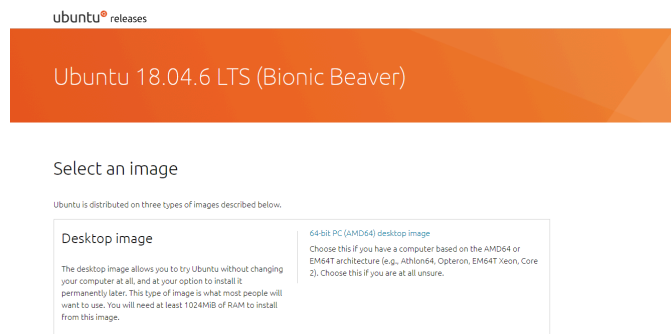


LTSP Server and Thin Client Setup

Initial Setup

1: [Download Ubuntu 18.04.6 LTS \(Bionic Beaver\)](#)



2: Create a bootable USB drive with [Rufus](#) with the downloaded Ubuntu 18.04.6 LTS (Bionic Beaver)

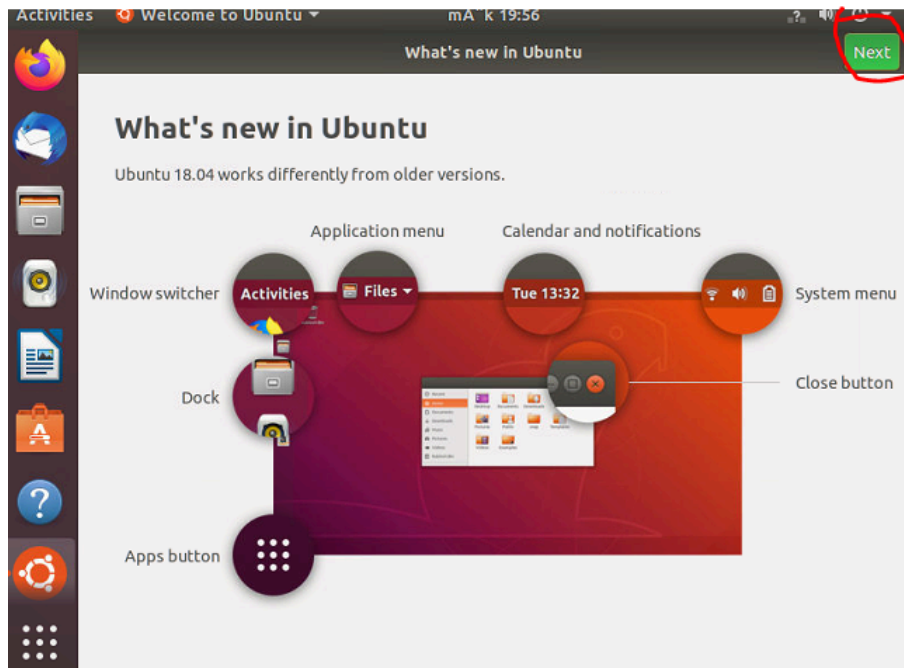
3: With the bootable USB drive insert the drive into a desktop/laptop. This device will become the server for the thin client. (It will delete the preexisting OS if there isn't a secondary drive.)

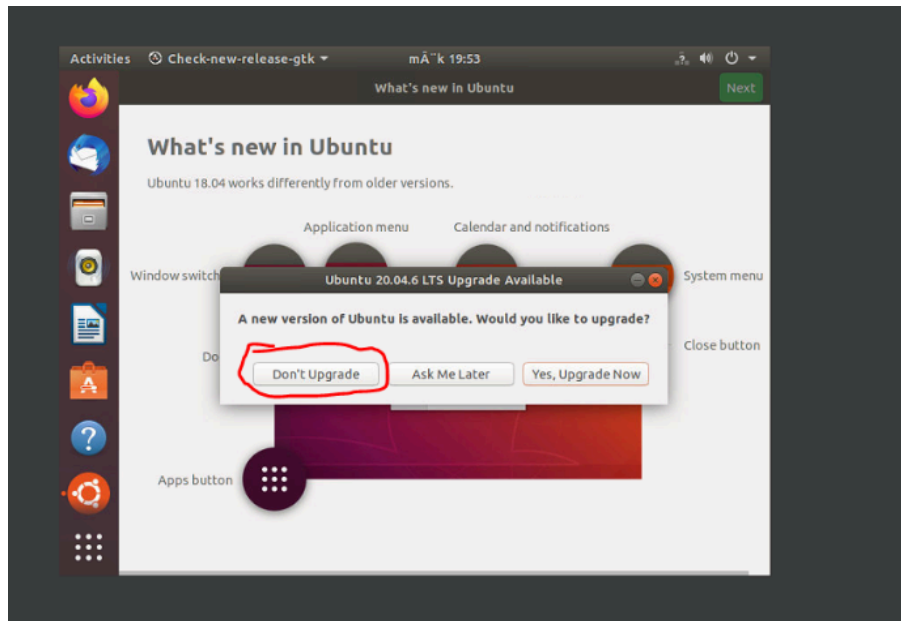
4: Have the LTSP Server Device and the Thin Client Device both connected to a router. The router for the entire LTSP Server creation must have internet access! Once the LTSP Server is created internet access will no longer be needed.

5: Access the BIOS/UEFI to change the boot order to the USB drive boot. (Might be named differently depending on the motherboard)

6: Exit the BIOS/UEFI to begin the Ubuntu installation and setup.

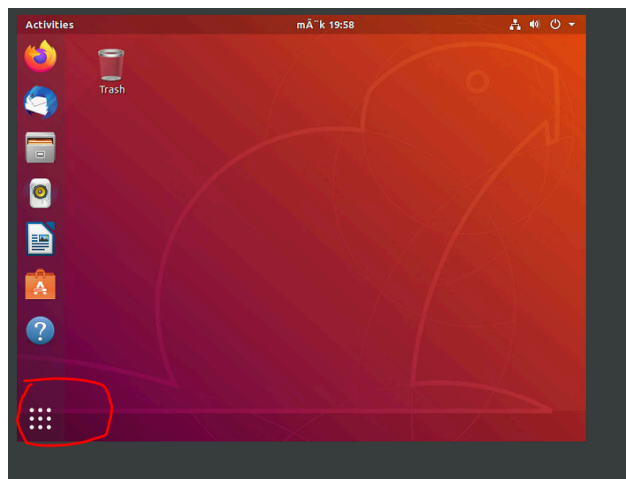
7: Once Ubuntu is setup on the welcome prompt will appear just click continue on the top right corner until the welcome prompt says you're done. (An upgrade prompt should appear as well. DO NOT UPGRADE so click the "Don't upgrade box")





LTSP Server Setup

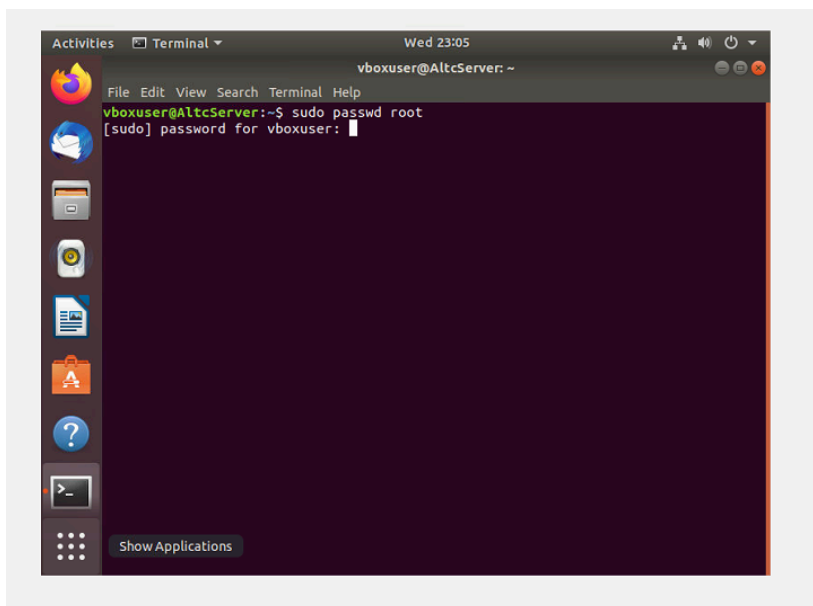
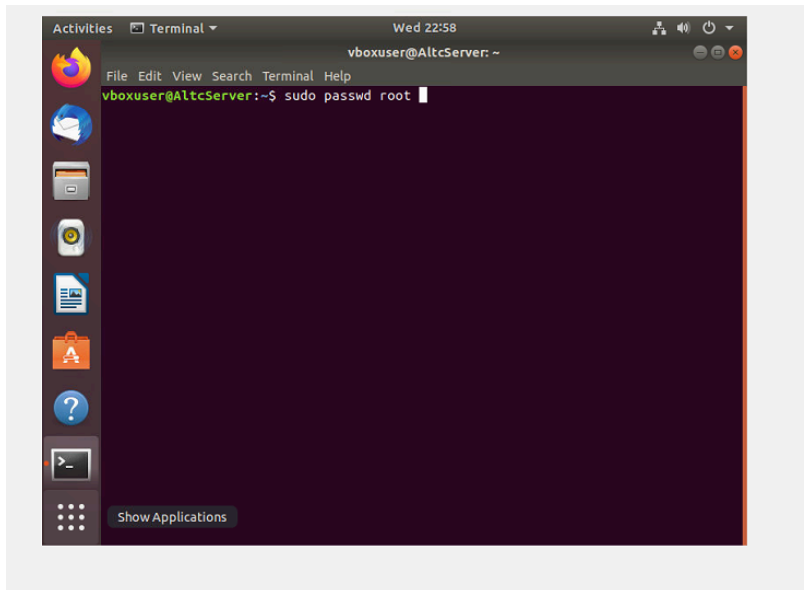
8: Click on the 9 dotted box at the bottom left corner of the desktop to launch the app menu. Once it's open in the search bar search for terminal and open it.



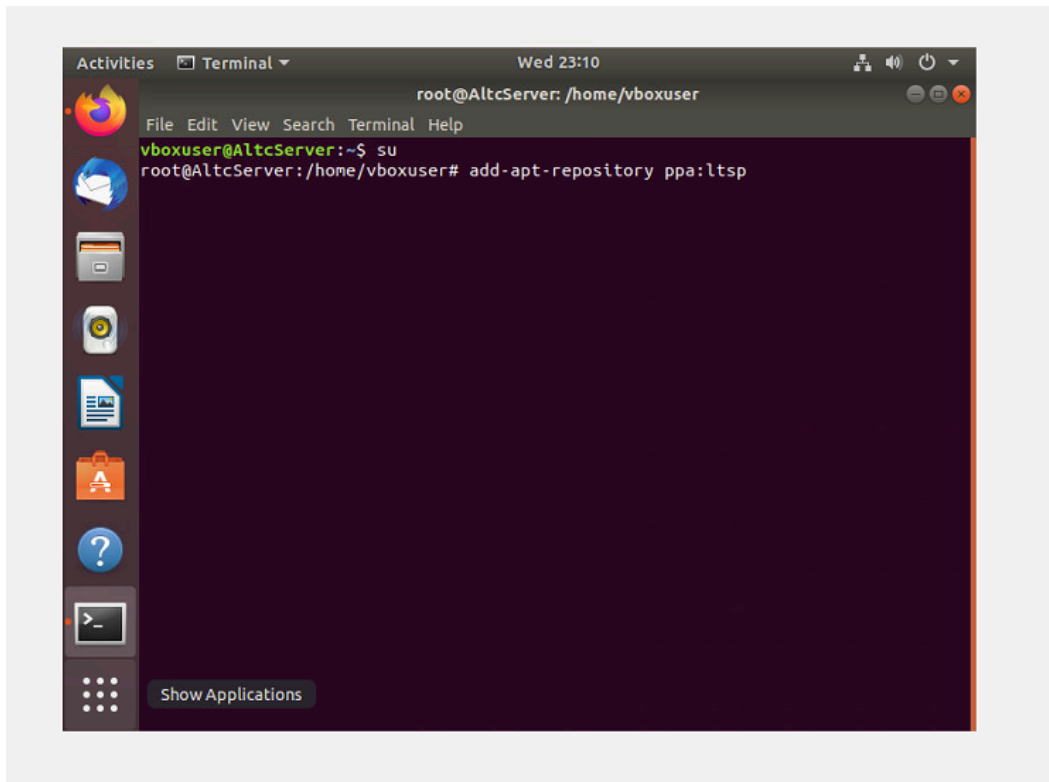


9: Type the Linux command ***sudo su passwd root***

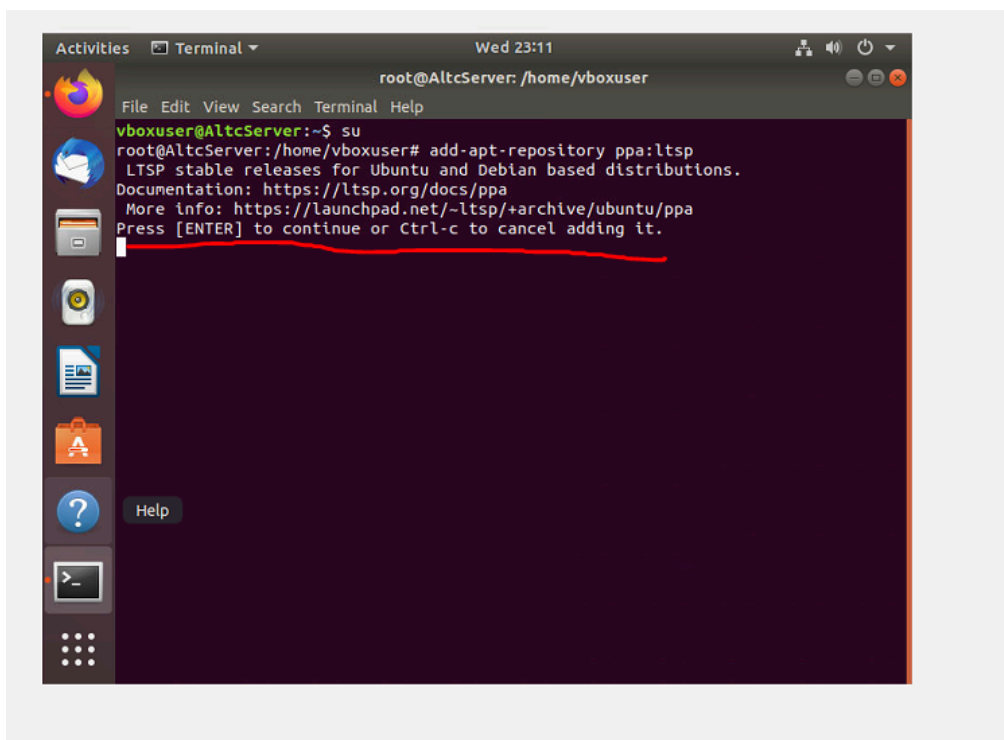
9:1 The terminal will be asking for the password that you created when making the first user. Enter the password and you will be prompted to create a new UNIX password. That password will be used to access the root terminal. Create a simple password such as altc2023.



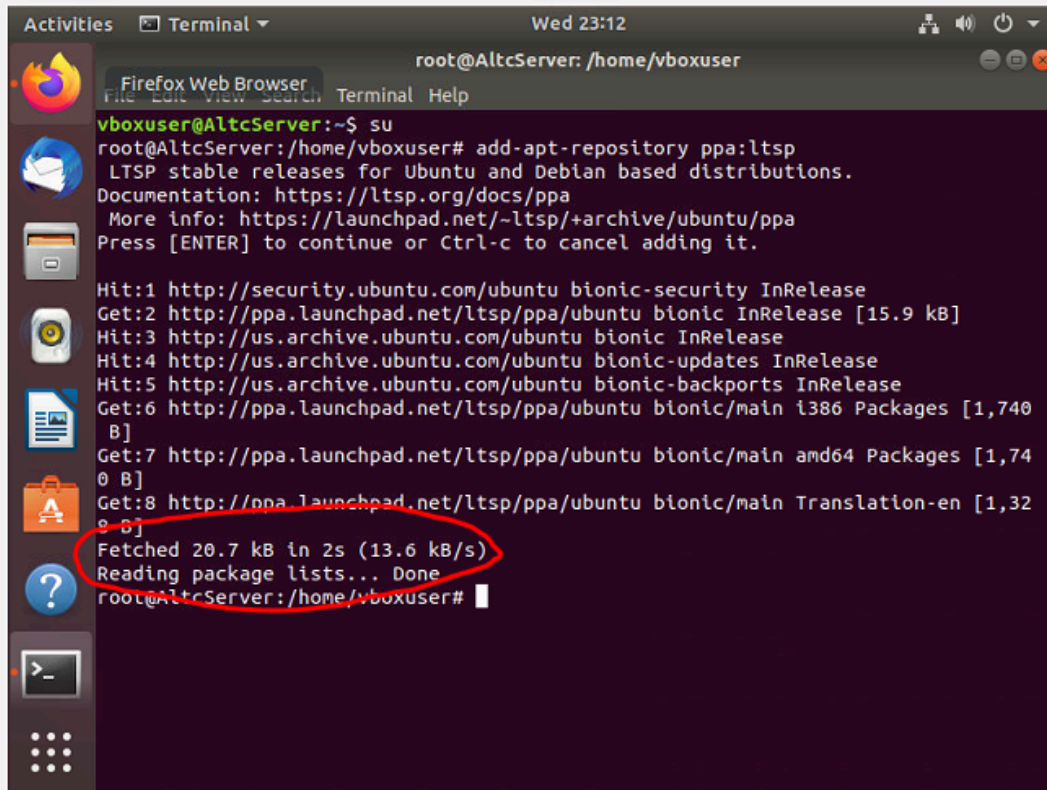
10: Once you're terminal has gained root access you want to enter this Linux Command to download LTSP PPA ***add-apt-repository ppa:ltsp***



10:1 You will be prompted to click enter to continue the installation process. Click enter to continue installation.



10:2 Once you see done in the terminal that means LTSP PPA is installed onto the system.

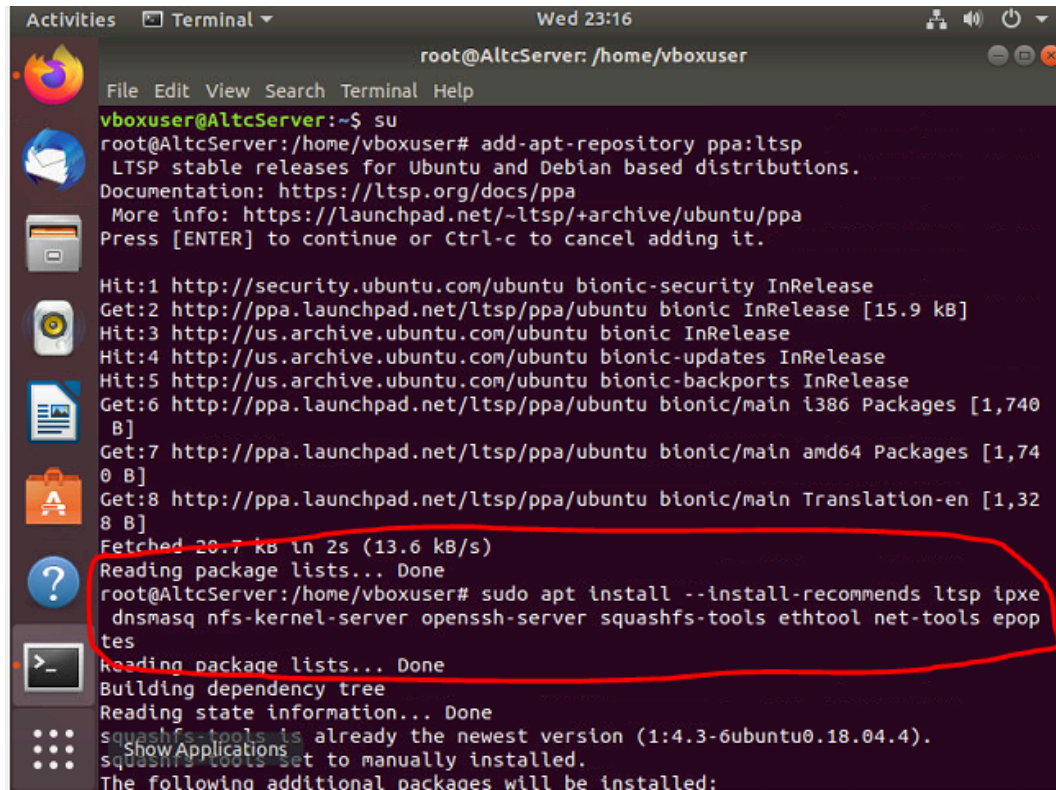


```
Activities  Terminal  Wed 23:12
root@AltServer: /home/vboxuser

vboxuser@AltServer:~$ su
root@AltServer:/home/vboxuser# add-apt-repository ppa:ltsp
LTSP stable releases for Ubuntu and Debian based distributions.
Documentation: https://ltsp.org/docs/ppa
More info: https://launchpad.net/~ltsp/+archive/ubuntu/ppa
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:2 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic InRelease [15.9 kB]
Hit:3 http://us.archive.ubuntu.com/ubuntu bionic InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:5 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
Get:6 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main i386 Packages [1,740 B]
Get:7 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main amd64 Packages [1,740 B]
Get:8 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main Translation-en [1,320 B]
Fetched 20.7 kB in 2s (13.6 kB/s)
Reading package lists... Done
root@AltServer:/home/vboxuser#
```

11: Now enter this Linux Command to install the LTSP packages ***sudo apt install --install-recommends ltsp ipxe dnsmasq nfs-kernel-server openssh-server squashfs-tools ethtool net-tools epoptes***

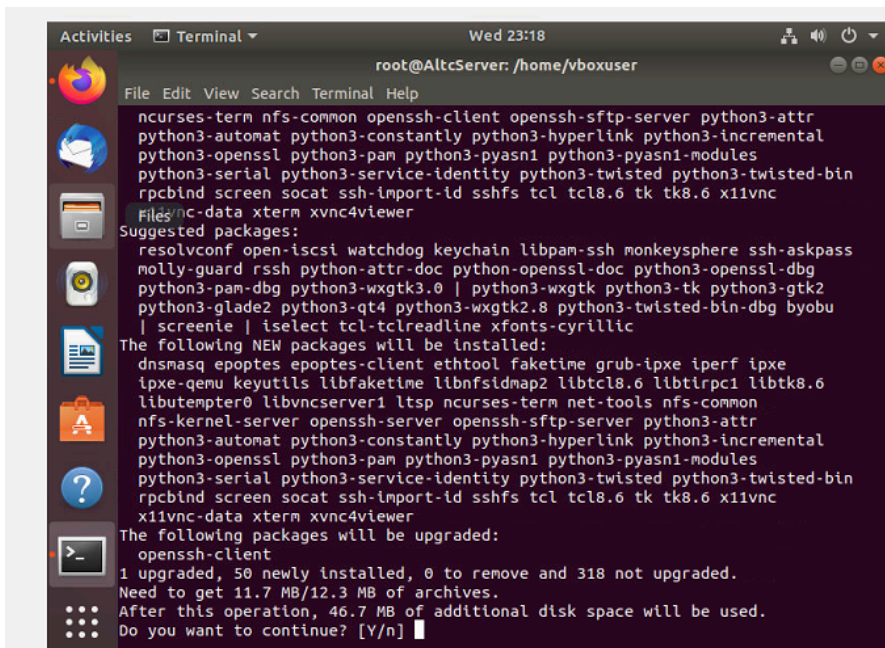


```
Activities Terminal Wed 23:16
root@AltServer: /home/vboxuser

vboxuser@AltServer:~$ su
root@AltServer: /home/vboxuser# add-apt-repository ppa:ltsp
LTSP stable releases for Ubuntu and Debian based distributions.
Documentation: https://ltsp.org/docs/ppa
More info: https://launchpad.net/~ltsp/+archive/ubuntu/ppa
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:2 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic InRelease [15.9 kB]
Hit:3 http://us.archive.ubuntu.com/ubuntu bionic InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:5 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
Get:6 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main i386 Packages [1,740 B]
Get:7 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main amd64 Packages [1,740 B]
Get:8 http://ppa.launchpad.net/ltsp/ppa/ubuntu bionic/main Translation-en [1,328 B]
Fetched 20.7 kB in 2s (13.6 kB/s)
Reading package lists... Done
root@AltServer: /home/vboxuser# sudo apt install --install-recommends ltsp ipxe dnsmasq nfs-kernel-server openssh-server squashfs-tools ethtool net-tools epoptes
Reading package lists... Done
Building dependency tree
Reading state information... Done
squashfs-tools is already the newest version (1:4.3-6ubuntu0.18.04.4).
squashfs-tools set to manually installed.
The following additional packages will be installed:
```

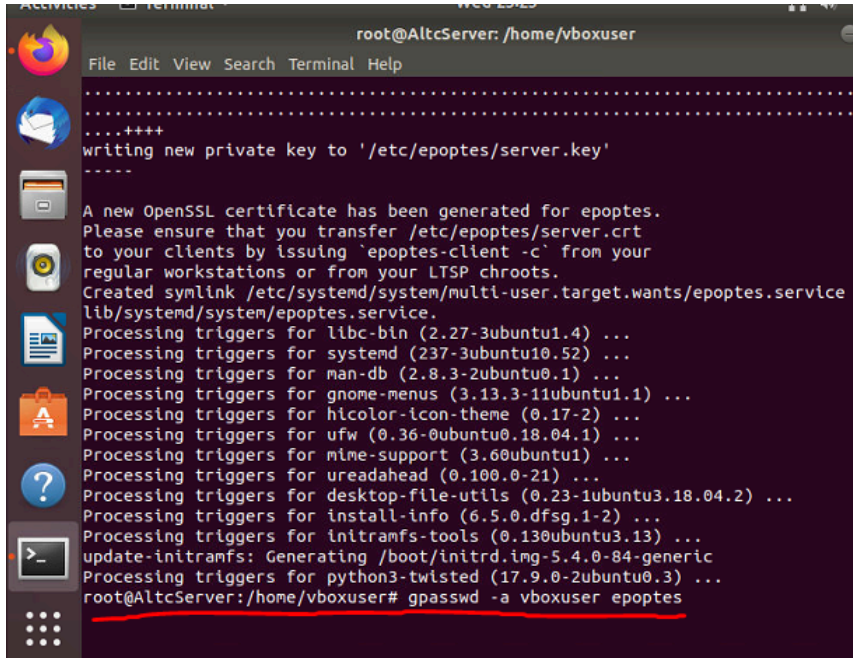
11:1 Once the command is imputed you will be prompted to continue so enter a Y and enter.



```
Activities Terminal Wed 23:18
root@AltServer: /home/vboxuser

ncurses-term nfs-common openssh-client openssh-sftp-server python3-attr
python3-automat python3-constantly python3-hyperlink python3-incremental
python3-openssl python3-pam python3-pyasn1 python3-pyasn1-modules
python3-serial python3-service-identity python3-twisted python3-twisted-bin
rpcbind screen socat ssh-import-id sshfs tcl tcl8.6 tk tk8.6 x11vnc
x11vnc-data xterm xvnc4viewer
Suggested packages:
resolvconf open-iscsi watchdog keychain libpam-ssh monkeysphere ssh-askpass
molly-guard rssh python-attr-doc python-openssl-doc python3-openssl-dbg
python3-pam-dbg python3-wxgtk3.0 | python3-wxgtk python3-tk python3-gtk2
python3-glade2 python3-qt4 python3-wxgtk2.8 python3-twisted-bin-dbg byobu
| screenie | iselect tcl-tclreadline xfonts-cyrillic
The following NEW packages will be installed:
dnsmasq epoptes epoptes-client ethtool faketime grub-ipxe iperf ipxe
ipxe-qemu keyutils libfaketime libnfsidmap2 libtcl8.6 libtirpc1 libtk8.6
libutempter0 libvncserver1 ltsp ncurses-term net-tools nfs-common
nfs-kernel-server openssh-server openssh-sftp-server python3-attr
python3-automat python3-constantly python3-hyperlink python3-incremental
python3-openssl python3-pam python3-pyasn1 python3-pyasn1-modules
python3-serial python3-service-identity python3-twisted python3-twisted-bin
rpcbind screen socat ssh-import-id sshfs tcl tcl8.6 tk tk8.6 x11vnc
x11vnc-data xterm xvnc4viewer
The following packages will be upgraded:
openssh-client
1 upgraded, 50 newly installed, 0 to remove and 318 not upgraded.
Need to get 11.7 MB/12.3 MB of archives.
After this operation, 46.7 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```


12: Now you want to enter this Linux Command ***gpasswd -a administrator epoptes*** (change the administrator text with the first account you created on Ubuntu. Such as the account name on this example vboxuser.)



```
root@AltServer: /home/vboxuser
.....
.....++++
writing new private key to '/etc/epoptes/server.key'
.....
A new OpenSSL certificate has been generated for epoptes.
Please ensure that you transfer /etc/epoptes/server.crt
to your clients by issuing 'epoptes-client -c' from your
regular workstations or from your LTSP chroots.
Created symlink /etc/systemd/system/multi-user.target.wants/epoptes.service
lib/systemd/system/epoptes.service.
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
Processing triggers for systemd (237-3ubuntu10.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for gnome-menus (3.13.3-11ubuntu1.1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for ufw (0.36-0ubuntu0.18.04.1) ...
Processing triggers for mime-support (3.60ubuntu1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for desktop-file-utils (0.23-1ubuntu3.18.04.2) ...
Processing triggers for install-info (6.5.0.dfsg.1-2) ...
Processing triggers for intramfs-tools (0.130ubuntu3.13) ...
update-initramfs: Generating /boot/initrd.img-5.4.0-84-generic
Processing triggers for python3-twisted (17.9.0-2ubuntu0.3) ...
root@AltServer: /home/vboxuser# gpasswd -a vboxuser epoptes
```

12:1 Click enter and once you see that your account's name has been added to epoptes this step is complete.

```
root@AltServer: /home/vboxuser# gpasswd -a vboxuser epoptes
Adding user vboxuser to group epoptes
root@AltServer: /home/vboxuser#
```

13: Now you want to enter this Linux Command ***ltsp dnsmasq***

```
root@AltServer: /home/vboxuser# ltsp dnsmasq
```

13:1 Once the terminal states that Installed and restarted that means dnsmasq has been installed.

```
Installed /usr/share/ltsp/server/dnsmasq/ltsp-dnsmasq.conf in /etc/dnsmasq.d/lt
sp-dnsmasq.conf
Restarted dnsmasq
root@AltServer: /home/vboxuser#
```

14: Now enter this command **ltsp image /**

14:1 This will create the image that is needed for pxe boot to take place.

```
Restarted dnsmasq  
root@AltServer:/home/vboxuser# ltsp image /
```

14:2 This is what you will see once the image is created

```
-rw-r--r-- 1 root root 43342969 Oct 25 23:20 /srv/tftp/ltsp/x86_64/initrd.img  
-rw-r--r-- 1 root root 9457920 Sep 15 2021 /srv/tftp/ltsp/x86_64/vmlinuz  
To update the iPXE menu, run: ltsp ipxe  
root@AltServer:/home/vboxuser#
```

15: Now run this Linux command to create the user for the pxe boot
Adduser alex (alex must be lowercase)

```
root@AltServer:/home/vboxuser# adduser alex  
Adding user `alex' ...
```

15:1 Create the user's password. Remember to keep it simple such as altc2023.

```
root@AltServer:/home/vboxuser# adduser alex  
Adding user `alex' ...  
Adding new group `alex' (1001) ...  
Adding new user `alex' (1001) with group `alex' ...  
Creating home directory `/home/alex' ...  
Copying files from `/etc/skel' ...  
Enter new UNIX password:
```

15:2 The terminal is going to ask you for information for the user. Just create random information.

```
Enter new UNIX password:  
Retype new UNIX password:  
passwd: password updated successfully  
Changing the user information for alex  
Enter the new value, or press ENTER for the default  
Full Name []:
```

15:3 At the end of the information asking its going to “is this information correct” say Yes with Y

```
Enter the new value, or press ENTER for the default
  Full Name []: alex
  Room Number []: alex
  Work Phone []: alex
  Home Phone []: alex
  Other []: alex
Is the information correct? [Y/n] y
```

16: Now to refresh the image use this Linux Command **ltsp ipxe**

```
root@AltServer:/home/vboxuser# ltsp ipxe
Installed /usr/share/ltsp/server/ipxe/ltsp.ipxe in /srv/tftp/ltsp/ltsp.ipxe
Installed /boot/memtest86+.bin in /srv/tftp/ltsp/memtest.0
memtest.efi not found, that iPXE menu won't work
Installed /usr/lib/ipxe/ipxe.efi in /srv/tftp/ltsp/snponly.efi
Installed /usr/lib/ipxe/undionly.kpxe in /srv/tftp/ltsp/undionly.kpxe
root@AltServer:/home/vboxuser#
```

17: Now you want to run this Linux Command **ltsp initrd**

```
root@AltServer:/home/vboxuser# ltsp initrd
Generated ltsp.img:
-rw-r--r-- 1 root root 161280 Oct 25 23:43 /srv/tftp/ltsp/ltsp.img
```

18: Now you want to run this Linux Command **ltsp nfs**

```
root@AltServer:/home/vboxuser# ltsp nfs
Installed /usr/share/ltsp/server/nfs/ltsp-nfs.exports in /etc/exports.d/ltsp-nfs.exports
Restarted nfs-kernel-server
root@AltServer:/home/vboxuser#
```

19: Now you want to enter this Linux Command **ltsp ipxe**

```
root@AltServer:/home/vboxuser# ltsp ipxe
Installed /usr/share/ltsp/server/ipxe/ltsp.ipxe in /srv/tftp/ltsp/ltsp.ipxe
Skipped existing /srv/tftp/ltsp/memtest.0
memtest.efi not found, that iPXE menu won't work
Skipped existing /srv/tftp/ltsp/snponly.efi
Skipped existing /srv/tftp/ltsp/undionly.kpxe
root@AltServer:/home/vboxuser#
```

Thin Client Device Setup

20: Now you don't need internet access on the router device. Disconnect from the schools network. Make sure that the LTSP Server Device and the Thin Client Device are connected to the same router.

21: With the Thin Client Device change the boot order in the BIOS/UEFI to pxe boot. The boot order settings might be named differently such as NIC BOOT/IPV4 BOOT/IPV6 BOOT.

22: The Thin Client Device should start entering into pxe boot.

23: A blue screen should appear with the image that you created. You could click enter and start it or wait a few seconds for it to start.

24: The Thin Client should start booting into the Ubuntu Thin Client.

25: Enter the password you created for alex.

26: Now you have created an LTSP server and thin client.