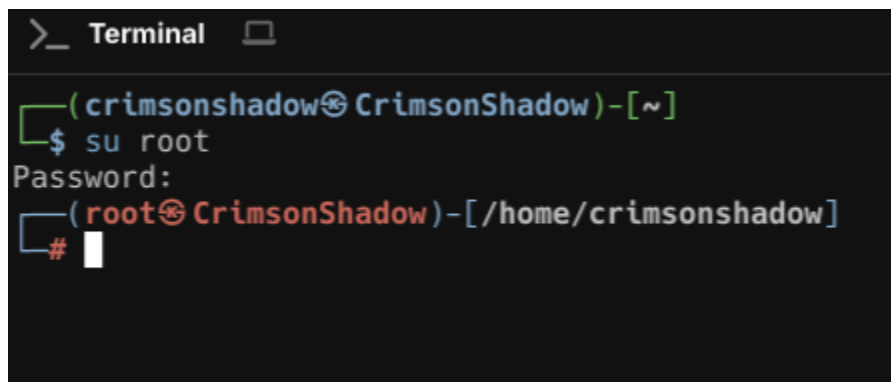



## System Security Assignment on SSH


Praneesh R V  
CB.SC.U4CYS23036

1, Login as root user

A terminal window titled 'Terminal' with a window icon. The prompt is '(crimsonshadow@CrimsonShadow)~'. The user enters '\$ su root'. The prompt changes to '(root@CrimsonShadow)~' and the user is asked for a password. The user enters a password, and the prompt changes to '#'.

```
>_ Terminal   
  
(crimsonshadow@CrimsonShadow)~  
$ su root  
Password:  
(root@CrimsonShadow)~  
#
```

2, Create two users yourrollnumberamrita(client)(last 10 characters) and yourrollnumbercoimbatore(server) (cb.sc.'....') with passwords.

>\_ Terminal 

```
(root@CrimsonShadow)-[/home/crimsonshadow]
# adduser cb_sc_u4cys23036_amrita
info: Adding user `cb_sc_u4cys23036_amrita' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `cb_sc_u4cys23036_amrita' (1001) ...
info: Adding new user `cb_sc_u4cys23036_amrita' (1001) with group `cb_sc_u4cys23036_amrita (1001)' ...
info: Creating home directory `/home/cb_sc_u4cys23036_amrita' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for cb_sc_u4cys23036_amrita
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]
info: Adding new user `cb_sc_u4cys23036_amrita' to supplemental / extra groups `users' ...
info: Adding user `cb_sc_u4cys23036_amrita' to group `users' ...

(root@CrimsonShadow)-[/home/crimsonshadow]
#
```

```
(root@CrimsonShadow)-[/home/crimsonshadow]
# adduser cb_sc_u4cys23036_coimbatore
info: Adding user `cb_sc_u4cys23036_coimbatore' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `cb_sc_u4cys23036_coimbatore' (1002) ...
info: Adding new user `cb_sc_u4cys23036_coimbatore' (1002) with group `cb_sc_u4cys23036_coimbatore (1002)' ...
info: Creating home directory `/home/cb_sc_u4cys23036_coimbatore' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for cb_sc_u4cys23036_coimbatore
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]
info: Adding new user `cb_sc_u4cys23036_coimbatore' to supplemental / extra groups `users' ...
info: Adding user `cb_sc_u4cys23036_coimbatore' to group `users' ...

(root@CrimsonShadow)-[/home/crimsonshadow]
#
```

3, Login as yourrollnumberamrita. Use ssh to create the private and public ids at the location /home/yourrollnumberamrita/.ssh

```
(root@CrimsonShadow) - [/home/crimsonshadow]
# su - cb_sc_u4cys23036_amrita
(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$ mkdir -p ~/.ssh

(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$ chmod 700 ~/.ssh

(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$ ssh-keygen -t rsa -b 2048 -f ~/.ssh/id_rsa -N ""
Generating public/private rsa key pair.
Your identification has been saved in /home/cb_sc_u4cys23036_amrita/.ssh/id_rsa
Your public key has been saved in /home/cb_sc_u4cys23036_amrita/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:ycyH5/899uyYIBKQU0ivyUpJm4D/6ReS3rRlIp3SJn8 cb_sc_u4cys23036_amrita@CrimsonShadow
The key's randomart image is:
+---[RSA 2048]-----+
|      . . . .      |
|      .   +        |
|     . . . + .     |
|    . o = 0 o      |
|   . =. + S+o.     |
|  oooo B==         |
| .++ *. =0 .       |
| .. + ..oE. B      |
| ..      ...=.B    |
+---[SHA256]-----+

(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$
```

4, Then copy the public id file to the /home/yourrollnumbercoimbatore/.ssh/authorized\_keys

```
>_ Terminal
(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$ cat ~/.ssh/id_rsa.pub | ssh localhost 'mkdir -p ~/.ssh && cat > ~/.ssh/authorized_keys'
cb_sc_u4cys23036_amrita@localhost's password:

(cb_sc_u4cys23036_amrita@CrimsonShadow) - [~]
$
```

```

[cb_sc_u4cys23036_amrita@CrimsonShadow]~$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCD2iWFonh3GKbLV1kzndZh0CbTaTzsL1miIiJAm50Y
x3rfBhkSbkmZ/YwyIcag1g3dX0ZBaXBtSzoHlkmUS1WcGG+U2VMGW05ywuU1H2JwGwrfvGy8EIdSC3K
i7QjquFYeFa4AJvACZpn+jEmqA4j9NAjHZg3/nRFcR6UkekHmXpHQKLq7fksn2sx8cwMCHKhS9qeBeE
TohciMau4dgBbqGNAoXAQBdeoAzmjsARegUXMkhGiEbwLXNA/nN8uZtA0KssJE8cxch+a2USh4wtCay+
iE8Fo4rPRADS1RAfjZw4npl7mukCGV0N5n0QP9NDk0ZqsIFrCS+kGgml8N1v cb_sc_u4cys23036_am
rita@CrimsonShadow

[cb_sc_u4cys23036_amrita@CrimsonShadow]~$ su - cb_sc_u4cys23036_coimbatore
Password:
[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$ nvim ~/.ssh/authorized_keys

[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$ nvim ~/.ssh/authorized_keys

[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$ cat ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCD2iWFonh3GKbLV1kzndZh0CbTaTzsL1miIiJAm50Y
x3rfBhkSbkmZ/YwyIcag1g3dX0ZBaXBtSzoHlkmUS1WcGG+U2VMGW05ywuU1H2JwGwrfvGy8EIdSC3K
i7QjquFYeFa4AJvACZpn+jEmqA4j9NAjHZg3/nRFcR6UkekHmXpHQKLq7fksn2sx8cwMCHKhS9qeBeE
TohciMau4dgBbqGNAoXAQBdeoAzmjsARegUXMkhGiEbwLXNA/nN8uZtA0KssJE8cxch+a2USh4wtCay+
iE8Fo4rPRADS1RAfjZw4npl7mukCGV0N5n0QP9NDk0ZqsIFrCS+kGgml8N1v cb_sc_u4cys23036_am
rita@CrimsonShadow

[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$ chmod 700 ~/.ssh

[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$ chmod 600 ~/.ssh/authorized_keys

[cb_sc_u4cys23036_coimbatore@CrimsonShadow]~$

```

5, Do the necessary steps if required (editing ssh config files and restarting the service, providing permissions for .ssh and .ssh/ authorized\_keys etc..)

```
>_ Terminal

(root@CrimsonShadow)-[~]
# sudo systemctl restart ssh

(root@CrimsonShadow)-[~]
# sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: disabled)
   Active: active (running) since Wed 2025-03-19 12:11:48 IST; 6s ago
 Invocation: 7c704dea4f8f460dbab245c5d63e5805
    Docs: man:sshd(8)
          man:sshd_config(5)
   Process: 480778 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
  Main PID: 480780 (sshd)
    Tasks: 1 (limit: 18605)
   Memory: 1.4M (peak: 2M)
      CPU: 20ms
   CGroup: /system.slice/ssh.service
           └─480780 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 19 12:11:48 CrimsonShadow systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Mar 19 12:11:48 CrimsonShadow sshd[480780]: Server listening on 0.0.0.0 port 22.
Mar 19 12:11:48 CrimsonShadow sshd[480780]: Server listening on :: port 22.
Mar 19 12:11:48 CrimsonShadow systemd[1]: Started ssh.service - OpenBSD Secure Shell server.

(root@CrimsonShadow)-[~]
#
```





```
>_ Terminal

(cb_sc_u4cys23036_amrita@CrimsonShadow)-[~]
$ su - cb_sc_u4cys23036_coimbatore
Password:
(cb_sc_u4cys23036_coimbatore@CrimsonShadow)-[~]
$ chmod 700 ~/.ssh

(cb_sc_u4cys23036_coimbatore@CrimsonShadow)-[~]
$ chmod 600 ~/.ssh/authorized_keys

(cb_sc_u4cys23036_coimbatore@CrimsonShadow)-[~]
$
```

6, Check are you able to login without a password from yourrollnumberamrita to yourrollnumbercoimbatore using ssh

```
>_ Terminal      
  
(cb_sc_u4cys23036_amrita@CrimsonShadow)-[~]  
$ ssh cb_sc_u4cys23036_coimbatore@localhost  
Linux CrimsonShadow 6.12.13-amd64 #1 SMP PREEMPT_DYNAMIC Kali 6.12.13-1kali1 (2025-02-11) x86_64  
  
The programs included with the Kali GNU/Linux system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
Last login: Wed Mar 19 12:07:51 2025 from ::1  
(cb_sc_u4cys23036_coimbatore@CrimsonShadow)-[~]  
$
```

SSH connected without Password