

# Info

Thinkpad T495s/16GB/256GB

## ISO/Network

Download ISO <https://archlinux.org/download/>  
write the ISO on a USB key  
boot

Setup network

```
systemctl start iwctl
iwctl
```

```
iwctl# device list
```

### Devices

Name	Address	Powered	Adapter	Mode
wlan0	0c:7a:15:79:77:41	on	phy0	

```
iwctl# station wlan0 get-networks
```

### Available networks

Network name	Security	Signal
FuckUMeta	psk	****
XXXXXXXXXXXXXXXXXX	psk	****

```
iwctl# station wlan0 connect FuckUMeta --passphrase *****
iwctl# exit
```

```
ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default 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 noprefixroute
        valid_lft forever preferred_lft forever
2: enp3s0f0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel
state DOWN group default qlen 1000
    link/ether XX:YY:ZZ:AA:BB:CC brd ff:ff:ff:ff:ff:ff
```

```
altname enx875a4853e1b
4: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
group default qlen 1000
    link/ether XX:YY:ZZ:AA:BB:CC brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.156/24 metric 600 brd 192.168.1.255 scope global dynamic
wlan0
    valid_lft 84979sec preferred_lft 84979sec
    inet6 fdbf:275d:b681:f346:e7a:15ff:fe79:7741/64 scope global dynamic
mngtmpaddr noprefixroute
    valid_lft 1741sec preferred_lft 1741sec
    inet6 fe80::e7a:15ff:fe79:7741/64 scope link proto kernel_ll
    valid_lft forever preferred_lft forever
```

## Test + SSH

network OK ?

```
ping -c3 archlinux.org
```

Install SSH

```
pacman -Sy
pacman -S openssh
vim /etc/ssh/sshd_config
```

```
#PermitRootLogin prohibit-password
PermitRootLogin yes
```

```
passwd
systemctl start sshd
```

Now we can connect from the network

## Disk partitions

### List

```
# gdisk /dev/nvme0n1 -l
GPT fdisk (gdisk) version 1.0.10
```

The protective MBR's 0xEE partition is oversized! Auto-repairing.

```
Partition table scan:
  MBR: protective
  BSD: not present
```

```
APM: not present
GPT: present
```

```
Found valid GPT with protective MBR; using GPT.
Disk /dev/nvme0n1: 500118192 sectors, 238.5 GiB
Model: KXG6AZNV256G TOSHIBA
Sector size (logical/physical): 512/512 bytes
Disk identifier (GUID): A49CF274-51B4-4CBF-BE13-5195151DBF6E
Partition table holds up to 128 entries
Main partition table begins at sector 2 and ends at sector 33
First usable sector is 34, last usable sector is 500118158
Partitions will be aligned on 2048-sector boundaries
Total free space is 205869677 sectors (98.2 GiB)
```

Number	Start (sector)	End (sector)	Size	Code	Name
1	2048	206847	100.0 MiB	EF00	EFI system partition
2	206848	239615	16.0 MiB	0C01	Microsoft reserved
...					
3	239616	250570751	119.4 GiB	0700	Basic data partition
4	250570752	292513791	20.0 GiB	0700	Basic data partition
5	498378752	500115455	848.0 MiB	2700	

The goal is to make a 16GB swap partition and the btrfs root:

```
gdisk /dev/nvme0n1
```

## SWAP

```
Command (? for help): n
Partition number (6-128, default 6):
First sector (34-500118158, default = 292513792) or {+-}size{KMGTP}:
Last sector (292513792-498378751, default = 498378751) or {+-}size{KMGTP}:
+16G
Current type is 8300 (Linux filesystem)
Hex code or GUID (L to show codes, Enter = 8300): 8200
Changed type of partition to 'Linux swap'
```

## BTRFS root

```
Command (? for help): n
Partition number (7-128, default 7):
First sector (34-500118158, default = 326068224) or {+-}size{KMGTP}:
Last sector (326068224-498378751, default = 498378751) or {+-}size{KMGTP}:
Current type is 8300 (Linux filesystem)
Hex code or GUID (L to show codes, Enter = 8300):
```

```
Changed type of partition to 'Linux filesystem'
```

## Save

```
Command (? for help): w
```

```
Final checks complete. About to write GPT data. THIS WILL OVERWRITE EXISTING PARTITIONS!!
```

```
Do you want to proceed? (Y/N): Y
```

```
OK; writing new GUID partition table (GPT) to /dev/nvme0n1.
```

```
The operation has completed successfully.
```

## Mount/Format

### SWAP

```
mkswap      /dev/nvme0n1p6
swapon      /dev/nvme0n1p6
```

### BTRFS

```
pacman -Sy btrfs-progs
mkfs.btrfs -L ArchRoot /dev/nvme0n1p7
mount /dev/nvme0n1p7 /mnt
btrfs subvolume create /mnt/@
btrfs subvolume create /mnt/@home
umount /mnt
```

### Mount /boot /home /

```
mount -o noatime,compress=zstd,space_cache,subvol=@ /dev/nvme0n1p7 /mnt
mkdir -p /mnt/{home,boot}
mkdir /mnt/boot/efi
mount -o noatime,compress=zstd,space_cache,subvol=@home /dev/nvme0n1p7 /mnt/home
mount /dev/nvme0n1p1 /mnt/boot/efi
```

## Pacstrap

```
pacstrap /mnt base base-devel linux linux-firmware amd-ucode btrfs-progs vim
dhcpcd networkmanager efibootmgr dosfstools sudo git tlp htop zsh
```

## FSTAB

```
genfstab -U /mnt >> /mnt/etc/fstab
```

## Archlinux Machine setup

```
mount --types proc /proc /mnt/proc
mount --rbind /sys /mnt/sys
mount --rbind /dev /mnt/dev
arch-chroot /mnt /bin/bash
echo "Mjölnir" >/etc/hostname
echo LANG=en_US.UTF-8 > /etc/locale.conf
vim /etc/locale.gen
```

uncomment

```
en_US.UTF-8
```

Generate locales

```
locale-gen
```

## fonts/keymap

```
echo KEYMAP=us-acentos > /etc/vconsole.conf
echo FONT=lat9w-16 >> /etc/vconsole.conf
```

## TimeZone

```
ln -sf /usr/share/zoneinfo/Europe/Zurich /etc/localtime
```

## /etc/hosts

```
vim /etc/hosts
```

```
#<ip-address> <hostname.domain.org> <hostname>
127.0.0.1 <YOUR-HOSTNAME>.localdomain <YOUR-HOSTNAME>
```

## Initramfs

```
vim /etc/mkinitcpio.conf
```

```
HOOKS=(base udev autodetect microcode modconf kms keyboard keymap
consolefont block resume btrfs filesystems fsck)
```

[mkinitcpio -P](#)

## Systemdboot

```
bootctl --esp-path=/boot/efi install
```

### Entries

default:

```
cat > /boot/efi/loader/loader.conf <<EOF
default arch
timeout 5
EOF
```

Archlinux:

```
cat > /boot/efi/loader/entries/arch.conf <<EOF
title Arch Linux
linux /vmlinuz-linux
initrd /amd-ucode.img
initrd /initramfs-linux.img
options root=UUID=43a3c9d5-0253-4f24-af47-7c11f3f39753 rw
rootflags=subvol=@,compress=zstd
EOF
```

Note: 43a3c9d5-0253-4f24-af47-7c11f3f39753 = UUID from `blkid /dev/nvme0n1p7` Windows shit:

```
cat > /boot/efi/loader/entries/windows.conf <<EOF
title Windows
efi /EFI/Microsoft/Boot/bootmgfw.efi
EOF
```

## Final step

candles

```
exit
umount -l /mnt/{dev,sys,proc}
```

```
umount /mnt/boot/efi
umount /mnt/{home,}
reboot
```

Notes:

- remount btrfs partition:

```
mount -t btrfs \
-o subvol=@,noatime,compress=zstd,space_cache=v2 \
/dev/nvme0n1p7 /mnt
```

- Wifi shit

```
cat > /tmp/wpa.conf <<EOF
network={
    ssid="MyNet"
    psk="PASTE-YOUR-64-CHAR-KEY-HERE"
    key_mgmt=WPA-PSK
}
EOF
```

```
wpa_supplicant -B -i wlan0 -c /tmp/wpa.conf
dhcpcd wlan0
```

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