main · 1 Branch · 0 Tags

jiadong29 first java code · a8d51bc · last week · 2 Commits

README.md	Initial commit	last week
hello.java	first java code	last week

README

git.test

Thank You!