



MANUAL TÉCNICO

Integrantes












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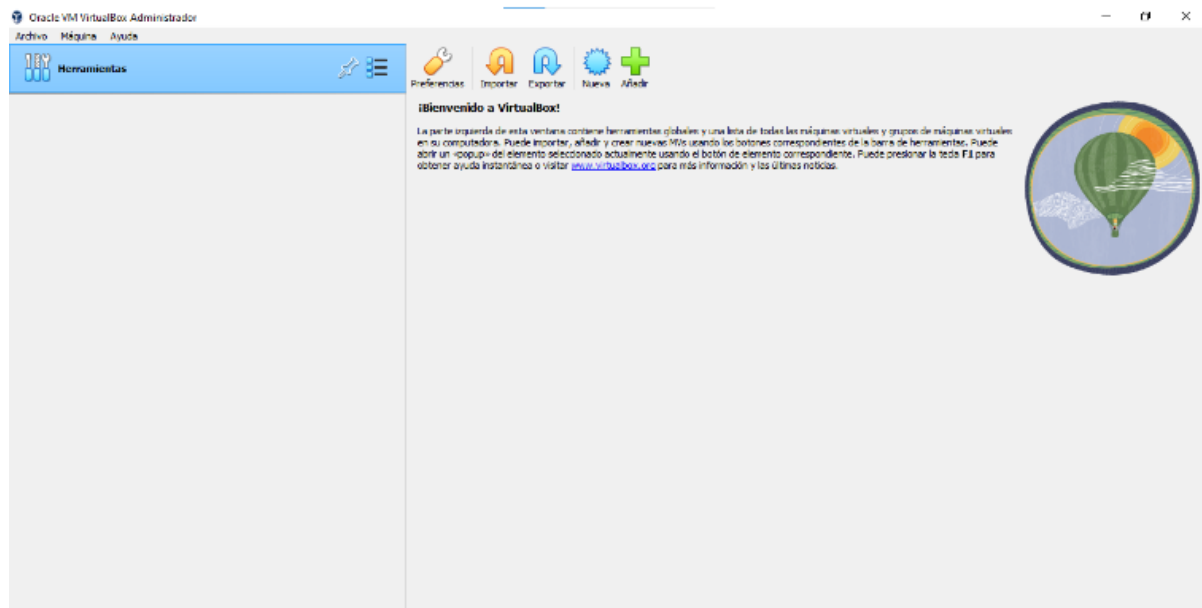
INSTALACIÓN DE ARCH LINUX

Descargar ISO Arch Linux

← → ↻ ⚠ No es seguro | mirrors.eze.sysarmy.com/archlinux/iso/2023.06.01/

Index of /archlinux/iso/2023.06.01

Name	Last modified	Size	Description
 Parent Directory		-	
 arch/	2023-06-01 15:27	-	
 archlinux-2023.06.01-x86_64.iso	2023-06-01 15:27	790M	
 archlinux-2023.06.01-x86_64.iso.sig	2023-06-01 15:29	141	
 archlinux-2023.06.01-x86_64.iso.torrent	2023-06-01 15:29	50K	
 archlinux-bootstrap-2023.06.01-x86_64.tar.gz	2023-06-01 15:28	179M	
 archlinux-bootstrap-2023.06.01-x86_64.tar.gz.sig	2023-06-01 15:29	141	
 archlinux-bootstrap-x86_64.tar.gz	2023-06-01 15:28	179M	
 archlinux-bootstrap-x86_64.tar.gz.sig	2023-06-01 15:29	141	
 archlinux-x86_64.iso	2023-06-01 15:27	790M	
 archlinux-x86_64.iso.sig	2023-06-01 15:29	141	
 b2sums.txt	2023-06-01 15:29	652	
 sha256sums.txt	2023-06-01 15:29	396	



MAPS

Para obtener información sobre cada proceso individual se hace un cat al archivo `/proc/pid/maps` posteriormente se mapea a un objeto Json el cual brinda la información de lo necesario para mostrar en el frontend.

```
/*
** Función para acceder a maps
** @param w respuesta del endpoint
** @param r petición del endpoint
*/

func LeerMaps(w http.ResponseWriter, r *http.Request) {
    buf := new(bytes.Buffer)
    buf.ReadFrom(r.Body)
    newStr := buf.String()
    str := "cat /proc/" + newStr + "/maps"

    cmd := exec.Command("sh", "-c", str)
    out, err := cmd.CombinedOutput()
    if err != nil {
        response := MapsResultB{
            PID: newStr,
            Error: err.Error(),
        }
        sendJSONResponse(w, http.StatusInternalServerError, response)
        return
    }

    maps := parseMemoryMapsOutput(string(out))

    response := MapsResultB{
        PID: newStr,
        Maps: maps,
    }
    sendJSONResponse(w, http.StatusOK, response)
}
```

SMAPS

Muestra información sobre las regiones de memoria del proceso, incluyendo la dirección de inicio y finalización de cada región, los permisos de acceso, el tamaño de la región, la cantidad de memoria utilizada, compartida y privada, entre otros detalles.

```
func LeerSmaps(w http.ResponseWriter, r *http.Request) {
    buf := new(bytes.Buffer)
    buf.ReadFrom(r.Body)
    newStr := buf.String()
    str := "cat /proc/" + newStr + "/smaps"

    cmd := exec.Command("sh", "-c", str)
    out, err := cmd.CombinedOutput()
    if err != nil {
        return
    }

    lines := strings.Split(string(out), "\n")
    blocks := []Block{}
    block := Block{}

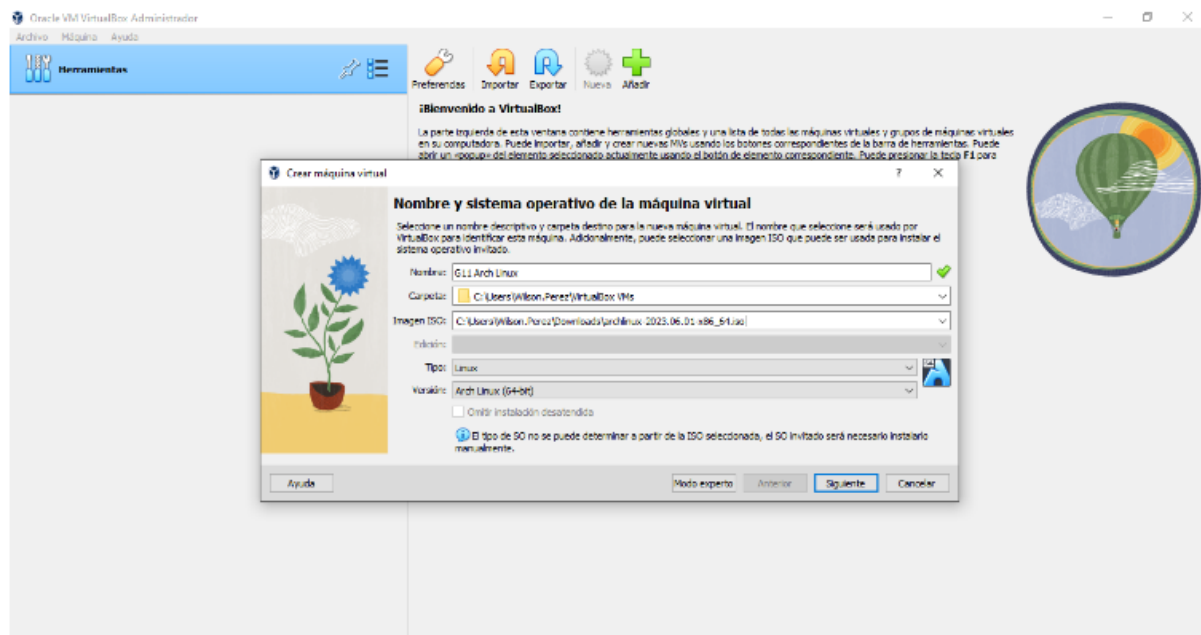
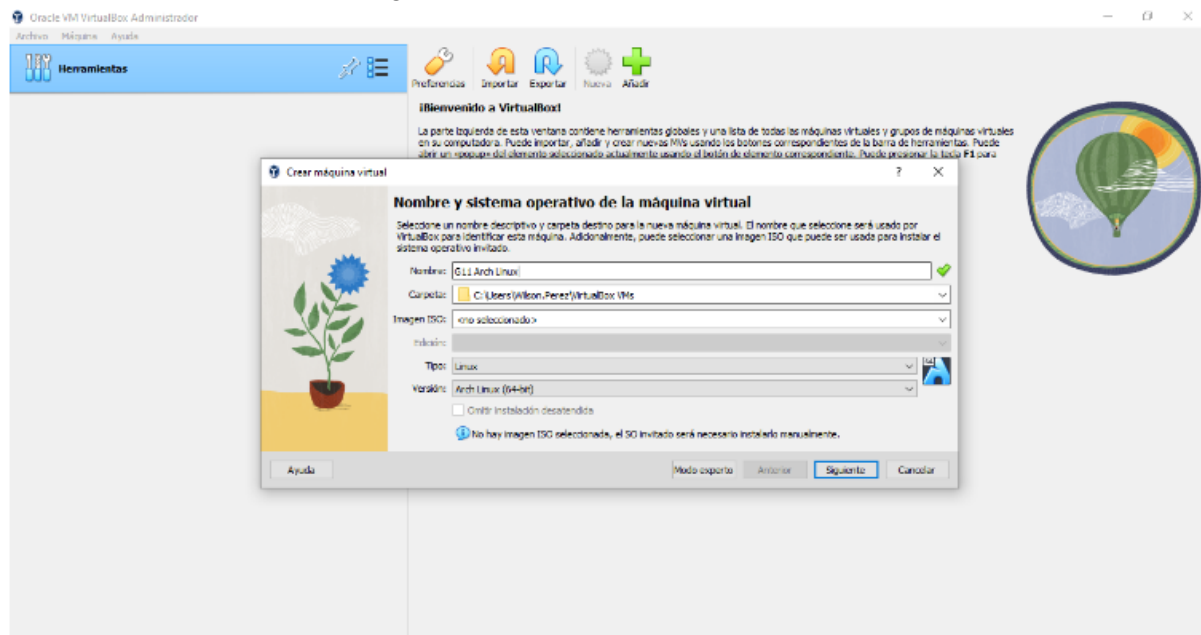
    for _, line := range lines {
        if strings.TrimSpace(line) == "" {
            continue
        }
        fields := strings.Fields(line)
        if len(fields) == 1 {
            continue
        } else {
            key := strings.TrimSuffix(fields[0], ":")
            value := strings.Join(fields[1:], " ")
            switch key {
            case "Size":
                block.Size = value
            case "Rss":
                block.Rss = value
            }
        }
        if strings.HasPrefix(line, "VmFlags") {
            blocks = append(blocks, block)
            block = Block{}
        }
    }

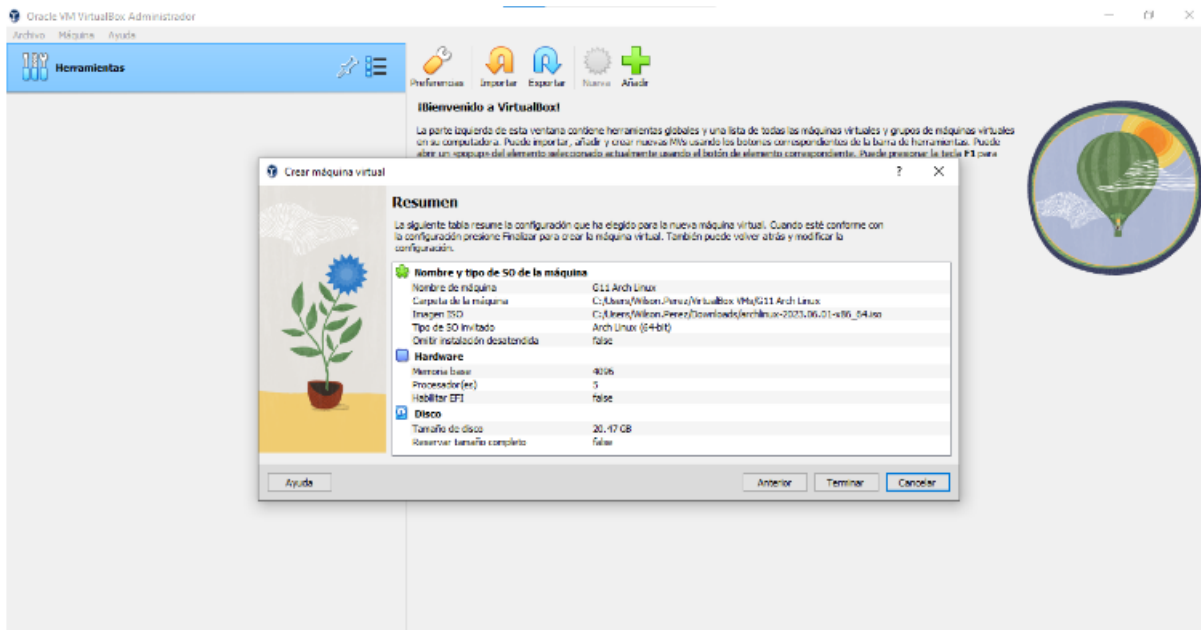
    data := Data{
        Blocks: blocks,
    }

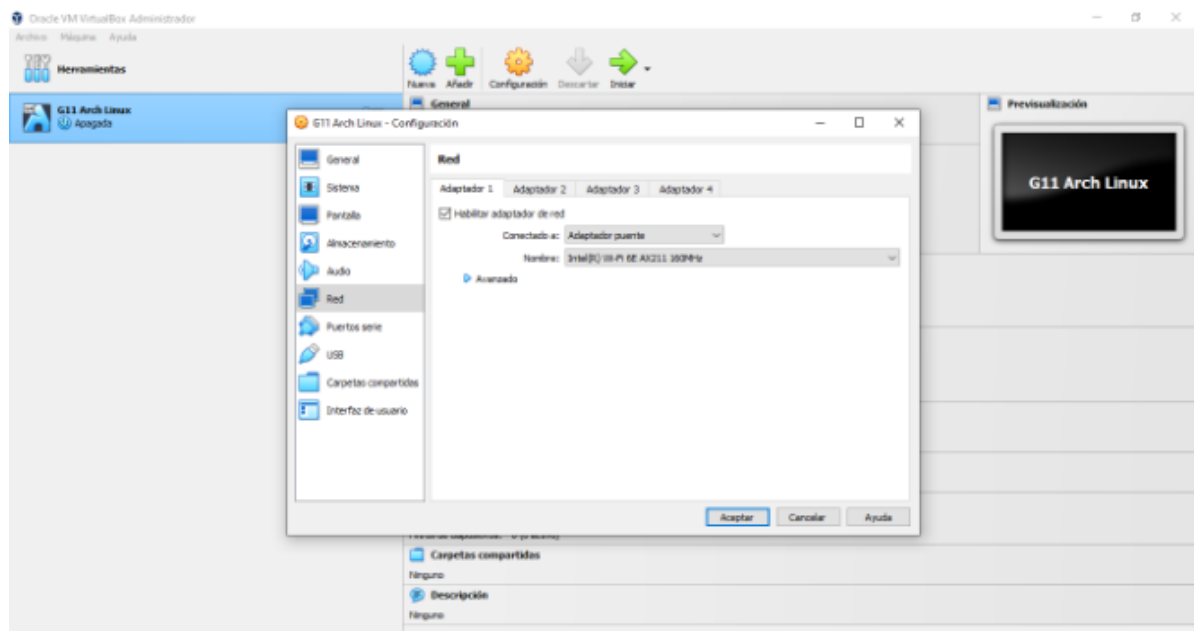
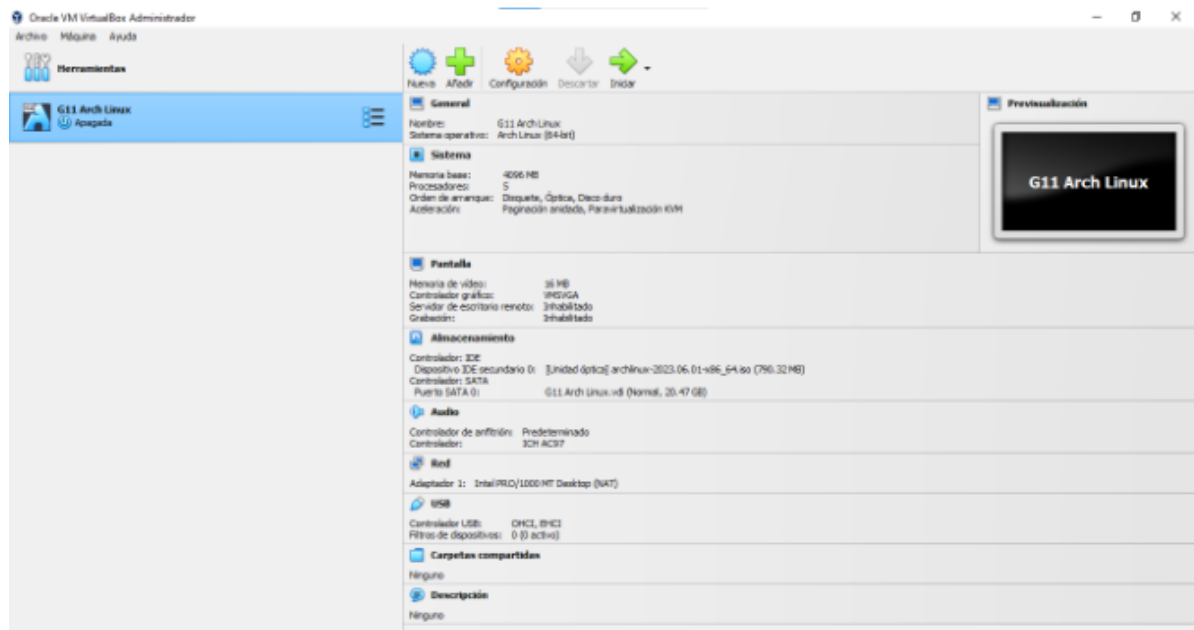
    sendJSONResponseB(w, http.StatusOK, data)
}
```

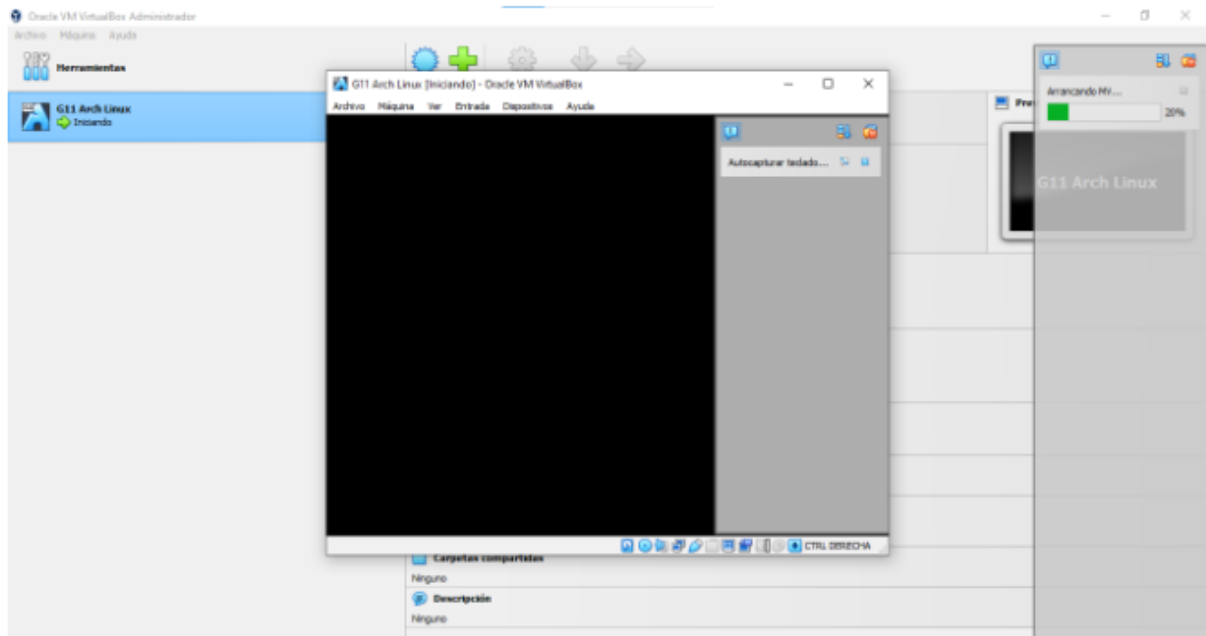
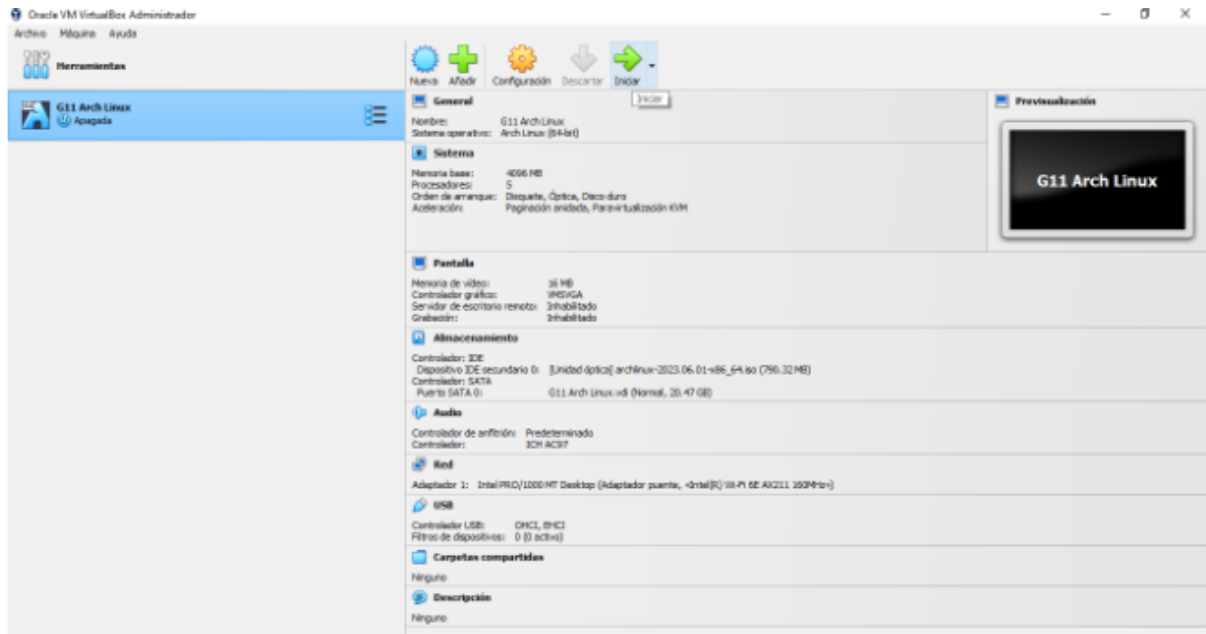
Crear máquina virtual

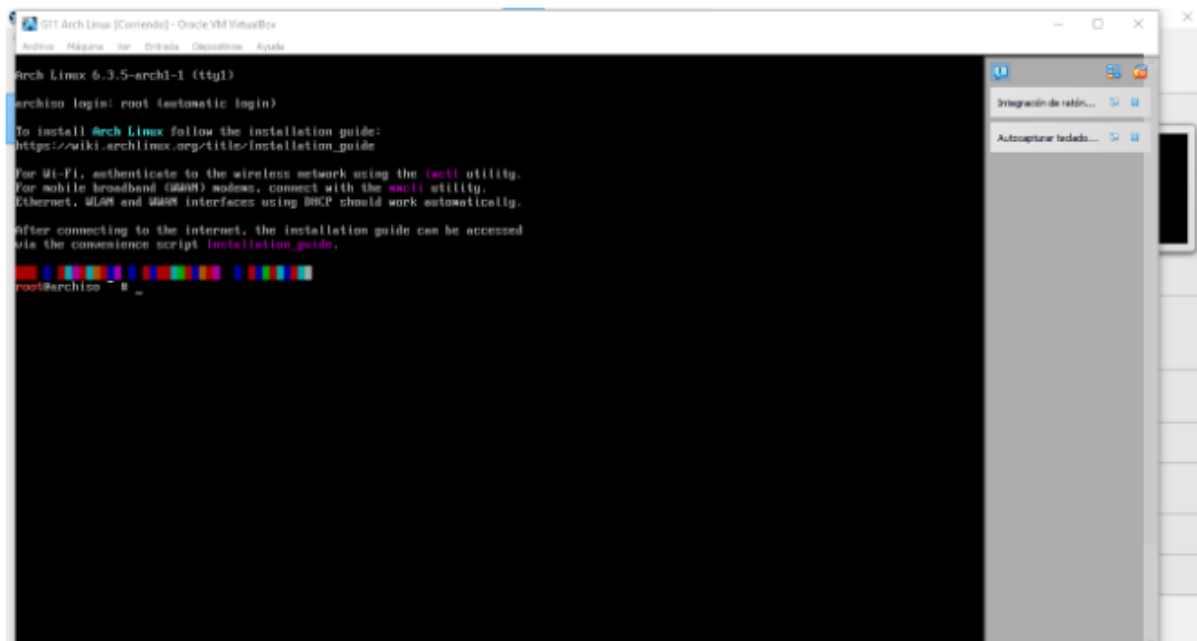
Seleccionamos el ISO descargado











```
GT1 Arch Linux [Contendi] - Oracle VM VirtualBox
Archiso  Migrate  VM  Settings  Devices  Audio

root@archiso ~ # fdisk -l
Disk /dev/sda: 20.47 GiB, 21977430064 bytes, 42924672 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop0: 672.02 MiB, 704667648 bytes, 1376304 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
root@archiso ~ #
```

```
GT1 Arch Linux [Contendi] - Oracle VM VirtualBox
Archiso  Migrate  VM  Settings  Devices  Audio

root@archiso ~ # fdisk /dev/sda

Welcome to fdisk (util-linux 2.39).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS (MBR) disklabel with disk identifier 0x6955eda9.

Command (n for help):
```

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.

Created a new DOS (MBR) disklabel with disk identifier 0x6955ada9.

Command (m for help):

Command (m for help): n

Help:

DOS (MBR)

- a toggle a bootable flag
- b edit nested BSD disklabel
- c toggle the dos compatibility flag

Generic

- d delete a partition
- F list free unpartitioned space
- l list known partition types
- n add a new partition
- p print the partition table
- t change a partition type
- u verify the partition table
- i print information about a partition

Misc

- n print this menu
- u change display/entry units
- x extra functionality (experts only)

Script

- l load disk layout from sfdisk script file
- D dump disk layout to sfdisk script file

Save & Exit

- w write table to disk and exit
- q quit without saving changes

```
GTK Arch Linux [Coriando] - Oracle VM VirtualBox
Arch Linux - Welcome - Use - Settings - Documentation - About
root@archiso ~ # ls /sys/firmware/efi/efivars
ls: cannot access '/sys/firmware/efi/efivars': No such file or directory
root@archiso ~ #
```

```
GTK Arch Linux [Coriando] - Oracle VM VirtualBox
Arch Linux - Welcome - Use - Settings - Documentation - About
root@archiso ~ # fdisk /dev/sda

Welcome to fdisk (util-linux 2.39).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new GPT (GUID) disklabel with disk identifier 0d6c1719b.

Command (m for help): n
Partition type:
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-42924671, default 2048):
Last sector, +/-sectors or +/-size(K,M,G,T,P) (2048-42924671, default 42924671): +4G_
```

```
611 Arch Linux [Coriando] - Oracle VM VirtualBox
ArchBox: VM Home Ver: 6.0.16 Edition: Desktop Audio

root@archiso ~ # fdisk /dev/sda

Welcome to fdisk (util-linux 2.39).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS (MBR) disklabel with disk identifier 0x6dc17196.

Command (n for help): n
Partition type:
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-42924671, default 2048):
Last sector, +/-sectors or +/-size(K,M,G,T,P) (2048-42924671, default 42924671): +4G

Created a new partition 1 of type 'Linux' and of size 4 GiB.

Command (n for help): n
Partition type:
  p   primary (1 primary, 0 extended, 3 free)
  e   extended (container for logical partitions)
Select (default p):
Using default response p.
Partition number (2-4, default 2):
First sector (8390656-42924671, default 8390656):
Last sector, +/-sectors or +/-size(K,M,G,T,P) (8390656-42924671, default 42924671):
Created a new partition 2 of type 'Linux' and of size 16.5 GiB.

Command (n for help): _
```

```
611 Arch Linux [Coriando] - Oracle VM VirtualBox
ArchBox: VM Home Ver: 6.0.16 Edition: Desktop Audio

root@archiso ~ # fdisk /dev/sda

DOS (MBR)
a toggle a bootable flag
b edit nested BSD disklabel
c toggle the dos compatibility flag

Generic
d delete a partition
l list free unpartitioned space
l list known partition types
n add a new partition
p print the partition table
t change a partition type
v verify the partition table
i print information about a partition

Misc
m print this menu
u change display/entry units
x extra functionality (experts only)

Script
l load disk layout from sfdisk script file
d dump disk layout to sfdisk script file

Save & Exit
w write table to disk and exit
q quit without saving changes

Create a new label
g create a new empty GPT partition table
G create a new empty GUID (UUID) partition table
o create a new empty MBR (DOS) partition table
s create a new empty Sun partition table

Command (n for help): w
The partition table has been altered,
Calling ioctl() to re-read partition table.
Syncing disks.

root@archiso ~ #
```

```
611 Arch Linux [Contenido] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

root@archiso ~ # mkswap /dev/sda1
Setting up swapspace version 1, size = 4 GiB (4294963200 bytes)
no label, UUID=6b3126ef-bd4d-4230-b973-9a6de9b65675
root@archiso ~ # mkfs.ext4 /dev/sda2
ext4fs 1.47.0 (5-Feb-2023)
Creating filesystem with 4316752 4k blocks and 1079232 inodes
Filesystem UUID: d9b5b5dc-371a-4224-9eff-08a6c27b4662
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

root@archiso ~ #
```

```
611 Arch Linux [Contenido] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

root@archiso ~ # mkswap /dev/sda1
Setting up swapspace version 1, size = 4 GiB (4294963200 bytes)
no label, UUID=6b3126ef-bd4d-4230-b973-9a6de9b65675
root@archiso ~ # mkfs.ext4 /dev/sda2
ext4fs 1.47.0 (5-Feb-2023)
Creating filesystem with 4316752 4k blocks and 1079232 inodes
Filesystem UUID: d9b5b5dc-371a-4224-9eff-08a6c27b4662
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

root@archiso ~ # mount /dev/sda2 /mnt
root@archiso ~ # swapon /dev/sda1
root@archiso ~ # _
```

```
G11 Arch Linux [Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entradas Dispositivos Ayuda

root@archiso ~ # pacstrap /mnt base base-devel
==> Creating install root at /mnt
==> Installing packages to /mnt
:: Synchronizing package databases...
core                                     132.1 KiB  79.0 KiB/s  00:02 [=====] 100%
extra                                   0.2 MiB   3.64 MiB/s  00:00 [=====] 99%

[...]
```

```
G11 Arch Linux [Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entradas Dispositivos Ayuda

guile-3.0.9-1-x86_64                8.1 MiB  7.50 MiB/s  00:01 [=====] 100%
binutils-2.40-6-x86_64              7.5 MiB  4.92 MiB/s  00:02 [=====] 100%
gnettool-253.5-1-x86_64             7.3 MiB  7.30 MiB/s  00:01 [=====] 100%
openssl-3.1.1-1-x86_64             5.1 MiB  7.11 MiB/s  00:01 [=====] 100%
glib2-2.76.3-1-x86_64              3.8 MiB  6.88 MiB/s  00:01 [=====] 100%
coreutils-9.3-1-x86_64              2.8 MiB  6.57 MiB/s  00:00 [=====] 100%
gmp-6.2.1-1-x86_64                  2.7 MiB  6.41 MiB/s  00:00 [=====] 100%
util-linux-2.39-9-x86_64            2.7 MiB  6.07 MiB/s  00:00 [=====] 100%
gnupg-2.2.41-1-x86_64               2.4 MiB  5.63 MiB/s  00:00 [=====] 100%
groff-1.22.4-10-x86_64              2.2 MiB  5.70 MiB/s  00:00 [=====] 100%
gettext-0.21.1-5-x86_64            1825.9 KiB  6.23 MiB/s  00:00 [=====] 100%
1794.7 KiB  6.33 MiB/s  00:00 [=====] 100%
1719.1 KiB  5.60 MiB/s  00:00 [=====] 100%
1646.1 KiB  6.11 MiB/s  00:00 [=====] 100%
1609.9 KiB  5.61 MiB/s  00:00 [=====] 100%
1584.9 KiB  5.65 MiB/s  00:00 [=====] 100%
1468.6 KiB  5.43 MiB/s  00:00 [=====] 100%
1360.3 KiB  5.23 MiB/s  00:00 [=====] 100%
1298.7 KiB  4.93 MiB/s  00:00 [=====] 100%
1271.1 KiB  4.97 MiB/s  00:00 [=====] 100%
1259.4 KiB  4.92 MiB/s  00:00 [=====] 100%
1229.3 KiB  4.50 MiB/s  00:00 [=====] 100%
1226.3 KiB  4.79 MiB/s  00:00 [=====] 100%
1225.9 KiB  4.99 MiB/s  00:00 [=====] 100%
1196.0 KiB  4.60 MiB/s  00:00 [=====] 100%
1106.9 KiB  4.03 MiB/s  00:00 [=====] 100%
1104.0 KiB  4.96 MiB/s  00:00 [=====] 100%
1164.5 KiB  4.37 MiB/s  00:00 [=====] 100%
1125.5 KiB  4.18 MiB/s  00:00 [=====] 100%
1025.4 KiB  4.05 MiB/s  00:00 [=====] 100%
964.5 KiB  4.20 MiB/s  00:00 [=====] 100%
921.7 KiB  3.75 MiB/s  00:00 [=====] 100%
911.3 KiB  3.92 MiB/s  00:00 [=====] 100%
873.3 KiB  4.00 MiB/s  00:00 [=====] 100%
846.2 KiB  3.59 MiB/s  00:00 [=====] 100%
794.7 KiB  3.23 MiB/s  00:00 [=====] 100%
772.0 KiB  3.09 MiB/s  00:00 [=====] 100%
711.3 KiB  3.42 MiB/s  00:00 [=====] 100%
701.0 KiB  3.22 MiB/s  00:00 [=====] 100%
673.3 KiB  3.29 MiB/s  00:00 [=====] 100%
644.8 KiB  3.04 MiB/s  00:00 [=====] 100%
632.8 KiB  2.68 MiB/s  00:00 [=====] 100%
```

libtool-2.4.7+q1-glibcRfa28-3-x86_64	412.4 KiB	1224 KiB/s	00:00	[=====]	108%
libnl-3.7.0-3-x86_64	409.3 KiB	1215 KiB/s	00:00	[=====]	108%
iana-etc-20230405-1-arm	397.3 KiB	1135 KiB/s	00:00	[=====]	108%
audit-3.1.1-1-x86_64	390.0 KiB	1090 KiB/s	00:00	[=====]	108%
tzdata-2022c-2-x86_64	307.7 KiB	1100 KiB/s	00:00	[=====]	108%
file-5.44-3-x86_64	305.0 KiB	1101 KiB/s	00:00	[=====]	108%
ca-certificates-mozilla-3.90-1-x86_64	358.4 KiB	1120 KiB/s	00:00	[=====]	108%
diffutils-3.10-1-x86_64	341.6 KiB	1749 KiB/s	00:00	[=====]	108%
readline-8.2.001-2-x86_64	323.1 KiB	1868 KiB/s	00:00	[=====]	108%
flex-2.6.4-5-x86_64	307.5 KiB	1709 KiB/s	00:00	[=====]	108%
dbus-1.14.0-1-x86_64	304.5 KiB	1728 KiB/s	00:00	[=====]	108%
libcap-1.10.4-1-x86_64	285.0 KiB	1610 KiB/s	00:00	[=====]	108%
libdmap-2.6.4-2-x86_64	280.9 KiB	1502 KiB/s	00:00	[=====]	108%
device-mapper-2.83.21-1-x86_64	280.6 KiB	1509 KiB/s	00:00	[=====]	108%
libevent-2.1.12-4-x86_64	267.4 KiB	1379 KiB/s	00:00	[=====]	108%
gdbm-1.23-2-x86_64	265.2 KiB	1307 KiB/s	00:00	[=====]	108%
psmisc-23.6-1-x86_64	250.7 KiB	1370 KiB/s	00:00	[=====]	108%
n4-1.4.19-3-x86_64	246.0 KiB	1390 KiB/s	00:00	[=====]	108%
libgyp-error-1.47-1-x86_64	244.0 KiB	1378 KiB/s	00:00	[=====]	108%
libbpf-1.2.0-1-x86_64	239.0 KiB	1213 KiB/s	00:00	[=====]	108%
gc-8.2.4-1-x86_64	234.3 KiB	1332 KiB/s	00:00	[=====]	108%
grep-3.11-1-x86_64	233.6 KiB	1350 KiB/s	00:00	[=====]	108%
libhash2-1.10.0-3-x86_64	214.1 KiB	1217 KiB/s	00:00	[=====]	108%
sed-4.9-3-x86_64	210.5 KiB	940 KiB/s	00:00	[=====]	108%
libsecret-0.20.5-2-x86_64	191.9 KiB	569 KiB/s	00:00	[=====]	108%
libtirpc-1.3.3-2-x86_64	174.3 KiB	1008 KiB/s	00:00	[=====]	108%
libas1-1.21.20-4-x86_64	147.5 KiB	868 KiB/s	00:00	[=====]	108%
glib-kit-0.24.1-1-x86_64	140.5 KiB	812 KiB/s	00:00	[=====]	108%
l2-11.9.4-1-x86_64	140.2 KiB	844 KiB/s	00:00	[=====]	108%
libkha-1.6.3-1-x86_64	137.0 KiB	822 KiB/s	00:00	[=====]	108%
libtasn1-4.19.0-1-x86_64	139.1 KiB	838 KiB/s	00:00	[=====]	108%
libidn2-2.3.4-3-x86_64	138.9 KiB	817 KiB/s	00:00	[=====]	108%
ocl-2.3.1-3-x86_64	136.2 KiB	801 KiB/s	00:00	[=====]	108%
pinentry-1.2.1-1-x86_64	131.0 KiB	770 KiB/s	00:00	[=====]	108%
less-1.633-1-x86_64	130.8 KiB	779 KiB/s	00:00	[=====]	108%
knnd-30-3-x86_64	117.9 KiB	94.4 KiB/s	00:01	[=====]	108%
pcapfiles-3.10.0-1-x86_64	117.0 KiB	665 KiB/s	00:00	[=====]	108%
iputils-20221125-2-x86_64	115.4 KiB	679 KiB/s	00:00	[=====]	108%
expat-2.5.0-1-x86_64	114.3 KiB	689 KiB/s	00:00	[=====]	108%
liblzma-2.5.5-2-x86_64	104.4 KiB	614 KiB/s	00:00	[=====]	108%
kgutils-1.6.3-2-x86_64	101.0 KiB	613 KiB/s	00:00	[=====]	108%
libshim2-1.54.0-1-x86_64	95.2 KiB	500 KiB/s	00:00	[=====]	108%

```

Arch Linux [Cmndr] - Oracle VM VirtualBox
Arch Linux [Cmndr] - Oracle VM VirtualBox
Creating group 'systemd-timesync' with GID 976.
Creating user 'systemd-timesync' (systemd Time Synchronization) with UID 976 and GID 976.
Creating group 'tss' with GID 975.
Creating user 'tss' (tss user for tpm2) with UID 975 and GID 975.
Creating group 'uuid' with GID 68.
Creating user 'uuid' (n/a) with UID 68 and GID 68.
Created symlink /etc/systemd/system/getty.target.wants/getty@tty1.service + /usr/lib/systemd/system/getty@.service.
Created symlink /etc/systemd/system/multi-user.target.wants/remote-fs.target + /usr/lib/systemd/system/remote-fs.target.
Optional dependencies for systemd
libfstrim2: systemd-journal-gatewayd and systemd-journal-remote
quota-tools: kernel/posix quota management
systemd-syscompat: symlink package to provide sysvinit binaries [pending]
systemd-ukify: combine kernel and initrd into a signed Unified Kernel Image
polkit: allow administration as unprivileged user
python: Unified Kernel Image with ukify
curl: systemd-journal-upload, nackinectl pull-tar and pull-rau [installed]
gnutls: systemd-journal-gatewayd and systemd-journal-remote [installed]
libbpf: support BPF programs [pending]
libfido2: unlocking LUKS2 volumes with FIDO2 token
libfll-kit: support FPCSI41 [installed]
tpm2-tss: unlocking LUKS2 volumes with TPM2 [installed]
(110-141) installing systemd-syscompat [=====] 100%
(111-141) installing iputils [=====] 100%
(112-141) installing libbpf [=====] 100%
(113-141) installing iproute2 [=====] 100%
Optional dependencies for iproute2
dhb5-3: userspace arp daemon [pending]
linux-atm: ATM support
python: for routel
(114-141) installing base [=====] 100%
Optional dependencies for base
linux: bare metal support
(115-141) installing n4 [=====] 100%
(116-141) installing diffutils [=====] 100%
(117-141) installing dhb5.3 [=====] 100%
(118-141) installing db [=====] 100%
(119-141) installing perl [=====] 100%
(120-141) installing autocconf [=====] 100%
(121-141) installing autotake [=====] 100%
(122-141) installing jansson [=====] 100%
(123-141) installing binutils [=====] 100%
Optional dependencies for binutils

```



```
G11 Arch Linux [Console] - Oracle VM VirtualBox
Arch Linux [Console] - Oracle VM VirtualBox
root@archiso ~ # pacman -S --noconfirm --needed base-devel
(130/141) Installing gcc
Optional dependencies for gcc:
  lib32-gcc-libs: for generating code for 32-bit ABI
(131/141) Installing groff
Optional dependencies for groff:
  ncurses: for use together with man -H command interaction in browsers
  psutils: for use together with man -H command interaction in browsers
  libxaw: for gxditview
  perl-file-homedir: for use with gllgpond
(132/141) Installing libtool
(133/141) Installing gc
(134/141) Installing guile
(135/141) Installing make
(136/141) Installing patch
Optional dependencies for patch:
  ed: for patch -e functionality
(137/141) Installing pkgconf
(138/141) Installing zudo
(139/141) Installing texinfo
Optional dependencies for texinfo:
  perl-archive-zip: ZIP file output via texi2any
(140/141) Installing which
(141/141) Installing base-devel
:: Running post-transaction hooks...
( 1/12) Creating system user accounts...
( 2/12) Updating journal message catalog...
( 3/12) Reloading system manager configuration...
Skipped: Running in chroot.
( 4/12) Updatingudev hardware database...
( 5/12) Applying kernel sysctl settings...
Skipped: Running in chroot.
( 6/12) Creating temporary files...
( 7/12) Reloading device manager configuration...
Skipped: Running in chroot.
( 8/12) Arming ConditionNeedsUpdate...
( 9/12) Rebuilding certificate stores...
(10/12) Reloading system bus configuration...
Skipped: Running in chroot.
(11/12) Warn about old perl modules
(12/12) Updating the info directory file...
pacstrap /mnt base base-devel 0.58s user 8.96s system 17% cpu 1:43.01 total
root@archiso ~ # S
```

```
G11 Arch Linux [Console] - Oracle VM VirtualBox
Arch Linux [Console] - Oracle VM VirtualBox
root@archiso ~ # genfstab -U /mnt >> /mnt/etc/fstab
root@archiso ~ # arch-chroot /mnt
ch: no such file or directory: arch-chroot
root@archiso ~ # arch-chroot /mnt
root@archiso /# ls
bin boot dev etc home lib lib64 lost+found mnt opt proc root run sbin srv sys tmp usr var
root@archiso /#
```

```
root@archiso ~ # genfstab -U /mnt >> /mnt/etc/fstab
```

```
root@archiso ~ # arch/chroot /mnt
```

```
zsh: no such file or directory: arch/chroot
```

```
root@archiso ~ # arch chroot /mnt
```

```
root@archiso /# ls
```

```
bin boot dev etc home lib lib64 lost+found mnt opt proc root run sbin srv sys tmp usr var
```

```
root@archiso /# ls -sf /usr/share/zoneinfo/
```

```
ls: cannot access '/usr/share/zoneinfo/': No such file or directory
```

```
root@archiso /# ls -sf /usr/share/zoneinfo/
```

```

MST7MDT Universal Turkey Greenwich America Japan Poland Iran tzdata.zi GB leap-seconds.list NZ-CHOT Cuba
Indian Jamaica GMT0 PAC iso3166.tab Mexico ROX HST Antarctica US . SECURITY
UCT ESTEDT GMT Australia Hongkong GB-Eire Libya NET zone1970.tab MacJalein Singapore leapseconds
etc WET Pacific Brazil Atlantic Chile ESTHOPDT Eire EET right Factory posixrules
Asia_jp posix UTC Iceland .. Portugal CET Canada Europe zone.tab CST6CST GMT-0
ROC MST Africa Egypt NZ EST Arctic GMT+0 U SU Zulu Israel Asia

```

```
root@archiso /#
```

```
G11 Arch Linux [Comando] - Oracle VM VirtualBox
Archivo Muestra Ver Entradas Dispositivos Ayuda

root@archiso ~ # genfstab -U /mnt >> /mnt/etc/fstab
root@archiso ~ # arch-chroot /mnt
zsh: no such file or directory: arch-chroot
root@archiso ~ # arch-chroot /mnt
root@archiso /# ls
bin boot dev etc home lib lib64 lost+found mnt opt proc root run sbin srv sys tmp usr var
root@archiso /# ls -sf /usr/share/zoneinfo/
ls: cannot access '/usr/share/zoneinfo/': No such file or directory
root@archiso /# ls -sf /usr/share/zoneinfo/
TZ/MDT Universal Turkey Greenwich America Japan Poland Iran tzdata.zi GB leap-seconds.list NZ-CHAT Cuba
Indian Jamaica GMT9 PRC iso3166.tab Mexico ROK HST antarctica US . SECURITY
UCT ESTEDT GMT Australia Hongkong GB-Eire Libya ME7 zone1970.tab Kwajalein Singapore leapseconds
Etc UET WET Pacific Brazil Atlantic Chile FSTSTDT Eire EET right Factory posixrules
Navajo posix UTC Iceland . Portugal CET Canada Europe zone.tab CSTGMT GMT-0
ROC HST Africa Egypt NZ EST Arctic GMT+0 W-SU Zulu Israel Asia
root@archiso /# ln -sf /usr/share/zoneinfo/Mexico/Kwajalein /etc/localtime
root@archiso /# _
```

```
G11 Arch Linux [Comando] - Oracle VM VirtualBox
Archivo Muestra Ver Entradas Dispositivos Ayuda

root@archiso /# pacman -S nano
resolving dependencies...
looking for conflicting packages...

Packages (1) nano-2.2-1

Total Download Size: 0.50 MiB
Total Installed Size: 2.51 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
 nano-2.2-1-x86_64 590.6 KiB 354 KiB/s 00:02 [=====] 100%
(1/1) checking keys in keyring [=====] 100%
(1/1) checking package integrity [=====] 100%
(1/1) loading package files [=====] 100%
(1/1) checking for file conflicts [=====] 100%
(1/1) checking available disk space [=====] 100%
:: Processing package changes... [=====] 100%
(1/1) installing nano [=====] 100%
:: Running post-transaction hooks...
(1/2) Arming ConditionNeedsUpdate...
(2/2) Updating the info directory file...
root@archiso /# _
```

INSTALAR KERNEL

Se siguio las instrucciones del siguiente enlace:

https://wiki.archlinux.org/title/Unofficial_user_repositories



The image shows two screenshots of a terminal window running in a VM. The top screenshot shows the command `nano /etc/pacman.conf` being executed. The bottom screenshot shows the contents of the `/etc/pacman.conf` file, which is a configuration file for the `pacman` package manager. The file contains several sections for enabling different repositories, each with a comment explaining its purpose and a line to include the `mirrorlist` file. The sections are: `[core-testing]`, `[core]`, `[extra-testing]`, `[extra]`, `[multilib-testing]`, `[multilib]`, `[custom]`, and `[kernel-lts]`. The `[kernel-lts]` section is the only one that is not commented out, indicating it is enabled. The `Server` line for `[kernel-lts]` is `Server = https://repo.s2x.dev/current/$repo/$arch`.

```
[root@archiso /]# nano /etc/pacman.conf

# The header (repo-name) is crucial - it must be present and
# uncommented to enable the repo.

# The testing repositories are disabled by default. To enable, uncomment the
# repo name header and include lines. You can add preferred servers immediately
# after the header, and they will be used before the default mirrors.

[core-testing]
#Include = /etc/pacman.d/mirrorlist

[core]
#Include = /etc/pacman.d/mirrorlist

[extra-testing]
#Include = /etc/pacman.d/mirrorlist

[extra]
#Include = /etc/pacman.d/mirrorlist

# If you want to run 32 bit applications on your x86_64 system,
# enable the multilib repositories as required here.

[multilib-testing]
#Include = /etc/pacman.d/mirrorlist

[multilib]
#Include = /etc/pacman.d/mirrorlist

# An example of a custom package repository. See the pacman webpage for
# tips on creating your own repositories.
[custom]
#SigLevel = Optional TrustAll
#Server = file:///home/custompkgs

[kernel-lts]
Server = https://repo.s2x.dev/current/$repo/$arch

[root@archiso /]#
```

```

root@archiso /# pacman-key --recv-keys 760E4770423FE85CC22089000A25542F0
pgp: "760E4770423FE85CC22089000A25542F0" not a key ID: skipping
=> ERROR: Remote key not fetched correctly from keyserver.
root@archiso /# pacman-key --recv-keys 760E4770423FE85CC22089000A25542F0
pgp: key 9000A25542F0: public key "Jonathan Ferguson <jonathan@n2x.de>" imported
pgp: marginals needed: 3 completes needed: 1 trust model: pgp
pgp: depth: 0 valid: 1 signed: 5 trust: 0-, Oq, Ou, On, Of, lu
pgp: depth: 1 valid: 5 signed: 96 trust: 0-, Oq, Ou, On, Of, Ou
pgp: depth: 2 valid: 73 signed: 27 trust: 73-, Oq, Ou, On, Of, Ou
pgp: next trustdb check due at 2023-07-12
pgp: Total number processed: 1
pgp:      imported: 1
root@archiso /# _

```

```

G1 Arch Linux [Console] - Oracle VM VirtualBox
Arch Linux [Console] - Oracle VM VirtualBox
root@archiso /# pacman-key --recv-keys 76064770423FE85CC220B9000A25542F0
gpg: "76064770423FE85CC220B9000A25542F0" not a key ID: skipping
--> Remote key not fetched correctly from keyservers.
root@archiso /# pacman-key --recv-keys 76064770423FE85CC220B9000A25542F0
gpg: key 9008A25542F0: public key "Jonathan Ferrygough <jonathan@x.dev>" imported
gpg: marginals needed: 3 completes needed: 1 trust model: pgp
gpg: depth: 0 valid: 1 signed: 5 trust: 0-, 0q, 0u, 0n, 0f, 1u
gpg: depth: 1 valid: 5 signed: 96 trust: 0-, 0q, 0u, 0n, 0f, 0u
gpg: depth: 2 valid: 73 signed: 27 trust: 73-, 0q, 0u, 0n, 0f, 0u
gpg: next trustdb check due at 2023-07-12
gpg: Total number processed: 1
gpg:      imported: 1
root@archiso /# pacman-key --finger 76064770423FE85CC220B9000A25542F0
pub   rsa4096 2014-03-31 [SCA]
       7606 4770 423F E85C C220 B900 0A25 542F AFF0
uid     [ unknown ] Jonathan Ferrygough <jonathan@x.dev>
uid     [ unknown ] Jonathan Ferrygough <jonathan@linux.com>
uid     [ unknown ] Jonathan Ferrygough <jonathan@mage-test.org>
uid     [ unknown ] Jonathan Ferrygough <jonathan@x.puro.org>
pub   rsa4096 2014-03-31 [E]

root@archiso /#

```

```

G1 Arch Linux [Console] - Oracle VM VirtualBox
Arch Linux [Console] - Oracle VM VirtualBox
root@archiso /# pacman-key --lsign-key 76064770423FE85CC220B9000A25542F0
--> Locally signed 1 keys.
--> Updating trust database...
gpg: marginals needed: 3 completes needed: 1 trust model: pgp
gpg: depth: 0 valid: 1 signed: 6 trust: 0-, 0q, 0u, 0n, 0f, 1u
gpg: depth: 1 valid: 6 signed: 96 trust: 1-, 0q, 0u, 0n, 0f, 0u
gpg: depth: 2 valid: 73 signed: 27 trust: 73-, 0q, 0u, 0n, 0f, 0u
gpg: next trustdb check due at 2023-07-12
root@archiso /#

```

```
Arch Linux [Comando] - Oracle VM VirtualBox
Arch - Mouse - Ver - Estado - Dependencias - Audio

root@archiso ~/# pacman -Sya linux-its54 linux-headers-its54
:: Synchronizing package databases...
core is up to date
extra is up to date
kernel-its 33.8 KiB 31.0 KiB/s 00:01 [#####] 100%
error: target not found: linux-headers-its54
root@archiso ~/# pacman -Sya linux-its54 linux-its54-headers
:: Synchronizing package databases...
core is up to date
extra is up to date
kernel-its is up to date
:: Starting full system upgrade...
resolving dependencies...
:: There are 3 providers available for initramfs:
:: Repository core
   1) skinitcpio
:: Repository extra
   2) hoonster  3) dracut

Enter a number (default=1): _
```

```
Arch Linux [Comando] - Oracle VM VirtualBox
Arch - Mouse - Ver - Estado - Dependencias - Audio

root@archiso ~/# pacman -Sya linux-its54 linux-headers-its54
:: Synchronizing package databases...
core is up to date
extra is up to date
kernel-its 33.8 KiB 31.0 KiB/s 00:01 [#####] 100%
error: target not found: linux-headers-its54
root@archiso ~/# pacman -Sya linux-its54 linux-its54-headers
:: Synchronizing package databases...
core is up to date
extra is up to date
kernel-its is up to date
:: Starting full system upgrade...
resolving dependencies...
:: There are 3 providers available for initramfs:
:: Repository core
   1) skinitcpio
:: Repository extra
   2) hoonster  3) dracut

Enter a number (default=1):
Looking for conflicting packages...

Packages (4) skinitcpio-36-1 skinitcpio-busybox-1.35.0-1 linux-its54-5.4.223-1 linux-its54-headers-5.4.223-1
Total Download Size:  97.69 MiB
Total Installed Size: 188.72 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
linux-its54-5.4.223-1-x86_64 49.7 MiB 4.15 MiB/s 00:05 [#####] 63%
Total (0/4) 49.7 MiB 4.16 MiB/s 00:11 [#####] 50%
```

```

2: Proceed with installation? [Y/n] y
3: Retrieving packages...
linux-its54-5.4.223-1-x86_64           71.9 MiB   3.82 MiB/s  00:19 (#####) 100%
linux-its54-headers-5.4.223-1-x86_64    25.5 MiB   8.57 MiB/s  00:03 (#####) 100%
skinitcpio-busybox-1.35.0-1-x86_64      275.0 KiB   203 KiB/s  00:01 (#####) 100%
skinitcpio-36-1-any                     51.6 KiB    323 KiB/s  00:00 (#####) 100%
Total (4/4)                             97.7 MiB   4.08 MiB/s  00:24 (#####) 100%
(4/4) checking keys in keyring
(4/4) checking package integrity
(4/4) loading package files
(4/4) checking for file conflicts
(4/4) checking available disk space
2: Processing package changes...
(1/4) installing skinitcpio-busybox
(2/4) installing skinitcpio
Optional dependencies for skinitcpio
  gzip: Use gzip compression for the initramfs image [installed]
  xz: Use lzma or xz compression for the initramfs image [installed]
  bzip2: Use bzip2 compression for the initramfs image [installed]
  lzop: Use lzop compression for the initramfs image
  lzo: Use lzo compression for the initramfs image [installed]
  skinitcpio-nfs-utils: Support for root filesystem on NFS
(3/4) installing linux-its54
Optional dependencies for linux-its54
  crda: To set the correct wireless channels of your country
  linux-firmware: firmware images needed for some devices
(4/4) installing linux-its54-headers
3: Running post-transaction hooks...
(1/5) Reloading system manager configuration...
   Skipped: Running in chroot.
(2/5) Creating temporary files...
(3/5) Arming ConditionallyUpdateState...
(4/5) Updating module dependencies...
(5/5) Updating linux initcpio...
=> Building image from preset: /etc/skinitcpio.d/linux-its54.preset: "default"
=> Using default configuration file: "/etc/skinitcpio.conf"
   -> -k /boot/amlinux-linux-its54 -g /boot/initramfs-linux-its54.img --microcode /boot/*-ucode.img
=> Starting build: "5.4.223-1-its54"
   -> Running build hook: [base]
   -> Running build hook: [udev]
   -> Running build hook: [autoinstall]

```

```

=> Running build hook: [filesystems]
   -> Running build hook: [fsck]
=> Generating module dependencies
=> Creating xz4-compressed initcpio image: "/boot/initramfs-linux-its54-fallback.img"
=> Image generation successful
=> Building image from preset: /etc/skinitcpio.d/linux-its54.preset: "fallback"
=> Using default configuration file: "/etc/skinitcpio.conf"
   -> -k /boot/amlinux-linux-its54 -g /boot/initramfs-linux-its54-fallback.img -S autodetect --microcode /boot/*-ucode.img
=> Starting build: "5.4.223-1-its54"
   -> Running build hook: [base]
   -> Running build hook: [udev]
   -> Running build hook: [autoinstall]
   -> Running build hook: [kexec]
=> WARNING: Possibly missing firmware for module: "radeon"
=> WARNING: Possibly missing firmware for module: "amdgp"
=> WARNING: Possibly missing firmware for module: "ast"
=> WARNING: Possibly missing firmware for module: "nouveau"
=> WARNING: Possibly missing firmware for module: "i915"
   -> Running build hook: [keyboards]
   -> Running build hook: [keymap]
   -> Running build hook: [consolefont]
=> WARNING: consolefont: no font found in configuration
   -> Running build hook: [block]
=> WARNING: Possibly missing firmware for module: "cxgb4"
=> WARNING: Possibly missing firmware for module: "cxgb3"
=> WARNING: Possibly missing firmware for module: "bfa"
=> WARNING: Possibly missing firmware for module: "qed"
=> WARNING: Possibly missing firmware for module: "advantys"
=> WARNING: Possibly missing firmware for module: "ad215x"
=> WARNING: Possibly missing firmware for module: "qla1200"
=> WARNING: Possibly missing firmware for module: "qla24xx"
=> WARNING: Possibly missing firmware for module: "isci"
=> WARNING: Possibly missing firmware for module: "qla2xxx"
=> WARNING: Possibly missing firmware for module: "cxiobtor"
=> WARNING: Possibly missing firmware for module: "smsc_smb6250"
   -> Running build hook: [filesystems]
   -> Running build hook: [fsck]
=> Generating module dependencies
=> Creating xz4-compressed initcpio image: "/boot/initramfs-linux-its54-fallback.img"
=> Image generation successful
root@archiso /#

```


INSTALAR GRUB

```
GNU Arch Linux [Command] - Oracle VM VirtualBox
Arch Linux Ver 6.0.0-rc1 (2023-08-01)
root@archiso /# pacman -S grub
resolving dependencies...
looking for conflicting packages...

Packages (1) grub-2:2.06.r499.gdb7a551a4-2

Total Download Size: 6.75 MiB
Total Installed Size: 33.09 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
grub-2:2.06.r499.gdb7a551a4-2-x86_64 6.7 MiB 2.61 MiB/s 00:03 [#####] 100%
(1/1) checking keys in keyring [#####] 100%
(1/1) checking package integrity [#####] 100%
(1/1) loading package files [#####] 100%
(1/1) checking for file conflicts [#####] 100%
(1/1) checking available disk space [#####] 100%
:: Processing package changes...
(1/1) installing grub [#####] 100%
:: Install your bootloader and generate configuration with:
$ grub-install ...
$ grub-mkconfig -o /boot/grub/grub.cfg
Optional dependencies for grub
fonttools: For grub-efont usage
fuse2: For grub-mount usage
dosfstools: For grub-akrescue FAT FS and EFI support
lzo: For grub-akrescue LZO support
efibootmgr: For grub-install EFI support
libisohrn: Provides xorriso for generating grub rescue iso using grub-akrescue
os-prober: To detect other OSes when generating grub.cfg in BIOS system
ntools: For grub-akrescue FAT FS support
:: Running post-transaction hooks...
(1/2) Arming ConditionNeedsUpdate...
(2/2) Updating the info directory file...
root@archiso /#
```

```
GNU Arch Linux [Command] - Oracle VM VirtualBox
Arch Linux Ver 6.0.0-rc1 (2023-08-01)
root@archiso /# pacman -S grub
resolving dependencies...
looking for conflicting packages...

Packages (1) grub-2:2.06.r499.gdb7a551a4-2

Total Download Size: 6.75 MiB
Total Installed Size: 33.09 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
grub-2:2.06.r499.gdb7a551a4-2-x86_64 6.7 MiB 2.61 MiB/s 00:03 [#####] 100%
(1/1) checking keys in keyring [#####] 100%
(1/1) checking package integrity [#####] 100%
(1/1) loading package files [#####] 100%
(1/1) checking for file conflicts [#####] 100%
(1/1) checking available disk space [#####] 100%
:: Processing package changes...
(1/1) installing grub [#####] 100%
:: Install your bootloader and generate configuration with:
$ grub-install ...
$ grub-mkconfig -o /boot/grub/grub.cfg
Optional dependencies for grub
fonttools: For grub-efont usage
fuse2: For grub-mount usage
dosfstools: For grub-akrescue FAT FS and EFI support
lzo: For grub-akrescue LZO support
efibootmgr: For grub-install EFI support
libisohrn: Provides xorriso for generating grub rescue iso using grub-akrescue
os-prober: To detect other OSes when generating grub.cfg in BIOS system
ntools: For grub-akrescue FAT FS support
:: Running post-transaction hooks...
(1/2) Arming ConditionNeedsUpdate...
(2/2) Updating the info directory file...
root@archiso /# grub-install /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
root@archiso /#
```

```

G11 Arch Linux [Coriando] - Oracle VM VirtualBox
Archives  Help  View  Entails  Dispositions  Audio

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
grub-2:2.06.r49.g07e551e4-2-x86_64 6.7 MiB 2.61 MiB/s 00:03 [=====] 100%
(1/1) checking keys in keyring [=====] 100%
(1/1) checking package integrity [=====] 100%
(1/1) loading package files [=====] 100%
(1/1) checking for file conflicts [=====] 100%
(1/1) checking available disk space [=====] 100%
:: Processing package changes...
(1/1) installing grub [=====] 100%
:: Install your bootloader and generate configuration with:
$ grub-install ...
$ grub-mkconfig -o /boot/grub/grub.cfg
Optional dependencies for grub
  freetype2: For grub-akfont usage
  font2: For grub-akrescue usage
  dosfstools: For grub-akrescue FAT FS and EFI support
  lmap: For grub-akrescue L20 support
  efibootmgr: For grub-install EFI support
  libisohrn: Provides xorriso for generating grub rescue iso using grub-akrescue
  os-prober: To detect other OSes when generating grub.cfg in BIOS systems
  nttools: For grub-akrescue FAT FS support
:: Running post-transaction hooks...
(1/2) Arming ConditionBasedUpdate...
(2/2) Updating the info directory file...
root@archiso /# grub-install /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
root@archiso /# grub-mkconfig -o /boot/grub/grub.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-linux-lts54
Found initrd image: /boot/initramfs-linux-lts54.img
Found fallback initrd image(s) in /boot: initramfs-linux-lts54-fallback.img
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
Adding boot menu entry for UEFI Firmware Settings ...
done
root@archiso /#
```

CONFIGURAR LENGUAJE

```

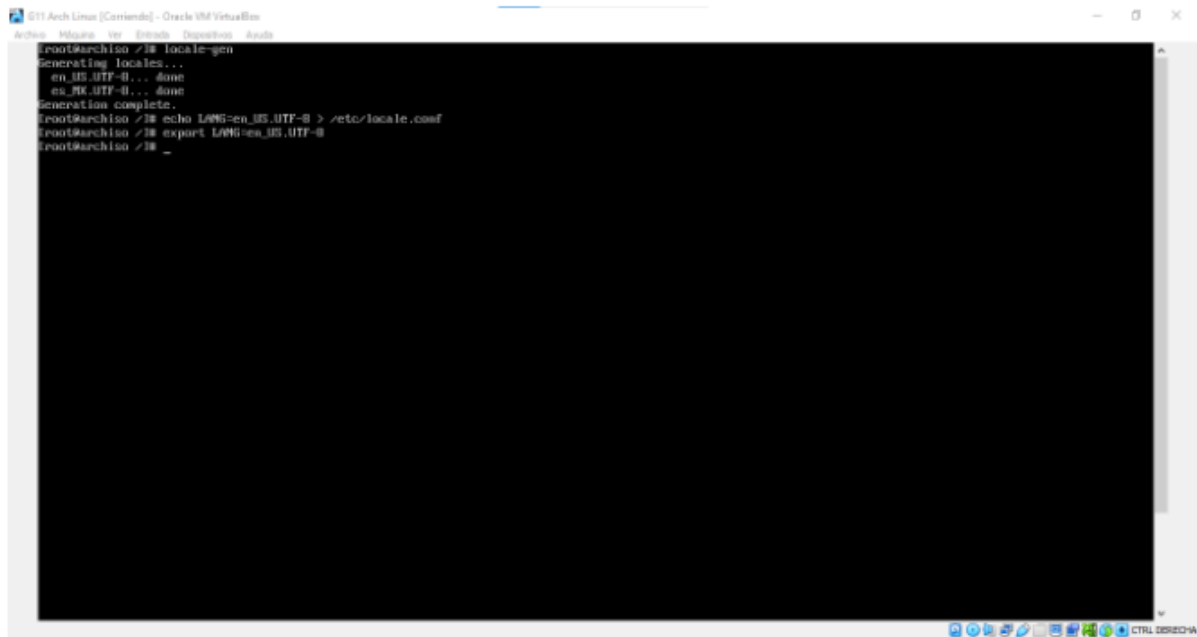
G11 Arch Linux [Coriando] - Oracle VM VirtualBox
Archives  Help  View  Entails  Dispositions  Audio

root@archiso /# nano /etc/locale.gen_
```

```

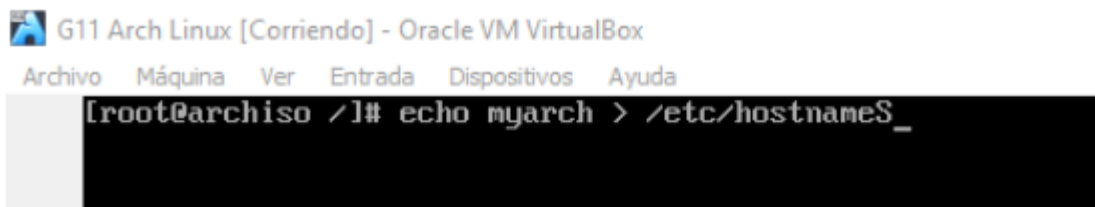
GNU nano 7.2 /etc/locale.gen
# Configuration file for locale-gen
#
# Lists of locales that are to be generated by the locale-gen command.
# Each line is of the form:
#
#   <locale> <charset>
#
# where <locale> is one of the locales given in /usr/share/i18n/locales
# and <charset> is one of the character sets listed in /usr/share/i18n/charmaps
#
# The locale-gen command will generate all the locales,
# placing them in /usr/lib/locale.
#
# A list of supported locales is given in /usr/share/i18n/SUPPORTED
# and is included in this file. Uncomment the needed locales below.
#
aaa_DJ.UTF-8 UTF-8
aaa_DJ ISO-8859-1
aaa_ER.UTF-8
aaa_ER@saaho UTF-8
aaa_ET.UTF-8
afr_ZA.UTF-8 UTF-8
afr_ZA ISO-8859-1
asg_PT.UTF-8
bak_GD.UTF-8
bak_ET.UTF-8
ban_ES.UTF-8 UTF-8
ban_ES ISO-8859-15
baq_IN.UTF-8
bar_AE.UTF-8 UTF-8
bar_AE ISO-8859-6
bar_IL.UTF-8 UTF-8
bar_IL ISO-8859-6
bar_DZ.UTF-8 UTF-8
bar_DZ ISO-8859-6
bar_ES.UTF-8 UTF-8
bar_ES ISO-8859-6
bar_IN.UTF-8
bar_IQ.UTF-8 UTF-8
bar_IQ ISO-8859-6

```

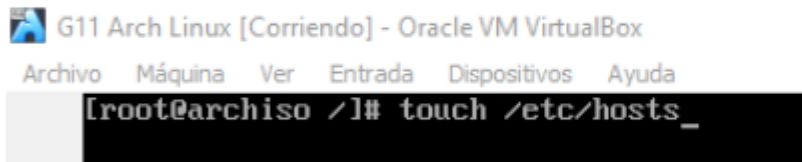



```
G11 Arch Linux [Comando] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
[root@archiso /]# locale-gen
Generating locales...
  en_US.UTF-8... done
  es_ES.UTF-8... done
Generation complete.
[root@archiso /]# echo LANG=en_US.UTF-8 > /etc/locale.conf
[root@archiso /]# export LANG=en_US.UTF-8
[root@archiso /]# _
```


CONFIGURACIÓN DE RED



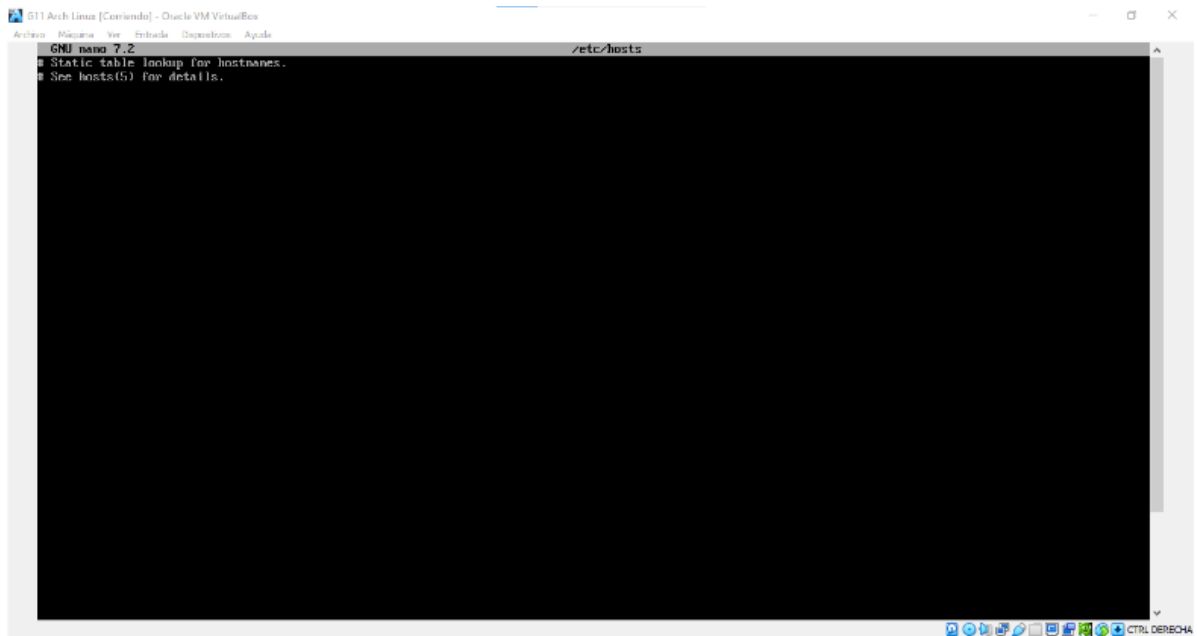
```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
[root@archiso /]# echo myarch > /etc/hostnameS_
```



```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
[root@archiso /]# touch /etc/hosts_
```



```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
[root@archiso /]# nano /etc/hosts_
```

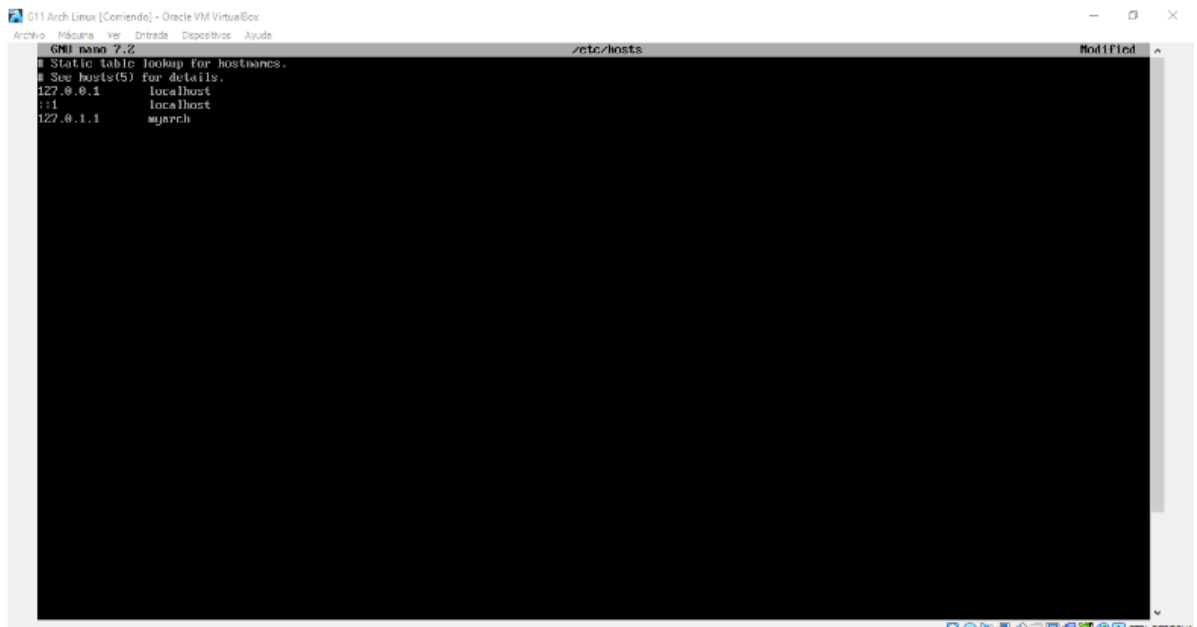


G11 Arch Linux [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

GNU nano 7.2 /etc/hosts

```
# Static table lookup for hostnames.  
# See hosts(5) for details.
```

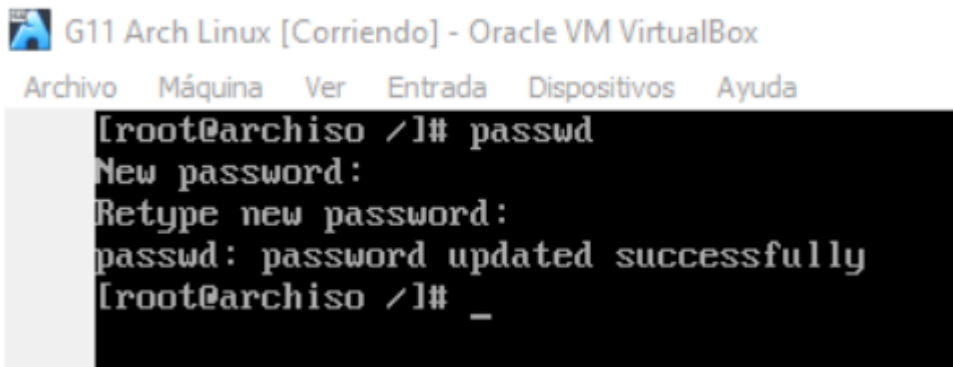


G11 Arch Linux [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

GNU nano 7.2 /etc/hosts Modified

```
# Static table lookup for hostnames.  
# See hosts(5) for details.  
127.0.0.1 localhost  
::1 localhost  
127.0.1.1 myarch
```



G11 Arch Linux [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

```
[root@archiso /]# passwd  
New password:  
Retype new password:  
passwd: password updated successfully  
[root@archiso /]# _
```

```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

[root@archiso /]# passwd
New password:
Retype new password:
passwd: password updated successfully
[root@archiso /]# pacman -S sudo
warning: sudo-1.9.13.p3-1 is up to date -- reinstalling
resolving dependencies...
looking for conflicting packages...

Packages (1) sudo-1.9.13.p3-1

Total Installed Size: 7.21 MiB
Net Upgrade Size: 0.60 MiB

:: Proceed with installation? (Y/n) y
(1/1) checking keys in keyring
(1/1) checking package integrity
(1/1) loading package files
(1/1) checking for file conflicts
(1/1) checking available disk space
:: Processing package changes...
(1/1) reinstalling sudo
:: Running post-transaction hooks...
(1/3) Reloading system manager configuration...
Skipped: Running in chroot.
(2/3) Creating temporary files...
(3/3) Arming ConditionNeedsUpdate...
[root@archiso /]#
```

CREACIÓN DE USUARIO

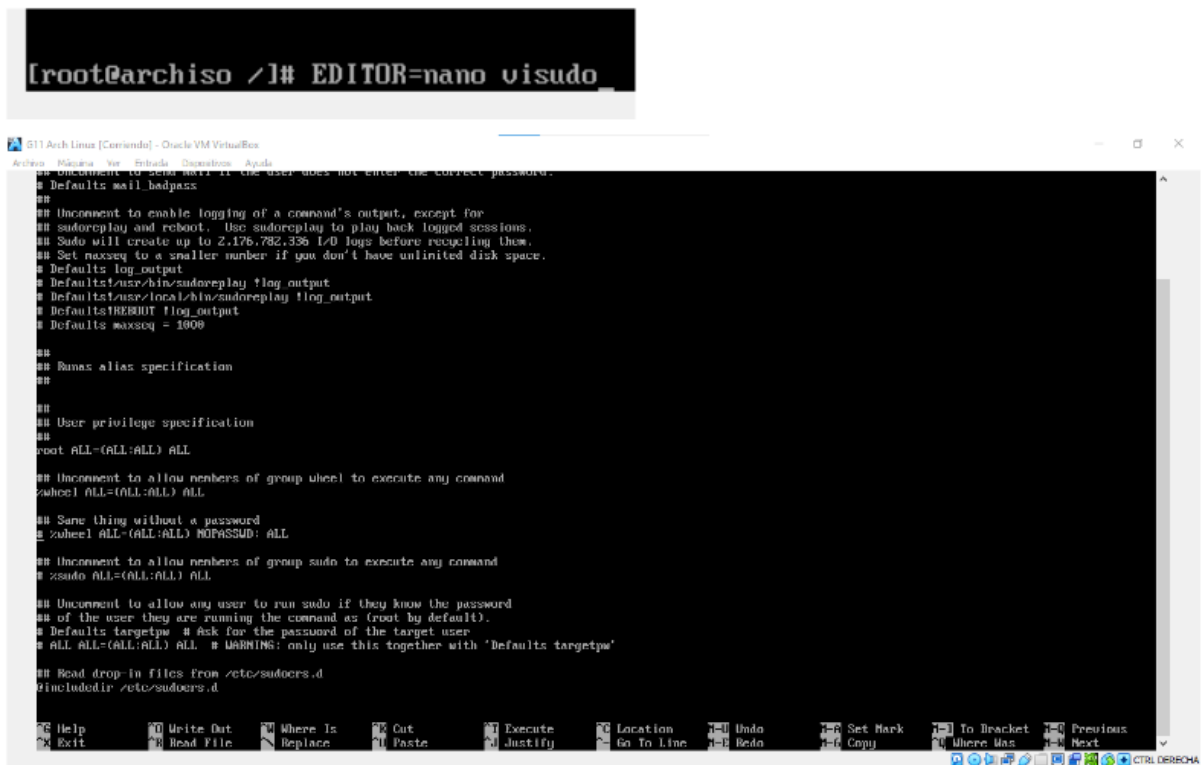
```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

[root@archiso /]# useradd -m so2_practica2_11
[root@archiso /]# passwd so2_practica2_11
New password:
Retype new password:
passwd: password updated successfully
[root@archiso /]#
```

contraseña es: g11

```
G11 Arch Linux [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

[root@archiso /]# useradd -m so2_practica2_11
[root@archiso /]# passwd so2_practica2_11
New password:
Retype new password:
passwd: password updated successfully
[root@archiso /]# usermod -aG wheel,audio,video,storage so2_practica2_11
usermod: group 'wheel,audio,video,storage' does not exist
[root@archiso /]# usermod -aG wheel,audio,video,storage so2_practica2_11
[root@archiso /]# EDITOR=nano_
```



INSTALACIÓN DE INTERFAZ GRÁFICA

Enter a selection (default=all):

resolving dependencies...

```
:: There are Z providers available for nan:
```

```

:: Repository core

```

1) man-db

```

:: Repository extra

```

2) wandoc

Enter a number (default=1):

```
looking for conflicting packages...
```

```
warning: dependency cycle detected:
```

```
warning: dependency cycle detected:
warning: harfbuzz will be installed before its freetype2 dependency
```

```
warning: dependency cycle detected:
```

```
warning: dependency cycle detected:
warning: mesa will be installed before its libxrandr dependency
```

[illegible]

```
511 Arch Linux [Coriando] - Oracle VM VirtualBox
Archiso Minsara Ver Ertrada Dronstom Agada

Total Download Size: 37.75 MiB
Total Installed Size: 370.36 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
libon-libs-15.0.7-3-x86_64 29.3 MiB 4.00 MiB/s 00:07 [=====] 100%
mesa-23.1.2-1-x86_64 15.2 MiB 3.46 MiB/s 00:04 [=====] 100%
xorg-fonts-100dpi-1.0.4-2-any 11.9 MiB 2.42 MiB/s 00:05 [=====] 100%
xorg-fonts-75dpi-1.0.4-1-any 10.3 MiB 1637 KiB/s 00:06 [=====] 100%
networkmanager-1.42.6-1-x86_64 3.6 MiB 1592 KiB/s 00:02 [=====] 100%
libx11-1.8.6-1-x86_64 2.0 MiB 154 KiB/s 00:14 [=====] 100%
wpa_supplicant-2.2.10-8-x86_64 1659.8 KiB 749 KiB/s 00:02 [=====] 100%
msc-3.90-1-x86_64 1586.1 KiB 928 KiB/s 00:02 [=====] 100%
xorg-server-21.1.8-1-x86_64 1470.4 KiB 1682 KiB/s 00:01 [=====] 100%
libon-1.42.6-1-x86_64 1163.5 KiB 1992 KiB/s 00:01 [=====] 100%
nan-dk-2.11.2-1-x86_64 1119.5 KiB 2.02 MiB/s 00:01 [=====] 100%
libuch-1.15-2-x86_64 1801.8 KiB 2.57 MiB/s 00:00 [=====] 100%
perl-8.45-3-x86_64 994.8 KiB 2.47 MiB/s 00:00 [=====] 100%
xorg-server-xephyr-21.1.8-1-x86_64 936.1 KiB 2.15 MiB/s 00:00 [=====] 100%
harfbuzz-7.3.0-1-x86_64 935.6 KiB 2.52 MiB/s 00:00 [=====] 100%
xorg-xuylend-23.1.2-1-x86_64 910.3 KiB 1776 KiB/s 00:01 [=====] 100%
xkeyboard-config-2.29-1-any 876.1 KiB 2.30 MiB/s 00:00 [=====] 100%
slang-2.3.3-2-x86_64 826.1 KiB 2.28 MiB/s 00:00 [=====] 100%
xorg-server-xvfb-21.1.8-1-x86_64 787.2 KiB 1968 KiB/s 00:00 [=====] 100%
libon-glib-1.20.6-1-x86_64 785.2 KiB 3.49 MiB/s 00:00 [=====] 100%
xorg-server-xorg-21.1.8-1-x86_64 602.0 KiB 2.56 MiB/s 00:00 [=====] 100%
xorg-fonts-encodings-1.0.7-1-any 560.7 KiB 2.34 MiB/s 00:00 [=====] 100%
zerofree-4.3.4-4-x86_64 564.9 KiB 2.63 MiB/s 00:00 [=====] 100%
libxft-1.3.0-1-x86_64 535.4 KiB 2.54 MiB/s 00:00 [=====] 100%
fontconfig-2.13.0-1-x86_64 527.6 KiB 2.20 MiB/s 00:00 [=====] 100%
polkit-122.1-x86_64 395.9 KiB 2.03 MiB/s 00:00 [=====] 100%
fontconfig-2.2.14.2-1-x86_64 368.0 KiB 1778 KiB/s 00:00 [=====] 100%
libxext-1.0.15-1-x86_64 361.0 KiB 1900 KiB/s 00:00 [=====] 100%
libglvnd-1.6.0-1-x86_64 355.2 KiB 1525 KiB/s 00:00 [=====] 100%
libdms-2.4.115-1-x86_64 329.5 KiB 1432 KiB/s 00:00 [=====] 100%
libexpat-1.5.10-2-x86_64 324.0 KiB 627 KiB/s 00:01 [=====] 100%
libinput-1.23.0-1-x86_64 287.5 KiB 1438 KiB/s 00:00 [=====] 100%
pixmap-0.42.2-1-x86_64 269.6 KiB 1188 KiB/s 00:00 [=====] 100%
libpng-1.6.39-1-x86_64 248.1 KiB 1222 KiB/s 00:00 [=====] 100%
xorgproto-2023.1-1-any 32.4 KiB 719 KiB/s 00:07 [=====] 94%
Total ( 34/135) 32.4 MiB 719 KiB/s 00:07 [=====] 94%
```

```
511 Arch Linux [Coriando] - Oracle VM VirtualBox
Archiso Minsara Ver Ertrada Dronstom Agada

(130/135) installing mobile-broadband-provider-info [=====] 100%
(131/135) installing duktape [=====] 100%
(132/135) installing polkit [=====] 100%
(133/135) installing pcsc-lite [=====] 100%
Optional dependencies for pcsc-lite
python: API call trace logging with the pcsc-spy
ccid: USB Chip/Smart Card Interface Devices driver
(134/135) installing wpa_supplicant [=====] 100%
(135/135) installing networkmanager [=====] 100%
Optional dependencies for networkmanager
bluetooth: Bluetooth support
dhclient: alternative DHCP client
dhcpcd: alternative DHCP client
dnsmasq: connection sharing
firewalld: firewall support
iptables: connection sharing (installed)
iod: wpa_supplicant alternative
modemmanager: cellular network support
nftables: connection sharing
openresolv: alternative resolv.conf manager
pacmanver: PAC proxy support
polkit: let non-root users control networking (installed)
ppp: dialup connection support
:: Running post-transaction hooks...
( 1/11) Creating system user accounts...
Creating group 'polkitd' with GID 102.
Creating user 'polkitd' (Policykit daemon) with UID 102 and GID 102.
( 2/11) Reloading system manager configuration...
Skipped: Running in chroot.
( 3/11) Updating udev hardware database...
( 4/11) Creating temporary files...
( 5/11) Reloading device manager configuration...
Skipped: Running in chroot.
( 6/11) Running ConditionNeedsUpdate...
( 7/11) Updating fontconfig configuration...
( 8/11) Reloading system bus configuration...
Skipped: Running in chroot.
( 9/11) Updating fontconfig cache...
(10/11) Updating the info directory file...
(11/11) Updating X fontdir indices...
[root@archiso ~]#
```

```
Arch Linux [Commands] - Oracle VM VirtualBox
Arch Linux [Commands] - Oracle VM VirtualBox
root@archiso /# pacman -S gnome
error: target not found: gnome
root@archiso /# pacman -S gnome
(): There are 56 members in group gnome:
(): Repository extra
1) bonobu 2) cheese 3) cog 4) epiphany 5) gvince 6) gdm 7) gnome-backgrounds 8) gnome-calculator 9) gnome-calendar 10) gnome-characters
11) gnome-clocks 12) gnome-color-manager 13) gnome-connections 14) gnome-console 15) gnome-contacts 16) gnome-control-center 17) gnome-disk-utility
18) gnome-font-viewer 19) gnome-keyring 20) gnome-logs 21) gnome-maps 22) gnome-menus 23) gnome-music 24) gnome-panel 25) gnome-remote-desktop
26) gnome-session 27) gnome-settings-daemon 28) gnome-shell 29) gnome-shell-extensions 30) gnome-software 31) gnome-system-monitor
32) gnome-text-editor 33) gnome-tour 34) gnome-user-docs 35) gnome-user-share 36) gnome-weather 37) grilo-plugins 38) gups 39) gups-afc 40) gups-goa
41) gups-google 42) gups-photos 43) gups-atp 44) gups-nfs 45) gups-smb 46) salmon 47) nautilus 48) arca 49) ryl 50) simple-scan 51) sushi
52) totem 53) tracker3-miners 54) xdg-desktop-portal-gnome 55) xdg-user-dirs-gtk 56) yelp

Enter a selection (default=all): _

Arch Linux [Commands] - Oracle VM VirtualBox
Arch Linux [Commands] - Oracle VM VirtualBox
Total Download Size: 452.79 MiB
Total Installed Size: 2023.70 MiB

(): Proceed with installation? [Y/n] y
(): Retrieving packages...
gnome-backgrounds-44.0-1-any 3.5 MiB 647 KiB/s 01:07 [=====] 7%
Total ( 0/447) 3.5 MiB 648 KiB/s 11:49 [=====] 0%
```



```
511 Arch Linux [Console] - Oracle VM VirtualBox
Arch - Home - VM - Settings - Snapshots - Tools

root@archiso /# systemctl enable gdm.service
Created symlink /etc/systemd/system/display-manager.service + /usr/lib/systemd/system/gdm.service.
root@archiso /# systemctl enable NetworkManager.service
Created symlink /etc/systemd/system/multi-user.target.wants/NetworkManager.service + /usr/lib/systemd/system/NetworkManager.service.
Created symlink /etc/systemd/system/dbus-org.freedesktop.wm-dispatcher.service + /usr/lib/systemd/system/NetworkManager-dispatcher.service.
Created symlink /etc/systemd/system/network-online.target.wants/NetworkManager-wait-online.service + /usr/lib/systemd/system/NetworkManager-wait-online.service.
root@archiso /#
```

```
511 Arch Linux [Console] - Oracle VM VirtualBox
Arch - Home - VM - Settings - Snapshots - Tools

root@archiso /# systemctl enable gdm.service
Created symlink /etc/systemd/system/display-manager.service + /usr/lib/systemd/system/gdm.service.
root@archiso /# systemctl enable NetworkManager.service
Created symlink /etc/systemd/system/multi-user.target.wants/NetworkManager.service + /usr/lib/systemd/system/NetworkManager.service.
Created symlink /etc/systemd/system/dbus-org.freedesktop.wm-dispatcher.service + /usr/lib/systemd/system/NetworkManager-dispatcher.service.
Created symlink /etc/systemd/system/network-online.target.wants/NetworkManager-wait-online.service + /usr/lib/systemd/system/NetworkManager-wait-online.service.
root@archiso /# exit
exit
arch-chroot /mnt 52.47% user 47.28s system 1x cpu 1:26:39.30 total
root@archiso ~ #
```

```
511 Arch Linux [Console] - Oracle VM VirtualBox
Arch - Home - VM - Settings - Snapshots - Tools

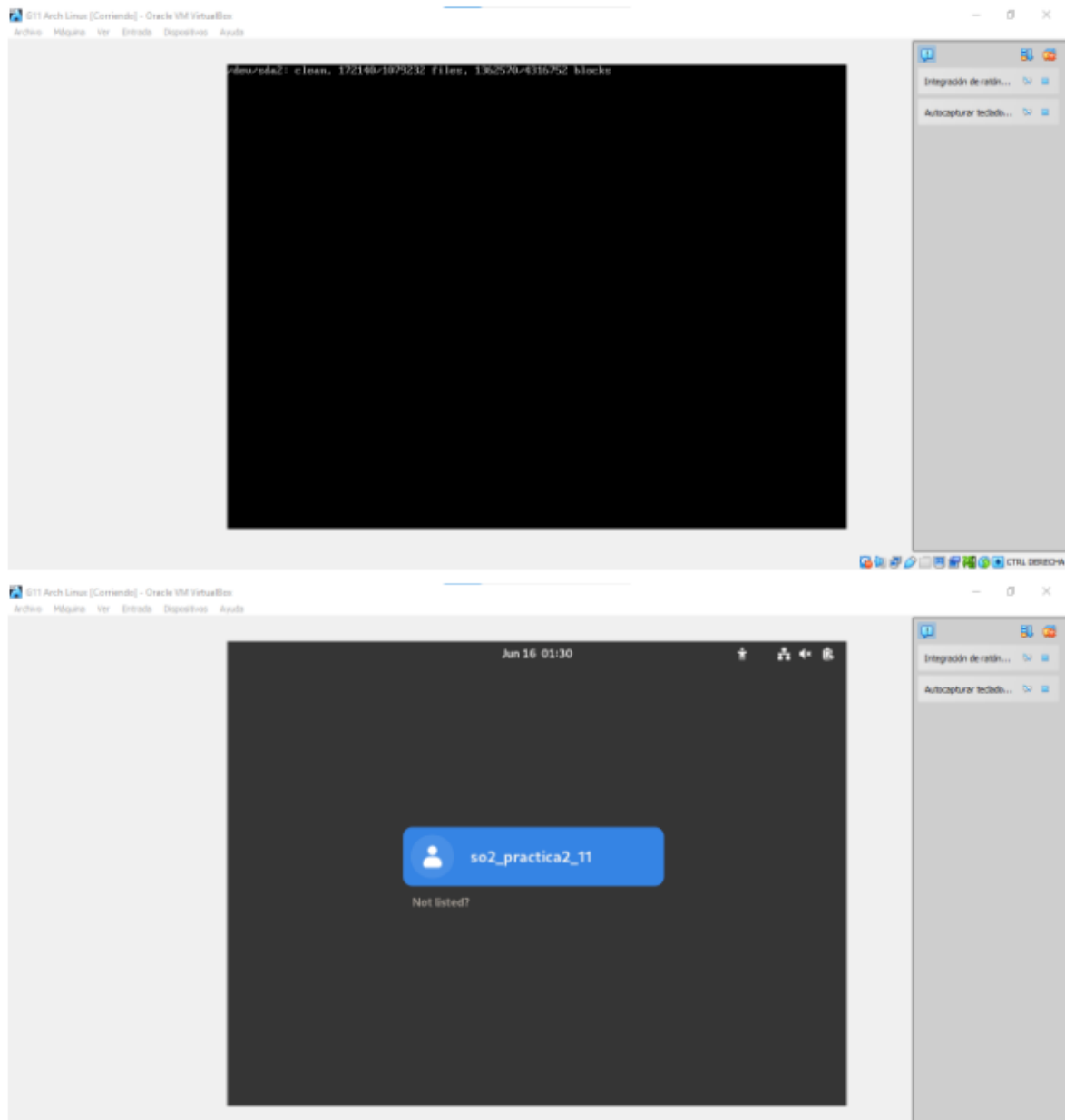
root@archiso /# systemctl enable gdm.service
Created symlink /etc/systemd/system/display-manager.service + /usr/lib/systemd/system/gdm.service.
root@archiso /# systemctl enable NetworkManager.service
Created symlink /etc/systemd/system/multi-user.target.wants/NetworkManager.service + /usr/lib/systemd/system/NetworkManager.service.
Created symlink /etc/systemd/system/dbus-org.freedesktop.wm-dispatcher.service + /usr/lib/systemd/system/NetworkManager-dispatcher.service.
Created symlink /etc/systemd/system/network-online.target.wants/NetworkManager-wait-online.service + /usr/lib/systemd/system/NetworkManager-wait-online.service.
root@archiso /# exit
exit
arch-chroot /mnt 52.47% user 47.28s system 1x cpu 1:26:39.30 total
root@archiso ~ # mount /mnt
root@archiso ~ # shutdown now
```

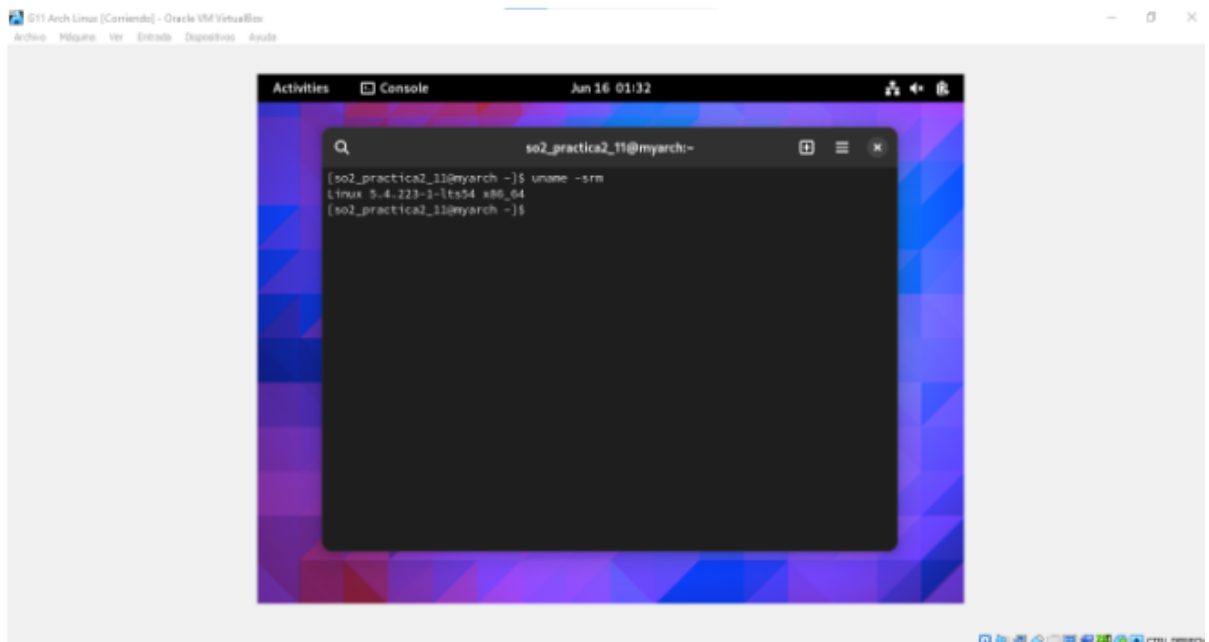
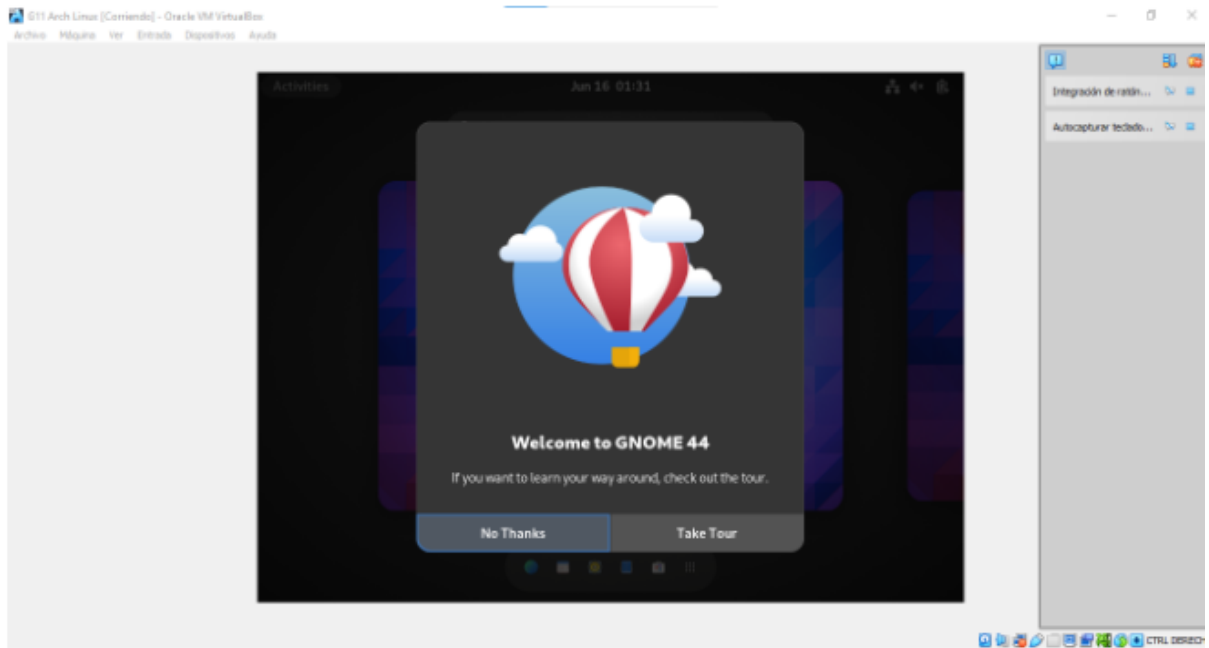
```

[ OK ] Stopped Automatic Boot Loader Update.
[ OK ] Stopped Rebuild Journal Catalog.
[ OK ] Stopping Record System Boot/Shutdown in UTP...
[ OK ] Unmounted /run/credentials/systemd-sysctl.service.
[ OK ] Stopped Network Name Resolution.
[ OK ] Unmounted /run/credentials/systemd-resolved.service.
[ OK ] Stopped Network Time Synchronization.
[ OK ] Stopped Record System Boot/Shutdown in UTP.
[ OK ] Stopped Create Volatile Files and Directories.
[ OK ] Stopped target Local File Systems.
[ OK ] Unmounting Temporary /etc/pacman.d/gnupg directory...
[ OK ] Unmounting /run/archiso/siroofs...
[ OK ] Unmounting /run/archiso/bootmnt...
[ OK ] Unmounting /run/archiso/cowspace...
[ OK ] Unmounting /run/credentials/systemd-firstboot.service...
[ OK ] Unmounting /run/credentials/systemd-sysusers.service...
[ OK ] Unmounting /run/credentials/systemd-tapfiles-setup.service...
[ OK ] Unmounting /run/credentials/systemd-tapfiles-setup-dev.service...
[ OK ] Unmounting Temporary Directory /tmp...
[ OK ] Unmounted Temporary /etc/pacman.d/gnupg directory.
[ OK ] Unmounted /run/archiso/siroofs.
[ FAILED ] Failed unmounting /run/archiso/bootmnt.
[ OK ] Unmounted /run/archiso/cowspace.
[ OK ] Unmounted /run/credentials/systemd-firstboot.service.
[ OK ] Unmounted /run/credentials/systemd-sysusers.service.
[ OK ] Unmounted /run/credentials/systemd-tapfiles-setup.service.
[ OK ] Unmounted /run/credentials/systemd-tapfiles-setup-dev.service.
[ OK ] Unmounted Temporary Directory /tmp.
[ OK ] Stopped target Preparation for Local File Systems.
[ OK ] Stopped target Swaps.
[ OK ] Deactivating swap /dev/disk/by-diskseq/1-part1...
[ OK ] Stopping Monitoring of LVM2 mirrors, snapshots etc. using dmccoutd or progress polling...
[ OK ] Stopped Create Static Device Nodes in /dev.
[ OK ] Stopped Create System Users.
[ OK ] Stopped First Boot Wizard.
[ OK ] Stopped Remount Root and Kernel File Systems.
[ OK ] Deactivated swap /dev/disk/by-path/pci-0000:00:04.0-ata-1.0-part1.
[ OK ] Deactivated swap /dev/disk/by-partuuid/66c1713b-01.
[ OK ] Deactivated swap /dev/disk/by-uuid/6b3126ef-8444-4238-8593-9a60e3665675.
[ OK ] Deactivated swap /dev/disk/by-id/ata-UBIX_HARDDISK_UB6f15bdc0-eb31c1fa-part1.
[ OK ] Deactivated swap /dev/disk/by-path/pci-0000:00:04.0-ata-1-part1.
[ OK ] Deactivated swap /dev/disk/by-diskseq/1-part1.

```

INSTALACIÓN FINALIZADA



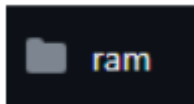


Implementacion de modulos

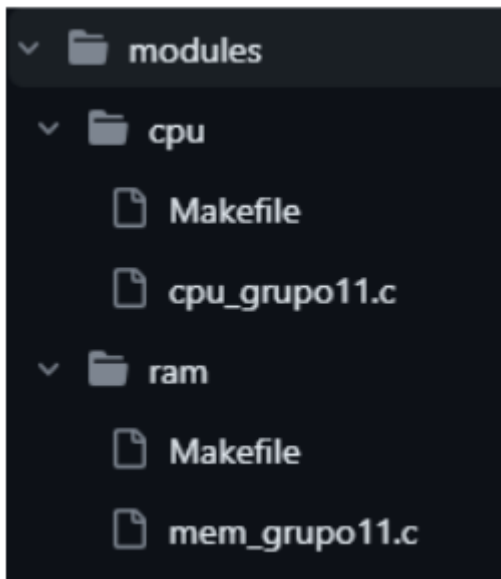
Monitor de memoria

Se creó un módulo de kernel el cual se llama mem_grupo11 el cual extrae información sobre el uso de memoria en el sistema.

Dentro del proyecto el módulo del kernel creado se encuentra en la carpeta ram



En la carpeta de modules



La estructura para el módulo del kernel es la siguiente:

Las librerías implementadas para realizar la operación requerida del total de memoria ram del sistema y total de memoria ram utilizada.
son las siguientes:

```
#include <linux/module.h> // Archivo de encabezado para la programación de módulos del kernel de Linux
#include <linux/init.h>   // Archivo de encabezado para macros de inicialización
#include <linux/seq_file.h> // Archivo de encabezado para la escritura de archivos de secuencia
#include <linux/mm.h>      // Archivo de encabezado para operaciones de gestión de memoria
#include <linux/proc_fs.h> // Archivo de encabezado para el sistema de archivos /proc
#include <linux/kernel.h>  // Archivo de encabezado para macros y funciones del kernel
#include <linux/sysinfo.h> // Archivo de encabezado para obtener información del sistema
```

Estructura para almacenar información en el sistema

```
struct sysinfo inf;
```

Función para escribir en el archivo de secuencia

```
static int write_file(struct seq_file *file, void *v){
    long total_mem, free_mem;
    si_meminfo(&inf); // Obtener información de memoria del sistema y almacenarla en la estructura inf
    total_mem = (inf.totalram * 4 / 1024); // Calcular la cantidad total de memoria en mb
    free_mem = (inf.freeram * 4 / 1024); // Calcular la cantidad de memoria libre en mb
    seq_printf(file, "{\n"); // Escribir una cadena en el archivo de secuencia
    seq_printf(file, "MemoriaTotal:%8lu,\n", total_mem); // Escribir la cantidad total de memoria
    seq_printf(file, "MemoriaLibre:%8lu,\n", free_mem); // Escribir la cantidad de memoria libre
    seq_printf(file, "MemoriaUsada:%i\n", 100 - (free_mem * 100) / total_mem); // Escribir el porcentaje de memoria utilizada
    seq_printf(file, ")\n"); // Escribir una cadena en el archivo de secuencia
    return 0;
}
```

Función para abrir el archivo

```
static int to_open(struct inode *inode, struct file *file){
    return single_open(file, write_file, NULL); // Abrir el archivo de secuencia y llamar a la función write_file
}
```

Si el kernel es 5.6 o superior, se usa la estructura proc_ops

```
static struct proc_ops operations =
{
    .proc_open = to_open, // Puntero a la función que se ejecuta al abrir el archivo /proc
    .proc_read = seq_read // Puntero a la función de lectura de secuencia
};
```

Función de montaje del módulo

```
static int mount_module(void){
    proc_create("mem_grupo11", 0, NULL, &operations); // Crear una entrada en /proc para
    printk(KERN_INFO "Hola mundo, somos el grupo 11 y este es el monitor de memoria\n");
    return 0;
}
```

Función de desmontaje del módulo

```
static void disassemble_module(void){
    remove_proc_entry("mem_grupo11", NULL); // Eliminar la entrada en /proc para el archivo
    printk(KERN_INFO "Sayonara mundo, somos el grupo 11 y este fue el monitor de memoria\n");
}
```

Especificar la función de inicialización del módulo

```
module_init(mount_module);
```

Especificar la función de desmontaje del módulo

```
module_exit(disassemble_module);
```

Backend

EL backend se realizó en lenguaje de go para realizar la una api que envia los datos que registran los módulos

La estructura utilizada para el backend en go es la siguiente.

Importación de librerías:

```
package main

import (
    "fmt"
    "log"
    "net/http"
    "os/exec"
    "github.com/gorilla/mux" // Importar paquete para enrutamiento HTTP
    "github.com/rs/cors"     // Importar paquete para configurar CORS (Cross-Origin Resource Sharing)
    "bytes"
    "time"
)
```

Función para leer el módulo de CPU

```
func LeerCpu(w http.ResponseWriter, r *http.Request){
    // Ejecutar el comando "cat /proc/cpu_group11" en el sistema operativo
    cmd := exec.Command("sh", "-c", "cat /proc/cpu_group11")
    out, err := cmd.CombinedOutput()
    if err != nil {
        log.Fatal(err)
    }
    go fmt.Println("Módulo CPU obtenido correctamente")
    output := string(out[:])

    fmt.Fprintf(w, output)
}
```

Función para leer el módulo de RAM

```

func LeerRam(w http.ResponseWriter, r *http.Request){
    // Ejecutar el comando "cat /proc/mem_grupo11" en el sistema operativo
    cmd := exec.Command("sh", "-c", "cat /proc/mem_grupo11")
    out, err := cmd.CombinedOutput()
    if err != nil {
        log.Fatal(err)
    }
    go fmt.Println("Módulo RAM obtenido correctamente")
    output := string(out[:])
    fmt.Fprintf(w, output)
}

```

Función para matar un proceso

```

func killProcess(w http.ResponseWriter, r *http.Request){
    // Leer el cuerpo de la solicitud HTTP para obtener el ID del proceso a matar
    buf := new(bytes.Buffer)
    buf.ReadFrom(r.Body)
    newStr := buf.String()
    str := "kill "+newStr

    // Ejecutar el comando "kill <pid>" en el sistema operativo
    cmd := exec.Command("sh", "-c", str)
    out, err := cmd.CombinedOutput()
    if err != nil {
        go fmt.Println("error")
    }
    go fmt.Println(out)
    fmt.Fprintf(w, "OK")
}

```

Función main como principal

```
func main() {
    // Crear un enrutador utilizando el paquete gorilla/mux
    router := mux.NewRouter().StrictSlash(true)

    go fmt.Println("Server Running on port: 8080")

    // Definir las rutas y las funciones de controlador correspondientes
    go router.HandleFunc("/leerram", LeerRam).Methods("GET")           // Ruta para leer el módulo de RAM
    go router.HandleFunc("/leercpu", LeerCpu).Methods("GET")           // Ruta para leer el módulo de CPU
    go router.HandleFunc("/killprocess", killProcess).Methods("POST") // Ruta para matar un proceso

    time.Sleep(time.Second)

    // Configurar CORS (Cross-Origin Resource Sharing) para permitir acceso a recursos desde diferentes dominios
    handler := cors.Default().Handler(router)

    // Iniciar el servidor HTTP en el puerto 8080
    http.ListenAndServe(":8080", handler)
    log.Fatal(http.ListenAndServe(":8080", router))
}
```

Frontend

El frontend nos muestra las gráficas y los datos estadísticos consumidos desde la api de go lang, el frontend está implementado con nodejs y react

Las librerías utilizadas para la aplicación son las siguientes

```
"axios": "^0.21.0",
"bootstrap": "^4.5.3",
"chart.js": "^2.9.4",
"react": "^17.0.1",
"react-bootstrap": "^1.4.0",
"react-chartjs-2": "^2.11.1",
"react-dom": "^17.0.1",
"react-router-dom": "^5.2.0",
"react-scripts": "4.0.1",
"web-vitals": "^0.2.4"
```

la aplicación se encuentra en la carpeta de Frontend
para ejecutar el programa se debe de tener instalado nodejs
y ejecutar el siguiente comando

npm i o bien npm i -force

luego de esto correr el comando

node start