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rish4name changes again

4c29e1c · 1 minute ago



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## Secure Remote GUI Access via SSH (X11) and VNC

**OS Used:** Ubuntu (both systems)**Author:** Ryder**Course:** Linux System Administration**Assignment:** Remote GUI Access & Verification

### Objective

Demonstrate secure remote GUI access from your laptop to a remote machine (friend's laptop) using:

1. SSH with X11 Forwarding (Single GUI App)
2. VNC Over SSH Tunnel (Full Desktop Session)

All operations assume explicit permission on the remote system.

## Step 1 — Prepare & Secure the Remote Machine

(Run these on the friend's laptop)

## ✓ 1. Install SSH and optional VNC server

```
sudo apt update  
sudo apt install -y openssh-server tigervnc-standalone-server
```



## ✓ 2. Create non-root user & enable SSH service

```
sudo useradd -m frienduser || true  
sudo passwd frienduser  
sudo systemctl enable --now ssh
```



## ✓ 3. Configure SSH key-based authentication

Replace <your-pubkey> with your actual *public* SSH key:

```
sudo mkdir -p /home/frienduser/.ssh  
echo "<your-pubkey>" | sudo tee -a /home/frienduser/.ssh/authorized_keys  
  
sudo chmod 700 /home/frienduser/.ssh  
sudo chmod 600 /home/frienduser/.ssh/authorized_keys  
sudo chown -R frienduser:frienduser /home/frienduser/.ssh
```





## Screenshot A: authorized\_keys file

```

Nov 3 23:37
rishabh-pandey@rishabh-pandey-VirtualBox: ~

[-f: command not found
Generating public/private ed25519 key pair.
Your identification has been saved in /home/rishabh-pandey/.ssh/id_25519
Your public key has been saved in /home/rishabh-pandey/.ssh/id_25519.pub
The key's randomart image is:
A SHA256:0x6MLRufMSwAcq/IJzw8Fe4zscT03/eYsTK8yjhAvk rishabh-pandey@rishabh-pandey-VirtualBox
The key's randomart image is:
+--[ED25519 256]--+
| . .
| . o .
| o + . =
| * . + o B .
| * + S =.+ .
| o= o.* +oo
| oo.Bo+o
| E.o=++o
| .o*o...
+----[SHA256]-----
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo mkdir -p /home/friend/.ssh \
> sudo sh -c "cat ~/.ssh/id_25519.pub >> /home/friend/.ssh/authorized_keys" \
> sudo chmod 700 /home/friend/.ssh \
> sudo chmod 600 /home/friend/.ssh/authorized_keys
mkdir: invalid option -- 'c'
Try 'mkdir --help' for more information.
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo mkdir -p /home/friend/.ssh
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo sh -c "cat ~/.ssh/id_25519.pub >> /home/friend/.ssh/authorized_keys"
cat: /root/.ssh/id_25519.pub: No such file or directory
rishabh-pandey@rishabh-pandey-VirtualBox: $ echo "<your-publickey>" | sudo tee -a /home/friend/.ssh/authorized_keys
<your-publickey>
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo chmod 700 /home/friend/.ssh
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo chmod 600 /home/friend/.ssh/authorized_keys
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo chown -R friend:friend /home/friend/.ssh
rishabh-pandey@rishabh-pandey-VirtualBox: $ sudo cat /home/friend/.ssh/authorized_keys
<your-publickey>
rishabh-pandey@rishabh-pandey-VirtualBox: $ 

```

## Step 2 — X11 Forwarding (Test GUI App Over SSH)

### 1. Connect using SSH + X11 forwarding

(Run on your laptop)

ssh -X frienduser@FRIEND\_IP



### 2. Run a GUI app remotely

xeyes &



or

gedit &



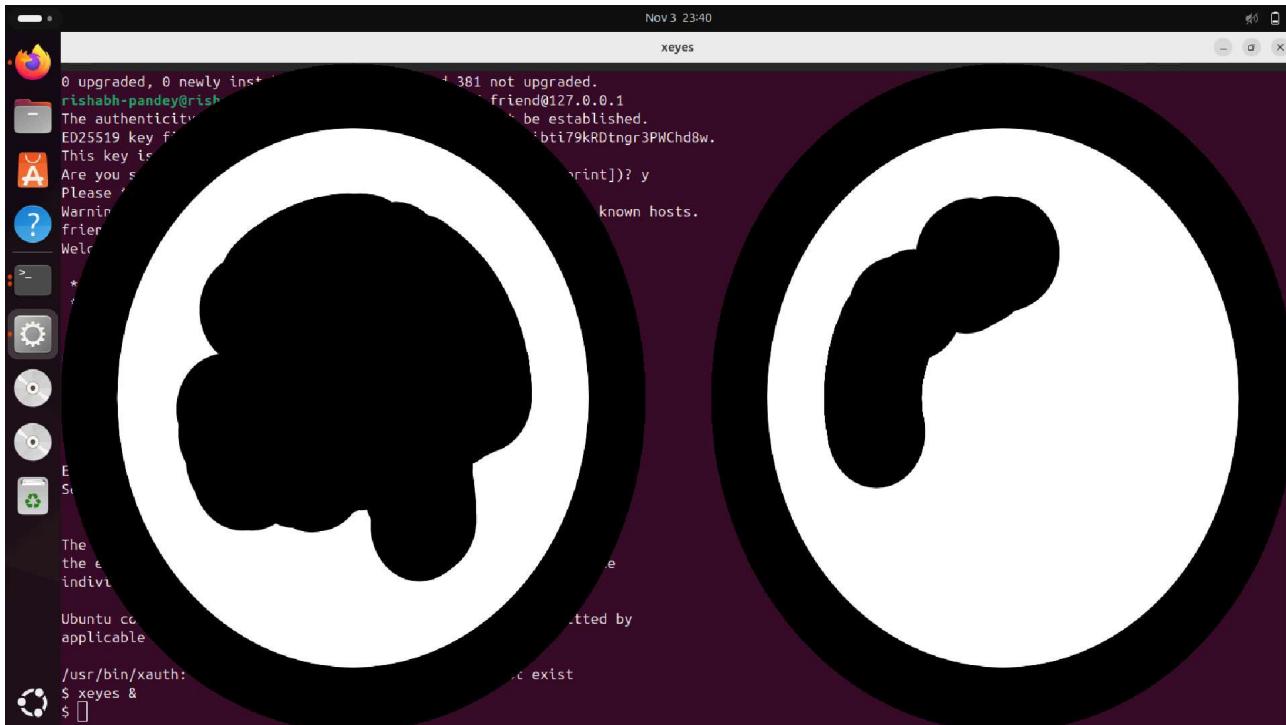
- If successful: the GUI app appears on **your** laptop screen, though it runs on the friend's machine.



## Screenshot B: X11 Forwarding Result

Should show:

- Terminal with `ssh -X frienduser@FRIEND_IP`
- GUI app (xeyes/gedit) open



## Step 3 — Full Desktop Access via VNC over SSH Tunnel

1. Start VNC server on remote machine

```
vncserver :1
```



This creates display :1 → port 5901

2. On your laptop, create secure SSH tunnel

```
ssh -L 5901:localhost:5901 frienduser@FRIEND_IP -N &
```



### 3. Connect using any VNC viewer

Open VNC client → connect to:

localhost:5901



- If successful: full desktop of remote machine appears.

## Screenshot C: VNC Desktop Session

Place screenshot here:

```

Nov 3 23:41
rishabh-pandey@rishabh-pandey-VirtualBox: ~

0 upgraded, 0 newly installed, 0 to remove and 381 not upgraded.
rishabh-pandey@rishabh-pandey-VirtualBox: $ ssh -X friend@127.0.0.1
The authenticity of host '127.0.0.1 (127.0.0.1)' can't be established.
ED25519 key fingerprint is SHA256:LixyUHT+Xc8bfzaVkrEklbiti79kRDtingr3PWChd8w.
This key is not known by any other names.
A Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '127.0.0.1' (ED25519) to the list of known hosts.
friend@127.0.0.1's password:
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.14.0-28-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

370 updates can be applied immediately.
189 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

/usr/bin/xauth:  file /home/friend/.Xauthority does not exist
$ xeyes &
$ 
```

### Summary

This assignment demonstrates secure GUI remote access using:

- SSH server setup with proper permissions
- Public-key authentication

- ✓ X11 forwarding to run GUI apps remotely
- ✓ VNC over SSH for a full remote desktop
- ✓ Verification screenshots for each stage

All actions follow secure, permission-based remote access practices.

## ✓ End of Submission ✓

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