

UBUNTU INSTALLATION

<https://tutorials.ubuntu.com/tutorial/tutorial-install-ubuntu-desktop#6>

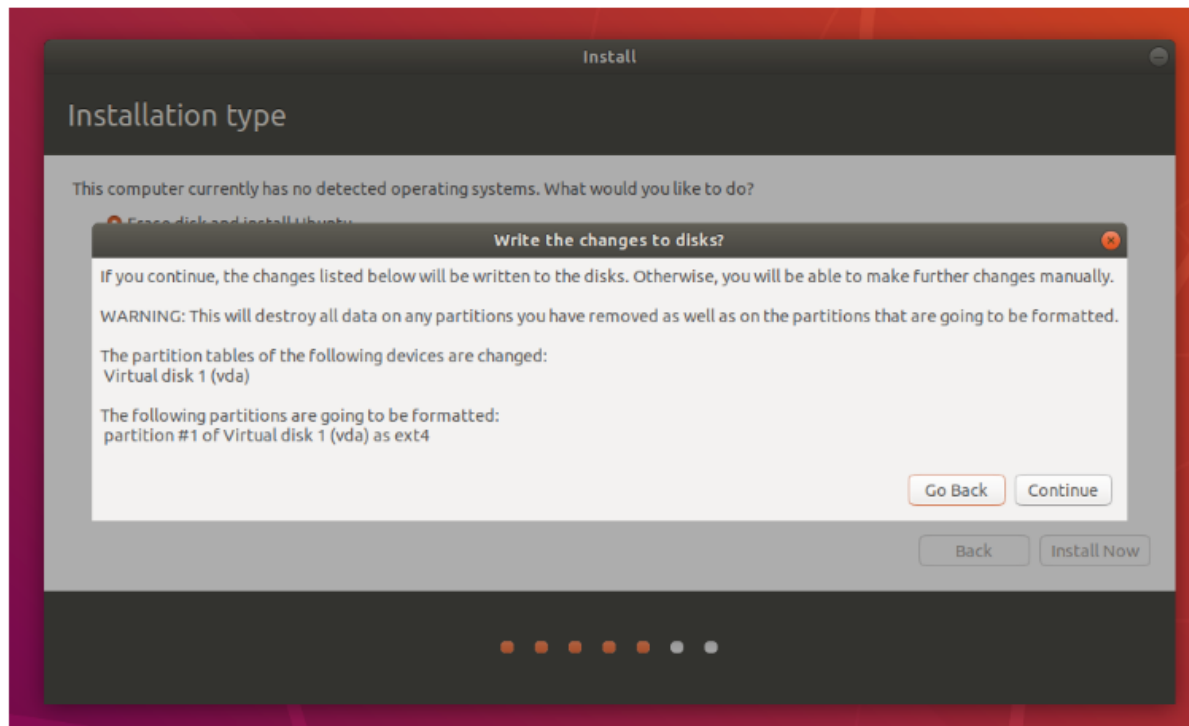
- 1 Overview
- 2 Requirements
- 3 Boot from DVD
- 4 Boot from USB flash drive
- 5 Prepare to install Ubuntu
- 6 Allocate drive space
- 7 Begin installation**
- 8 Select your location
- 9 Login details
- 10 Background installation
- 11 Installation complete

Did you find a mistake? [Please file a bug.](#)

7. Begin installation

After configuring storage, click on the 'Install Now' button. A small pane will appear with an overview of the storage options you've chosen, with the chance to go back if the details are incorrect.

Click **Continue** to fix those changes in place and start the installation process.



NGSPICE INSTALLATION

- <https://www.youtube.com/watch?v=iGle6AKGBAA>

choojun@ubuntu: ~

File Edit View Search Terminal Help

```
choojun@ubuntu:~$ ngspice
```

The program 'ngspice' is currently not installed. You can install it by typing:

```
sudo apt-get install ngspice
```

```
choojun@ubuntu:~$ sudo apt-get install ngspice
```

[sudo] password for choojun:

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following NEW packages will be installed:

ngspice

0 upgraded, 1 newly installed, 0 to remove and 400 not upgraded.

Need to get 1,951 kB of archives.

After this operation, 8,099 kB of additional disk space will be used.

Get:1 <http://us.archive.ubuntu.com/ubuntu/trusty/multiverse> ngspice amd64 24-1.

1ubuntu2 [1,951 kB]

57% [1 ngspice 1,108 kB/1,951 kB 57%]

114 kB/s 7s

- Open terminal
- Cd <folder name>
- cd--→ change current directory (got link to that particular folder)
- Gedit <exp_name>.cir
- gedit opens text editor to write program
- Write program in text editor
- Run the program using the command
- ngspice <exp_name>.cir
- Exit

mannu@mannu-ThinkPad-T440s: ~/manasa_ngspice

```
mannu@mannu-ThinkPad-T440s:~$ cd manasa_ngspice
```

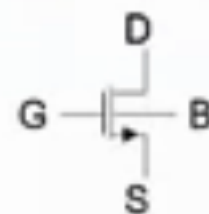
```
mannu@mannu-ThinkPad-T440s:~/manasa_ngspice$ gedit rc.cir
```

```
mannu@mannu-ThinkPad-T440s:~/manasa_ngspice$ ngspice rc.cir
```

Components Description

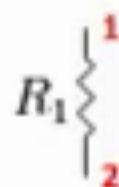
- Transistors:

M1 D G S B ntran w=1u l=0.25u



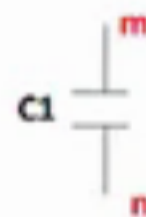
- Resistors:

R1 1 2 10K



- Capacitors:

C1 m n 1u



- Voltage Source

VCC 10 0 2.5

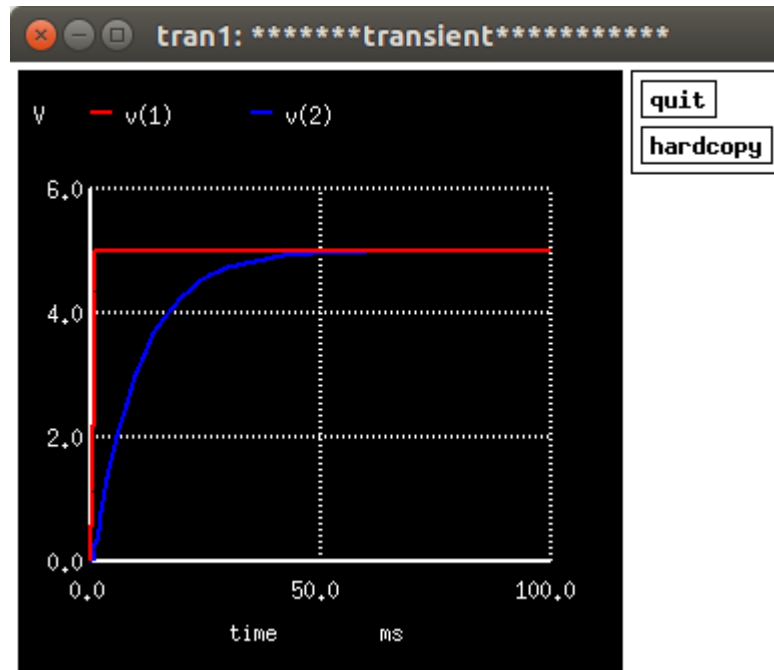


Open ▾

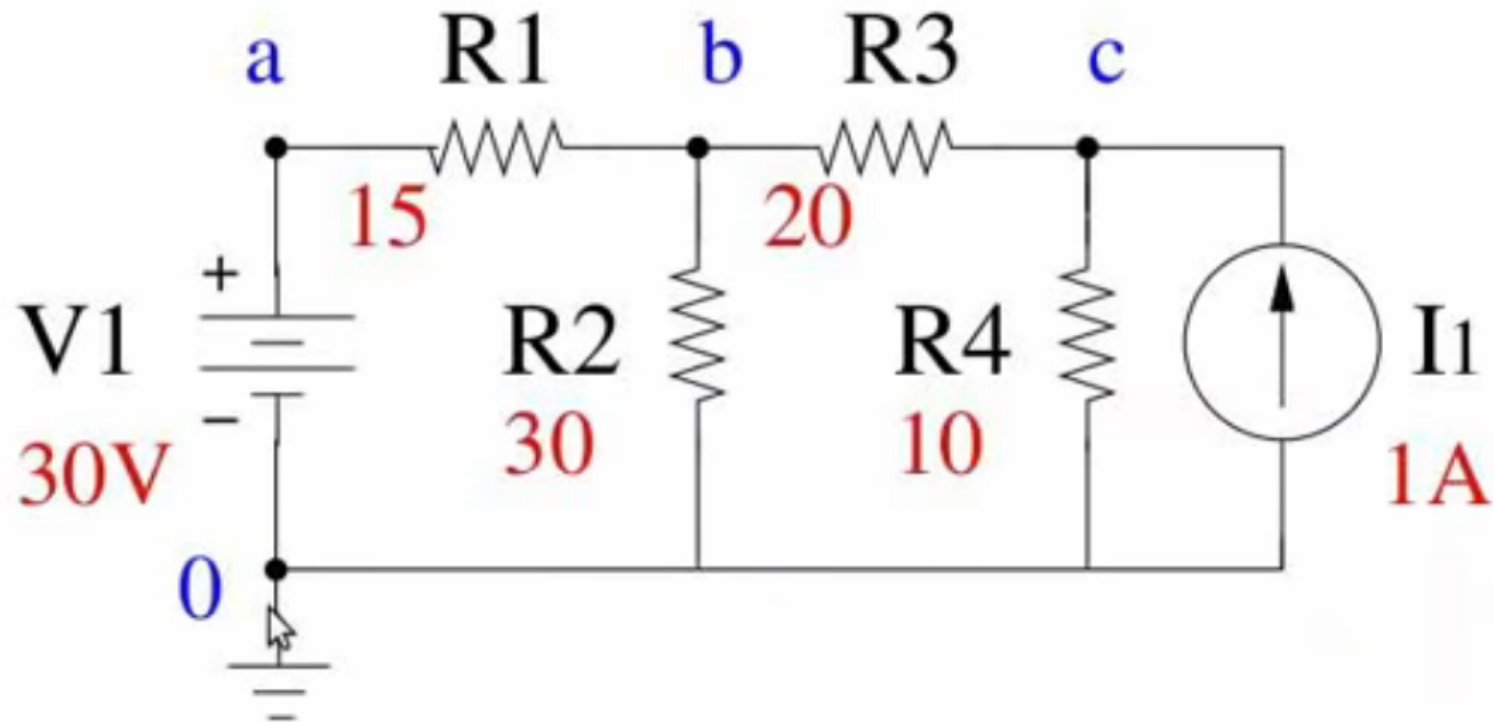


Save

```
*****transient*****  
r1 1 2 1k  
c1 2 0 10u  
vin 1 0 pwl(0 0 1m 5)  
.tran 10m 100m  
.control  
run  
plot v(1)| v(2)  
.endc  
.end
```



Example circuit



×

×

```
v1 a 0 5V
R1 a b 15
R2 b 0 30
R3 b c 20
R4 c 0 10
I1 0 c 1
.OP
.control
run
print v(a)
print v(a,b)+v(b,c)+v(c)|
.endc
.END
```

ngspice 2 ->

Open ▾



Save

*****MOSFET INVERTER(L=1U & W=1U)*****

vdd 1 0 dc 5

m1 2 4 1 1 mos1 L=1U W=1U

.model mos1 pmos level=49 version=3.3.0

m2 2 4 0 0 mos2 L=1U W=1U

.model mos2 nmos level=49 version=3.3.0

vin 4 0 pulse(0 5 0 0 0 100ns 800ns)

.tran 10ns 1200ns

.control

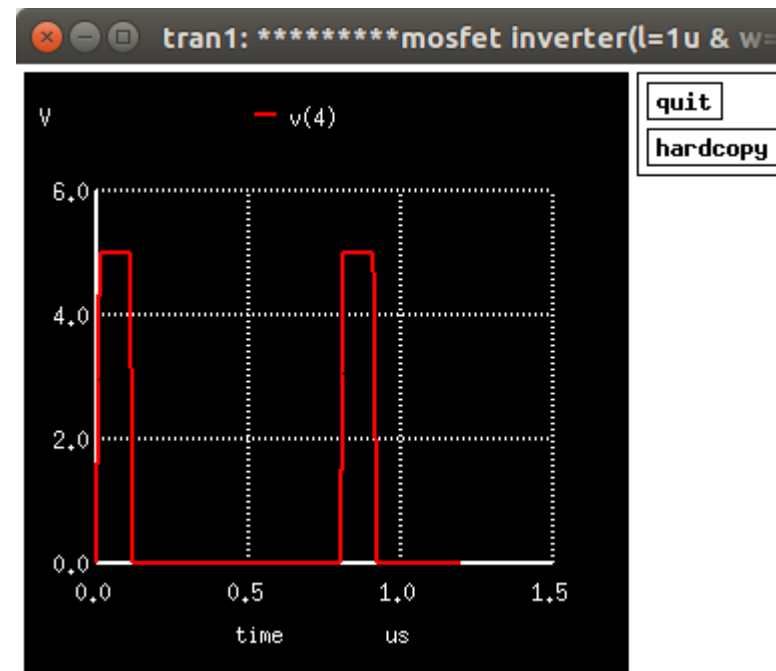
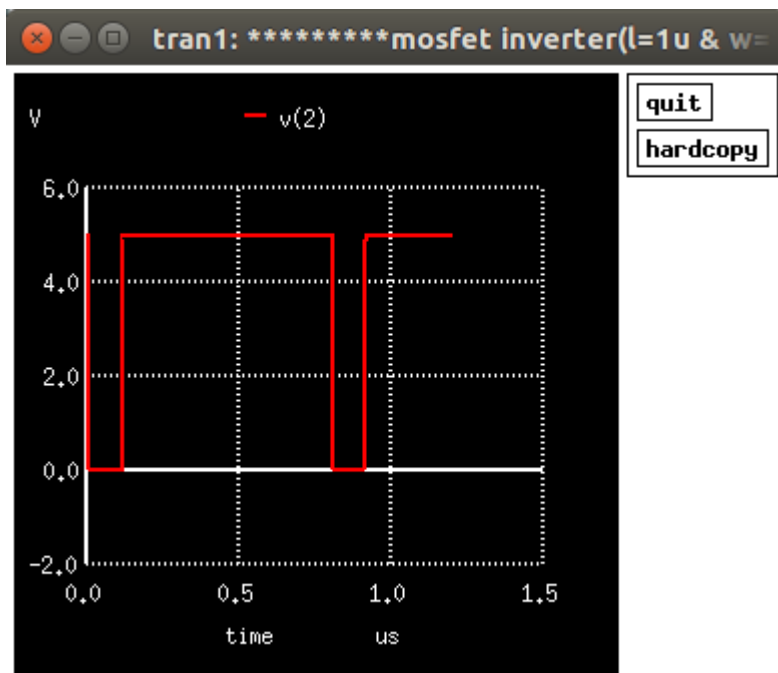
run

plot v(4)

plot v(2)

.endc

.end



SUB CIRCUITS

- ABCD.cir

```
.subckt AND 1 2 3
```

```
##Code
```

```
.ends
```

- MAIN.cir

```
.include ABCD.cir
```

```
xand1 1 2 6 AND
```

```
xand2 3 4 5 AND
```

```
xor 5 6 7 OR
```

```
###code
```