

# Создание виртуальной машины и подробная установка debian 10.2.0

Скрипт создания виртуальной машины (VirtualBox)

Размер диска 1GB

Чтобы уложится в этот размер будем использовать файловую систему btrfs которая поддерживает сжатие.

Утилита curl скачивает образ debian-10.2.0-amd64-netinst.

Создаем виртуальную машину нужного нам типа. В текущей директории где выполняется скрипт.

Задаем нужные настройки для системы.

Создаем SATA контроллер для жесткого диска.

Создаем IDE контроллер для двд диска. (Можно было подцепить и на sata, но скорость не теряется, и так есть совместимость со старой версией VirtualBox который не умел двд для sata)

Создаем жесткий диск формата VDI. (т.к. он поддерживает сжатие пустого места)

Подключаем диск и iso образ к нужным контроллерам.

Пробрасываем порт ssh.

```

#!/bin/bash
#version: 0.1

ISO=debian-10.2.0-amd64-netinst.iso
OSTYPE=Debian_64
CURDIR=$(pwd)
echo "Downloading $ISO"
curl -C - -o "$CURDIR/$ISO" https://mirror.yandex.ru/debian-cd/10.2.0/amd64/iso-cd/$ISO
echo "|-----|"
echo "Checking VM's"

VBoxManage list vms
echo "|-----|"
echo "Creating $OSTYPE VM"

VBoxManage createvm --name $ISO.$OSTYPE --ostype $OSTYPE --register --basefolder "$CURDIR"
#echo "Info about created VM, $ISO.$OSTYPE"
#VBoxManage showvminfo $ISO.$OSTYPE
echo "|-----|"
echo "Configuring VM $ISO.$OSTYPE"
echo
echo "ram 512 vram 16, video vmsvga, audio off, recording off, boot order"
VBoxManage modifyvm $ISO.$OSTYPE --memory 512 --vram 16 --acpi on --ioapic on --graphicscontroller vmsvga --audio none --recording off --boot1 dvd --boot2 disk --boot3 none --boot4 none
echo "Add SATA, iocache on"
VBoxManage storagectl $ISO.$OSTYPE --name "SATA Controller" --add sata --controller IntelAhci --hostiocache on --bootable on --portcount 2
echo "Add IDE"
VBoxManage storagectl $ISO.$OSTYPE --name "IDE Controller" --add ide --controller PIIX4
echo "Creating Virtual Disk (vdi)"
VBoxManage createhd --filename "$CURDIR/$ISO.vdi" --size 1024 --variant Standard
echo "Add vdi and iso to the controllers"
VBoxManage storageattach $ISO.$OSTYPE --storagectl "SATA Controller" --port 0 --device 0 --type hdd --medium "$CURDIR/$ISO.vdi"
VBoxManage storageattach $ISO.$OSTYPE --storagectl "IDE Controller" --port 0 --device 0 --type dvddrive --medium "$CURDIR/$ISO"
echo "|-----|"
echo "SSH port forward"
VBoxManage modifyvm $ISO.$OSTYPE --natpf1 "ssh_portforw,tcp,127.0.0.1,4242,,22"
echo "|/_----##DONE##-----\_|"

#VBoxManage unregistervm debian-10.2.0-amd64-netinst.iso.Debian_64 --delete
#VBoxManage startvm debian-10.2.0-amd64-netinst.iso.Debian_64 --type headless

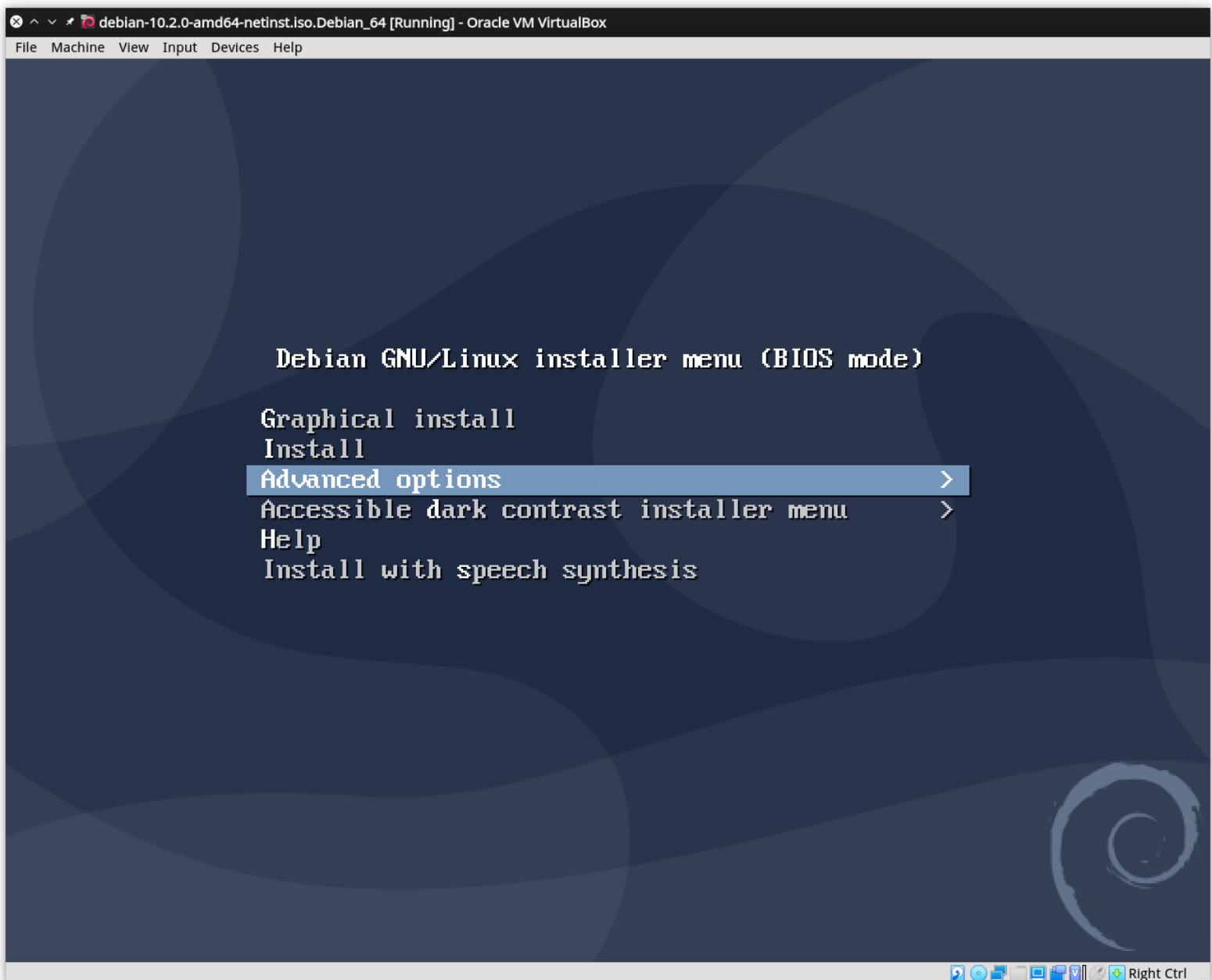
#Shrink image (vdi only)
#VBoxManage modifymedium debian-10.2.0-amd64-netinst.iso.vdi --compact
#echo "|-----|"

#-Superuser
#apt install sudo
#/usr/sbin/adduser user sudo

#-Add usefull tools
#sudo apt install htop mc tmux ipcalc tcpdump nmap zmap nmon secure-delete

#-In VM compress files, zeroing free space(for shrink image)
#sudo btrfs filesystem defragment -rvczstd /
#sudo btrfs filesystem usage /
#Balancing fs
#      manual #sudo btrfs balance start -dusage=50 -musage=50 /
#sudo btrfs balance start --full-balance /
#sudo dd if=/dev/zero of=/mnt/zero.file bs=4K status=progress
#sudo rm -v /mnt/zero.file

```



После запуска выбираем пункт -Advanced options-

File Machine View Input Devices Help

### Advanced options

- Back.. <
- Graphical expert install
- Graphical rescue mode
- Graphical automated install
- Expert install**
- Rescue mode
- Automated install
- Speech-enabled advanced options >

Right Ctrl

И далее -Expert install-

File Machine View Input Devices Help

## Low memory mode

### [!!] Low memory

#### Entering low memory mode

This system has relatively little free memory, so it will enter low memory mode. Among other things, this means that this program will proceed in English. You should set up swap space as soon as possible.

[Continue](#)

<Tab> moves; <Space> selects; <Enter> activates buttons



Соглашаемся что памяти мало

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

**Choose language**

- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Выбор языка

File Machine View Input Devices Help

Low memory mode

[!!] Select your location |

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

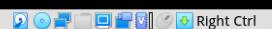
Select the continent or region to which your location belongs.

Continent or region:

- Africa
- Antarctica
- Asia
- Atlantic Ocean
- Caribbean
- Central America
- Europe
- Indian Ocean
- North America
- Oceania
- South America
- other

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Регион

Low memory mode

[!!!] Select your location |

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

Listed are locations for: Europe. Use the <Go Back> option to select a different continent or region if your location is not listed.

Country, territory or area:

- Moldova
- Monaco
- Montenegro
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Russian Federation**
- San Marino
- Serbia
- Slovakia
- Slovenia
- Spain
- Svalbard and Jan Mayen
- Sweden
- Switzerland
- Ukraine
- United Kingdom
- Åland Islands



<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons

Right Ctrl

Страна

Low memory mode

[.] Configure locales

Based on your previous choices, the default locale currently selected for the installed system is 'C'.

If you wish to use a different default or to also have other locales available, you may choose additional locales to be installed. If you are unsure it is best to just use the selected default.

Additional locales:

- [ ] en\_HK ↑
- [ ] en\_IE.UTF-8
- [ ] en\_IE
- [ ] en\_IE@euro
- [ ] en\_IL
- [ ] en\_IN
- [ ] en\_NG
- [ ] en\_NZ.UTF-8
- [ ] en\_NZ
- [ ] en\_PH.UTF-8
- [ ] en\_PH
- [ ] en\_SC.UTF-8
- [ ] en\_SG.UTF-8
- [ ] en\_SG
- [\*] en\_US.UTF-8 ↓
- [ ] en\_US
- [ ] en\_US.ISO-8859-15
- [ ] en\_ZA.UTF-8
- [ ] en\_ZA

<Go Back>

<Continue>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons



Локаль

Low memory mode

[.] Configure locales

Based on your previous choices, the default locale currently selected for the installed system is 'C'.

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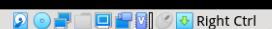
Additional locales:

- [ ] ro\_RO ↑
- [\*] ru\_RU.UTF-8
- [ ] ru\_RU.KOI8-R
- [ ] ru\_RU
- [ ] ru\_RU.CP1251
- [ ] ru\_UA.UTF-8
- [ ] ru\_UA
- [ ] rw\_RW
- [ ] sa\_IN
- [ ] sah\_RU
- [ ] sat\_IN
- [ ] sc\_IT
- [ ] sd\_IN
- [ ] sd\_IN@devanagari
- [ ] se\_NO
- [ ] sgs\_LT
- [ ] shn\_MM
- [ ] shs\_CA
- [ ] si\_LK ↓

<Go Back>

<Continue>

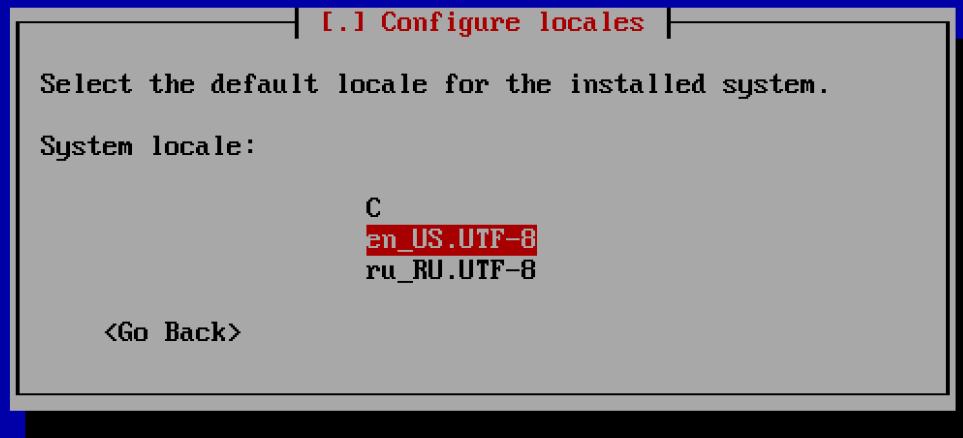
<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons



Локаль

File Machine View Input Devices Help

Low memory mode



Right Ctrl

Локаль

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard**
- Detect and mount CD-ROM
- Load installer components from CD
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Настройка ввода

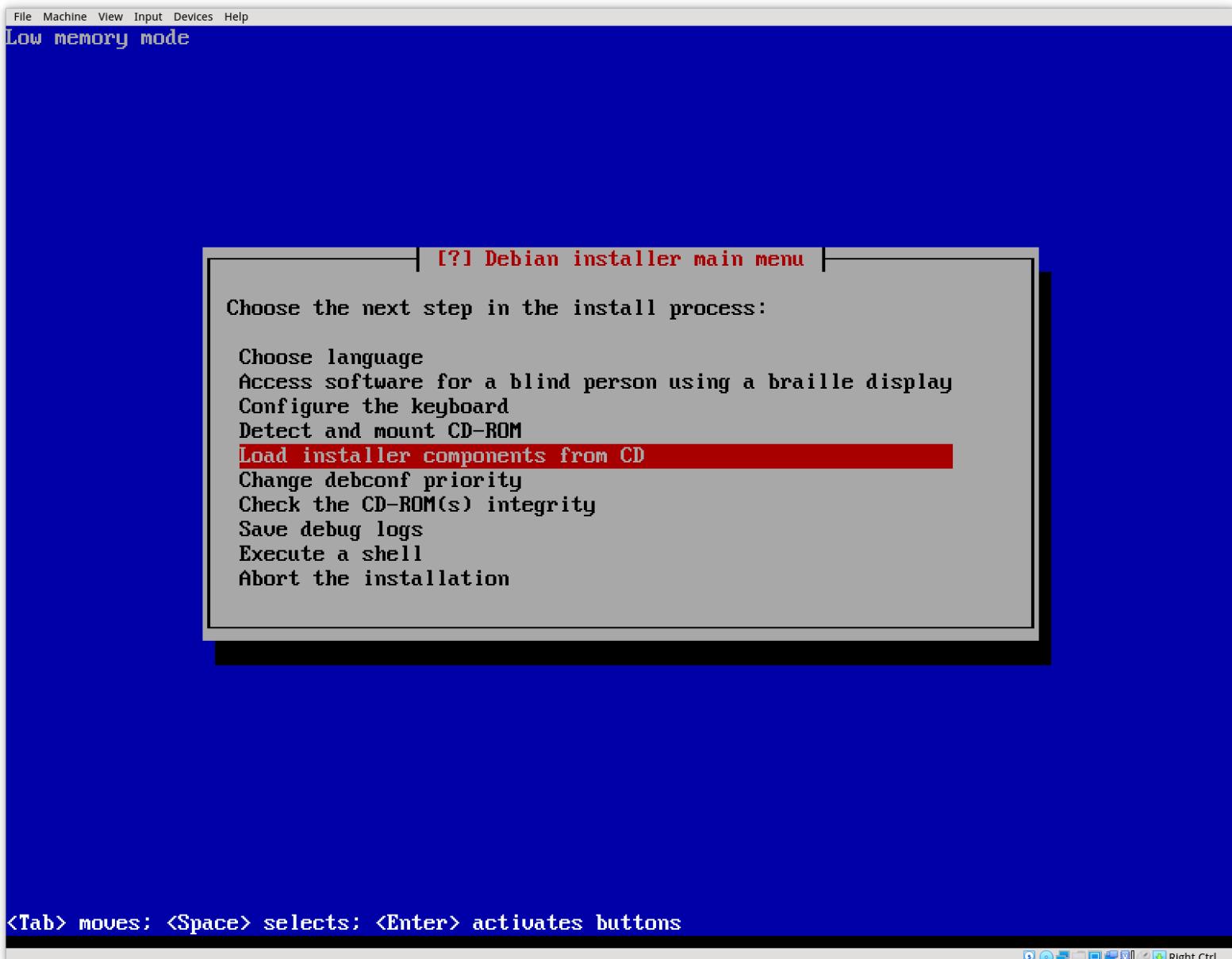
File Machine View Input Devices Help

Low memory mode



<Tab> moves; <Space> selects; <Enter> activates buttons





Пропускаем обнаружение привода, и выбираем загрузку компонентов, обнаружение произойдёт само по зависимости

File Machine View Input Devices Help

Low memory mode

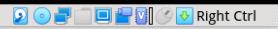
| [.] Detect and mount CD-ROM |

CD-ROM detected

The CD-ROM autodetection was successful. A CD-ROM drive has been found and it currently contains the CD Debian GNU/Linux 10.2.0 "Buster" - Official amd64 NETINST 20191116-09:56. The installation will now continue.

[Continue](#)

<Tab> moves; <Space> selects; <Enter> activates buttons



**Low memory mode**

[?] Load installer components from CD

All components of the installer needed to complete the install will be loaded automatically and are not listed here. Some other (optional) installer components are shown below. They are probably not necessary, but may be interesting to some users.

Note that if you select a component that requires others, those components will also be loaded.

Installer components to load:

- [ ] choose-mirror: Choose mirror to install from (menu item)
- [ ] crypto-dm-modules-4.19.0-6-amd64-di: devicemapper crypto module
- [ ] driver-injection-disk-detect: Detect OEM driver injection disks
- [ ] espeakup-udeb: Configure the speech synthesizer voice
- [ ] event-modules-4.19.0-6-amd64-di: Event support
- [ ] fdisk-udeb: Manually partition a hard drive (fdisk)
- [ ] fuse-modules-4.19.0-6-amd64-di: FUSE modules
- [ ] load-media: Load installer components from removable media
- [ ] mbr-udeb: Master Boot Record for IBM-PC compatible computers
- [ ] multipath-modules-4.19.0-6-amd64-di: Multipath support
- [ ] nbd-modules-4.19.0-6-amd64-di: Network Block Device modules
- [ ] network-console: Continue installation remotely using SSH
- [ ] openssh-client-udeb: secure shell client for the Debian installer
- [ ] parted-udeb: Manually partition a hard drive (parted)
- [ ] ppp-modules-4.19.0-6-amd64-di: PPP drivers
- [ ] ppp-udeb: Point-to-Point Protocol (PPP) – package for Debian Installer
- [ ] reiserfsprogs-udeb: User-level tools for ReiserFS filesystems
- [ ] rescue-mode: mount requested partition and start a rescue shell
- [ ] scsi-nic-modules-4.19.0-6-amd64-di: SCSI drivers for converged NICs

&lt;Go Back&gt;

&lt;Continue&gt;

&lt;Tab&gt; moves; &lt;Space&gt; selects; &lt;Enter&gt; activates buttons



**ДОПОЛНИТЕЛЬНЫЕ КОМПОНЕНТЫ НАМ НЕ НУЖНЫ**

File Machine View Input Devices Help

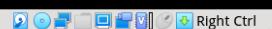
Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords**
- Free memory (low memory install)
- Configure the clock
- Detect disks
- Partition disks
- Install the base system
- Configure the package manager
- Select and install software
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Задаем пароль для суперюзера, и создаем обычного

File Machine View Input Devices Help

Low memory mode

[.] Set up users and passwords

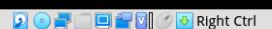
Shadow passwords make your system more secure because nobody is able to view even encrypted passwords. The passwords are stored in a separate file that can only be read by special programs. The use of shadow passwords is strongly recommended, except in a few cases such as NIS environments.

Enable shadow passwords?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Set up users and passwords

If you choose not to allow root to log in, then a user account will be created and given the power to become root using the 'sudo' command.

Allow login as root?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

### [!!] Set up users and passwords

You need to set a password for 'root', the system administrative account. A malicious or unqualified user with root access can have disastrous results, so you should take care to choose a root password that is not easy to guess. It should not be a word found in dictionaries, or a word that could be easily associated with you.

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

The root user should not have an empty password. If you leave this empty, the root account will be disabled and the system's initial user account will be given the power to become root using the "sudo" command.

Note that you will not be able to see the password as you type it.

Root password:

[ ] Show Password in Clear

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Set up users and passwords

Please enter the same root password again to verify that you have typed it correctly.

Re-enter password to verify:

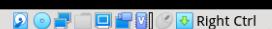
\*\*\*\*\*

[ I Show Password in Clear

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

## Low memory mode

### [?] Set up users and passwords

It's a bad idea to use the root account for normal day-to-day activities, such as the reading of electronic mail, because even a small mistake can result in disaster. You should create a normal user account to use for those day-to-day tasks.

Note that you may create it later (as well as any additional account) by typing 'adduser <username>' as root, where <username> is an username, like 'imurdock' or 'rms'.

Create a normal user account now?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Set up users and passwords

A user account will be created for you to use instead of the root account for non-administrative activities.

Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice.

Full name for the new user:

user

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Set up users and passwords

Select a username for the new account. Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of numbers and more lower-case letters.

Username for your account:

user

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Set up users and passwords

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

Choose a password for the new user:

\*\*\*

[ ] Show Password in Clear

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Set up users and passwords

Please enter the same user password again to verify you have typed it correctly.

Re-enter password to verify:

\*\*\*

[ ] Show Password in Clear

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords
- Free memory (low memory install)
- Configure the clock**
- Detect disks
- Partition disks
- Install the base system
- Configure the package manager
- Select and install software
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

Right Ctrl

<Tab> moves; <Space> selects; <Enter> activates buttons

Далее установка времени

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

This installation step depends on one or more other steps that have not yet been performed.

Choose an installation step:

Configure the network

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



По зависимости подключается сеть

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

This installation step depends on one or more other steps that have not yet been performed.

Choose an installation step:

Detect network hardware

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Configure the network |

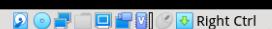
Networking can be configured either by entering all the information manually, or by using DHCP (or a variety of IPv6-specific methods) to detect network settings automatically. If you choose to use autoconfiguration and the installer is unable to get a working configuration from the network, you will be given the opportunity to configure the network manually.

Auto-configure networking?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Configure the network |

Please enter the maximum time you would like to wait for network link detection.

Waiting time (in seconds) for link detection:

3

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Configure the network

Please enter the hostname for this system.

The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your own home network, you can make something up here.

Hostname:

debian

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Configure the network |

The domain name is the part of your Internet address to the right of your host name. It is often something that ends in .com, .net, .edu, or .org. If you are setting up a home network, you can make something up, but make sure you use the same domain name on all your computers.

Domain name:

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Configure the clock |

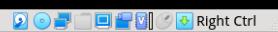
The Network Time Protocol (NTP) can be used to set the system's clock. The installation process works best with a correctly set clock.

Set the clock using NTP?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Configure the clock |

The default NTP server is almost always a good choice, but if you prefer to use another NTP server, you can enter it here.

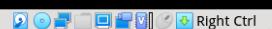
NTP server to use:

0.debian.pool.ntp.org

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Configure the clock

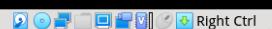
If the desired time zone is not listed, then please go back to the step "Choose language" and select a country that uses the desired time zone (the country where you live or are located).

Select your time zone:

- Moscow-01 – Kaliningrad
- Moscow+00 – Moscow**
- Moscow+01 – Samara
- Moscow+02 – Yekaterinburg
- Moscow+03 – Omsk
- Moscow+04 – Krasnoyarsk
- Moscow+05 – Irkutsk
- Moscow+06 – Yakutsk
- Moscow+07 – Vladivostok
- Moscow+08 – Magadan
- Moscow+09 – Kamchatka
- Coordinated Universal Time (UTC)

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

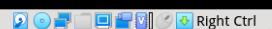
Low memory mode

[?] Debian installer main menu

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- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Создание разделов на диске

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

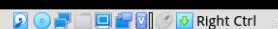
This installation step depends on one or more other steps that have not yet been performed.

Choose an installation step:

Detect disks

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



По зависимости пройдет обнаружение

File Machine View Input Devices Help

Low memory mode

### [!!] Partition disks

The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually. With guided partitioning you will still have a chance later to review and customise the results.

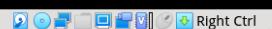
If you choose guided partitioning for an entire disk, you will next be asked which disk should be used.

Partitioning method:

- Guided – use entire disk
- Guided – use entire disk and set up LVM
- Guided – use entire disk and set up encrypted LVM
- Manual**

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Выбираем -Manual-

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

Guided partitioning  
Configure iSCSI volumes

SCSI3 (0,0,0) (sda) - 1.1 GB ATA VBOX HARDDISK

Undo changes to partitions  
Finish partitioning and write changes to disk

<Go Back>

Right Ctrl

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

You have selected an entire device to partition. If you proceed with creating a new partition table on the device, then all current partitions will be removed.

Note that you will be able to undo this operation later if you wish.

Create new empty partition table on this device?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode



<Tab> moves; <Space> selects; <Enter> activates buttons

Right Ctrl

Создаем пустую таблицу разделов в формате msdos

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

Guided partitioning  
Configure software RAID  
Configure the Logical Volume Manager  
Configure encrypted volumes  
Configure iSCSI volumes

SCSI3 (0,0,0) (sda) - 1.1 GB ATA VBOX HARDDISK  
> pri/log 1.1 GB FREE SPACE

Undo changes to partitions  
Finish partitioning and write changes to disk

<Go Back>

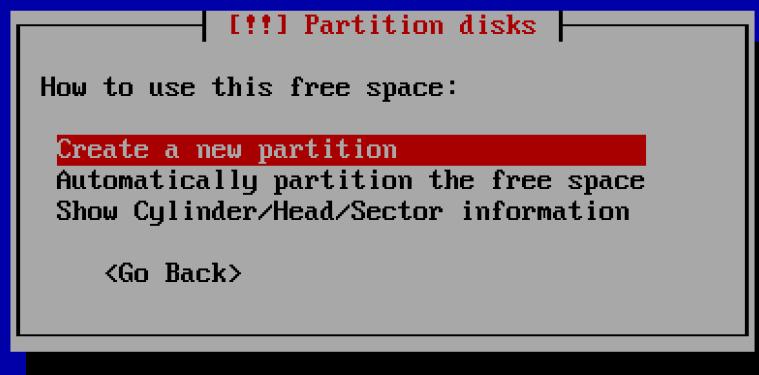
Right Ctrl

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons

Выбираем пустое пространство и задаем размер в 1GB

File Machine View Input Devices Help

Low memory mode



<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

The maximum size for this partition is 1.1 GB.

Hint: "max" can be used as a shortcut to specify the maximum size, or enter a percentage (e.g. "20%") to use that percentage of the maximum size.

New partition size:

1 GB

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

Type for the new partition:

Primary  
Logical

<Go Back>

Right Ctrl

<Tab> moves; <Space> selects; <Enter> activates buttons

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

Please choose whether you want the new partition to be created at the beginning or at the end of the available space.

Location for the new partition:

Beginning  
End

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!!] Partition disks

You are editing partition #1 of SCSI3 (0,0,0) (sda). No existing file system was detected in this partition.

Partition settings:

Use as: Ext4 journaling file system

Mount point: /  
Mount options: defaults  
Label: none  
Reserved blocks: 5%  
Typical usage: standard  
Bootable flag: off

Delete the partition  
Done setting up the partition

<Go Back>

Right Ctrl

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons

Файловую систему меняем с ext4 на btrfs

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

How to use this partition:

- Ext4 journaling file system
- Ext3 journaling file system
- Ext2 file system
- btrfs journaling file system
- JFS journaling file system
- XFS journaling file system
- FAT16 file system
- FAT32 file system
- swap area
- physical volume for encryption
- physical volume for RAID
- physical volume for LVM
- do not use the partition

<Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!!] Partition disks |

You are editing partition #1 of SCSI3 (0,0,0) (sda). No existing file system was detected in this partition.

Partition settings:

Use as: btrfs journaling file system

Mount point: /  
Mount options: defaults  
Label: none  
Bootable flag: off

Delete the partition

**Done setting up the partition**

<Go Back>

Right Ctrl

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

Guided partitioning  
Configure software RAID  
Configure the Logical Volume Manager  
Configure encrypted volumes  
Configure iSCSI volumes

SCSI3 (0,0,0) (sda) - 1.1 GB ATA VBOX HARDDISK  
> #1 primary 999.3 MB f btrfs /  
> pri/log 73.4 MB FREE SPACE

Undo changes to partitions  
Finish partitioning and write changes to disk

<Go Back>

Right Ctrl

Выбираем оставшееся место

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

The maximum size for this partition is 73.4 MB.

Hint: "max" can be used as a shortcut to specify the maximum size, or enter a percentage (e.g. "20%") to use that percentage of the maximum size.

New partition size:

73.4 MB

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!!] Partition disks

You are editing partition #2 of SCSI3 (0,0,0) (sda). No existing file system was detected in this partition.

Partition settings:

Use as: Ext4 journaling file system

Mount point: /home  
Mount options: defaults  
Label:  
Reserved blocks: 5%  
Typical usage: standard  
Bootable flag: off

Delete the partition  
Done setting up the partition

<Go Back>

Right Ctrl

Место монтирования указываем как /boot

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

Mount point for this partition:

/ - the root file system  
/boot - static files of the boot loader  
/home - user home directories  
/tmp - temporary files  
/usr - static data  
/var - variable data  
/srv - data for services provided by this system  
/opt - add-on application software packages  
/usr/local - local hierarchy  
Enter manually  
Do not mount it

<Go Back>

Right Ctrl

<Tab> moves; <Space> selects; <Enter> activates buttons

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

You are editing partition #2 of SCSI3 (0,0,0) (sda). No existing file system was detected in this partition.

Partition settings:

Use as:	Ext4 journaling file system
Mount point:	/boot
Mount options:	defaults
Label:	none
Reserved blocks:	5%
Typical usage:	standard
Bootable flag:	off

Delete the partition

**Done setting up the partition**

<Go Back>

Right Ctrl

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons

File Machine View Input Devices Help

Low memory mode

[!!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

Guided partitioning

Configure software RAID

Configure the Logical Volume Manager

Configure encrypted volumes

Configure iSCSI volumes

SCSI3 (0,0,0) (sda) - 1.1 GB ATA VBOX HARDDISK

> #1 primary 999.3 MB f btrfs /  
> #2 primary 72.4 MB f ext4 /boot

Undo changes to partitions

Finish partitioning and write changes to disk

<Go Back>

Right Ctrl

Жмем завершить

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

You have not selected any partitions for use as swap space. Enabling swap space is recommended so that the system can make better use of the available physical memory, and so that it behaves better when physical memory is scarce. You may experience installation problems if you do not have enough physical memory.

If you do not go back to the partitioning menu and assign a swap partition, the installation will continue without swap space.

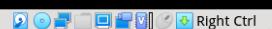
Do you want to return to the partitioning menu?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



Игнорируем сообщение что отсутствует раздел swap

File Machine View Input Devices Help

Low memory mode

[!!] Partition disks

If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.

The partition tables of the following devices are changed:  
SCSI3 (0,0,0) (sda)

The following partitions are going to be formatted:  
partition #1 of SCSI3 (0,0,0) (sda) as btrfs  
partition #2 of SCSI3 (0,0,0) (sda) as ext4

Write the changes to disks?

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



Применяем изменения

File Machine View Input Devices Help

Low memory mode

[.] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords
- Free memory (low memory install)
- Configure the clock
- Detect disks
- Partition disks
- Install the base system
- Configure the package manager
- Select and install software
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell**
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Переходим в пункт -Execute a shell-

File Machine View Input Devices Help

Low memory mode

[!] Execute a shell

Interactive shell

After this message, you will be running "ash", a Bourne-shell clone.

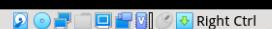
The root file system is a RAM disk. The hard disk file systems are mounted on "/target". The editor available to you is nano. It's very small and easy to figure out. To get an idea of what Unix utilities are available to you, use the "help" command.

Use the "exit" command to return to the installation menu.

[Go Back](#)

[Continue](#)

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

BusyBox v1.30.1 (Debian 1:1.30.1-4) built-in shell (ash)  
Enter 'help' for a list of built-in commands.

```
/bin/sh: can't access tty: job control turned off
~ # df -h
Filesystem      Size   Used Available Use% Mounted on
none            48.3M   40.0K    48.2M   0% /run
devtmpfs        229.9M     0    229.9M   0% /dev
/dev/sr0         335.0M   335.0M     0 100% /cdrom
/dev/sda1        953.0M   16.3M   840.8M   2% /target
/dev/sda2        62.8M    1.3M    56.7M   2% /target/boot
~ # mount
rootfs on / type rootfs (rw,size=494260k,nr_inodes=58841)
none on /run type tmpfs (rw,nosuid,relatime,size=49428k,mode=755)
none on /proc type proc (rw,relatime)
none on /sys type sysfs (rw,relatime)
devtmpfs on /dev type devtmpfs (rw,relatime,size=235376k,nr_inodes=58844,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
/dev/sr0 on /cdrom type iso9660 (ro,relatime,nojoliet,check=s,map=n,blocksize=2048)
/dev/sda1 on /target type btrfs (rw,relatime,space_cache,subvolid=5,subvol=/)
/dev/sda2 on /target/boot type ext4 (rw,relatime)
~ # mount -o remount,compress=zstd /target/
~ # mount
rootfs on / type rootfs (rw,size=494260k,nr_inodes=58841)
none on /run type tmpfs (rw,nosuid,relatime,size=49428k,mode=755)
none on /proc type proc (rw,relatime)
none on /sys type sysfs (rw,relatime)
devtmpfs on /dev type devtmpfs (rw,relatime,size=235376k,nr_inodes=58844,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
/dev/sr0 on /cdrom type iso9660 (ro,relatime,nojoliet,check=s,map=n,blocksize=2048)
/dev/sda1 on /target type btrfs (rw,relatime,compress=zstd,space_cache,subvolid=5,subvol=/)
/dev/sda2 on /target/boot type ext4 (rw,relatime)
~ # exit
```

Right Ctrl

Командой **mount** можем убедится что наш диск  
примонтирован в **/target**

Перемонтируем раздел включив компрессию

**mount -o remount,compress=zstd /target/**

Командой **mount** можно проверить добавился ли параметр  
Выходим из консоли

File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords
- Free memory (low memory install)
- Configure the clock
- Detect disks
- Partition disks
- Install the base system**
- Configure the package manager
- Select and install software
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Начинаем установку

File Machine View Input Devices Help

Low memory mode

[?] Install the base system

The list shows the available kernels. Please choose one of them in order to make the system bootable from the hard drive.

Kernel to install:

linux-image-4.19.0-6-amd64  
linux-image-amd64  
none

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Выбираем ядро

File Machine View Input Devices Help

Low memory mode

### [?] Install the base system

The primary function of an initrd is to allow the kernel to mount the root file system. It therefore needs to contain all drivers and supporting programs required to do that.

A generic initrd is much larger than a targeted one and may even be so large that some boot loaders are unable to load it but has the advantage that it can be used to boot the target system on almost any hardware. With the smaller targeted initrd there is a very small chance that not all needed drivers are included.

Drivers to include in the initrd:

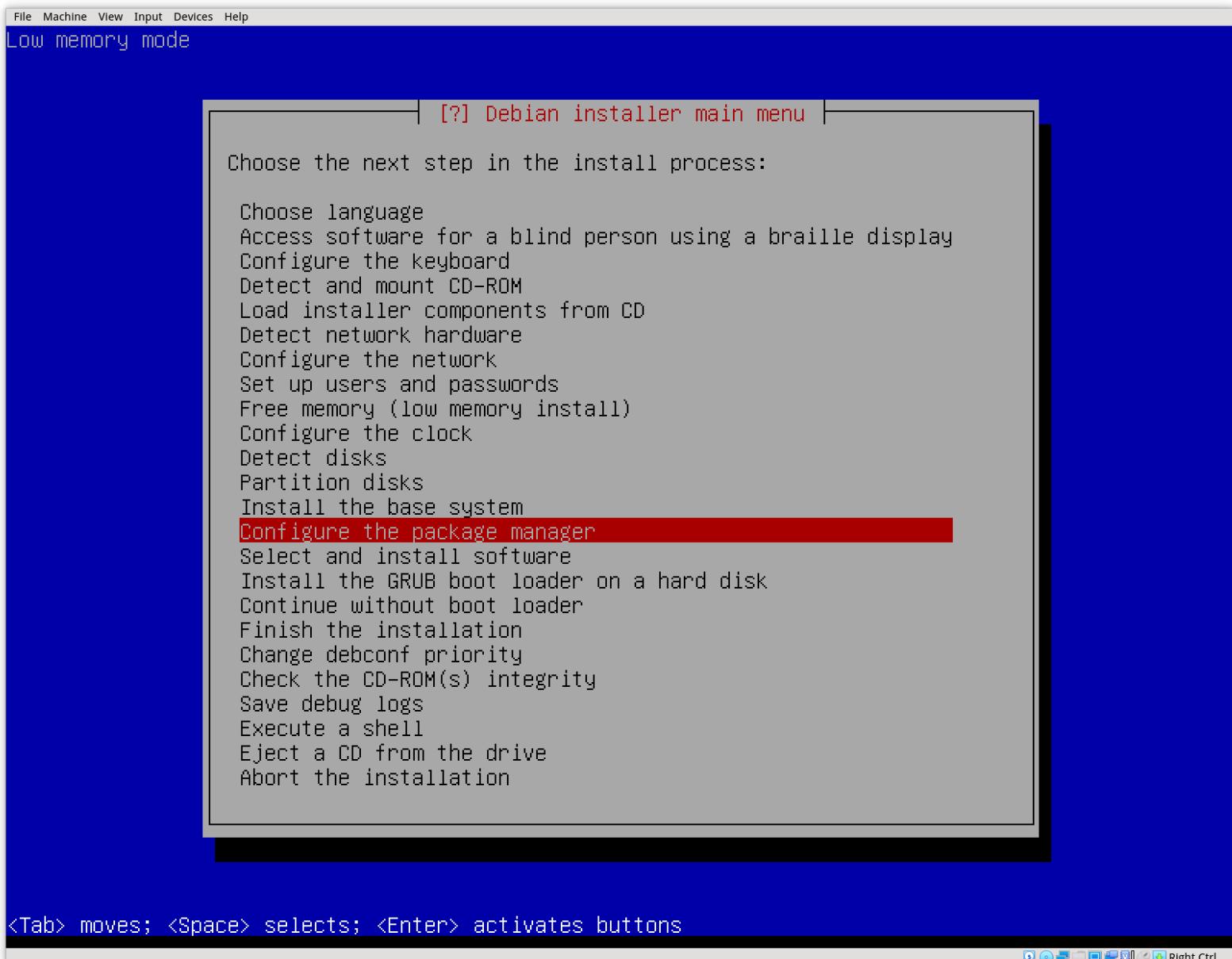
generic: include all available drivers  
targeted: only include drivers needed for this system

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Выбираем targeted



Конфигурируем менеджер пакетов

File Machine View Input Devices Help

Low memory mode

[!] Configure the package manager

Your installation CD or DVD has been scanned; its label is:

Debian GNU/Linux 10.2.0 \_Buster\_ - Official amd64 NETINST 20191116-09:56

You now have the option to scan additional CDs or DVDs for use by the package manager (apt). Normally these should be from the same set as the installation CD/DVD. If you do not have any additional CDs or DVDs available, this step can just be skipped.

If you wish to scan another CD or DVD, please insert it now.

Scan another CD or DVD?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Configure the package manager

A network mirror can be used to supplement the software that is included on the CD-ROM. This may also make newer versions of software available.

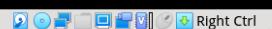
You are installing from a netinst CD, which by itself only allows installation of a very minimal base system. Use a mirror to install a more complete system.

Use a network mirror?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Configure the package manager

Please select the protocol to be used for downloading files. If unsure, select "http"; it is less prone to problems involving firewalls.

Protocol for file downloads:

**http**  
https  
ftp

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Configure the package manager

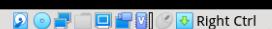
The goal is to find a mirror of the Debian archive that is close to you on the network -- be aware that nearby countries, or even your own, may not be the best choice.

Debian archive mirror country:

- Indonesia
- Iran, Islamic Republic of
- Israel
- Italy
- Japan
- Kazakhstan
- Kenya
- Korea, Republic of
- Latvia
- Lithuania
- Luxembourg
- Macedonia, Republic of
- Mexico
- Moldova
- Netherlands
- New Caledonia
- New Zealand
- Norway
- Philippines
- Poland
- Portugal
- Romania
- Russian Federation

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Right Ctrl

File Machine View Input Devices Help

Low memory mode

[!] Configure the package manager

Please select a Debian archive mirror. You should use a mirror in your country or region if you do not know which mirror has the best Internet connection to you.

Usually, deb.debian.org is a good choice.

Debian archive mirror:

- mirror.mephi.ru
- deb.debian.org**
- debian-archive.trafficmanager.net
- mirror.corbina.net
- ftp.psn.ru
- ftp.ru.debian.org
- mirror.truenetwork.ru
- mirrors.powernet.com.ru

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Configure the package manager

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of  
"http://[:user][:pass]@host[:port]/".

HTTP proxy information (blank for none):

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Configure the package manager

Some non-free software has been made to work with Debian. Though this software is not at all a part of Debian, standard Debian tools can be used to install it. This software has varying licenses which may prevent you from using, modifying, or sharing it.

Please choose whether you want to have it available anyway.

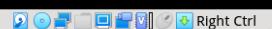
Use non-free software?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Configure the package manager

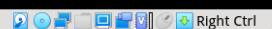
By default source repositories are listed in /etc/apt/sources.list (with appropriate "deb-src" lines) so that "apt-get source" works. However, if you don't need this feature, you can disable those entries and save some bandwidth during "apt-get update" operations.

Enable source repositories in APT?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



Low memory mode

[?] Configure the package manager

Debian has two services that provide updates to releases: security and release updates.

Security updates help to keep your system secured against attacks. Enabling this service is strongly recommended.

Release updates provide more current versions for software that changes relatively frequently and where not having the latest version could reduce the usability of the software. It also provides regression fixes. This service is only available for stable and oldstable releases.

Backported software are adapted from the development version to work with this release. Although this software has not gone through such complete testing as that contained in the release, it includes newer versions of some applications which may provide useful features. Enabling backports here does not cause any of them to be installed by default; it only allows you to manually select backports to use.

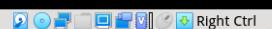
Services to use:

- [\*] security updates (from security.debian.org)
- [\*] release updates
- [\*] backported software

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords
- Free memory (low memory install)
- Configure the clock
- Detect disks
- Partition disks
- Install the base system
- Configure the package manager
- Select and install software**
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Ставим базовый софт

File Machine View Input Devices Help

Low memory mode

[?] Configuring discover

Applying updates on a frequent basis is an important part of keeping the system secure.

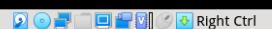
By default, security updates are not automatically installed, as security advisories should be reviewed before manual installation of the updates using standard package management tools.

Alternatively the unattended-upgrades package can be installed, which will install security updates automatically. Note however that automatic installation of updates may occasionally cause unexpected downtime of services provided by this machine in the rare cases where the update is not fully backward-compatible, or where the security advisory requires the administrator to perform some other manual operation.

Updates management on this system:

No automatic updates  
Install security updates automatically

<Tab> moves; <Space> selects; <Enter> activates buttons



Обновлять будем вручную

File Machine View Input Devices Help

Low memory mode

[!] Configuring popularity-contest

The system may anonymously supply the distribution developers with statistics about the most used packages on this system. This information influences decisions such as which packages should go on the first distribution CD.

If you choose to participate, the automatic submission script will run once every week, sending statistics to the distribution developers. The collected statistics can be viewed on <https://popcon.debian.org/>.

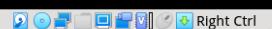
This choice can be later modified by running "dpkg-reconfigure popularity-contest".

Participate in the package usage survey?

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Software selection

At the moment, only the core of the system is installed. To tune the system to your needs, you can choose to install one or more of the following predefined collections of software.

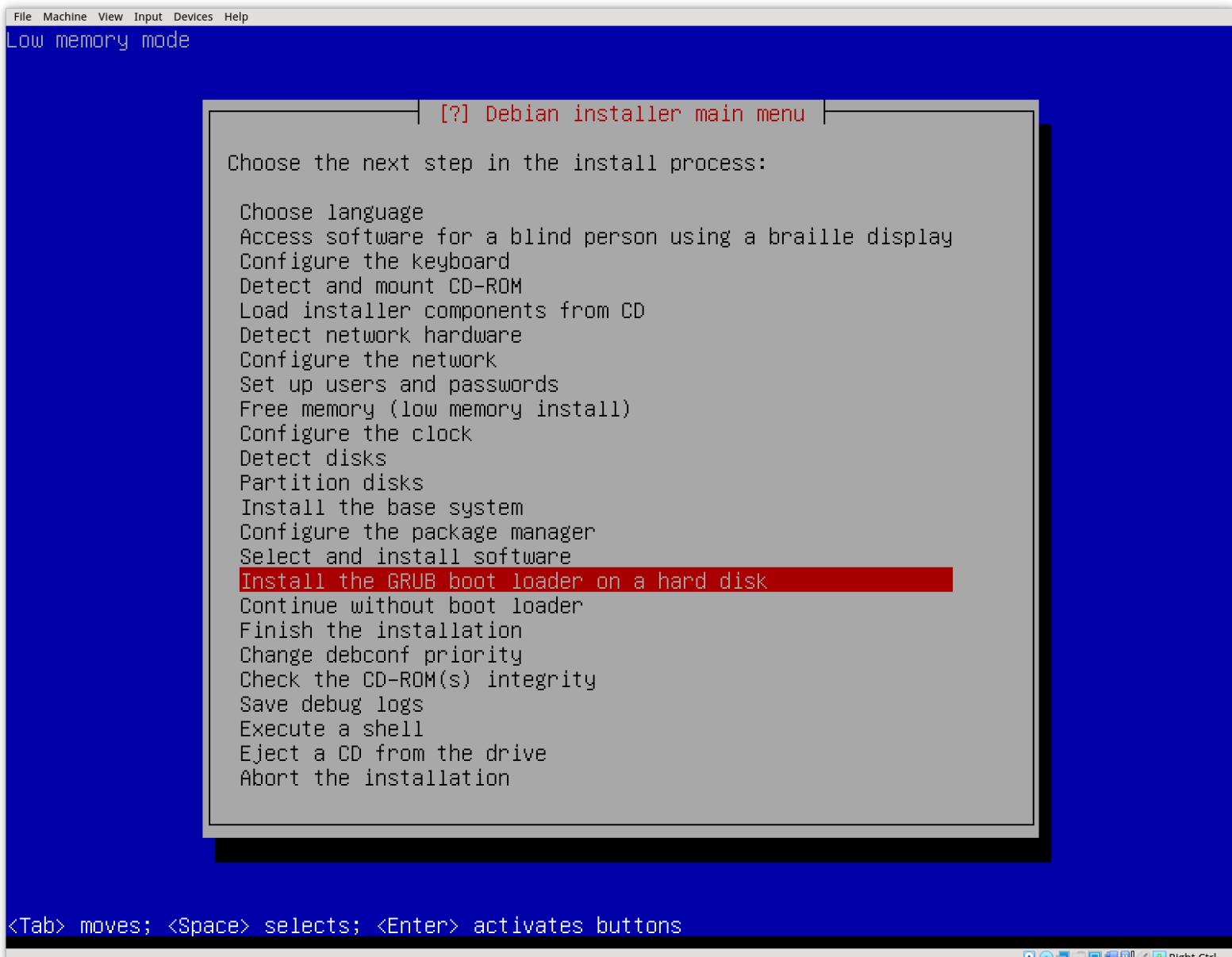
Choose software to install:

- [ ] Debian desktop environment
- [ ] ... GNOME
- [ ] ... Xfce
- [ ] ... KDE Plasma
- [ ] ... Cinnamon
- [ ] ... MATE
- [ ] ... LXDE
- [ ] ... LXQt
- [ ] web server
- [ ] print server
- [\*] SSH server
- [\*] standard system utilities

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons





Устанавливаем загрузчик

File Machine View Input Devices Help

Low memory mode

[!] Install the GRUB boot loader on a hard disk

It seems that this new installation is the only operating system on this computer. If so, it should be safe to install the GRUB boot loader to the master boot record of your first hard drive.

Warning: If the installer failed to detect another operating system that is present on your computer, modifying the master boot record will make that operating system temporarily unbootable, though GRUB can be manually configured later to boot it.

Install the GRUB boot loader to the master boot record?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!] Install the GRUB boot loader on a hard disk

You need to make the newly installed system bootable, by installing the GRUB boot loader on a bootable device. The usual way to do this is to install GRUB on the master boot record of your first hard drive. If you prefer, you can install GRUB elsewhere on the drive, or to another drive, or even to a floppy.

Device for boot loader installation:

Enter device manually  
/dev/sda (ata-VBOX\_HARDDISK\_VBf8e4cce1-9ba93303)

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[.] Install the GRUB boot loader on a hard disk

It seems that this computer is configured to boot via EFI, but maybe that configuration will not work for booting from the hard drive. Some EFI firmware implementations do not meet the EFI specification (i.e. they are buggy!) and do not support proper configuration of boot options from system hard drives.

A workaround for this problem is to install an extra copy of the EFI version of the GRUB boot loader to a fallback location, the "removable media path". Almost all EFI systems, no matter how buggy, will boot GRUB that way.

Warning: If the installer failed to detect another operating system that is present on your computer that also depends on this fallback, installing GRUB there will make that operating system temporarily unbootable. GRUB can be manually configured later to boot it if necessary.

Force GRUB installation to the EFI removable media path?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[?] Debian installer main menu

Choose the next step in the install process:

- Choose language
- Access software for a blind person using a braille display
- Configure the keyboard
- Detect and mount CD-ROM
- Load installer components from CD
- Detect network hardware
- Configure the network
- Set up users and passwords
- Free memory (low memory install)
- Configure the clock
- Detect disks
- Partition disks
- Install the base system
- Configure the package manager
- Select and install software
- Install the GRUB boot loader on a hard disk
- Continue without boot loader
- Finish the installation**
- Change debconf priority
- Check the CD-ROM(s) integrity
- Save debug logs
- Execute a shell
- Eject a CD from the drive
- Abort the installation

<Tab> moves; <Space> selects; <Enter> activates buttons



Завершаем установку

File Machine View Input Devices Help

Low memory mode

[.] Finish the installation

System clocks are generally set to Coordinated Universal Time (UTC). The operating system uses your time zone to convert system time into local time. This is recommended unless you also use another operating system that expects the clock to be set to local time.

Is the system clock set to UTC?

<Go Back>

<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

Low memory mode

[!!] Finish the installation

Installation complete

Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media, so that you boot into the new system rather than restarting the installation.

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons



File Machine View Input Devices Help

GNU GRUB version 2.02+dfsg1-20

\*Debian GNU/Linux  
Advanced options for Debian GNU/Linux

Use the ↑ and ↓ keys to select which entry is highlighted.  
Press enter to boot the selected OS, 'e' to edit the commands  
before booting or 'c' for a command-line.

Right Ctrl

После перезагрузки, загрузится уже установленная система

```
File Machine View Input Devices Help

Debian GNU/Linux 10 debian-init tty1

debian-init login: root
Password:
Linux debian-init 4.19.0-6-amd64 #1 SMP Debian 4.19.67-2+deb10u2 (2019-11-11) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@debian-init:~# -
root@debian-init:~# apt install sudo
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  sudo
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 1,244 kB of archives.
After this operation, 3,878 kB of additional disk space will be used.
Get:1 http://security.debian.org/debian-security buster/updates/main amd64 sudo amd64 1.8.27-1+deb10
u1 [1,244 kB]
Fetched 1,244 kB in 0s (3,301 kB/s)
Selecting previously unselected package sudo.
(Reading database ... 22332 files and directories currently installed.)
Preparing to unpack .../sudo_1.8.27-1+deb10u1_amd64.deb ...
Unpacking sudo (1.8.27-1+deb10u1) ...
Setting up sudo (1.8.27-1+deb10u1) ...
Processing triggers for systemd (241-7~deb10u2) ...
root@debian-init:~# adduser user sudo
Adding user `user' to group `sudo' ...
Adding user user to group sudo
Done.
root@debian-init:~# exit_

```

Логинимся как root (т.к. sudo в комплект не входит)

Устанавливаем пакет sudo (чтобы производить все дальнейшие настройки не переходя в учетку суперпользователя)

**apt install sudo**

Добавляем пользователя в группу sudo

**adduser user sudo**

```
File Machine View Input Devices Help

Debian GNU/Linux 10 debian-init tty1

debian-init login: user
Password:
Linux debian-init 4.19.0-6-amd64 #1 SMP Debian 4.19.67-2+deb10u2 (2019-11-11) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
user@debian-init:~$ sudo apt install openssh-server

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

[sudo] password for user: _
```

Заходим под обычной учеткой

```
File Machine View Input Devices Help
x.service.
Setting up libjbig0:amd64 (2.1-3.1+b2) ...
Setting up libjpeg62-turbo:amd64 (1:1.5.2-2+b1) ...
Setting up libnginx-mod-http-auth-pam (1.14.2-2+deb10u1) ...
Setting up libwebp6:amd64 (0.6.1-2) ...
Setting up fonts-dejavu-core (2.37-1) ...
Setting up libnginx-mod-http-echo (1.14.2-2+deb10u1) ...
Setting up libnginx-mod-http-subs-filter (1.14.2-2+deb10u1) ...
Setting up libxslt1.1:amd64 (1.1.32-2.2~deb10u1) ...
Setting up libgeoip1:amd64 (1.6.12-1) ...
Setting up libtiff5:amd64 (4.1.0+git191117-2~deb10u1) ...
Setting up geoip-database (20181108-1) ...
Setting up libnginx-mod-http-dav-ext (1.14.2-2+deb10u1) ...
Setting up libnginx-mod-mail (1.14.2-2+deb10u1) ...
Setting up fontconfig-config (2.13.1-2) ...
Setting up libnginx-mod-stream (1.14.2-2+deb10u1) ...
Setting up libnginx-mod-http-upstream-fair (1.14.2-2+deb10u1) ...
Setting up libnginx-mod-http-xslt-filter (1.14.2-2+deb10u1) ...
Setting up libnginx-mod-http-geoip (1.14.2-2+deb10u1) ...
Setting up libfontconfig1:amd64 (2.13.1-2) ...
Setting up libgd3:amd64 (2.2.5-5.2) ...
Setting up libnginx-mod-http-image-filter (1.14.2-2+deb10u1) ...
Setting up nginx-full (1.14.2-2+deb10u1) ...
Setting up nginx (1.14.2-2+deb10u1) ...
Processing triggers for systemd (241-7~deb10u2) ...
Processing triggers for libc-bin (2.28-10) ...
user@debian-init:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            228M    0  228M   0% /dev
tmpfs           49M  1.6M   47M   4% /run
/dev/sda1       953M  627M   82M  89% /
tmpfs           242M    0  242M   0% /dev/shm
tmpfs            5.0M    0  5.0M   0% /run/lock
tmpfs           242M    0  242M   0% /sys/fs/cgroup
/dev/sda2        63M   46M   16M  75% /boot
tmpfs           49M    0   49M   0% /run/user/1000
user@debian-init:~$ sudo btrfs filesystem defragment -rvczstd /

```

В установленной системе не включен параметр сжатия, нужно будет прописать команду

**sudo btrfs filesystem defragment -rvczstd /**

```
File Machine View Input Devices Help
/root/.bashrc
/root/.bash_history
total 16 failures
user@debian-init:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            228M    0  228M   0% /dev
tmpfs           49M  1.6M  47M   4% /run
/dev/sda1        953M  406M  307M  57% /
tmpfs           242M    0  242M   0% /dev/shm
tmpfs           5.0M    0  5.0M   0% /run/lock
tmpfs           242M    0  242M   0% /sys/fs/cgroup
/dev/sda2        63M   46M   16M  75% /boot
tmpfs            49M    0   49M   0% /run/user/1000
user@debian-init:~$ sudo btrfs filesystem usage /
Overall:
  Device size:          953.00MiB
  Device allocated:     952.00MiB
  Device unallocated:   1.00MiB
  Device missing:       0.00B
  Used:                 389.30MiB
  Free (estimated):    306.39MiB   (min: 306.39MiB)
  Data ratio:           1.00
  Metadata ratio:       2.00
  Global reserve:       16.00MiB   (used: 0.00B)

Data,single: Size:636.75MiB, Used:330.36MiB
  /dev/sda1    636.75MiB

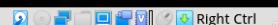
Metadata,DUP: Size:149.62MiB, Used:29.45MiB
  /dev/sda1    299.25MiB

System,DUP: Size:8.00MiB, Used:16.00KiB
  /dev/sda1    16.00MiB

Unallocated:
  /dev/sda1    1.00MiB
user@debian-init:~$ _
```

После этого свободного места станет больше  
Посмотрим статистику использования файловой системы  
**sudo btrfs filesystem usage /**

```
File Machine View Input Devices Help
WARNING:
Full balance without filters requested. This operation is very
intense and takes potentially very long. It is recommended to
use the balance filters to narrow down the scope of balance.
Use 'btrfs balance start --full-balance' option to skip this
warning. The operation will start in 10 seconds.
Use Ctrl-C to stop it.
10 9 8 7 6 5 4 3 2 1
Starting balance without any filters.
ERROR: error during balancing '/': No space left on device
There may be more info in syslog - try dmesg | tail
user@debian-init:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            228M    0  228M   0% /dev
tmpfs           49M  1.6M  47M   4% /run
/dev/sda1        953M  406M  366M  53% /
tmpfs           242M    0  242M   0% /dev/shm
tmpfs            5.0M    0  5.0M   0% /run/lock
tmpfs           242M    0  242M   0% /sys/fs/cgroup
/dev/sda2         63M   46M   16M  75% /boot
tmpfs            49M    0   49M   0% /run/user/1000
user@debian-init:~$ sudo btrfs balance start --full-balance /
Done, had to relocate 6 out of 6 chunks
user@debian-init:~$ sudo btrfs balance start /
WARNING:
Full balance without filters requested. This operation is very
intense and takes potentially very long. It is recommended to
use the balance filters to narrow down the scope of balance.
Use 'btrfs balance start --full-balance' option to skip this
warning. The operation will start in 10 seconds.
Use Ctrl-C to stop it.
10 9 8 7 6 5 4 3 2 1
Starting balance without any filters.
Done, had to relocate 6 out of 6 chunks
user@debian-init:~$
```



Высвободим ещё немного места

**sudo btrfs balance start /**

```
File Machine View Input Devices Help
user@debian-init:~$ sudo dd if=/dev/zero of=/mnt/zero.file bs=4K status=progress
dd: error writing '/mnt/zero.file': No space left on device
104640+0 records in
104639+0 records out
428601344 bytes (429 MB, 409 MiB) copied, 0.703807 s, 609 MB/s
user@debian-init:~$ sudo rm -v /mnt/zero.file
removed '/mnt/zero.file'
user@debian-init:~$ sudo btrfs filesystem usage /
Overall:
  Device size:          953.00MiB
  Device allocated:    952.00MiB
  Device unallocated:   1.00MiB
  Device missing:       0.00B
  Used:                389.87MiB
  Free (estimated):   408.79MiB   (min: 408.79MiB)
  Data ratio:           1.00
  Metadata ratio:      2.00
  Global reserve:      16.00MiB   (used: 0.00B)

Data,single: Size:739.25MiB, Used:330.46MiB
  /dev/sda1    739.25MiB

Metadata,DUP: Size:74.38MiB, Used:29.69MiB
  /dev/sda1    148.75MiB

System,DUP: Size:32.00MiB, Used:16.00KiB
  /dev/sda1    64.00MiB

Unallocated:
  /dev/sda1    1.00MiB
user@debian-init:~$ sudo poweroff
```

Хотя свободное место и появилось, диск нашей виртуальной машины не сможет сжаться пока мы не почистим свободное место, забив его 0

**sudo dd if=/dev/zero of=/mnt/zero.file bs=4K status=progress**  
**sudo rm -v /mnt/zero.file**

Выключаем систему

```
init_test $ ls -lh
total 1.4G
335M Jan 22 00:37 debian-10.2.0-amd64-netinst.iso
4.0K Jan 24 01:55 debian-10.2.0-amd64-netinst.iso.Debian_64
1009M Jan 24 01:55 debian-10.2.0-amd64-netinst.iso.vdi
2.6K Jan 24 01:14 init_vm.sh
init_test $ VBoxManage modifymedium ./debian-10.2.0-amd64-netinst.iso.vdi --compact
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
init_test $ ls -lh
total 951M
335M Jan 22 00:37 debian-10.2.0-amd64-netinst.iso
4.0K Jan 24 01:55 debian-10.2.0-amd64-netinst.iso.Debian_64
617M Jan 24 01:57 debian-10.2.0-amd64-netinst.iso.vdi
2.6K Jan 24 01:14 init_vm.sh
```

А теперь сожмем наш диск, не зря же нулями его забивали

**VBoxManage modifymedium ./debian-10.2.0-amd64-netinst.iso.vdi --compact**

И вместо 1GB диск занимает 620MB

```
File Machine View Input Devices Help
GNU nano 3.2          /etc/default/grub          Modified

# If you change this file, run 'update-grub' afterwards to update
# /boot/grub/grub.cfg.
# For full documentation of the options in this file, see:
#   info -f grub -n 'Simple configuration'

GRUB_DEFAULT=0
GRUB_TIMEOUT=1
GRUB_DISTRIBUTOR=`lsb_release -i -s 2> /dev/null || echo Debian`
GRUB_CMDLINE_LINUX_DEFAULT="quiet"
GRUB_CMDLINE_LINUX=""

# Uncomment to enable BadRAM filtering, modify to suit your needs
# This works with Linux (no patch required) and with any kernel that obtains
# the memory map information from GRUB (GNU Mach, Kernel of FreeBSD ...)
#GRUB_BADRAM="0x01234567,0xfefefefe,0x89abcdef,0xefefefef"

# Uncomment to disable graphical terminal (grub-pc only)
#GRUB_TERMINAL=console

# The resolution used on graphical terminal
# note that you can use only modes which your graphic card supports via VBE
# you can see them in real GRUB with the command 'vbeinfo'
#GRUB_GFXMODE=640x480

# Uncomment if you don't want GRUB to pass "root=UUID=xxx" parameter to Linux
#GRUB_DISABLE_LINUX_UUID=true

# Uncomment to disable generation of recovery mode menu entries
#GRUB_DISABLE_RECOVERY="true"

# Uncomment to get a beep at grub start
#GRUB_INIT_TUNE="480 440 1"
```

Можно ускорить загрузку сократив таймаут при запуске с 5 секунд до 1

**sudo nano /etc/default/grub**

```
File Machine View Input Devices Help
user@debian-init:~$ sudo update-grub
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-4.19.0-6-amd64
Found initrd image: /boot/initrd.img-4.19.0-6-amd64
done
user@debian-init:~$ _
```

Нужно обновить конфигурацию загрузки,  
чтобы применить изменения

**sudo update-grub**