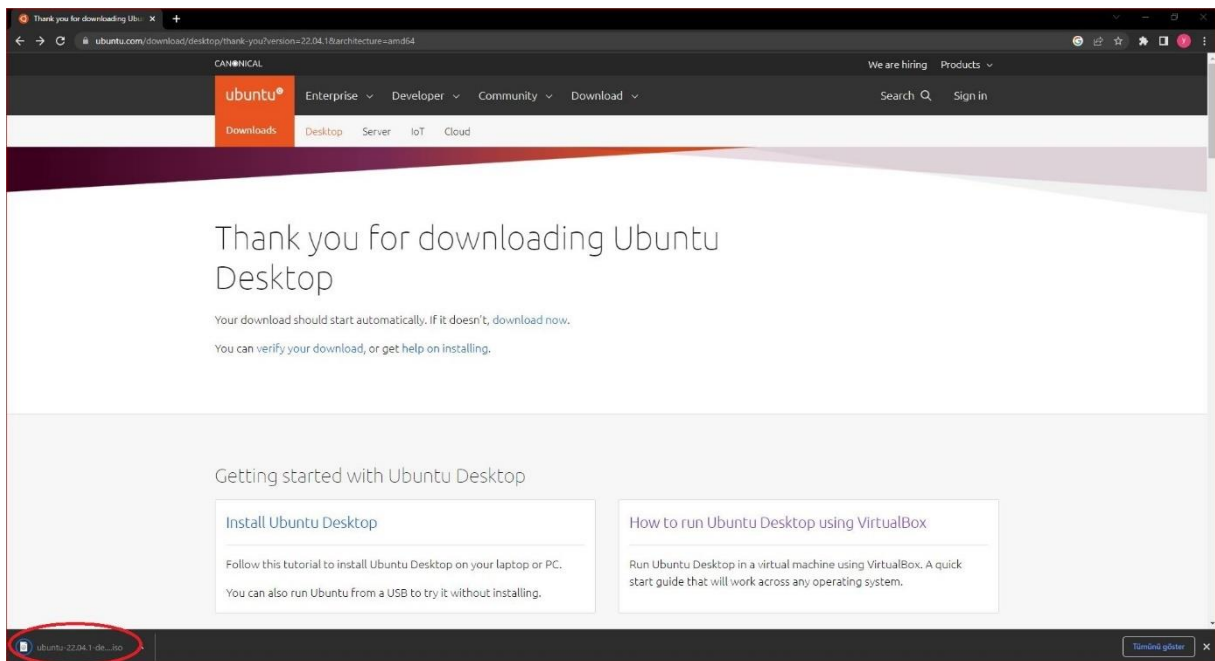
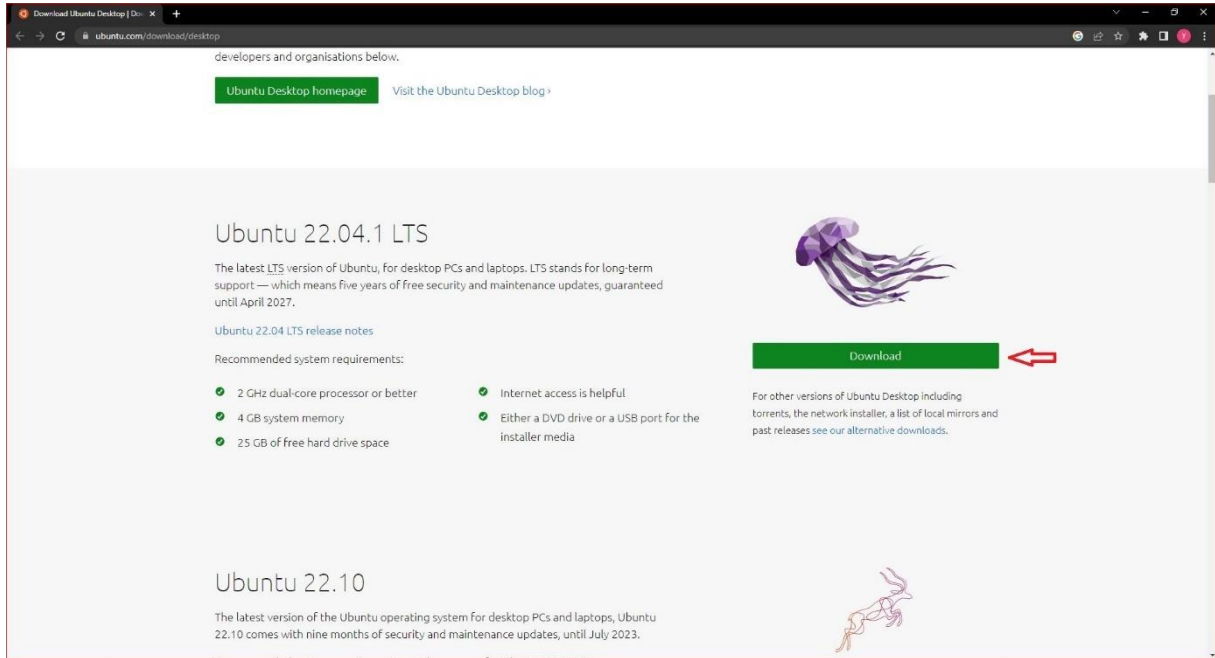
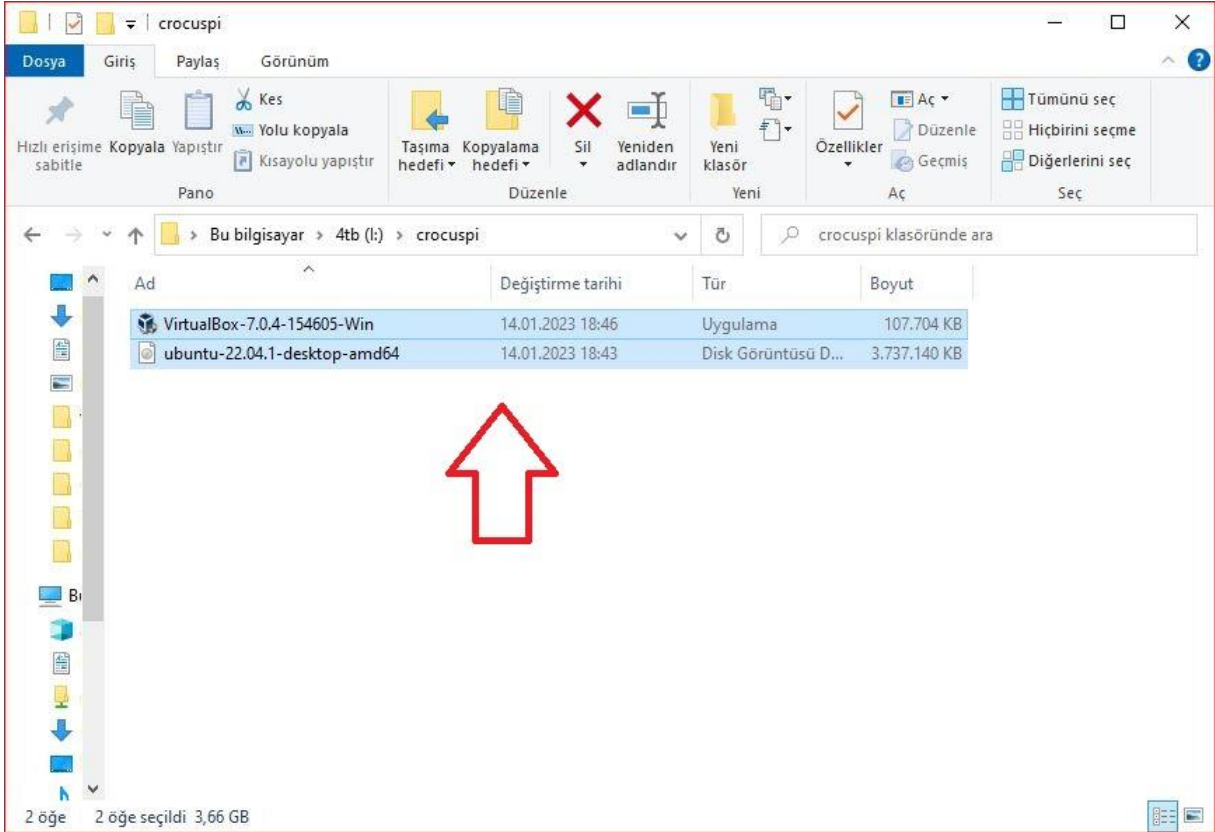
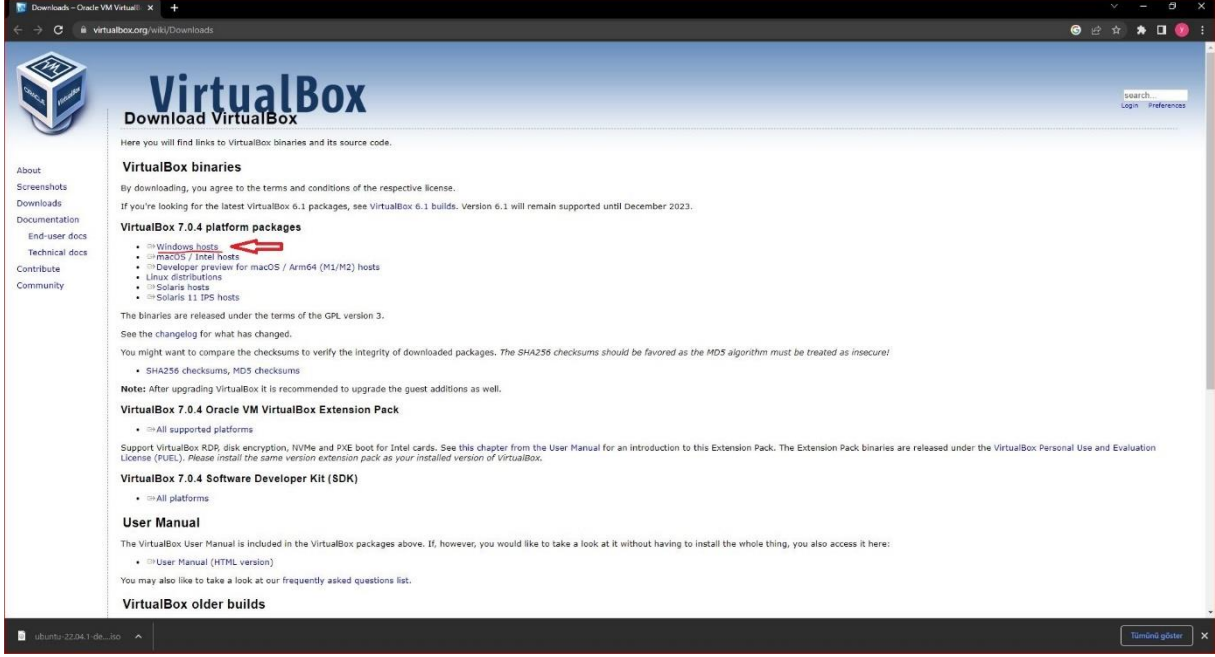


Virtual Box and Ubuntu 22.04 Installation

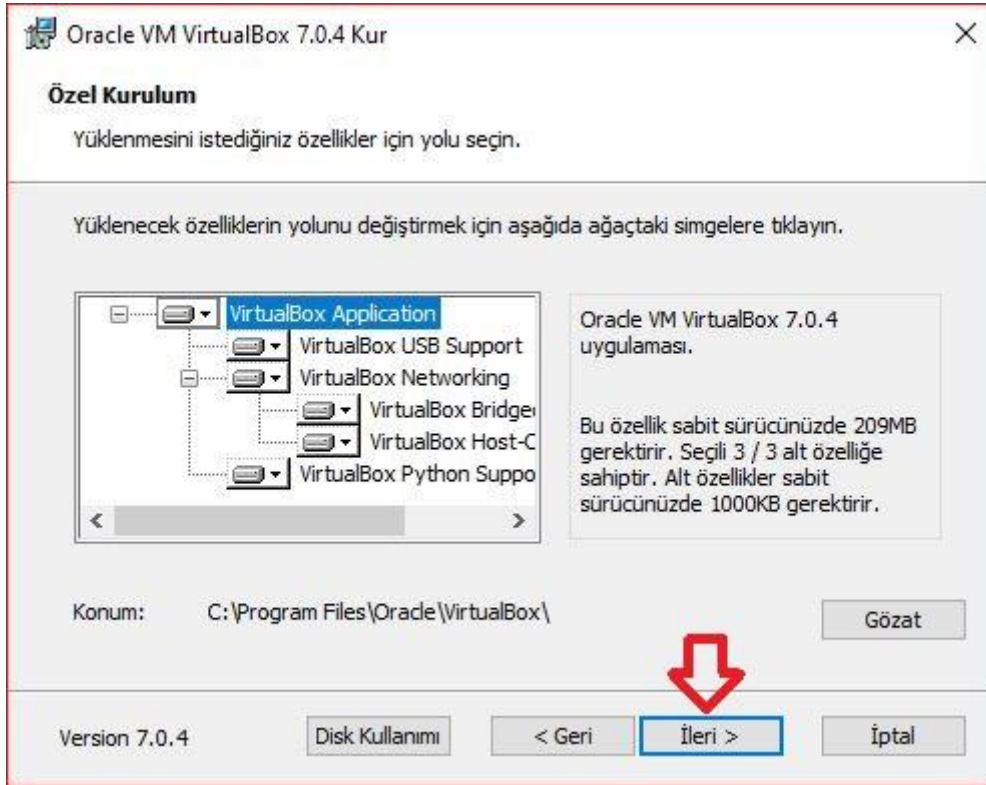
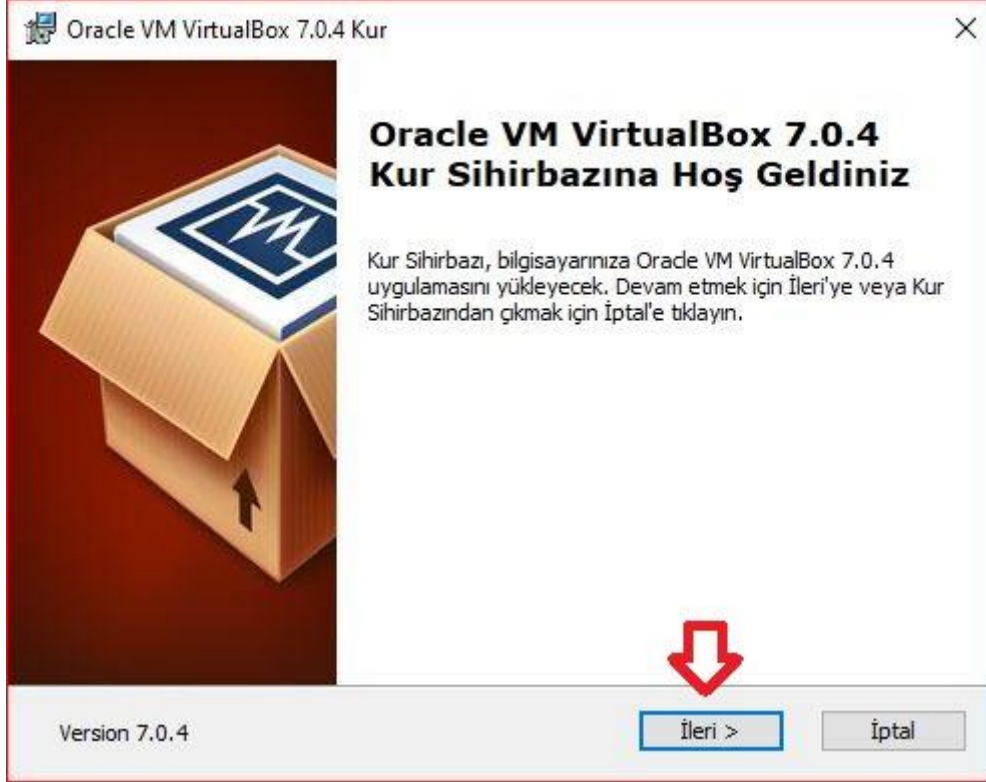
- 1- Download the Ubuntu 22.04 image from <https://ubuntu.com/download/desktop> or from the CrocusPI applications [folder](#).

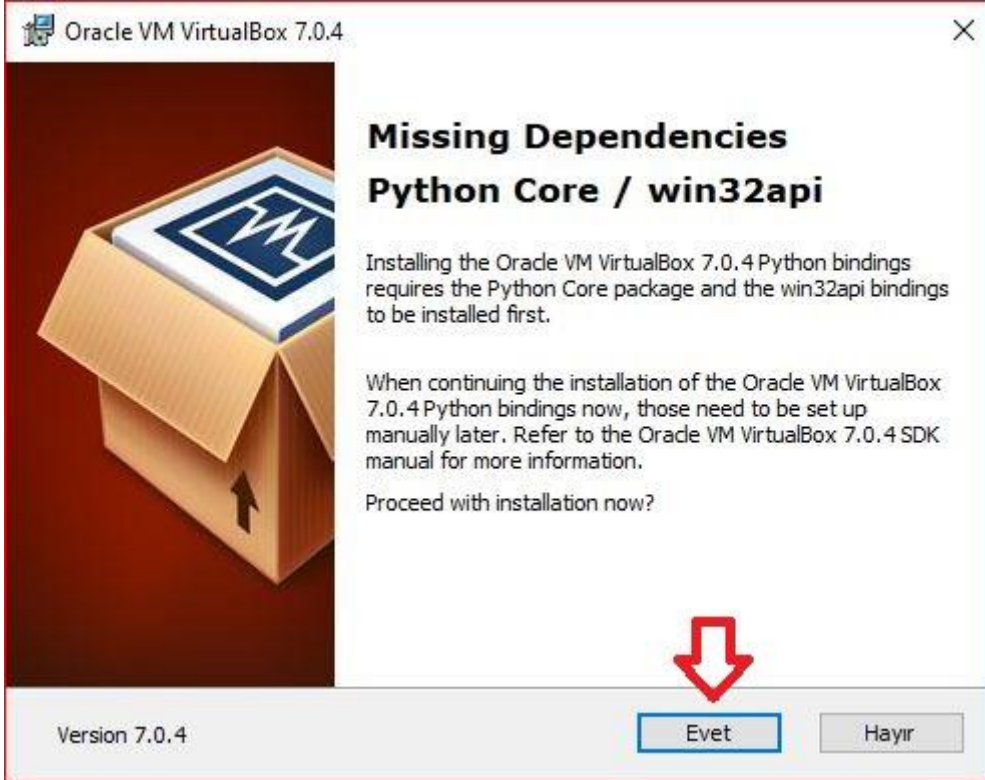
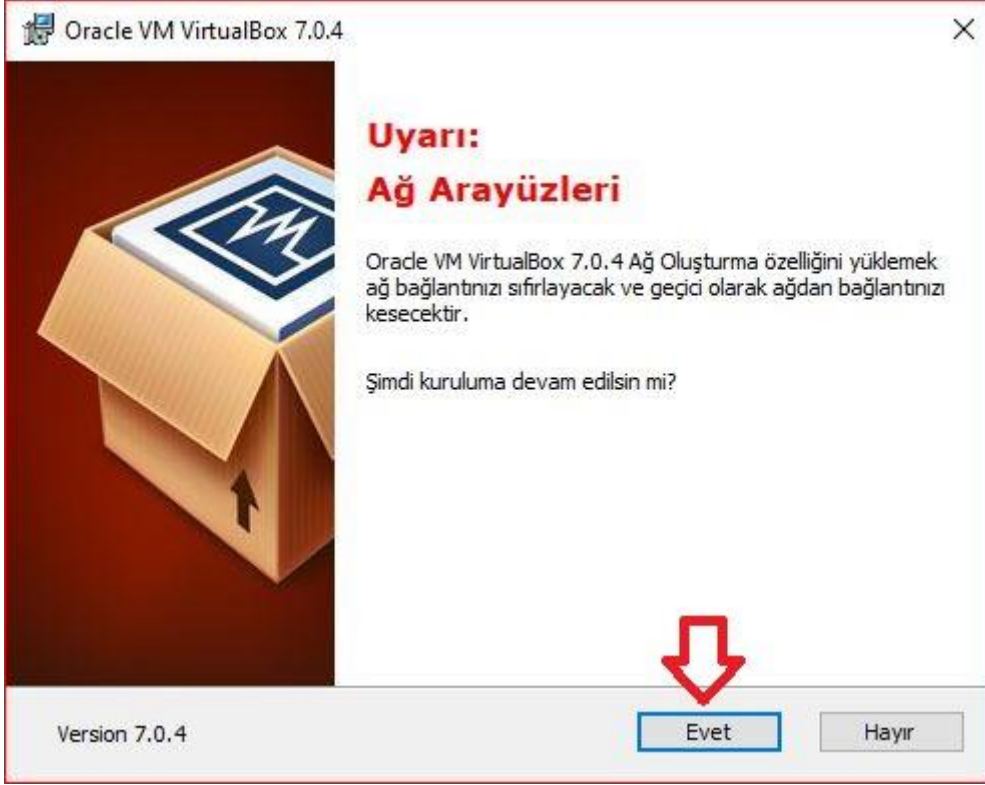


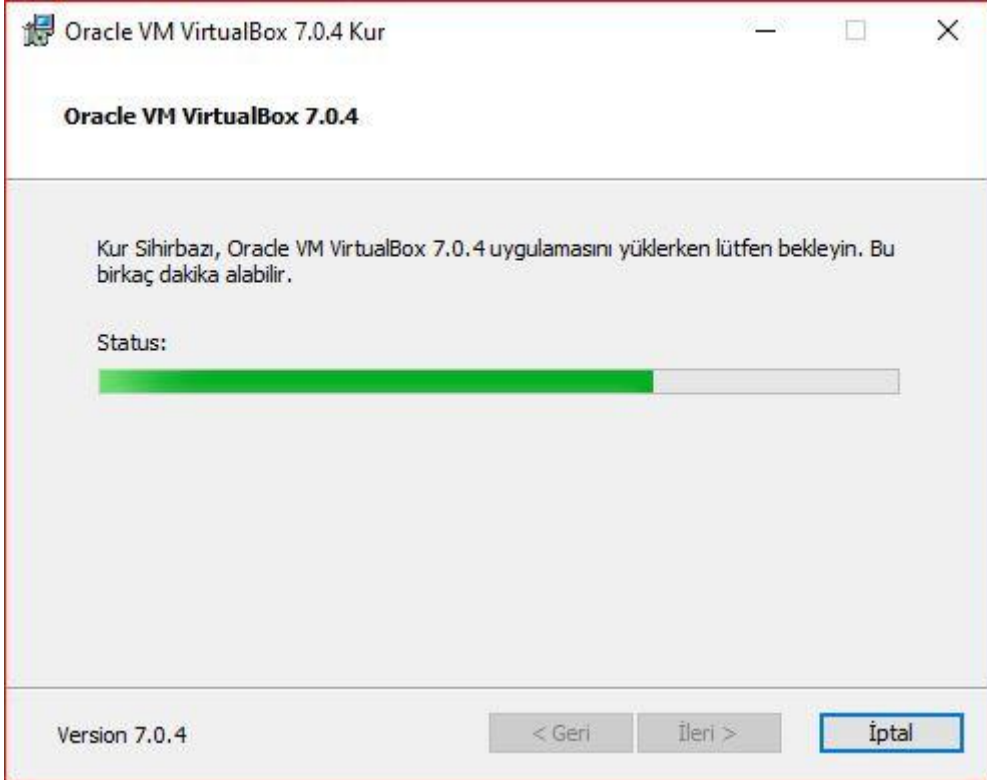
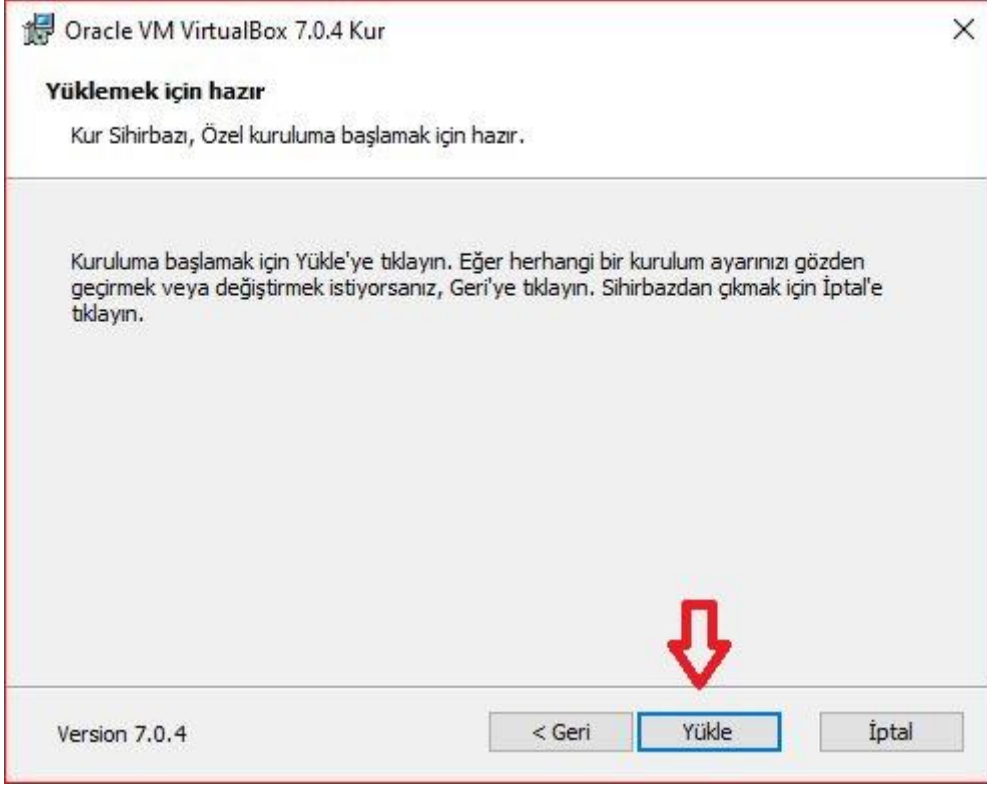
- 2- Download Oracle Virtual Box 7.0 software from <https://www.virtualbox.org/wiki/Downloads> or from the CrocusPI applications [folder](#)



3- Virtual Box 'ı kurun.

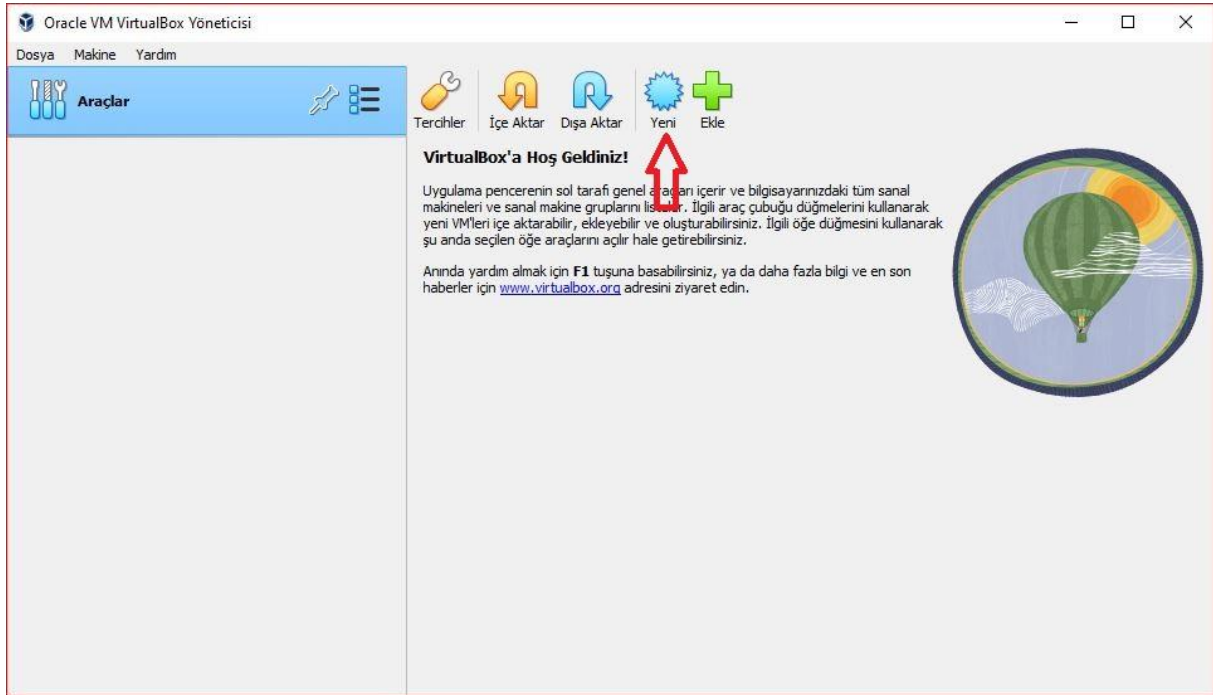




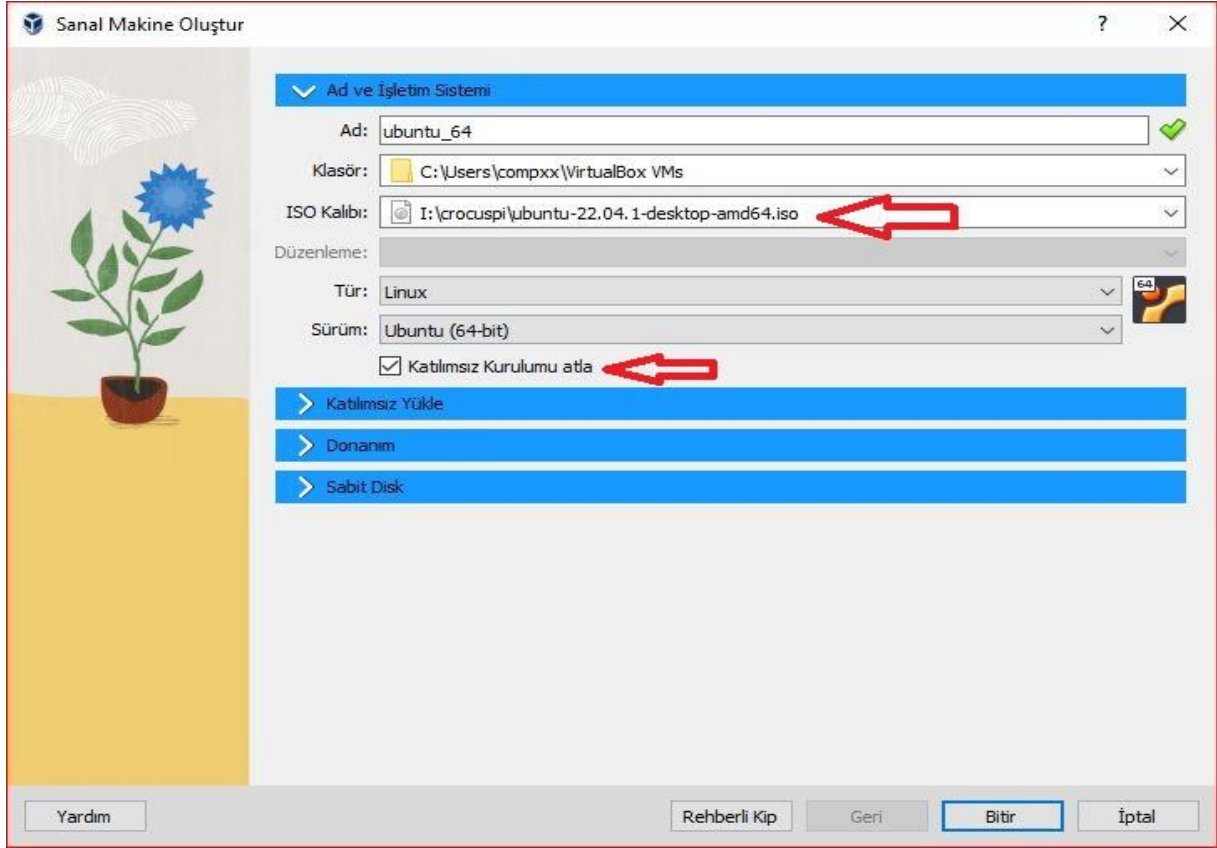




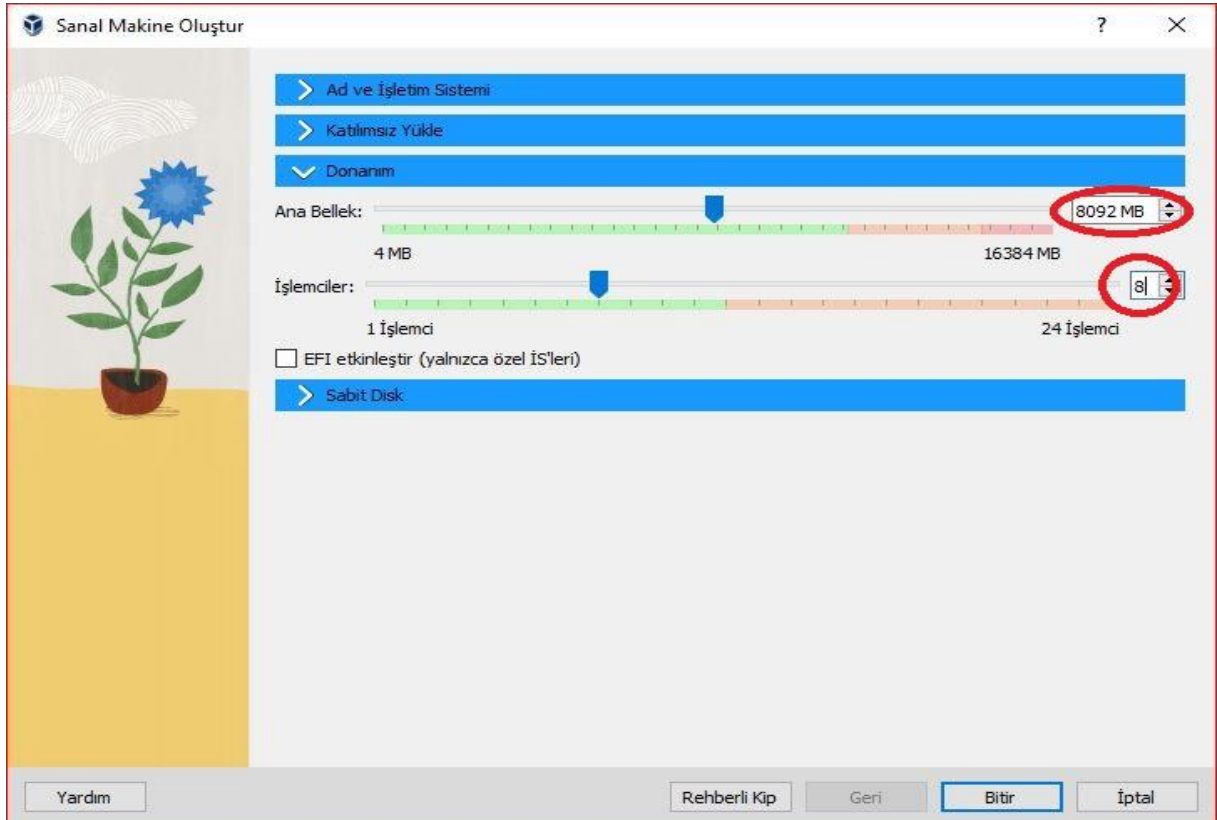
4- Click "New" to set up a new virtual machine.



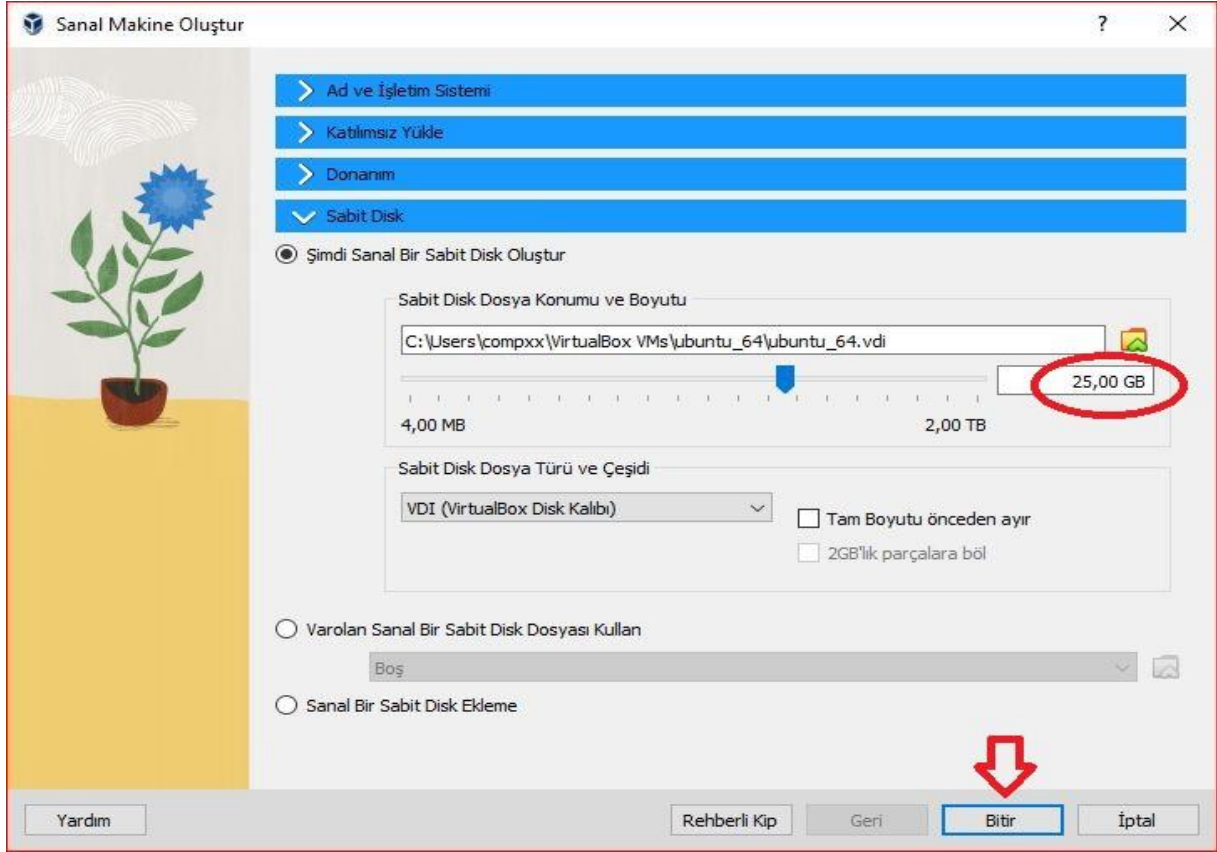
5- Add the downloaded Ubuntu image as ISO image. Check "Skip unattended installation".



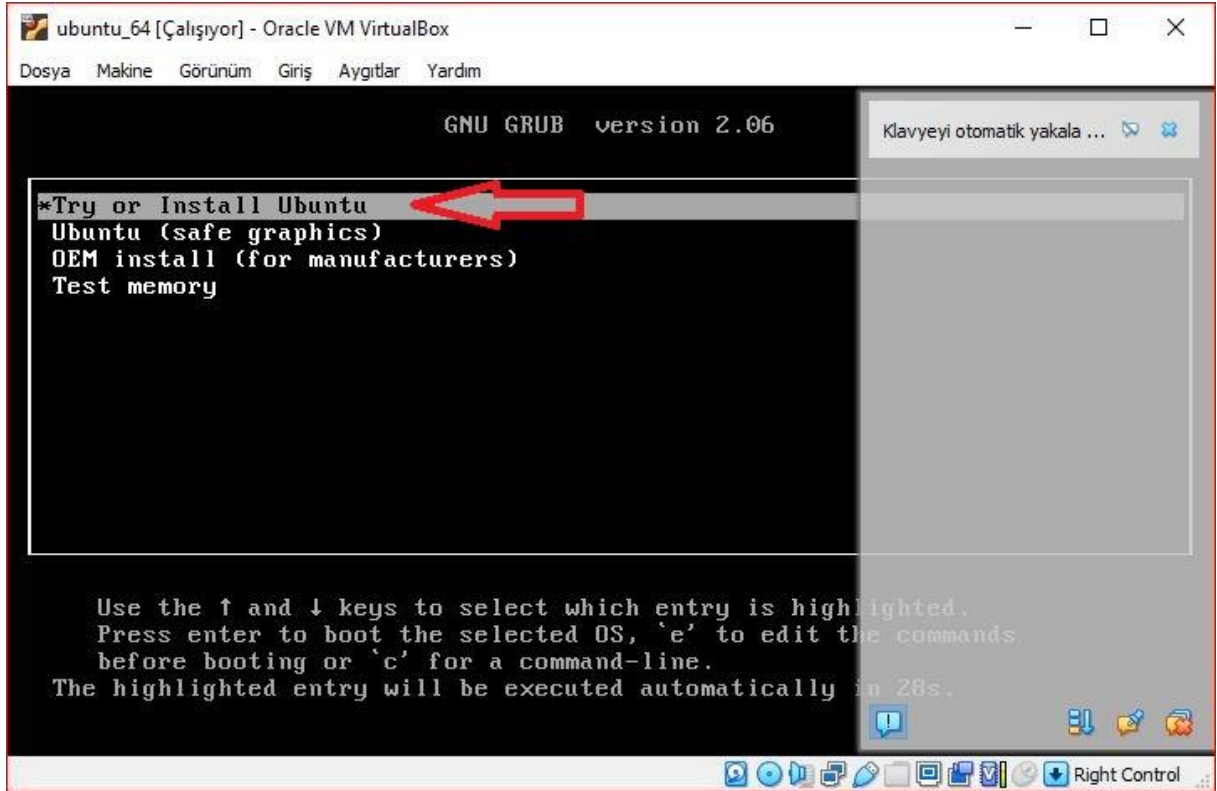
6- Adjust the memory and processor settings according to your computer hardware in the Hardware section.

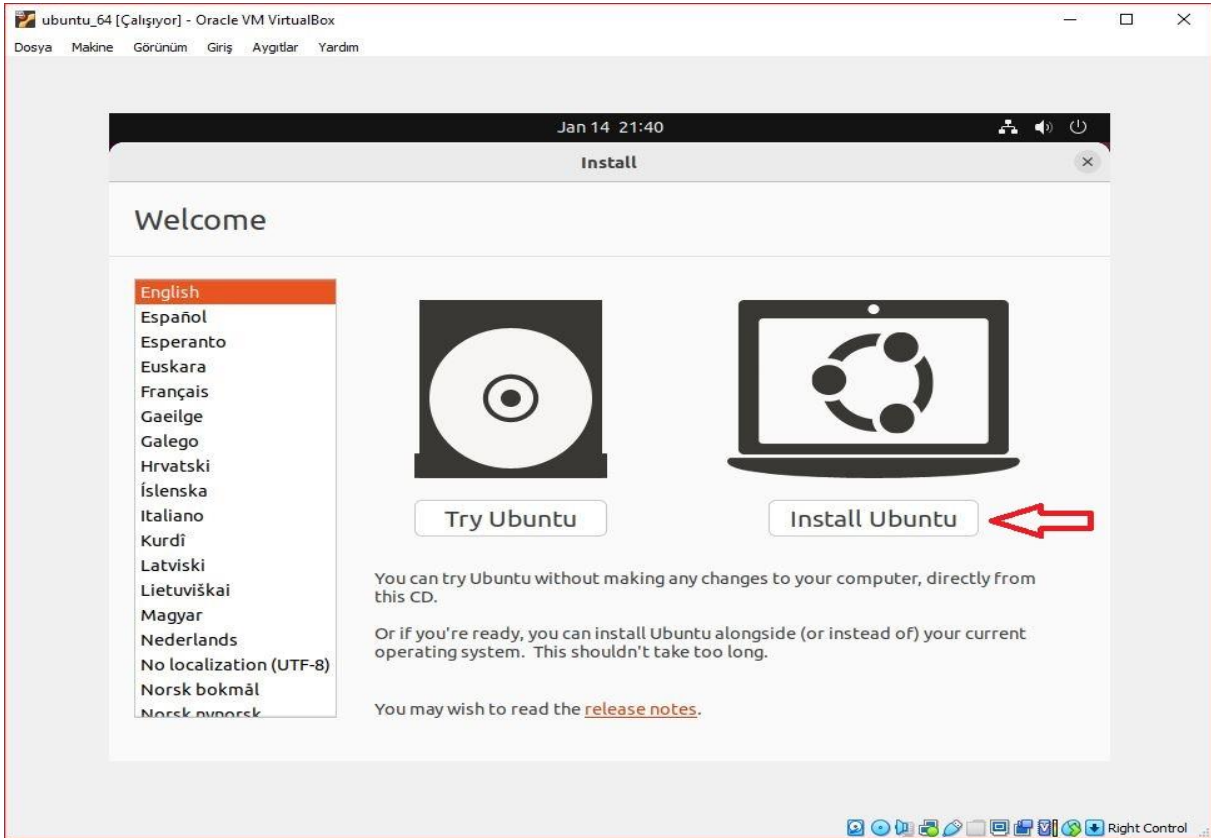


7- Adjust the Hard Disk size and start the system with “Finish”.

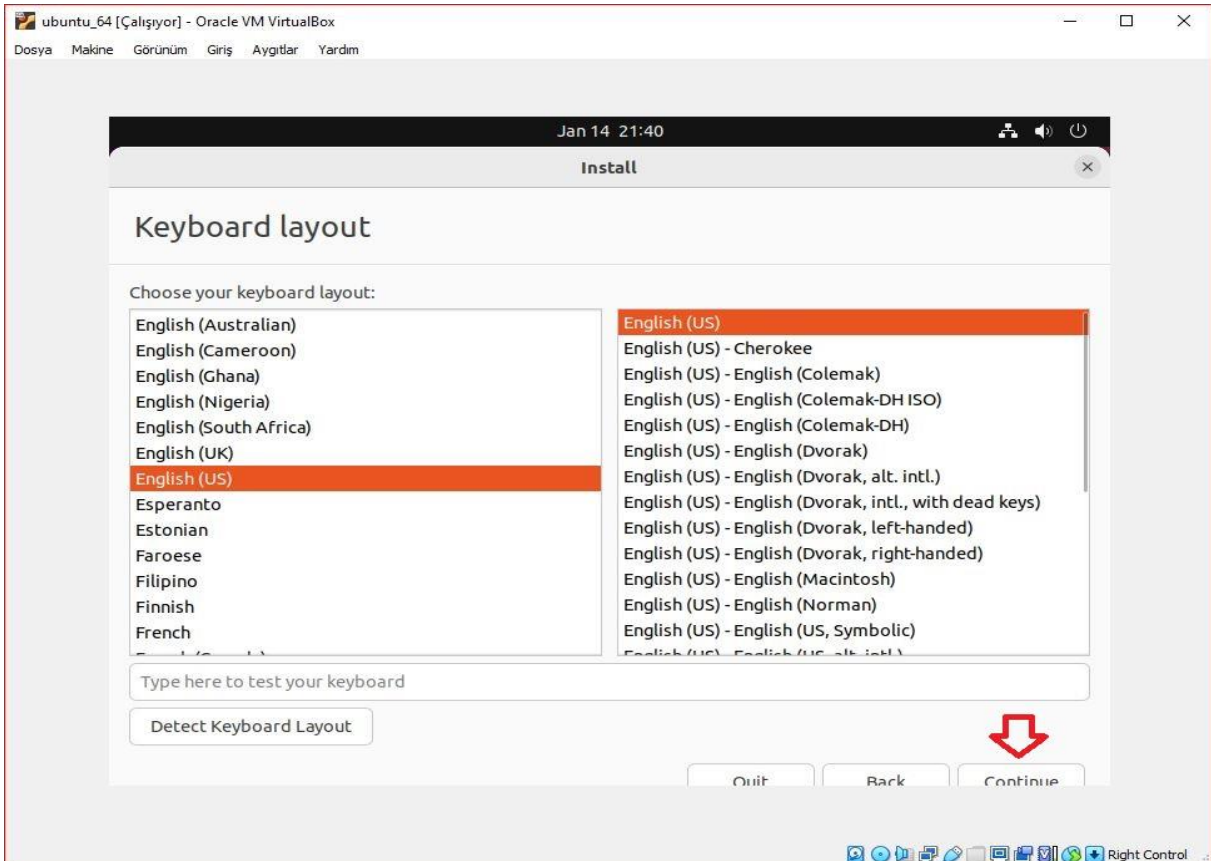


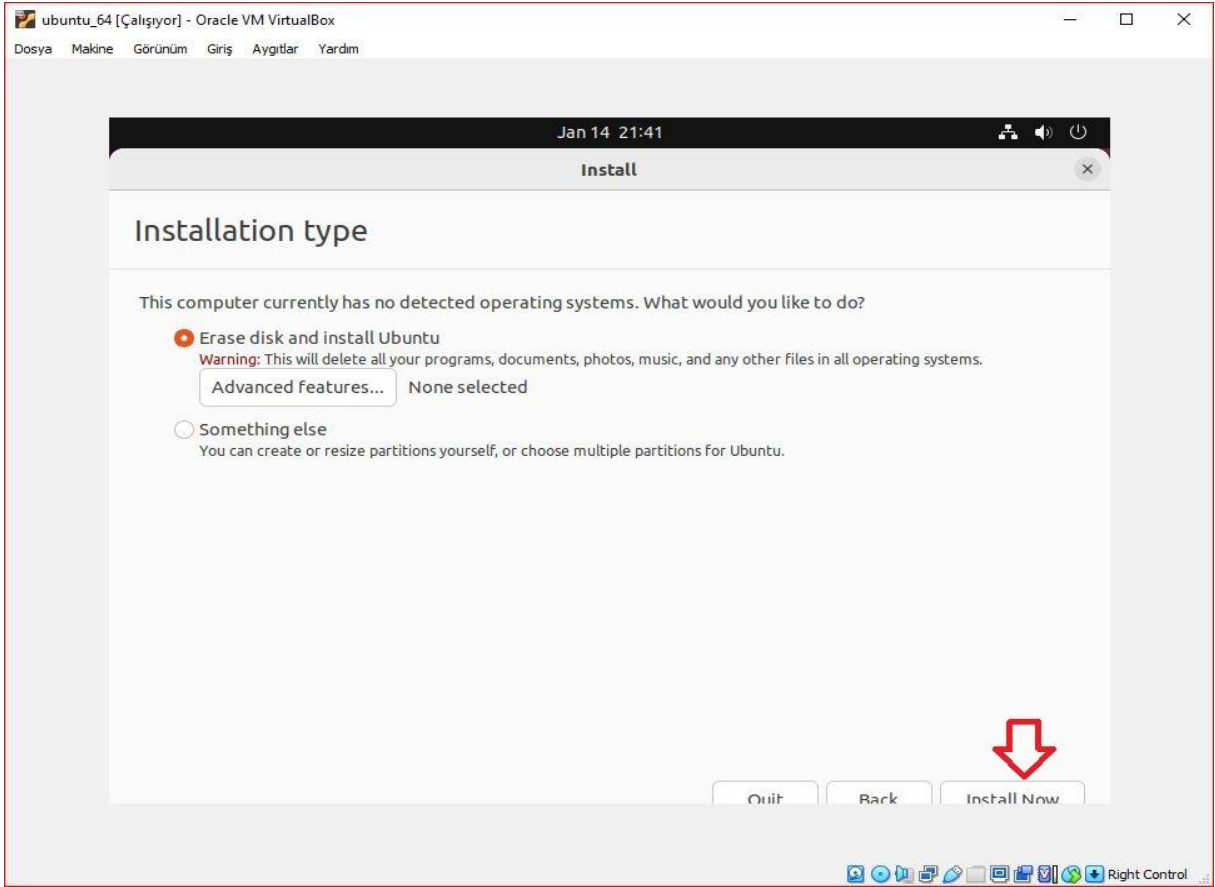
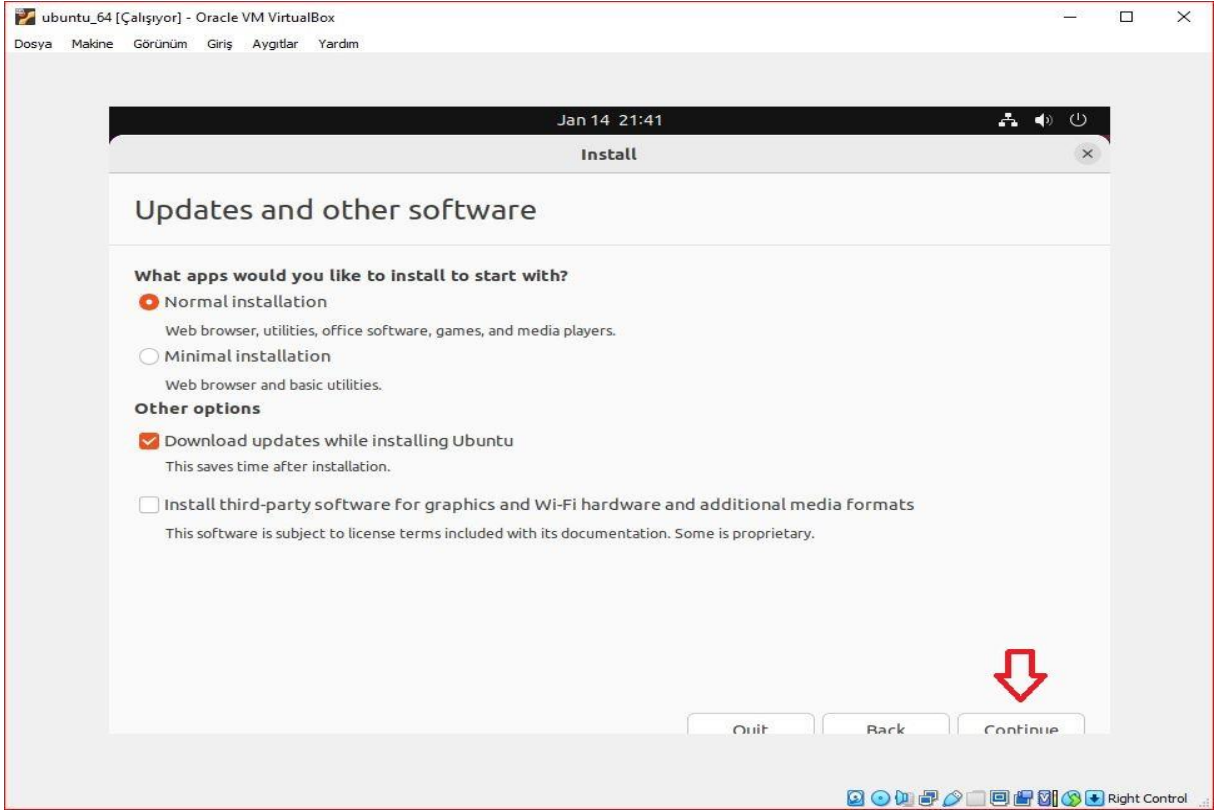
8- Select Installation in Ubuntu startup options.

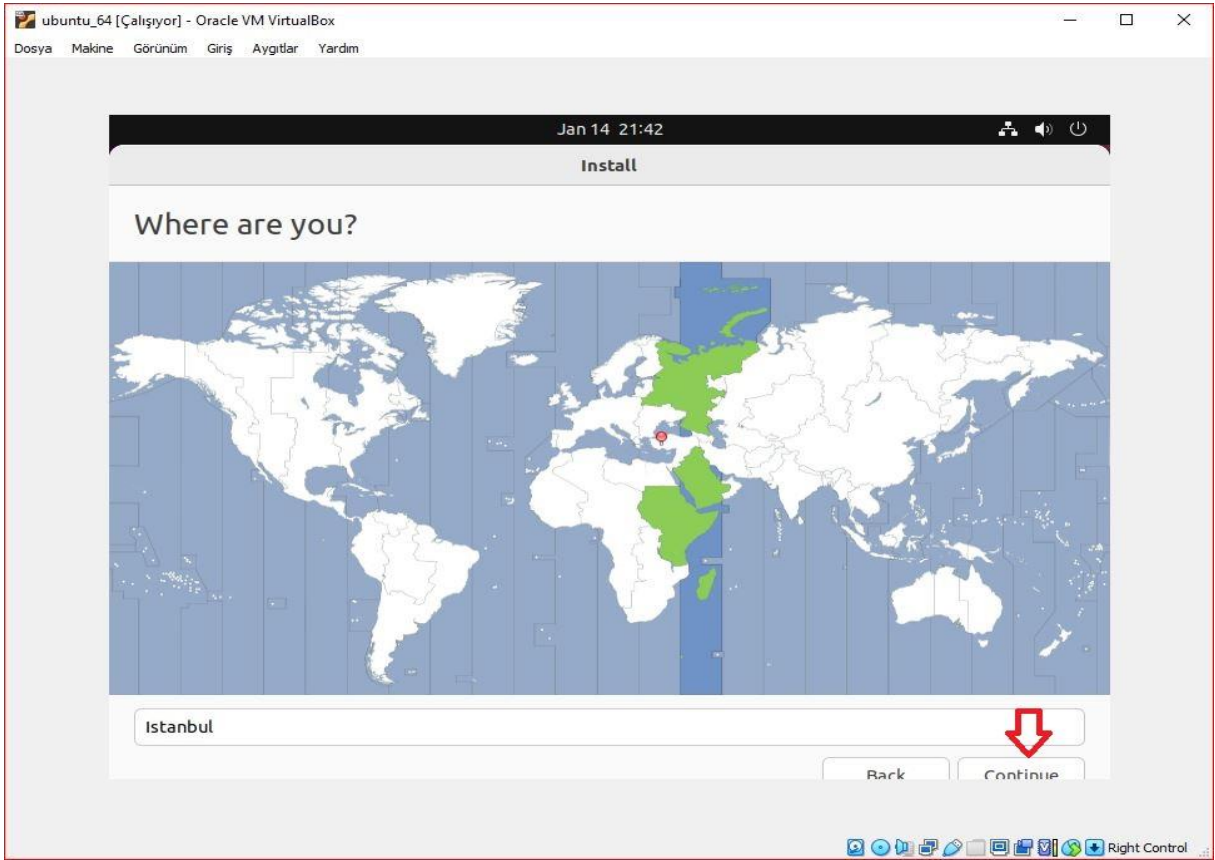
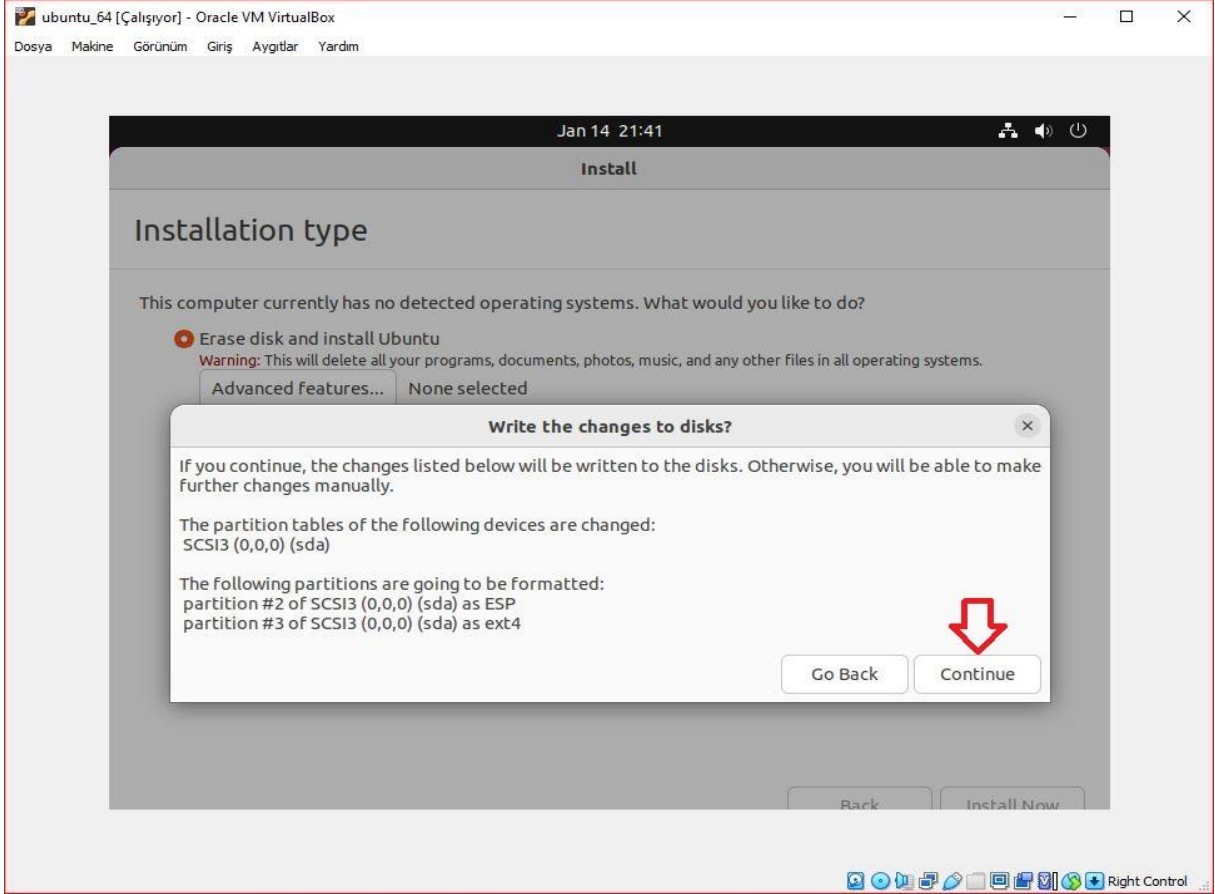




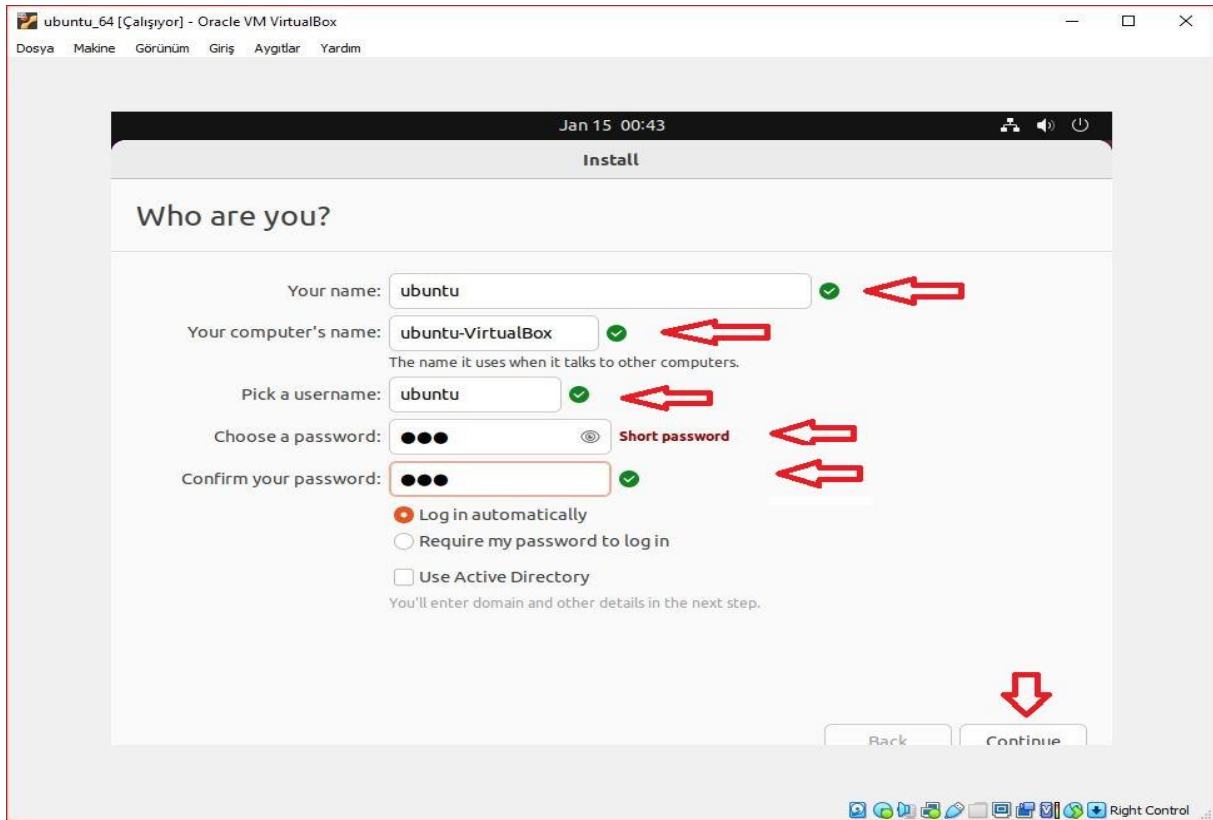
9- Choose your keyboard layout.



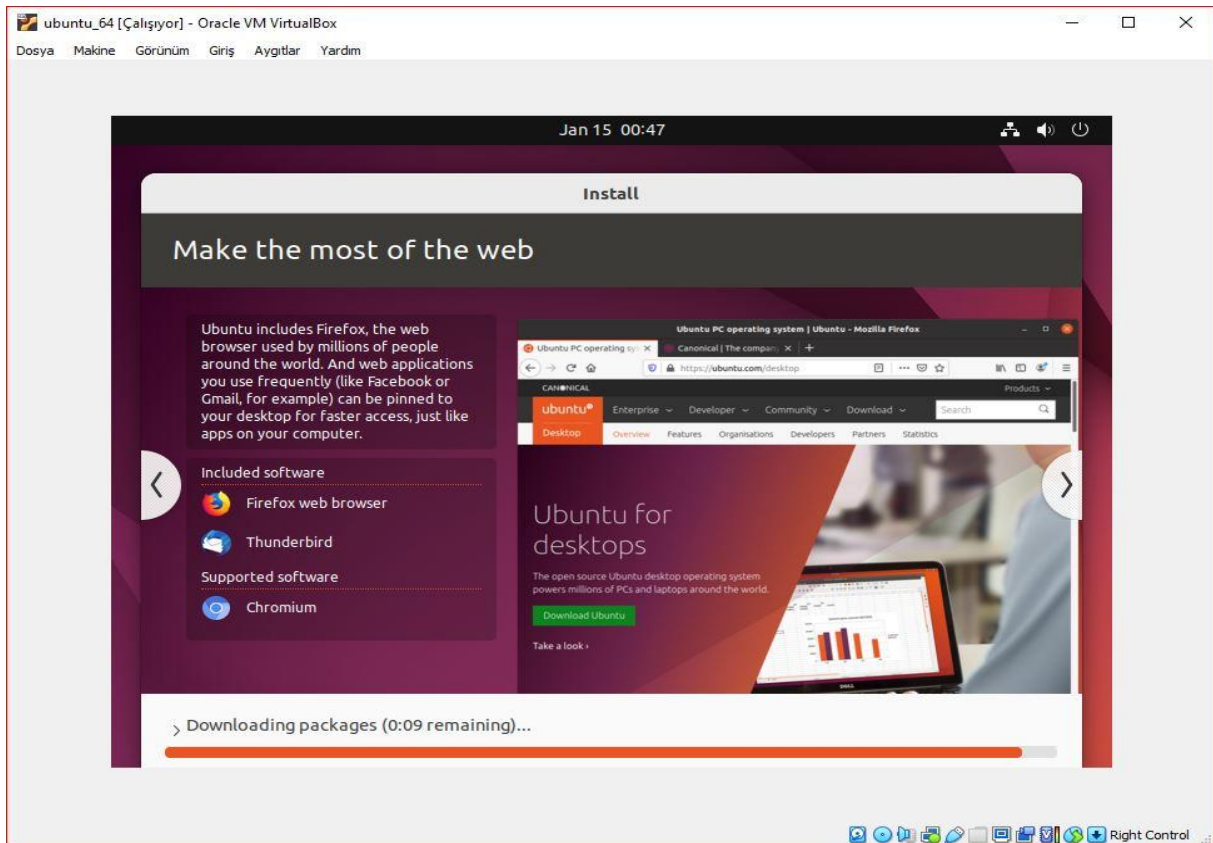




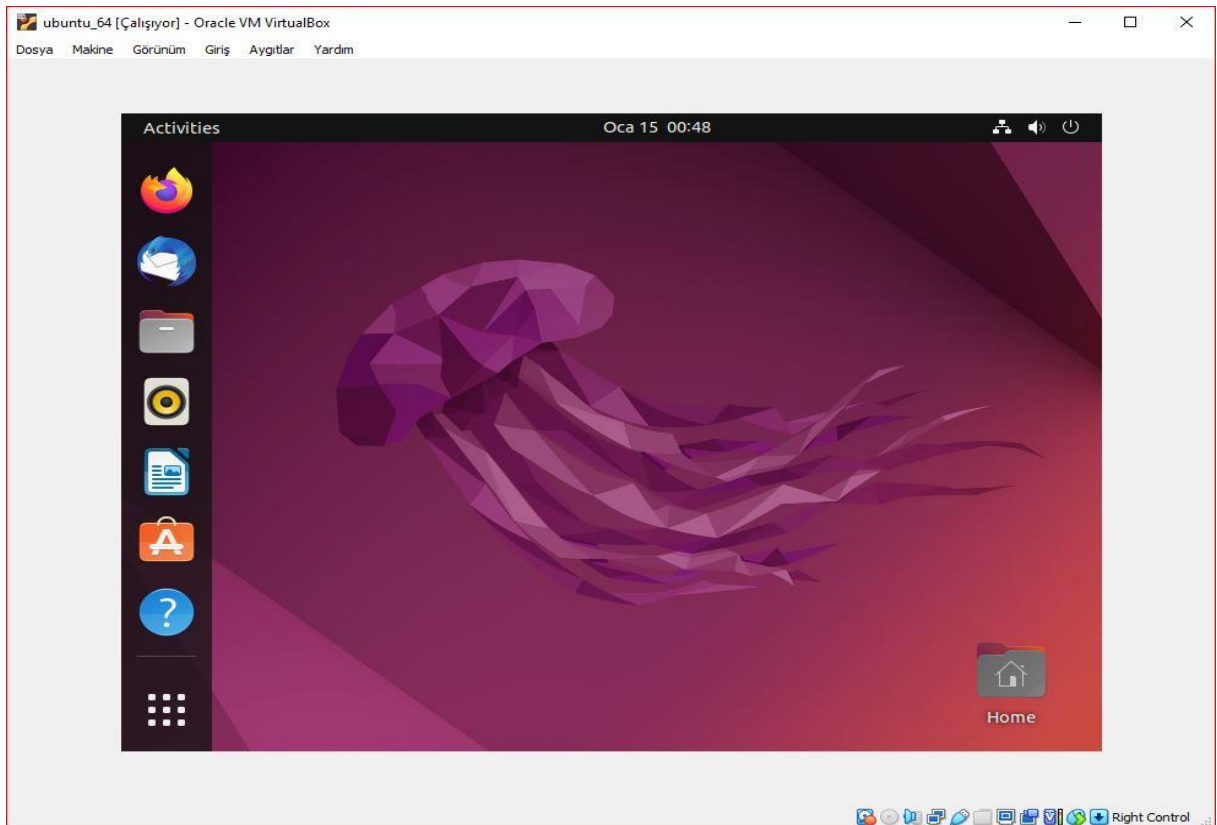
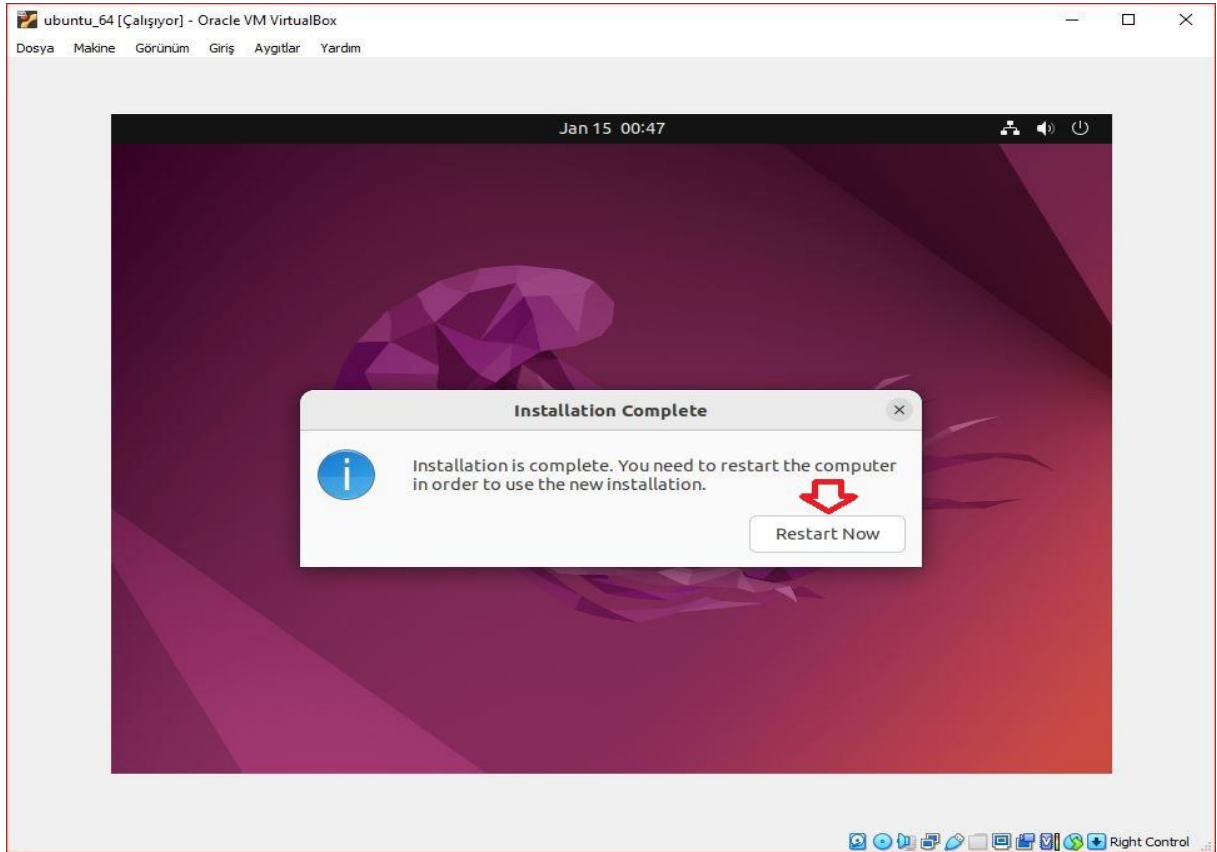
10- Set your computer name, username and password.



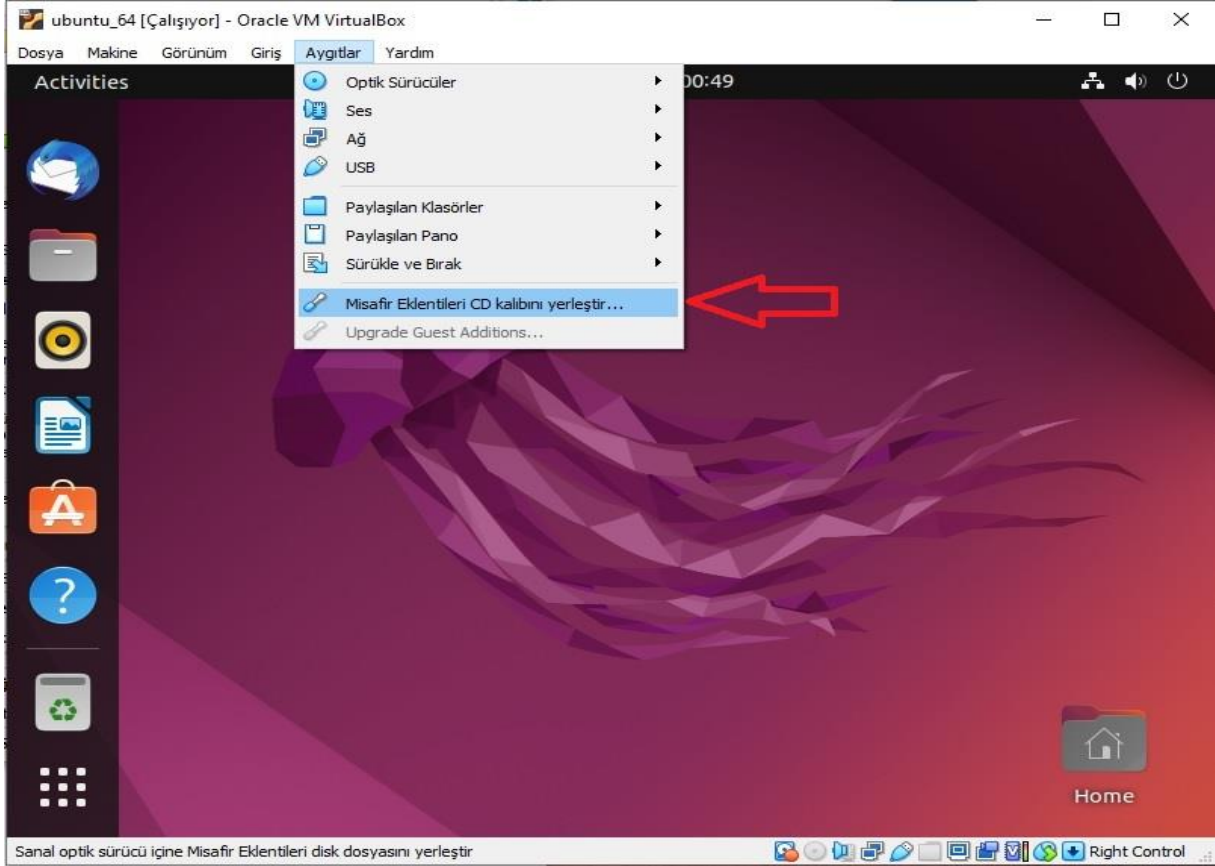
11- Wait for the installation to complete.



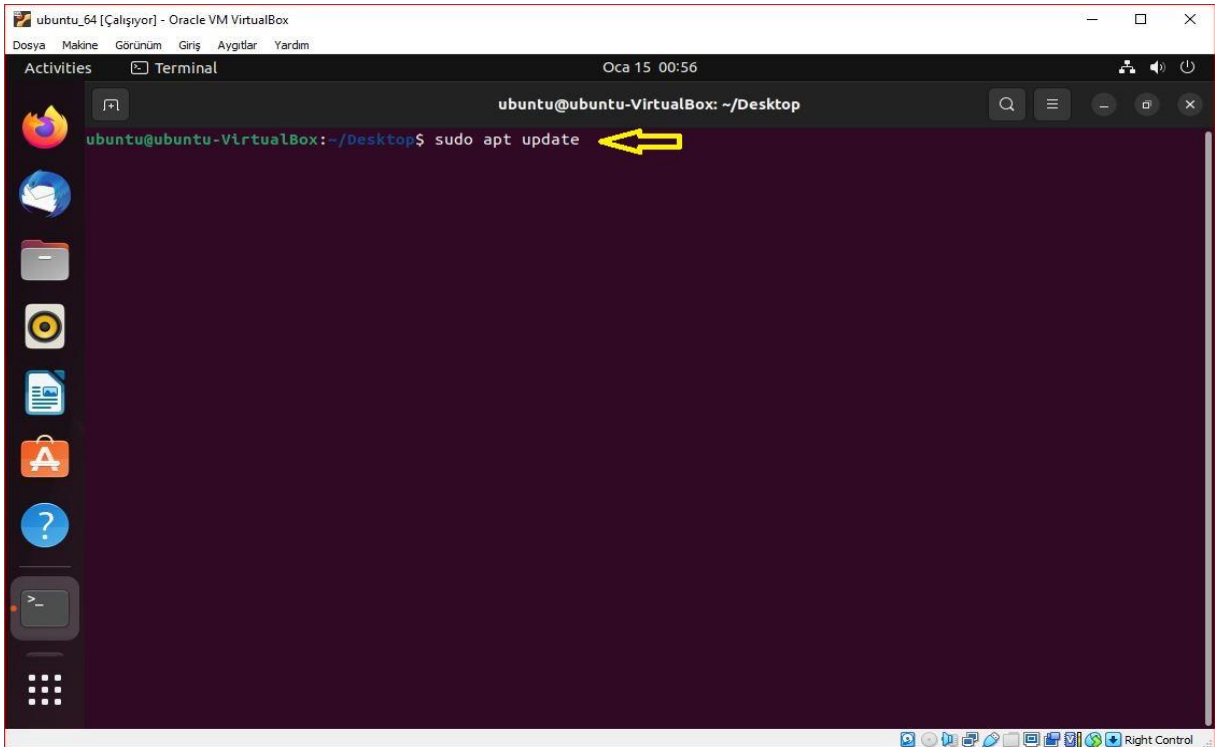
12- Restart the machine after the installation is complete.



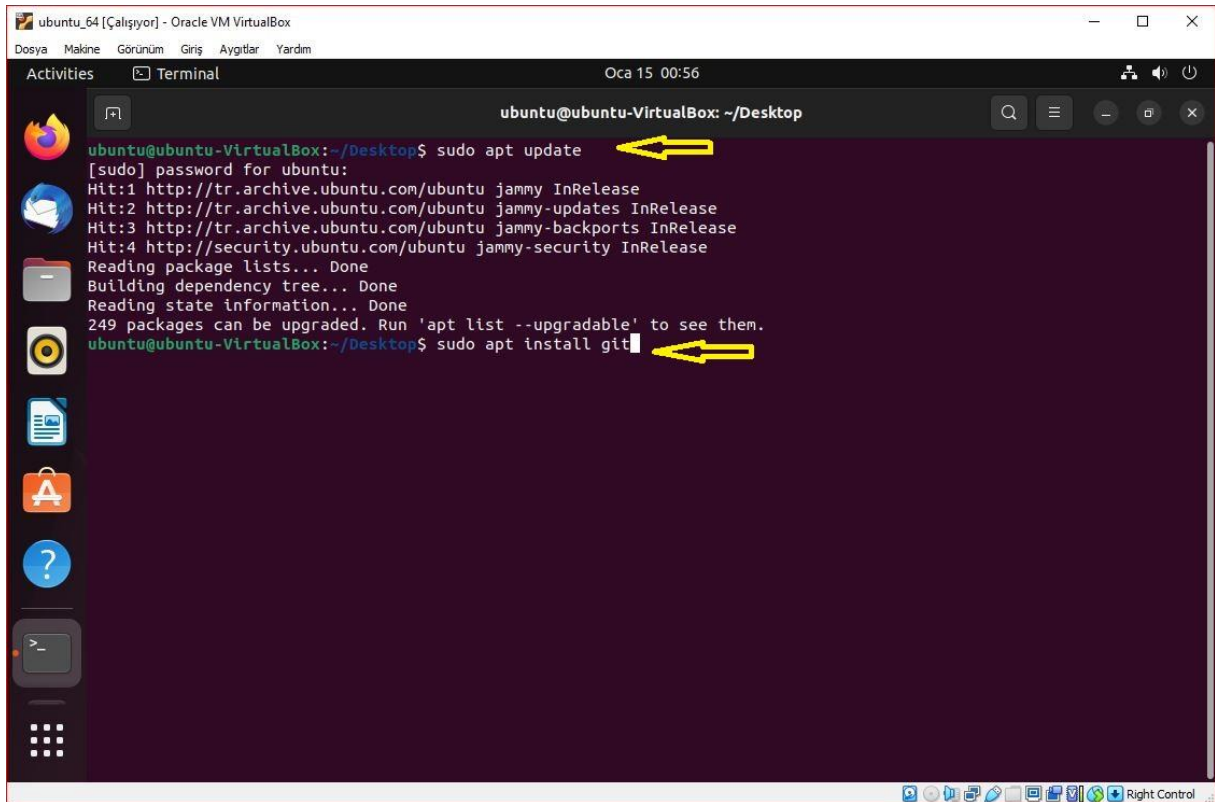
13- Perform the installation of guest addons. The installation will be completed with this process.



14- Update the package installer with the command “**sudo apt update**”.

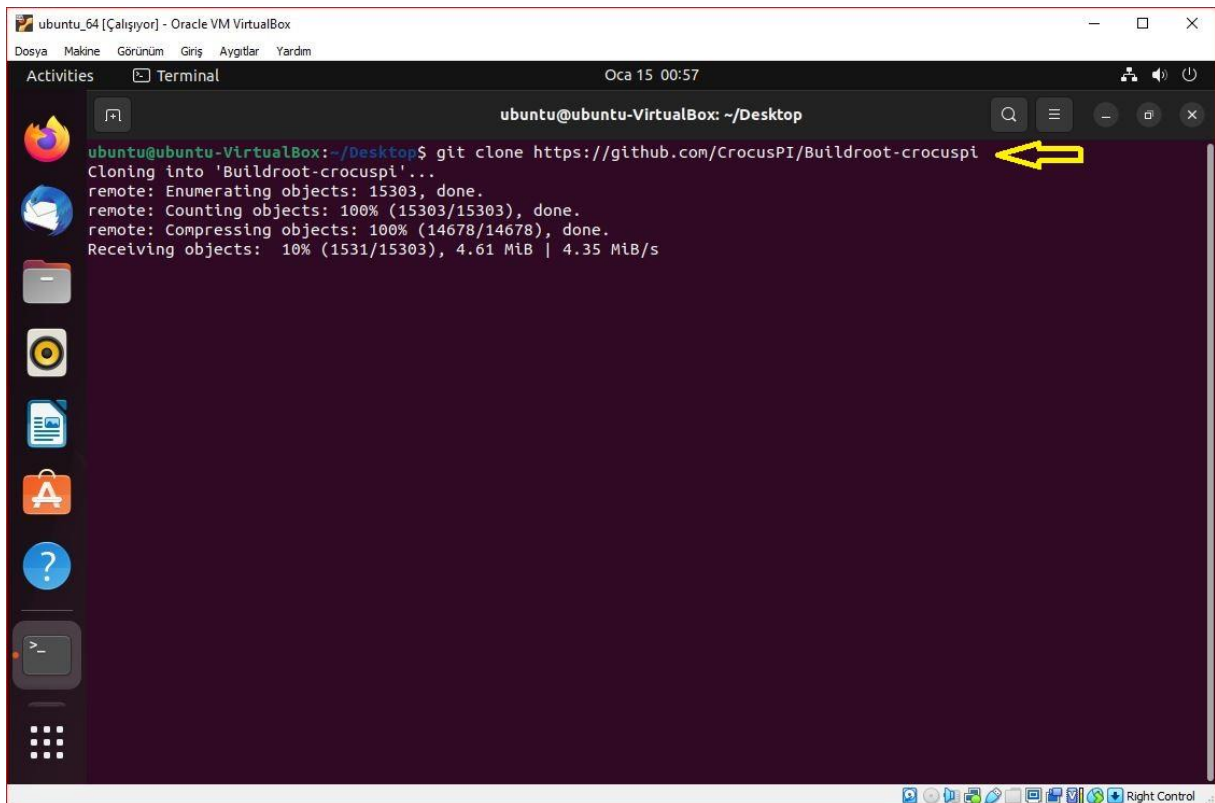


15- Install the git application with the command “**sudo apt install git**”.



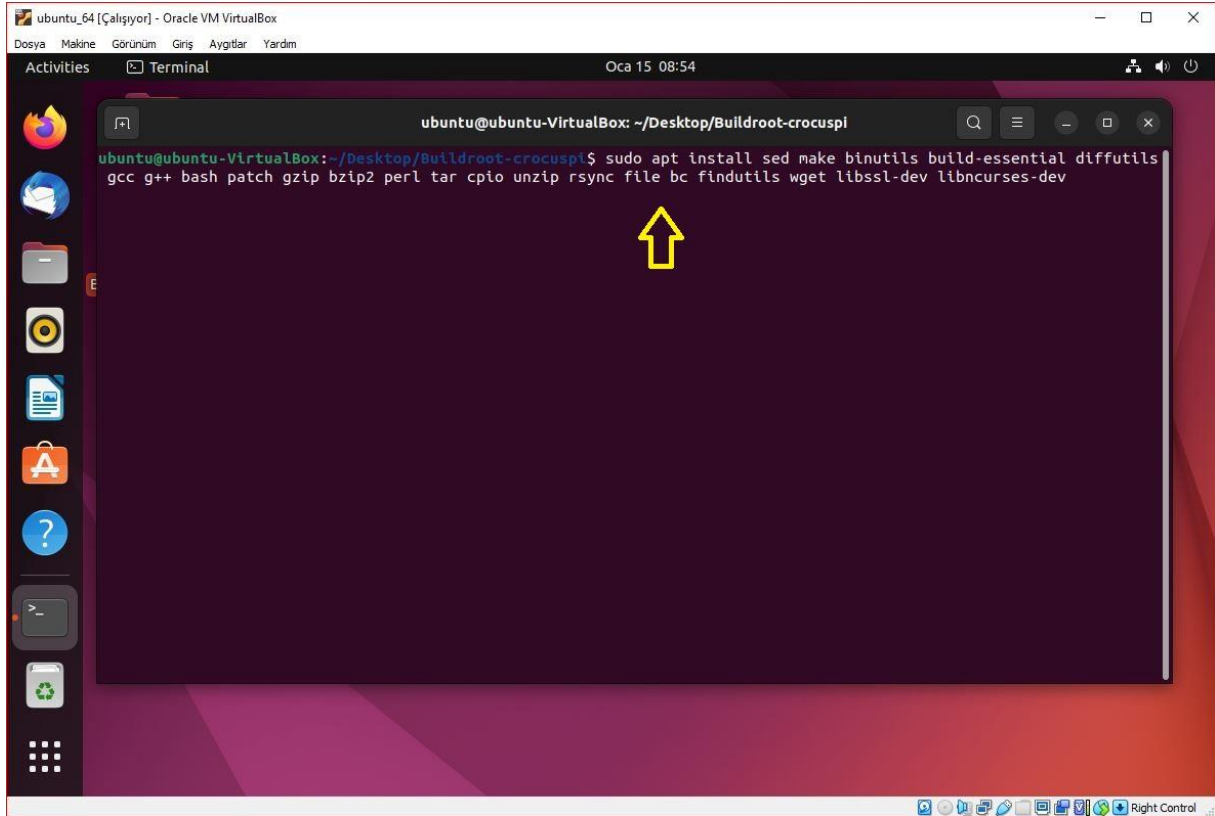
```
ubuntu@ubuntu-VirtualBox: ~/Desktop
ubuntu@ubuntu-VirtualBox:~/Desktop$ sudo apt update
[sudo] password for ubuntu:
Hit:1 http://tr.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://tr.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://tr.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
249 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ubuntu-VirtualBox:~/Desktop$ sudo apt install git
```

16- Clone the github repository to your computer with the command “**git clone https://github.com/CrocusPI/Buildroot-crocuspi**”.



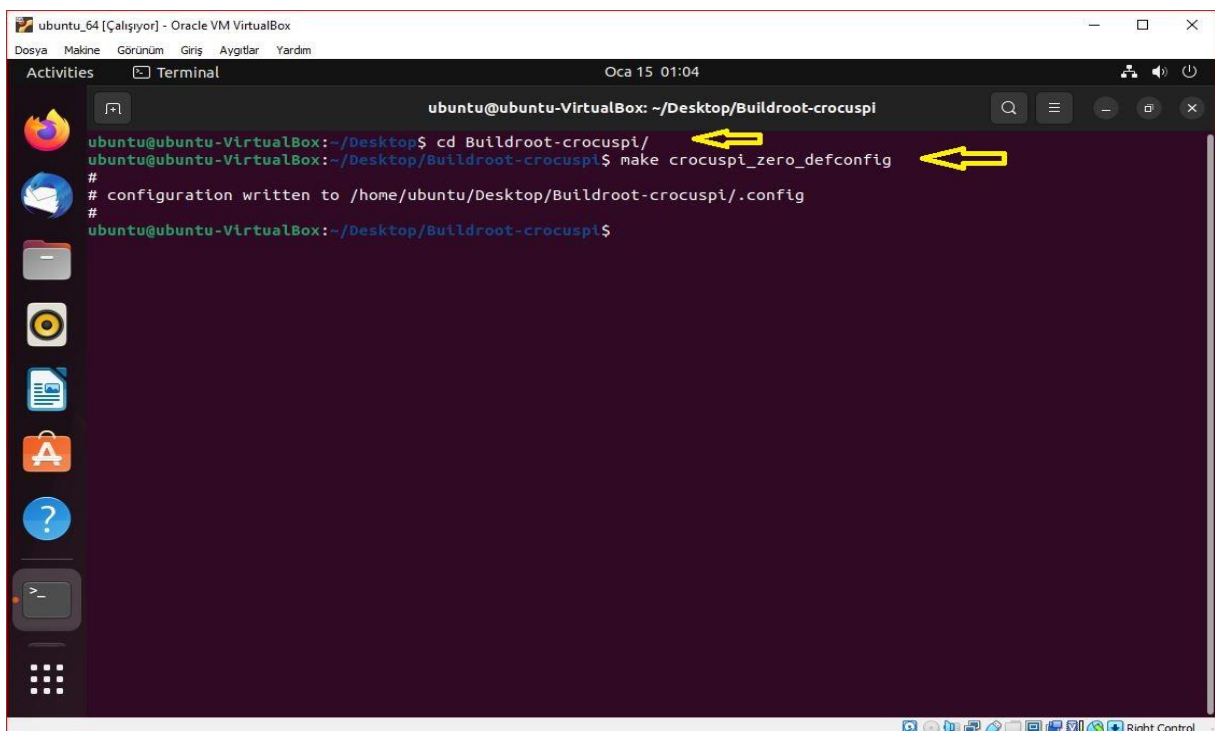
```
ubuntu@ubuntu-VirtualBox: ~/Desktop
ubuntu@ubuntu-VirtualBox:~/Desktop$ git clone https://github.com/CrocusPI/Buildroot-crocuspi
Cloning into 'Buildroot-crocuspi'...
remote: Enumerating objects: 15303, done.
remote: Counting objects: 100% (15303/15303), done.
remote: Compressing objects: 100% (14678/14678), done.
Receiving objects: 10% (1531/15303), 4.61 MiB | 4.35 MiB/s
```

- 17- Install the necessary applications for compilation processes with the command “**sudo apt install sed make binutils build-essential diffutils gcc g++ bash patch gzip bzip2 perl tar cpio unzip rsync file bc findutils wget libssl-dev libncurses-dev**”.



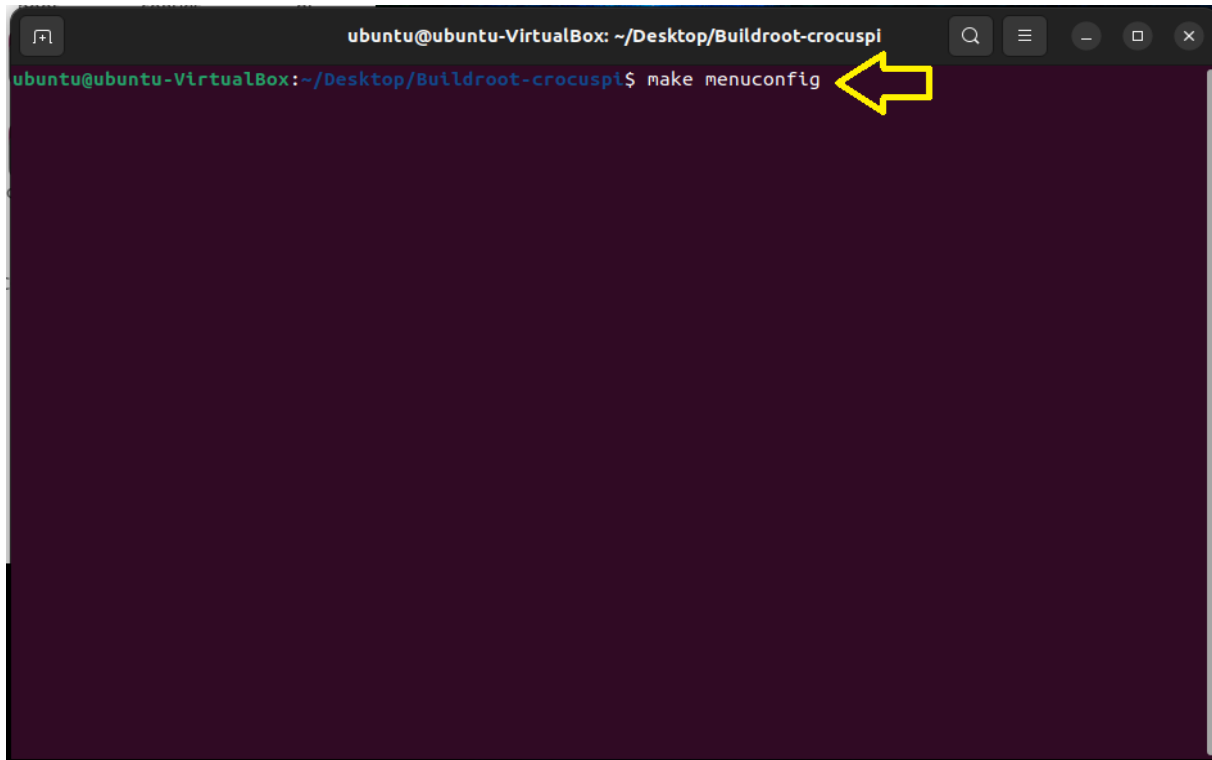
```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ sudo apt install sed make binutils build-essential diffutils gcc g++ bash patch gzip bzip2 perl tar cpio unzip rsync file bc findutils wget libssl-dev libncurses-dev
```

- 18- In the Buildroot folder, load the crocuspi settings with the "**make crocuspi_zero_defconfig**" command.

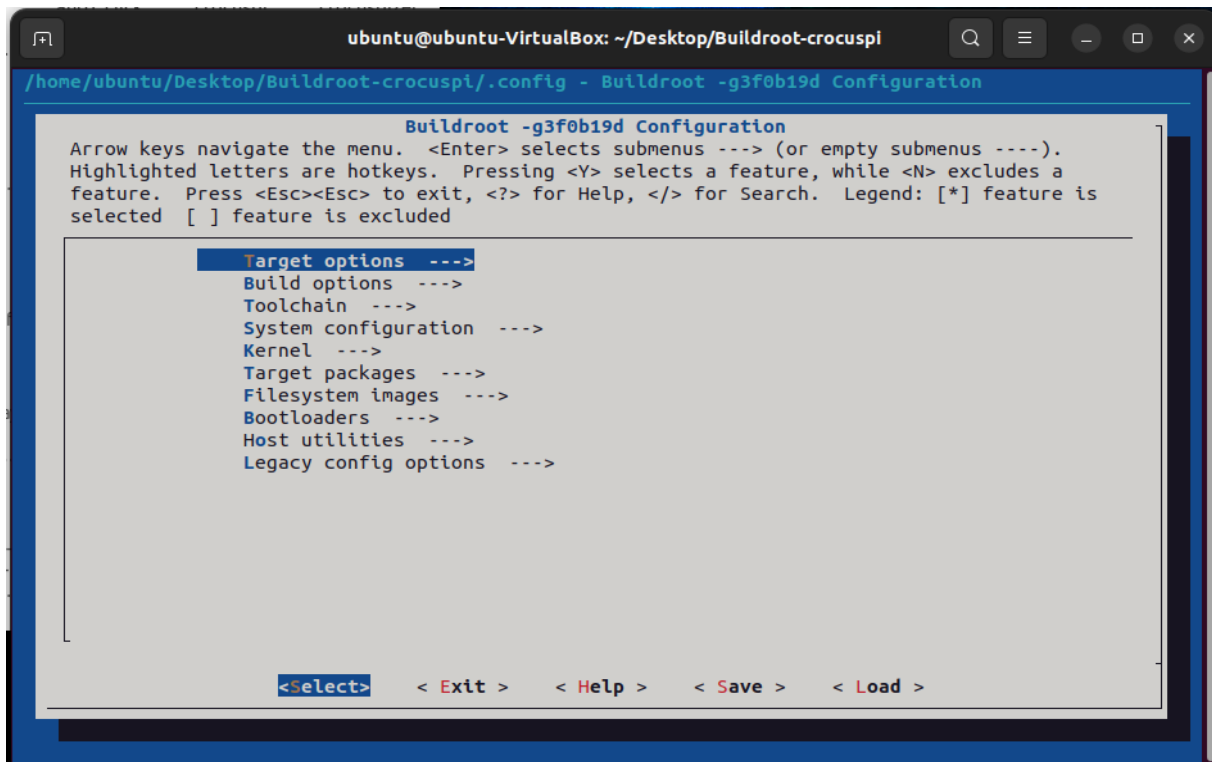


```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop$ cd Buildroot-crocuspi/
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make crocuspi_zero_defconfig
# configuration written to /home/ubuntu/Desktop/Buildroot-crocuspi/.config
#
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$
```

19- **Customize** the **buildroot** packages with the "**make menuconfig**" command. You can add or remove applications you want.



```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make menuconfig
```



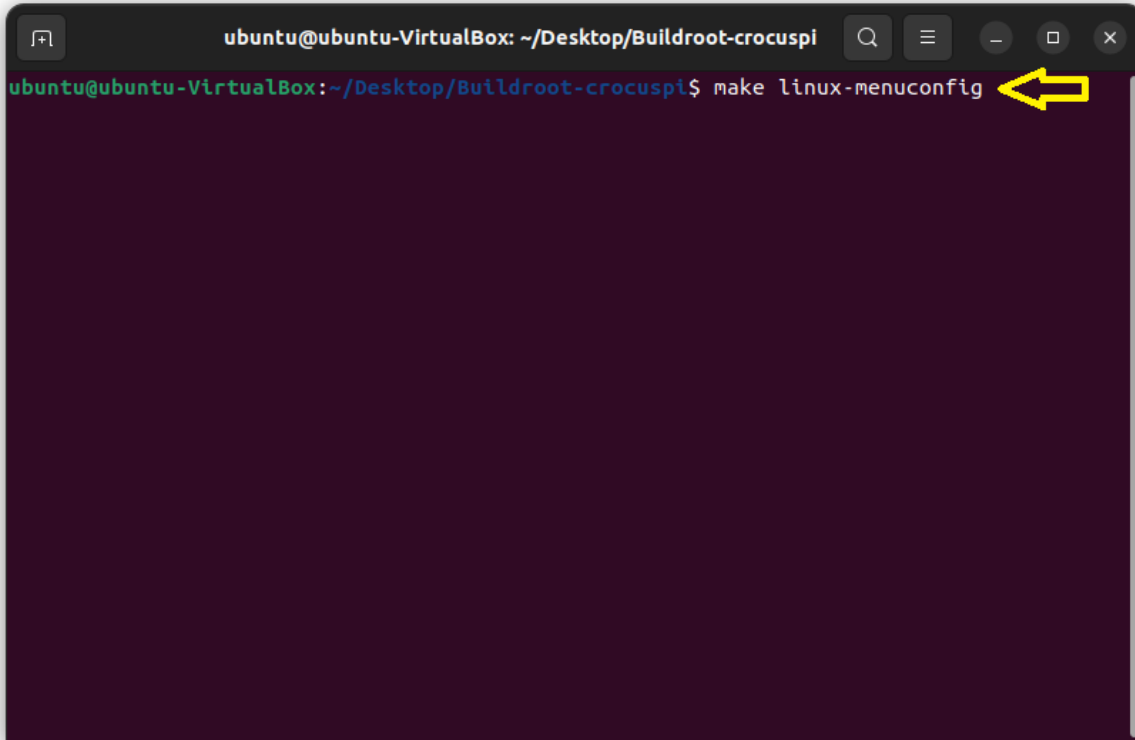
```
/home/ubuntu/Desktop/Buildroot-crocuspi/.config - Buildroot -g3f0b19d Configuration

Buildroot -g3f0b19d Configuration
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----).
Highlighted letters are hotkeys. Pressing <Y> selects a feature, while <N> excludes a
feature. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] feature is
selected [ ] feature is excluded

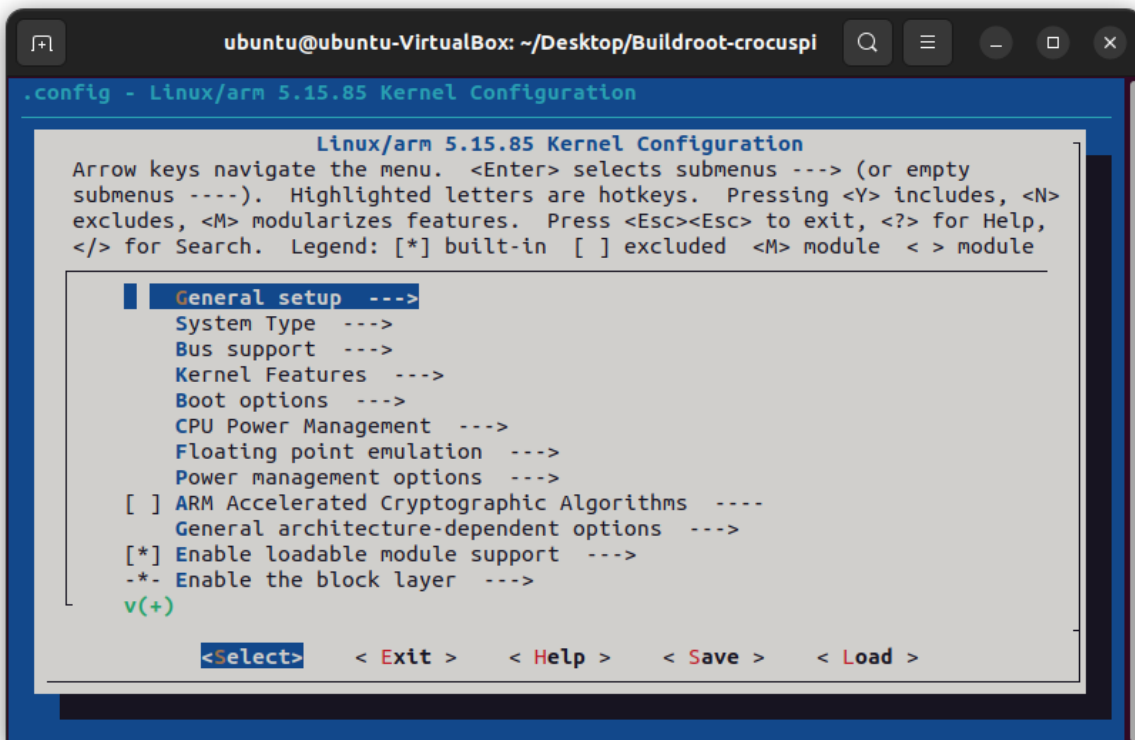
Target options --->
Build options --->
Toolchain ---->
System configuration ---->
Kernel --->
Target packages --->
Filesystem images --->
Bootloaders --->
Host utilities --->
Legacy config options ---->

<select> < Exit > < Help > < Save > < Load >
```

20- Customize the Linux Kernel with the "make linux-menuconfig " command.



```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make linux-menuconfig
```

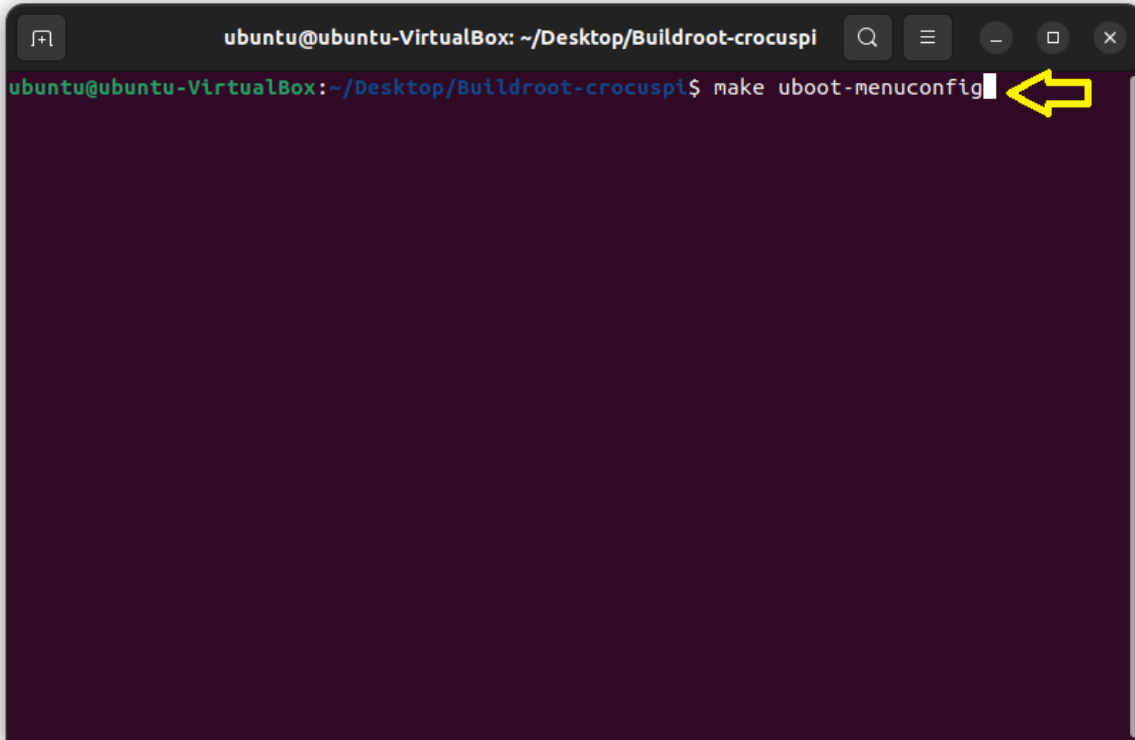


```
.config - Linux/arm 5.15.85 Kernel Configuration

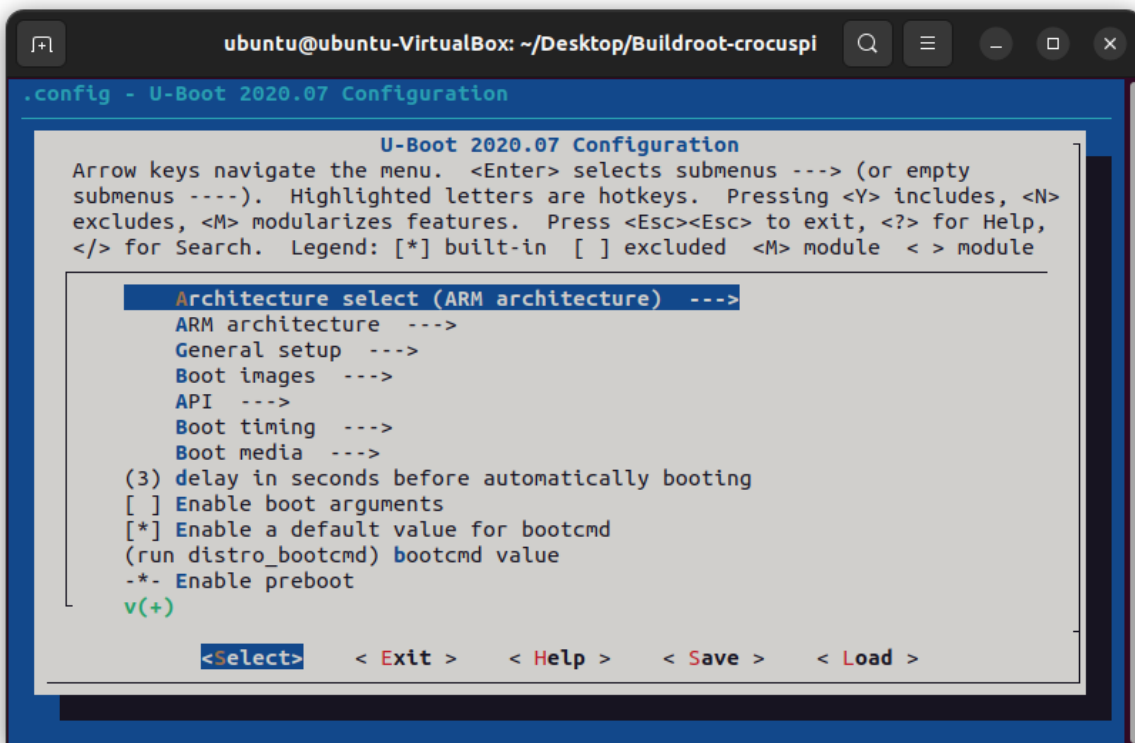
Linux/arm 5.15.85 Kernel Configuration
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty
submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N>
excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help,
</> for Search. Legend: [*] built-in [ ] excluded <M> module < > module

| General setup --->
  System Type --->
  Bus support --->
  Kernel Features --->
  Boot options --->
  CPU Power Management --->
  Floating point emulation --->
  Power management options --->
  [ ] ARM Accelerated Cryptographic Algorithms ----
  General architecture-dependent options --->
  [*] Enable loadable module support --->
  -* Enable the block layer --->
v(+)
```


21- Customize the Uboot with the "make uboot-menuconfig" command.



```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make uboot-menuconfig
```

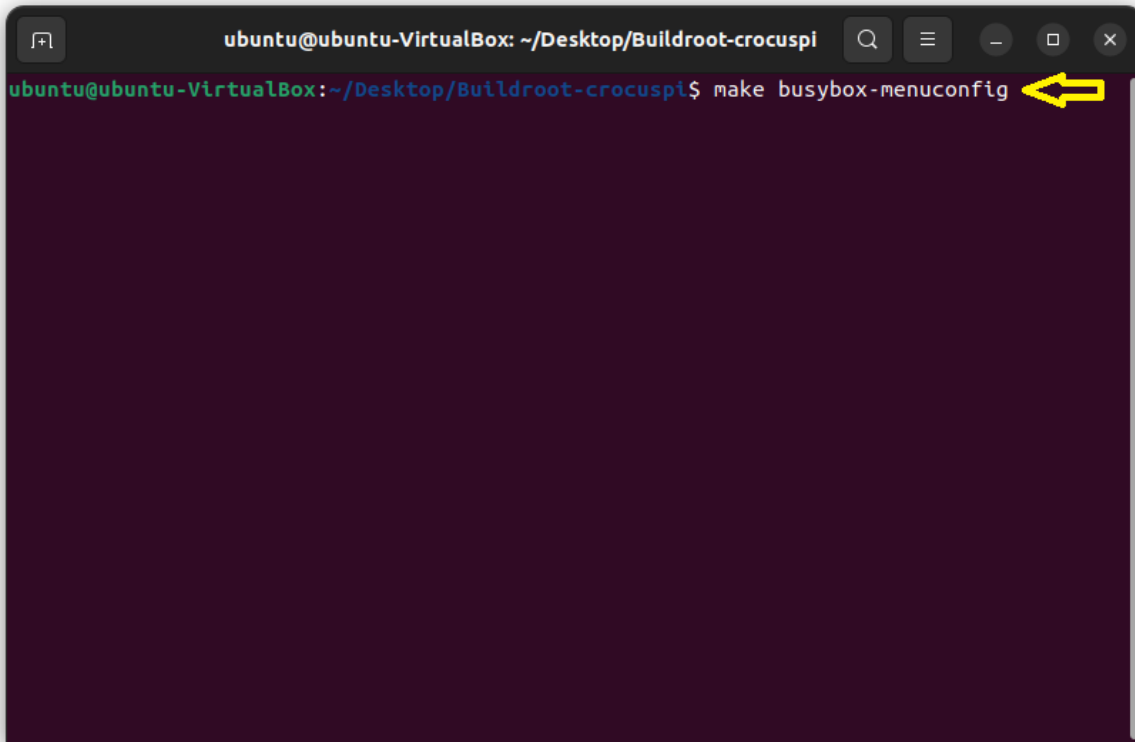


```
.config - U-Boot 2020.07 Configuration

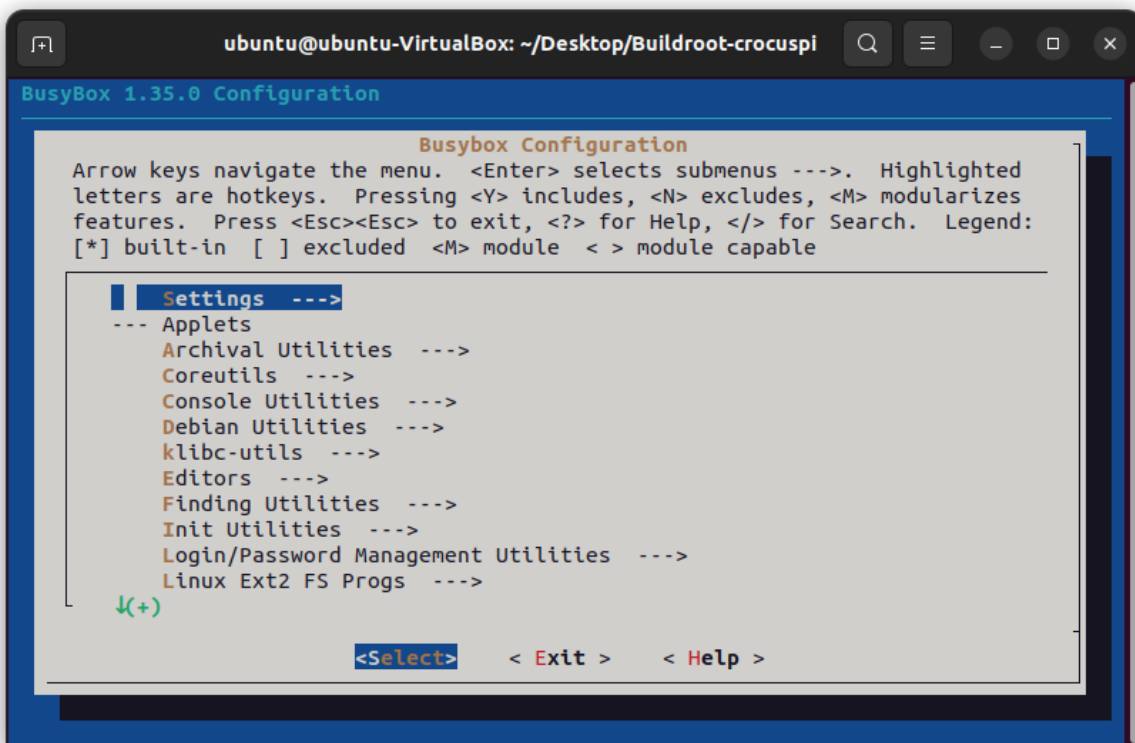
U-Boot 2020.07 Configuration
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty
submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N>
excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help,
</> for Search. Legend: [*] built-in [ ] excluded <M> module < > module

Architecture select (ARM architecture) --->
ARM architecture --->
General setup --->
Boot images --->
API --->
Boot timing --->
Boot media --->
(3) delay in seconds before automatically booting
[ ] Enable boot arguments
[*] Enable a default value for bootcmd
(run distro_bootcmd) bootcmd value
-*- Enable preboot
v(+)
```

22- Customize the **Busybox** with the "**make busybox -menuconfig**" command.



```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make busybox-menuconfig
```

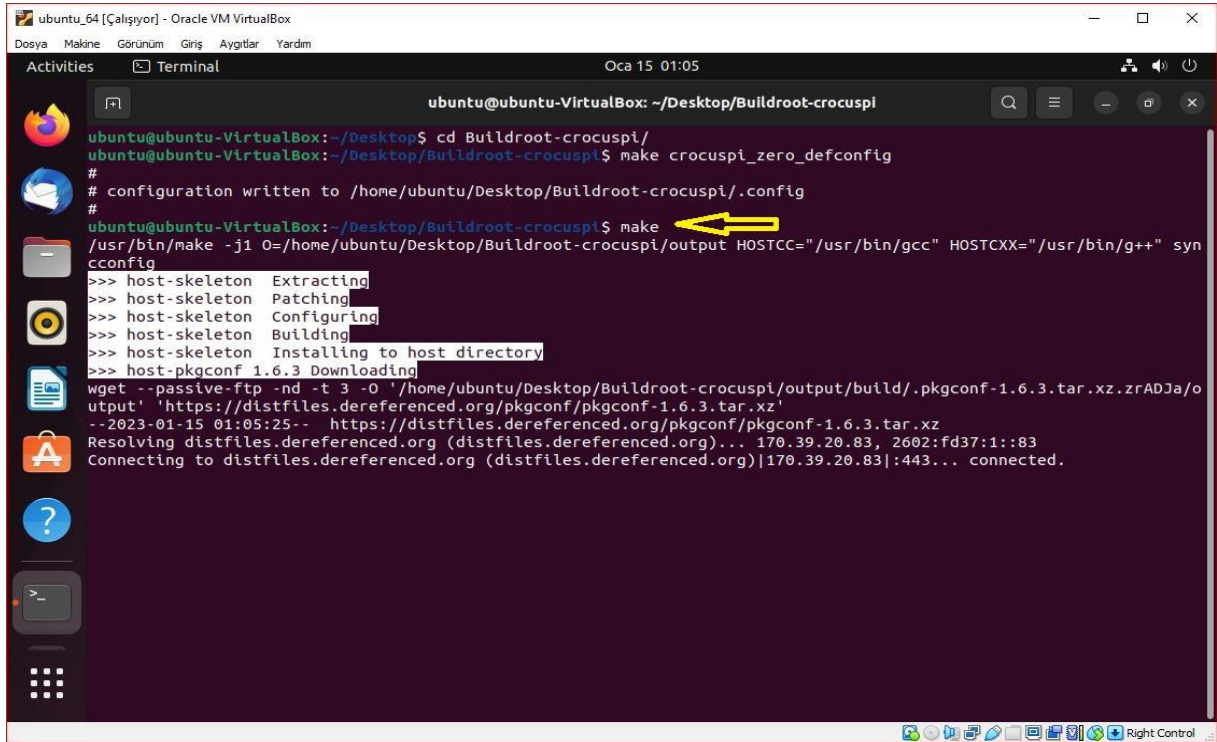


```
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
BusyBox 1.35.0 Configuration

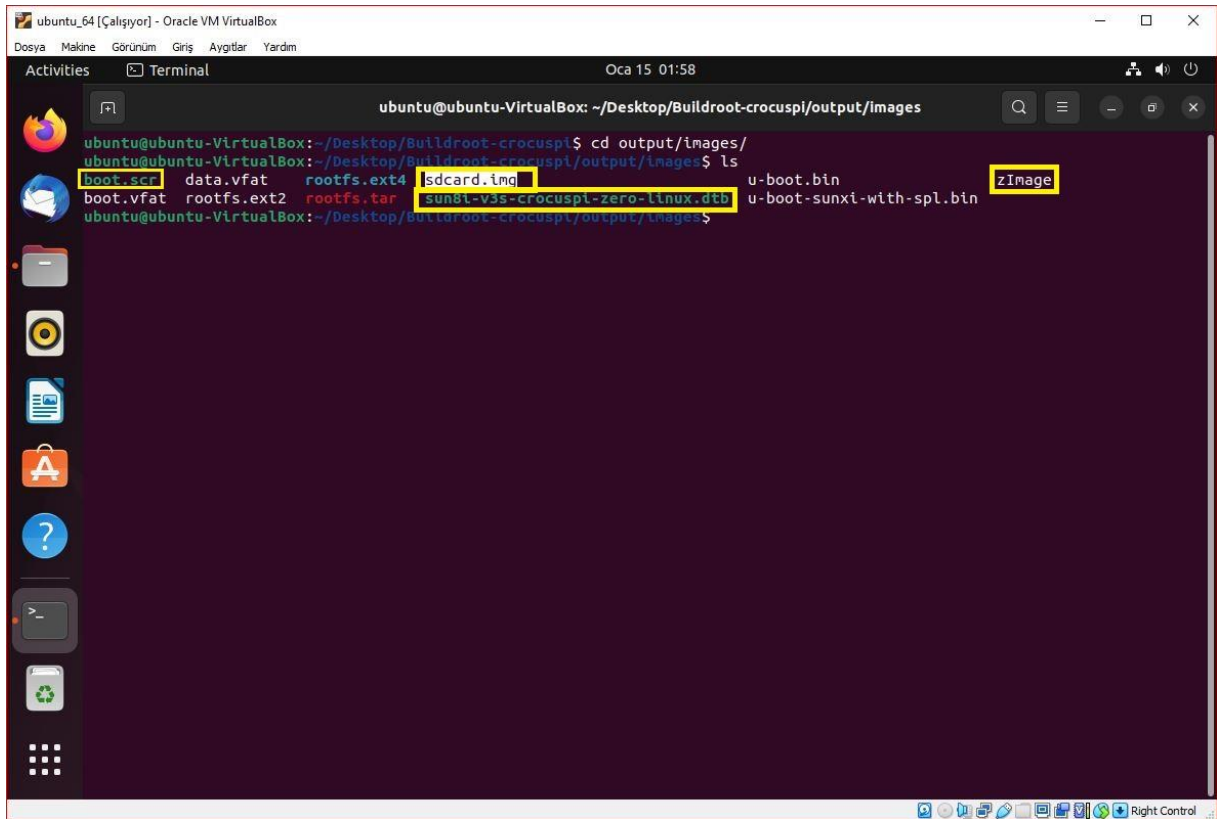
                Busybox Configuration
Arrow keys navigate the menu. <Enter> selects submenus --->. Highlighted
letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes
features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend:
[*] built-in [ ] excluded <M> module < > module capable

  Settings --->
--- Applets
  Archival Utilities --->
  Coreutils --->
  Console Utilities --->
  Debian Utilities --->
  klibc-utils --->
  Editors --->
  Finding Utilities --->
  Init Utilities --->
  Login/Password Management Utilities --->
  Linux Ext2 FS Progs --->
↓(+)
```

23- Start the compilation process with the command “make” or “make -j\$(nproc)”.



```
ubuntu_64 [Çalışıyor] - Oracle VM VirtualBox
Dosya Makine Görünüm Giriş Aygıtlar Yardım
Activities Terminal Oca 15 01:05
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi
ubuntu@ubuntu-VirtualBox:~/Desktop$ cd Buildroot-crocuspi/
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make crocuspi_zero_defconfig
# configuration written to /home/ubuntu/Desktop/Buildroot-crocuspi/.config
#
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ make
/usr/bin/make -j1 O=/home/ubuntu/Desktop/Buildroot-crocuspi/output HOSTCC="/usr/bin/gcc" HOSTCXX="/usr/bin/g++" syn
cconfig
>>> host-skeleton Extracting
>>> host-skeleton Patching
>>> host-skeleton Configuring
>>> host-skeleton Building
>>> host-skeleton Installing to host directory
>>> host-pkgconf 1.6.3 Downloading
wget --passive-ftp -nd -t 3 -O '/home/ubuntu/Desktop/Buildroot-crocuspi/output/build/.pkgconf-1.6.3.tar.xz.zrADJa/ou
tput' 'https://distfiles.dereferenced.org/pkgconf/pkgconf-1.6.3.tar.xz'
--2023-01-15 01:05:25-- https://distfiles.dereferenced.org/pkgconf/pkgconf-1.6.3.tar.xz
Resolving distfiles.dereferenced.org (distfiles.dereferenced.org)... 170.39.20.83, 2602:fd37:1::83
Connecting to distfiles.dereferenced.org (distfiles.dereferenced.org)|170.39.20.83|:443... connected.
```



```
ubuntu_64 [Çalışıyor] - Oracle VM VirtualBox
Dosya Makine Görünüm Giriş Aygıtlar Yardım
Activities Terminal Oca 15 01:58
ubuntu@ubuntu-VirtualBox: ~/Desktop/Buildroot-crocuspi/output/images
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi$ cd output/images/
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi/output/images$ ls
boot.scf data.vfat rootfs.ext4 sdcard.img u-boot.bin zImage
boot.vfat rootfs.ext2 rootfs.tar sunxi-v3s-crocuspi-zero-linux.dtb u-boot-sunxi-with-spl.bin
ubuntu@ubuntu-VirtualBox:~/Desktop/Buildroot-crocuspi/output/images$
```

24- After the compilation process is completed, the necessary files will be created in the "output/images" folder. You can download the image file to your microSD card and run CrocusPI Zero.

