Министерство цифрового развития, связи и массовых коммуникаций Российской Федерации

Ордена Трудового Красного Знамени

федеральное государственное бюджетное образовательное учреждение высшего образования

МОСКОВСКИЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ СВЯЗИ И ИНФОРМАТИКИ

Кафедра «Математической кибернетики и информационных технологий»

Основы DevOps

Лабораторная работа №1

Выполнил: Ибрахим Баро Йиди

студент группы БВТ2101

Иванов И.И.

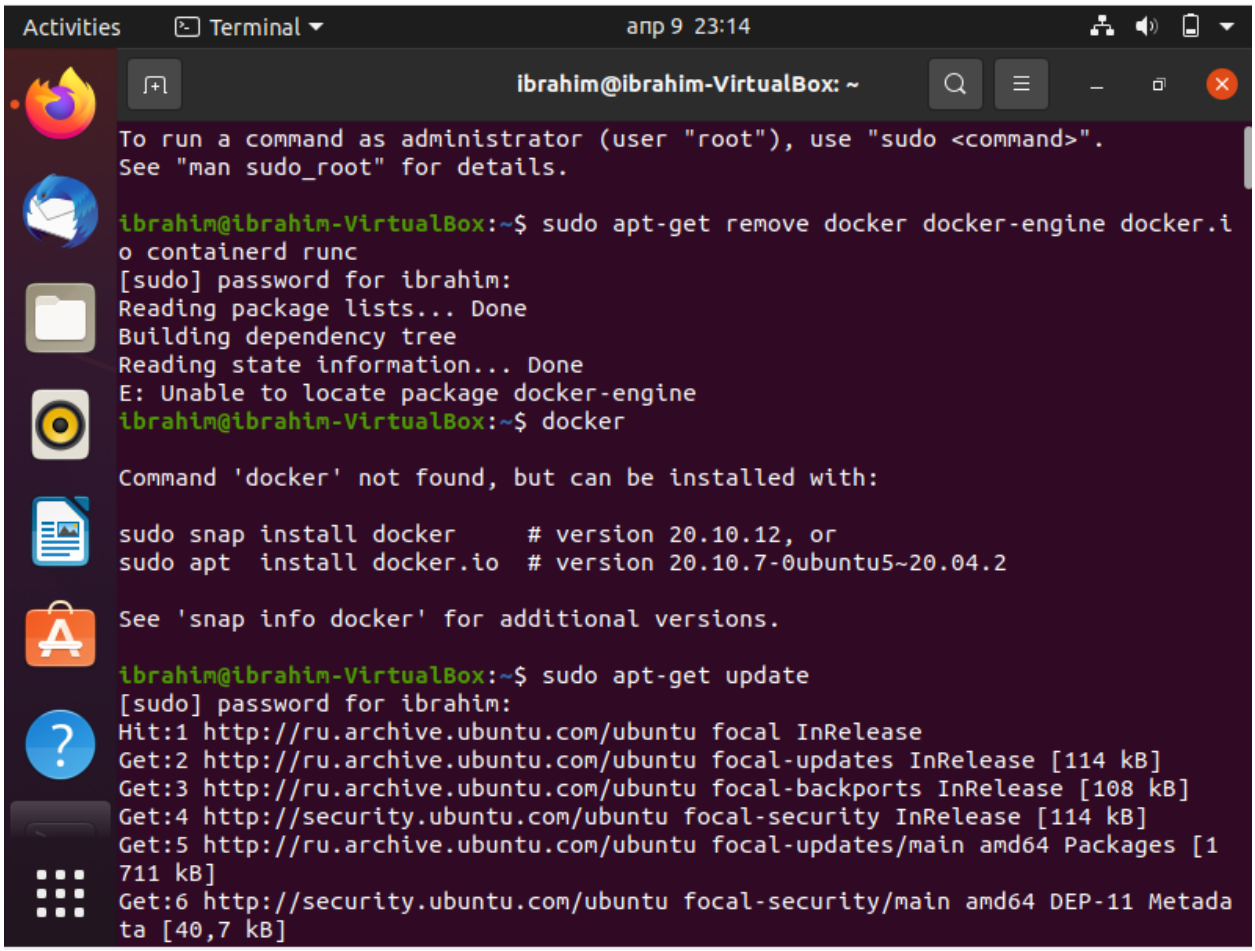
Выполнение

Установка Docker

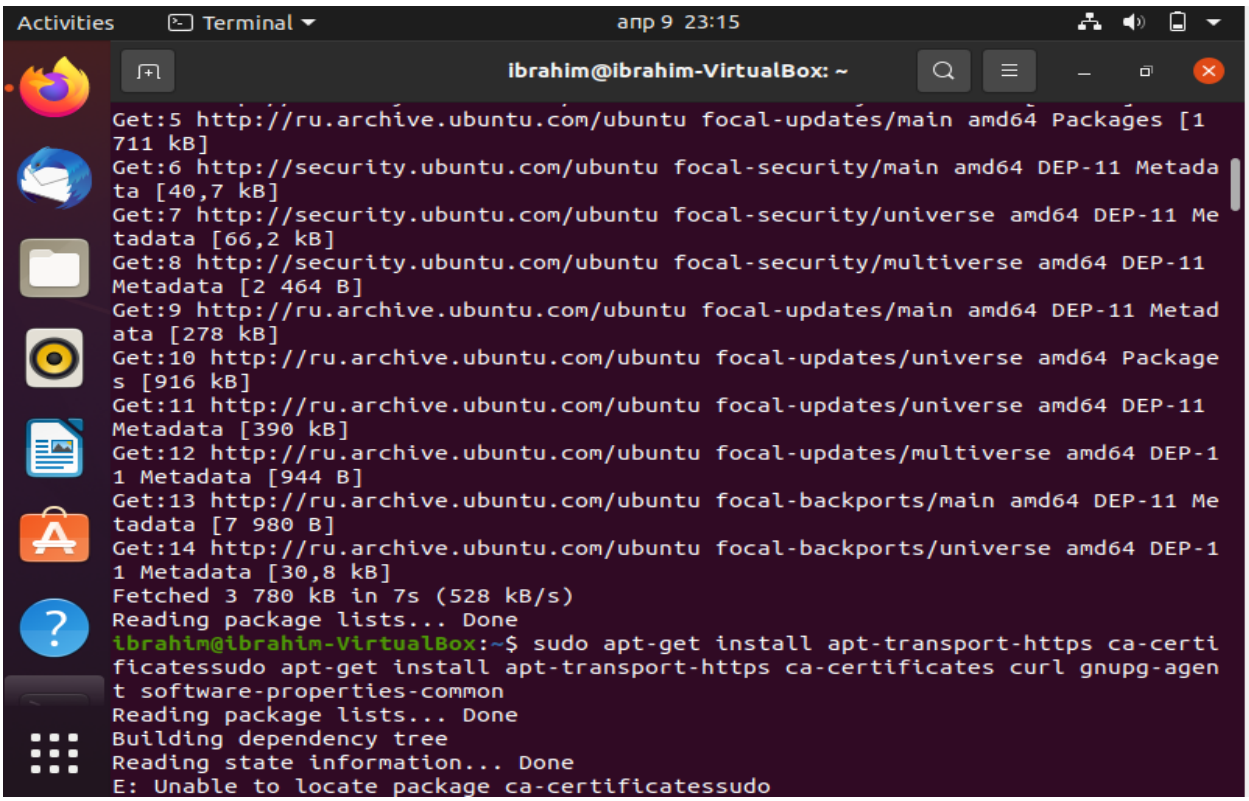
Install using the repository

Команды для настройки репозитория Docker:

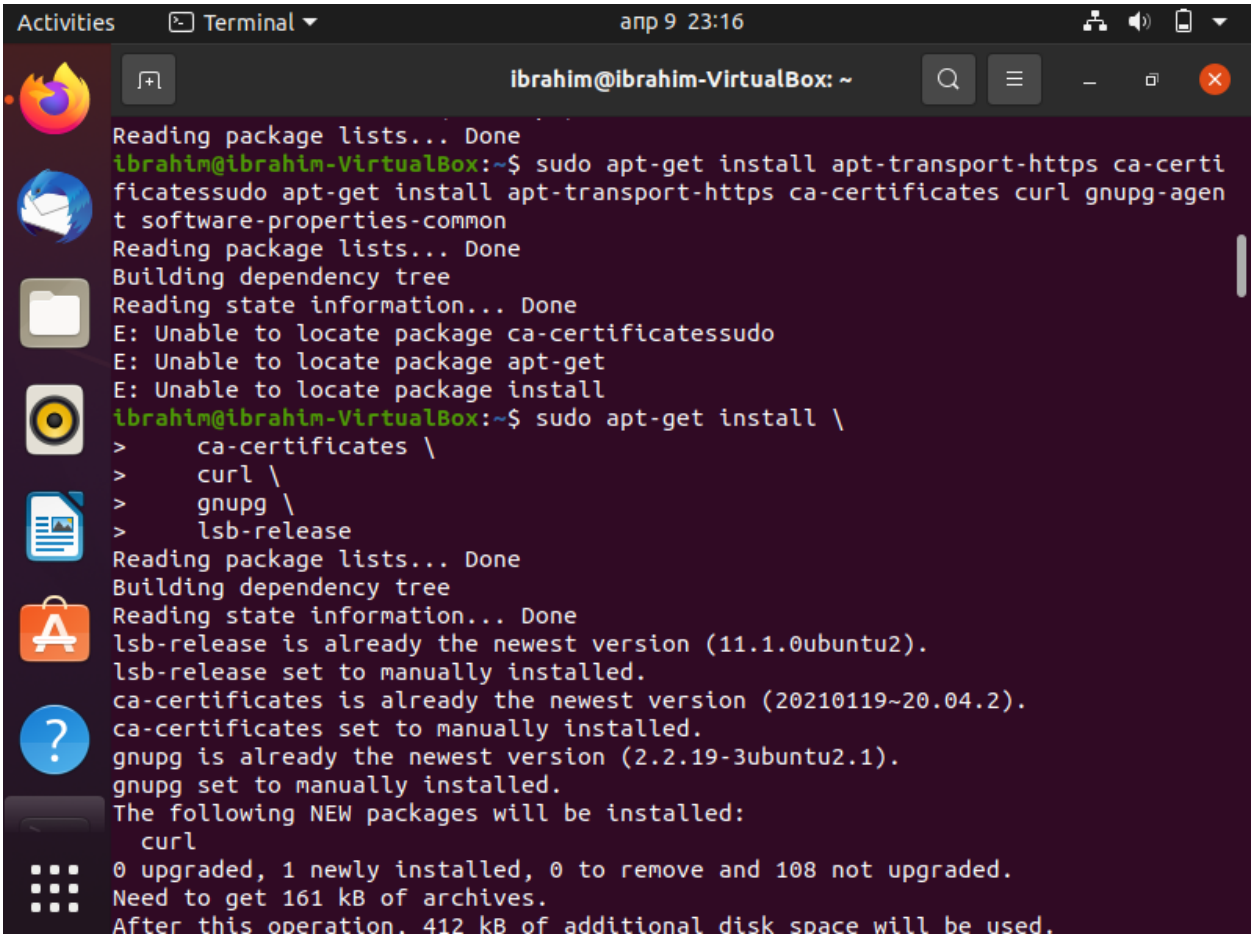
sudo apt-get update



sudo apt-get install apt-transport-https ca-certificates curl gnupg-agent software-properties-common

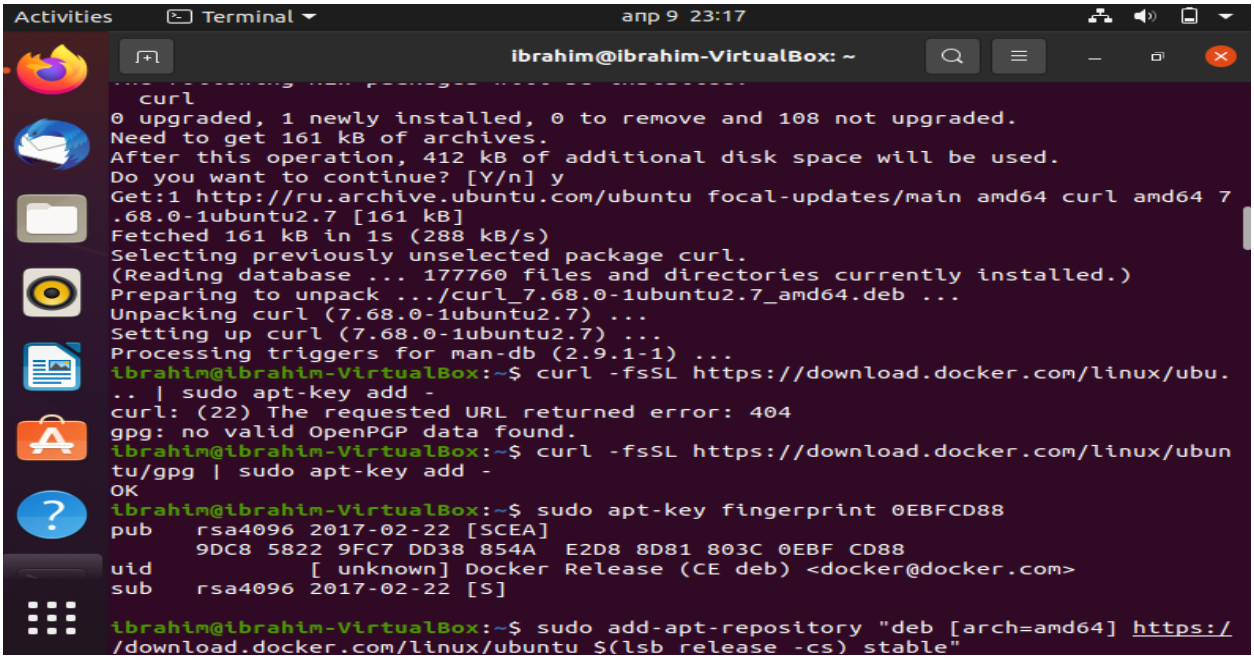



```
sudo apt-get install \
    ca-certificates \
    curl \
    gnupg \
    lsb-release
```



curl -fsSL https://download.docker.com/linux/ubuntu.gpg. | sudo apt-key add –

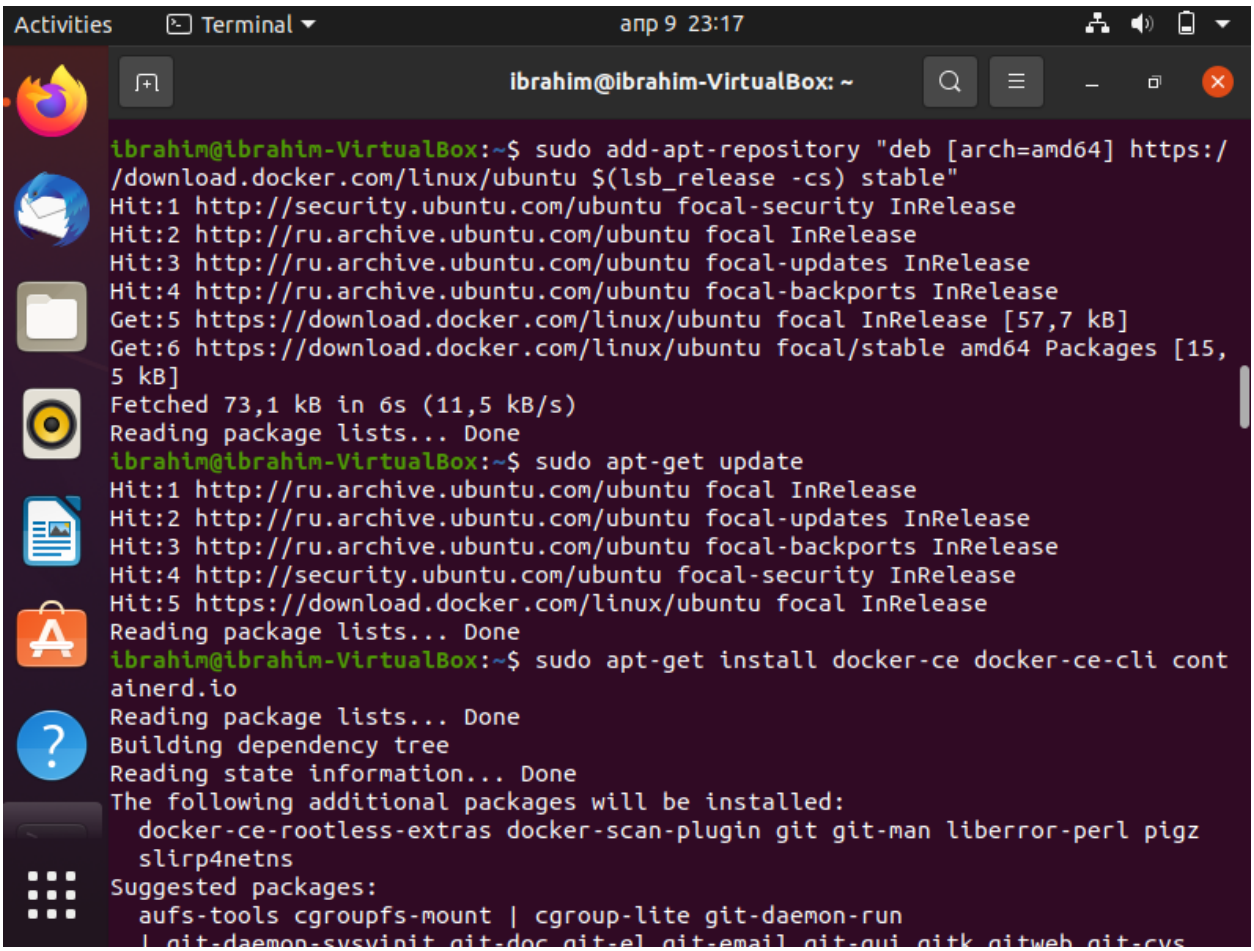
sudo apt-key fingerprint 0EBFCD88

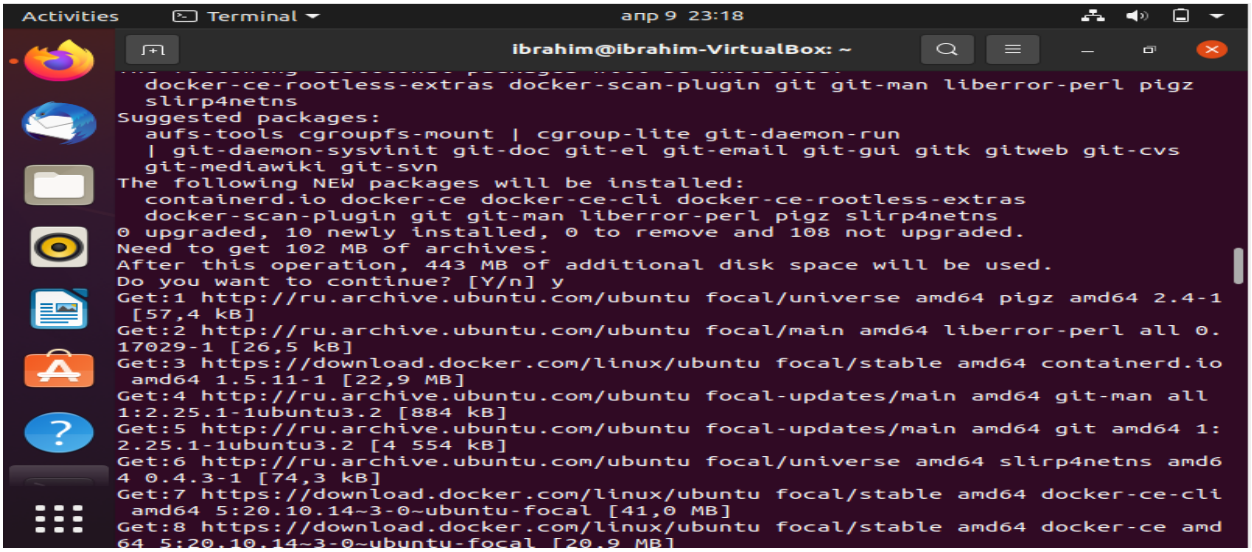


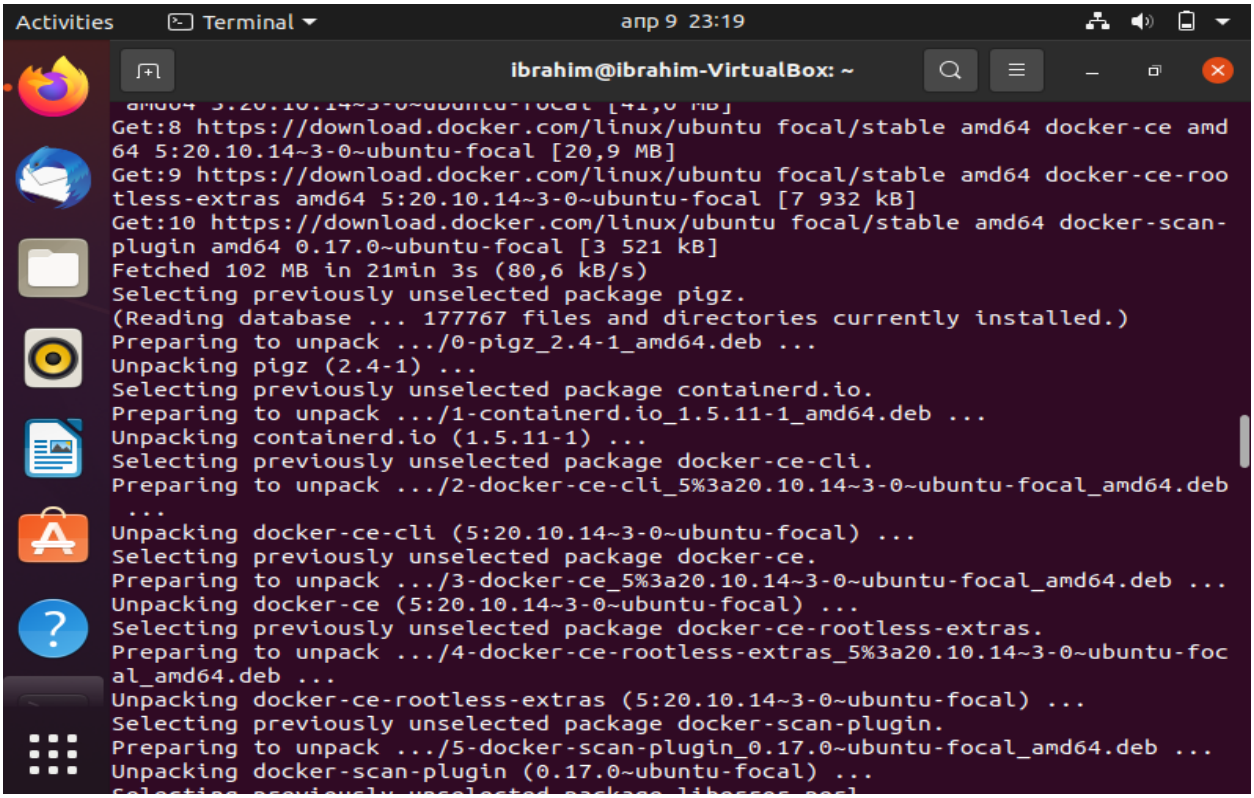
sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"

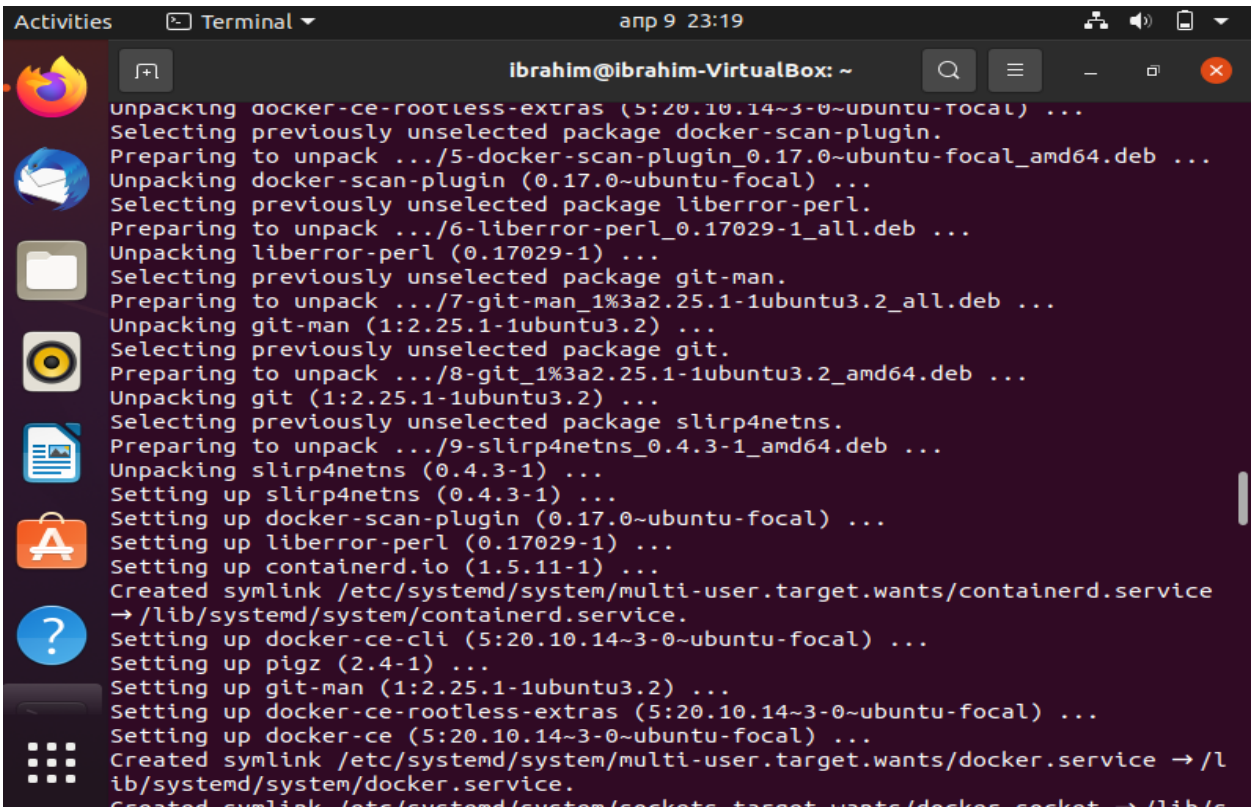
sudo apt-get update

sudo apt-get install docker-ce docker-ce-cli containerd.io

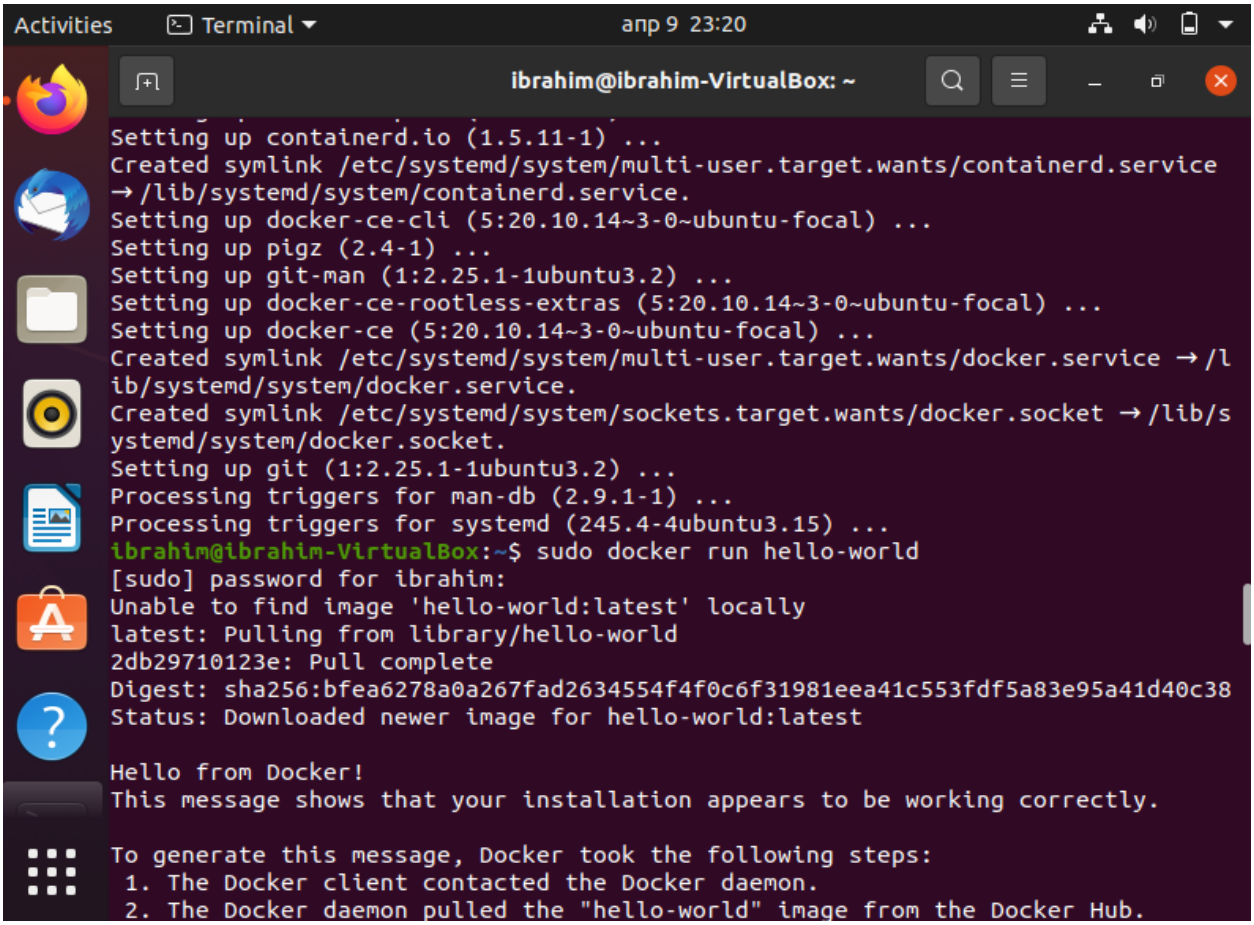




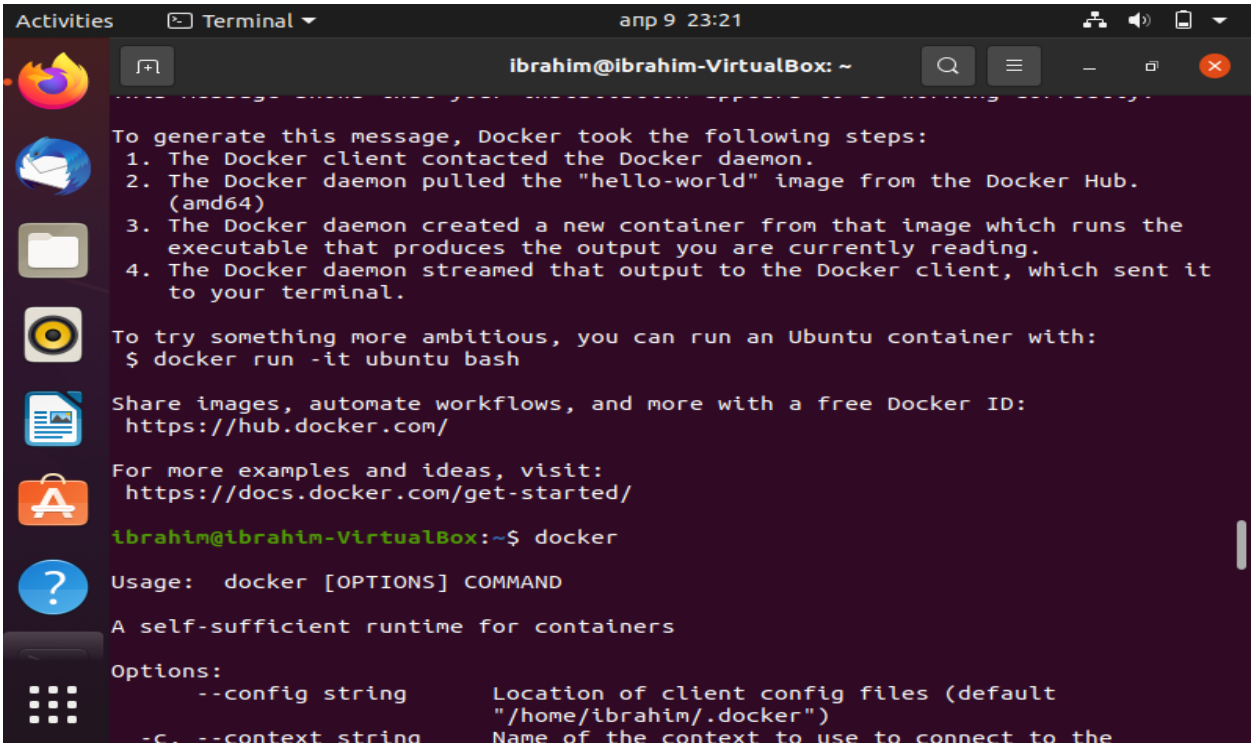

Activities
Terminal
апр 9 23:19
ibrahim@ibrahim-VirtualBox: ~
Get:8 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce amd64 5:20.10.14~3-0~ubuntu-focal [20,9 MB]
Get:9 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-rootless-extras amd64 5:20.10.14~3-0~ubuntu-focal [7 932 kB]
Get:10 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-scan-plugin amd64 0.17.0~ubuntu-focal [3 521 kB]
Fetched 102 MB in 21min 3s (80,6 kB/s)
Selecting previously unselected package pigz.
(Reading database ... 177767 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../1-containerd.io_1.5.11-1_amd64.deb ...
Unpacking containerd.io (1.5.11-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../2-docker-ce-cli_5%3a20.10.14~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce-cli (5:20.10.14~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../3-docker-ce_5%3a20.10.14~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce (5:20.10.14~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-ce-rootless-extras.
Preparing to unpack .../4-docker-ce-rootless-extras_5%3a20.10.14~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce-rootless-extras (5:20.10.14~3-0~ubuntu-focal) ...
Selecting previously unselected package docker-scan-plugin.
Preparing to unpack .../5-docker-scan-plugin_0.17.0~ubuntu-focal_amd64.deb ...
Unpacking docker-scan-plugin (0.17.0~ubuntu-focal) ...

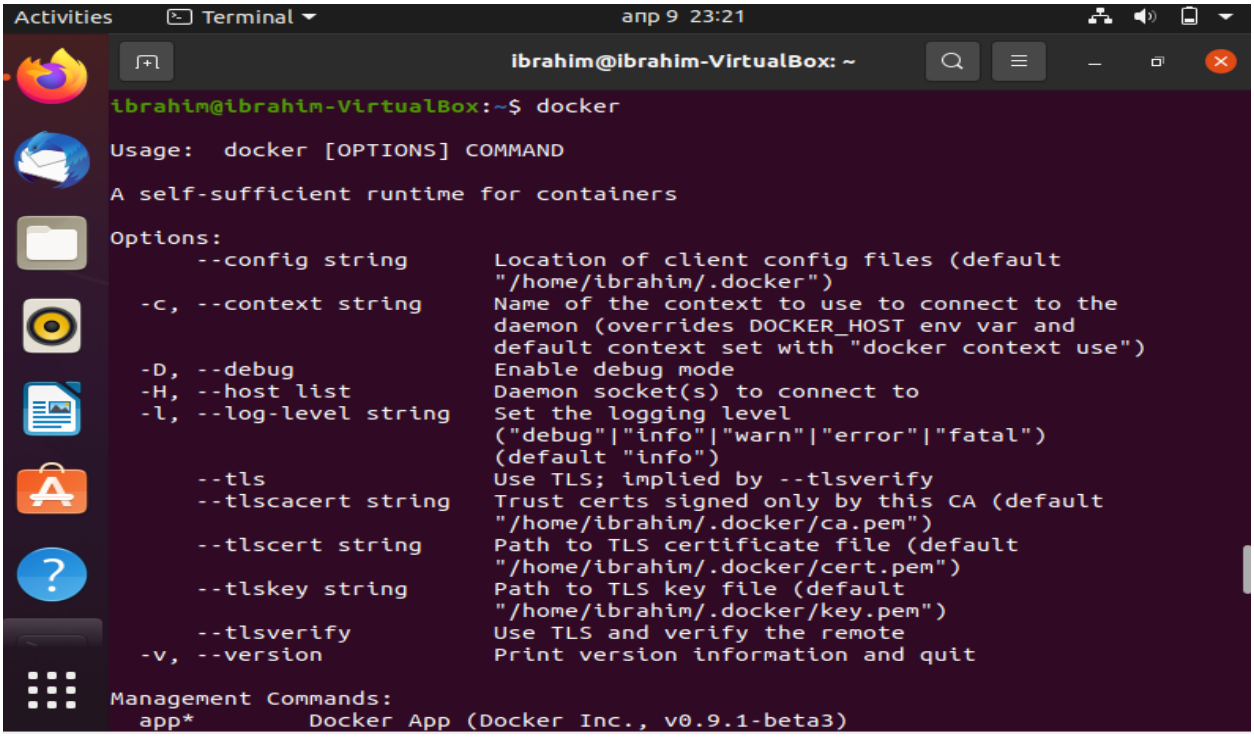

Activities
Terminal
апр 9 23:19
ibrahim@ibrahim-VirtualBox: ~
Selecting previously unselected package docker-scan-plugin.
Preparing to unpack .../5-docker-scan-plugin_0.17.0~ubuntu-focal_amd64.deb ...
Unpacking docker-scan-plugin (0.17.0~ubuntu-focal) ...
Selecting previously unselected package liberror-perl.
Preparing to unpack .../6-liberror-perl_0.17029-1_all.deb ...
Unpacking liberror-perl (0.17029-1) ...
Selecting previously unselected package git-man.
Preparing to unpack .../7-git-man_1%3a2.25.1-1ubuntu3.2_all.deb ...
Unpacking git-man (1:2.25.1-1ubuntu3.2) ...
Selecting previously unselected package git.
Preparing to unpack .../8-git_1%3a2.25.1-1ubuntu3.2_amd64.deb ...
Unpacking git (1:2.25.1-1ubuntu3.2) ...
Selecting previously unselected package slirp4netns.
Preparing to unpack .../9-slirp4netns_0.4.3-1_amd64.deb ...
Unpacking slirp4netns (0.4.3-1) ...
Setting up slirp4netns (0.4.3-1) ...
Setting up docker-scan-plugin (0.17.0~ubuntu-focal) ...
Setting up liberror-perl (0.17029-1) ...
Setting up containerd.io (1.5.11-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker-ce-cli (5:20.10.14~3-0~ubuntu-focal) ...
Setting up pigz (2.4-1) ...
Setting up git-man (1:2.25.1-1ubuntu3.2) ...
Setting up docker-ce-rootless-extras (5:20.10.14~3-0~ubuntu-focal) ...
Setting up docker-ce (5:20.10.14~3-0~ubuntu-focal) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.

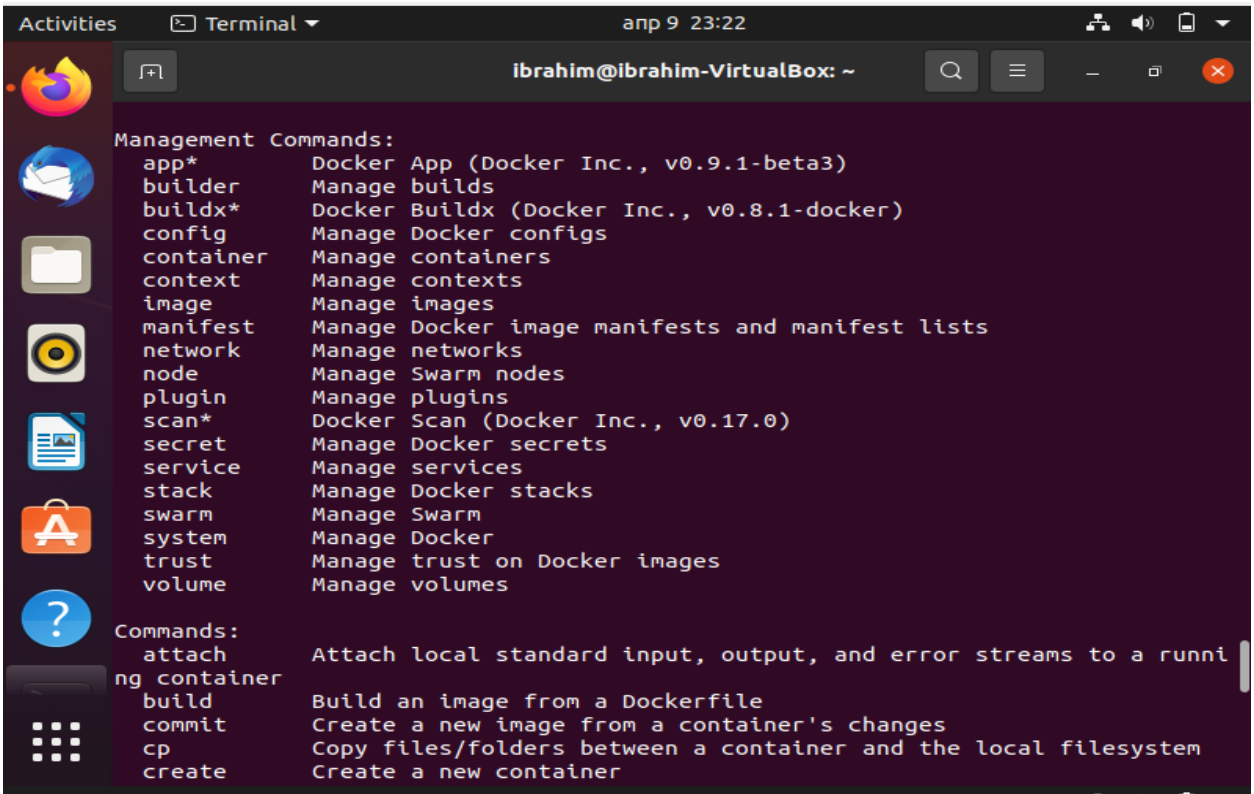
sudo docker run hello-world

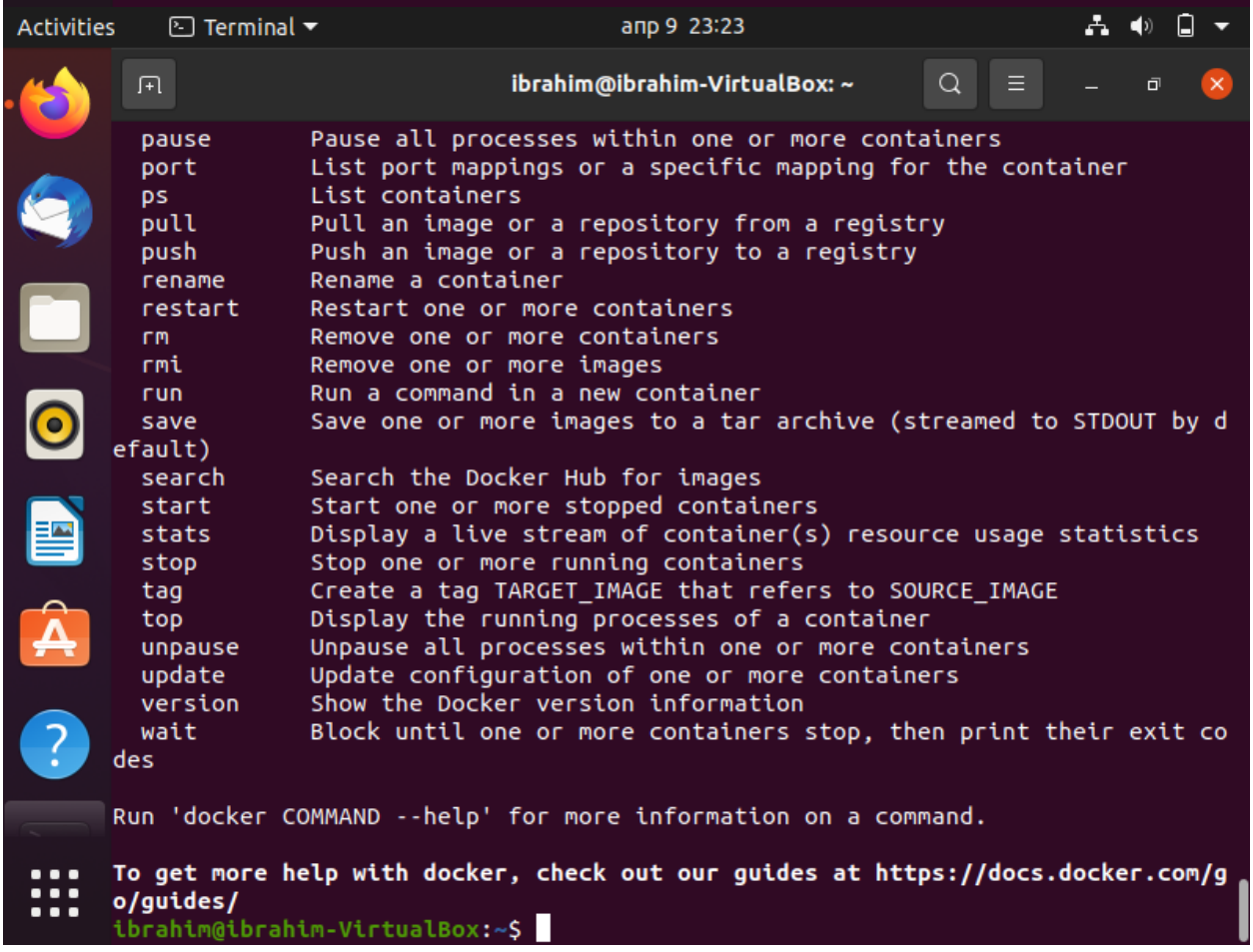


Docker

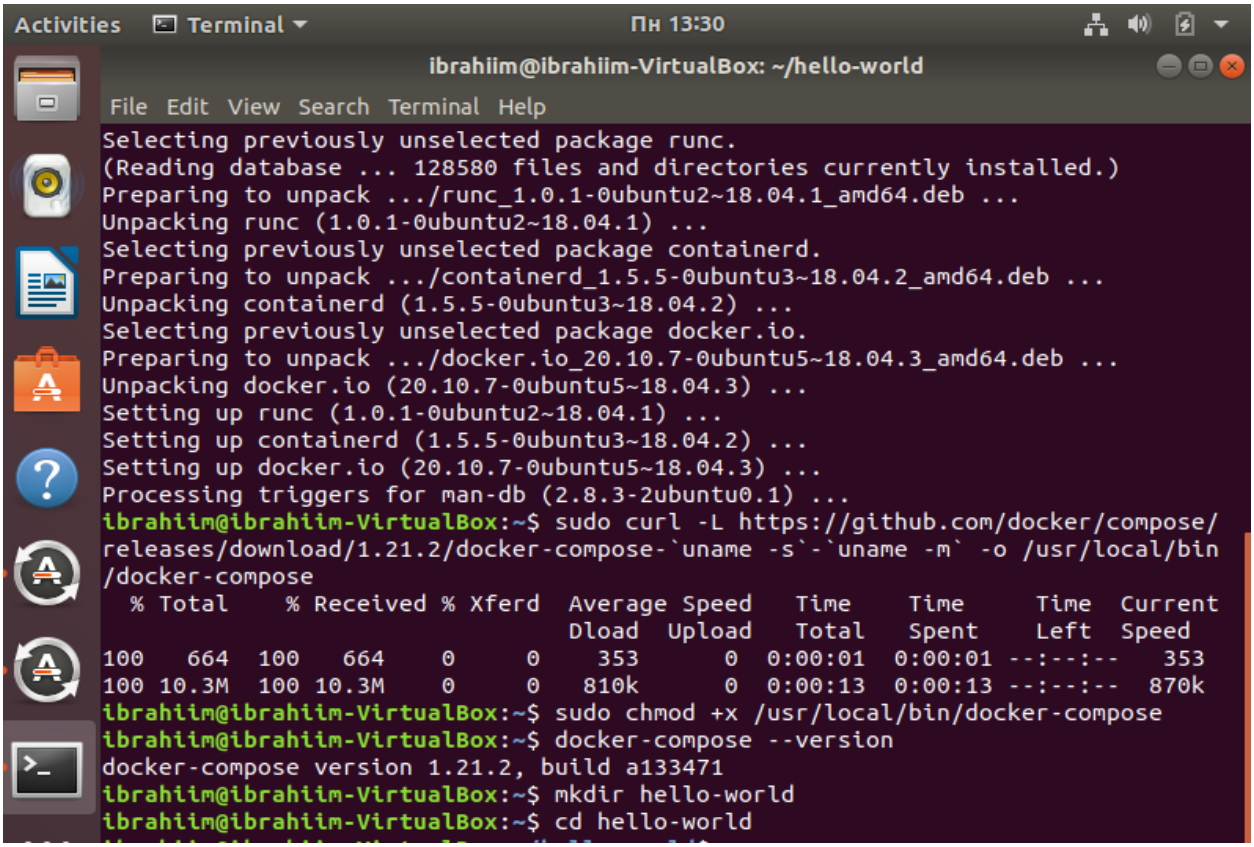

Activities
Terminal
апр 9 23:21
ibrahim@ibrahim-VirtualBox: ~
To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
(amd64)
3. The Docker daemon created a new container from that image which runs the
executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
to your terminal.
To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash
Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/
For more examples and ideas, visit:
https://docs.docker.com/get-started/
ibrahim@ibrahim-VirtualBox:~$ docker
Usage: docker [OPTIONS] COMMAND
A self-sufficient runtime for containers
Options:
--config string Location of client config files (default
"/home/ibrahim/.docker")


Activities
Terminal
апр 9 23:21
ibrahim@ibrahim-VirtualBox: ~
ibrahim@ibrahim-VirtualBox:~$ docker
Usage: docker [OPTIONS] COMMAND
A self-sufficient runtime for containers
Options:
--config string Location of client config files (default
"/home/ibrahim/.docker")
-c, --context string Name of the context to use to connect to the
daemon (overrides DOCKER_HOST env var and
default context set with "docker context use")
-D, --debug Enable debug mode
-H, --host list Daemon socket(s) to connect to
-l, --log-level string Set the logging level
("debug"|"info"|"warn"|"error"|"fatal")
(default "info")
--tls Use TLS; implied by --tlsverify
--tlscacert string Trust certs signed only by this CA (default
"/home/ibrahim/.docker/ca.pem")
--tlscert string Path to TLS certificate file (default
"/home/ibrahim/.docker/cert.pem")
--tlskey string Path to TLS key file (default
"/home/ibrahim/.docker/key.pem")
--tlsverify Use TLS and verify the remote
-v, --version Print version information and quit
Management Commands:
app* Docker App (Docker Inc., v0.9.1-beta3)

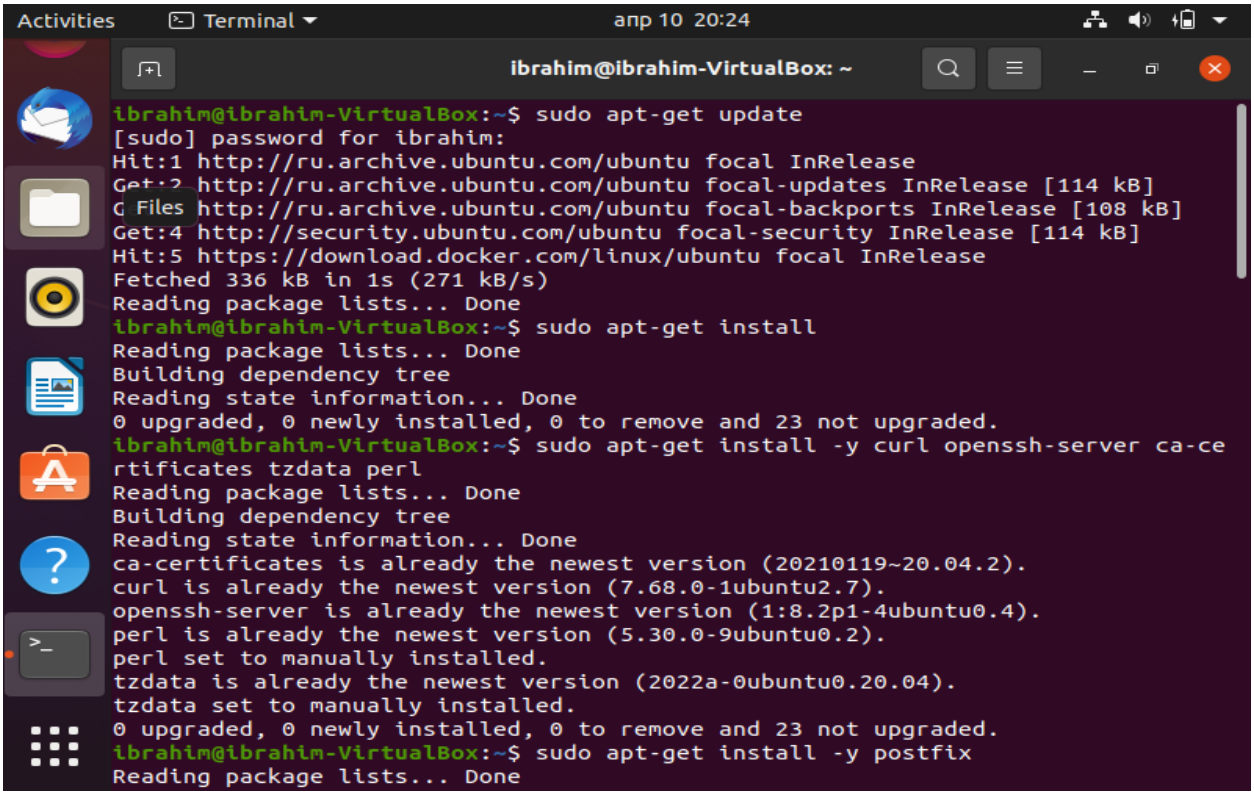

Activities
Terminal
апр 9 23:22
ibrahim@ibrahim-VirtualBox: ~
Management Commands:
app* Docker App (Docker Inc., v0.9.1-beta3)
builder Manage builds
buildx* Docker Buildx (Docker Inc., v0.8.1-docker)
config Manage Docker configs
container Manage containers
context Manage contexts
image Manage images
manifest Manage Docker image manifests and manifest lists
network Manage networks
node Manage Swarm nodes
plugin Manage plugins
scan* Docker Scan (Docker Inc., v0.17.0)
secret Manage Docker secrets
service Manage services
stack Manage Docker stacks
swarm Manage Swarm
system Manage Docker
trust Manage trust on Docker images
volume Manage volumes
Commands:
attach Attach local standard input, output, and error streams to a runni
ng container
build Build an image from a Dockerfile
commit Create a new image from a container's changes
cp Copy files/folders between a container and the local filesystem
create Create a new container

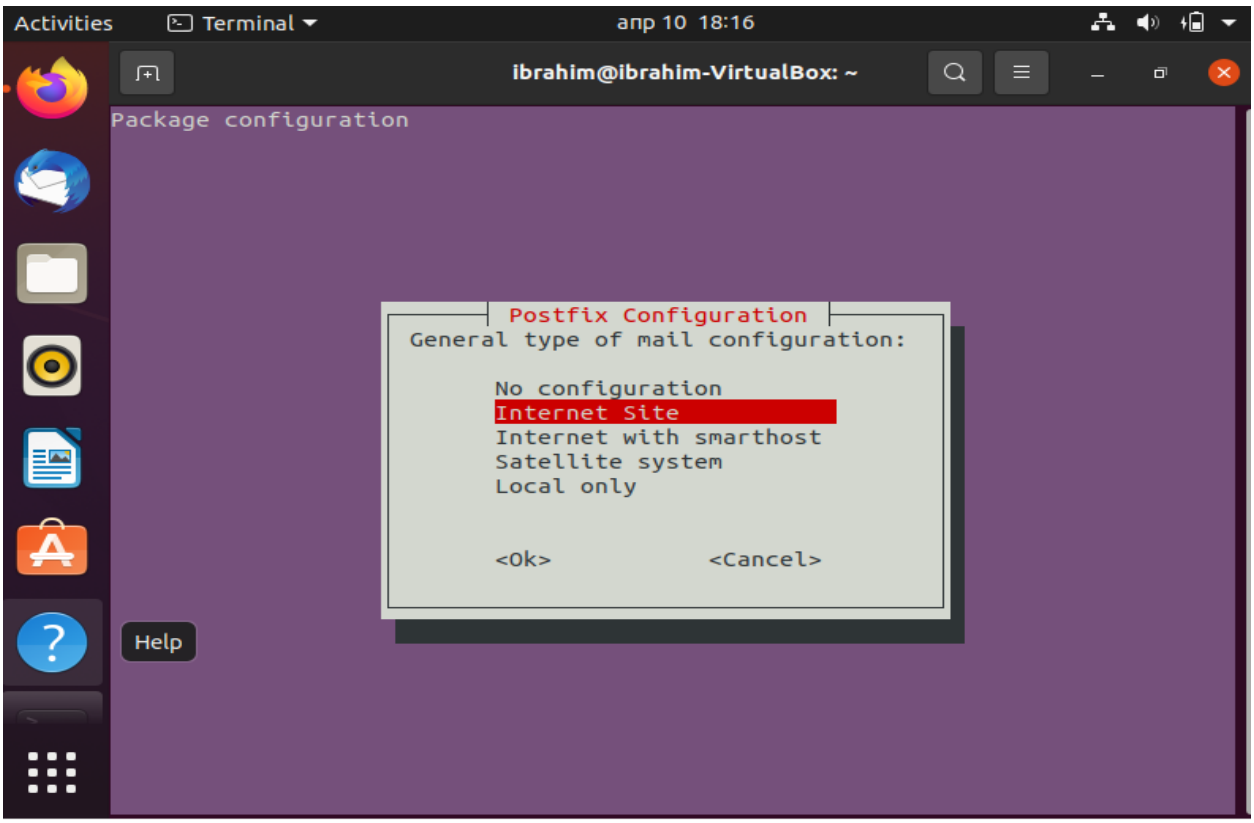

Activities
Terminal
апр 9 23:23
ibrahim@ibrahim-VirtualBox: ~
pause Pause all processes within one or more containers
port List port mappings or a specific mapping for the container
ps List containers
pull Pull an image or a repository from a registry
push Push an image or a repository to a registry
rename Rename a container
restart Restart one or more containers
rm Remove one or more containers
rmi Remove one or more images
run Run a command in a new container
save Save one or more images to a tar archive (streamed to STDOUT by d
efault)
search Search the Docker Hub for images
start Start one or more stopped containers
stats Display a live stream of container(s) resource usage statistics
stop Stop one or more running containers
tag Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top Display the running processes of a container
unpause Unpause all processes within one or more containers
update Update configuration of one or more containers
version Show the Docker version information
wait Block until one or more containers stop, then print their exit co
des
Run 'docker COMMAND --help' for more information on a command.
To get more help with docker, check out our guides at https://docs.docker.com/g
o/guides/
ibrahim@ibrahim-VirtualBox:~$

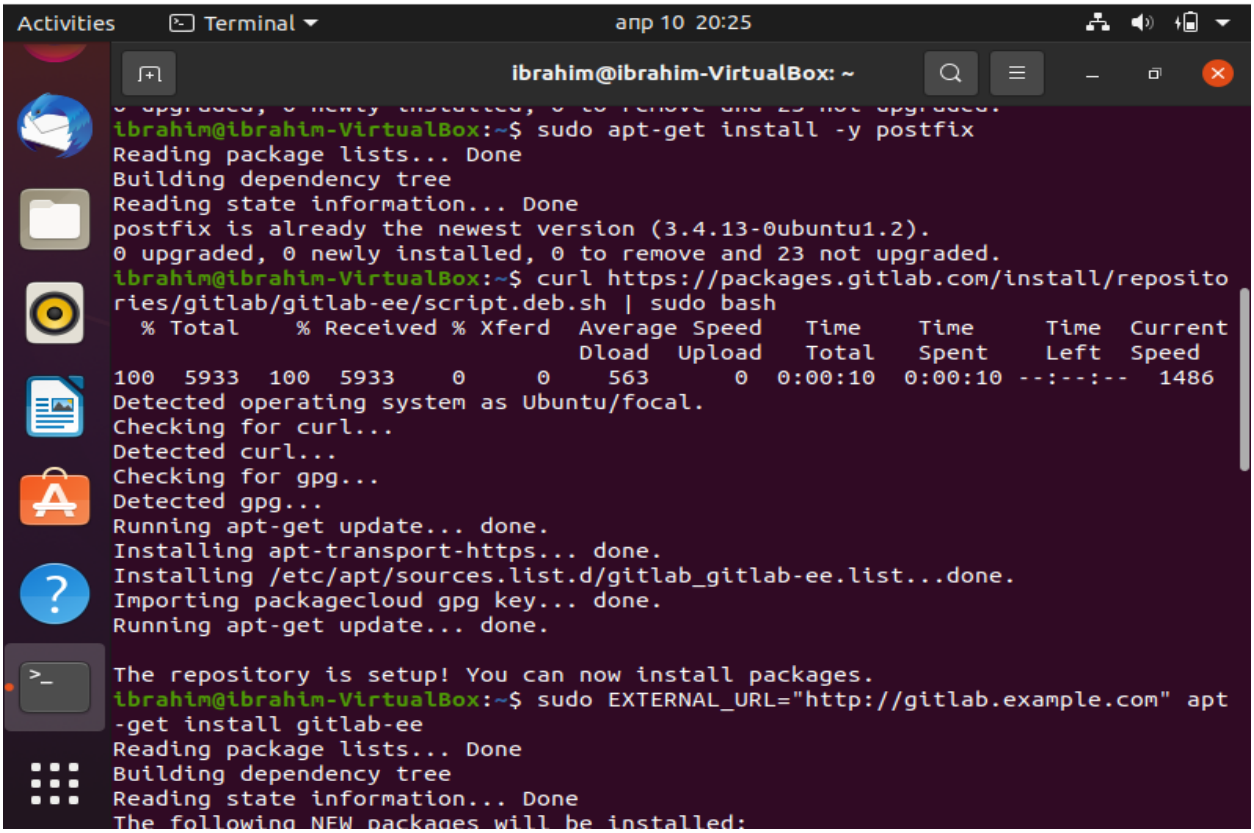
Docker Compose

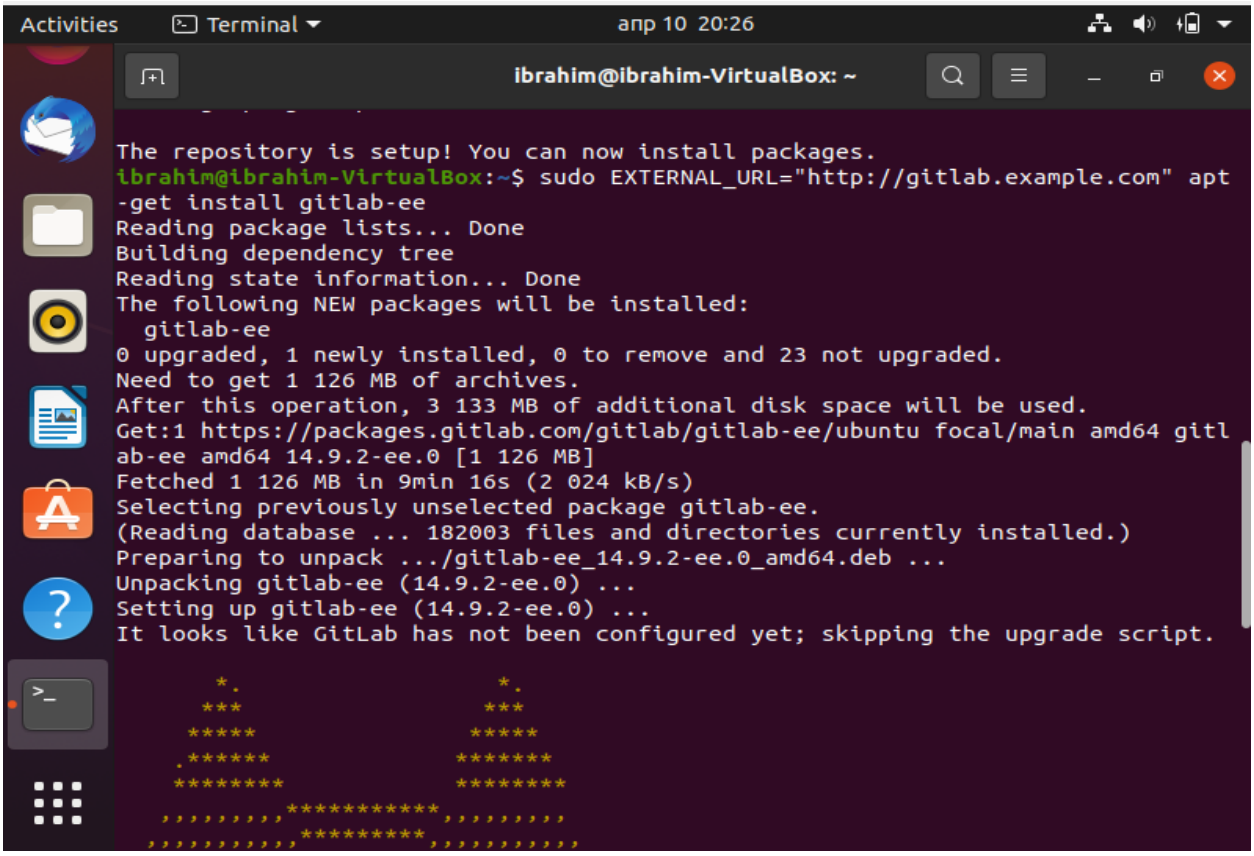


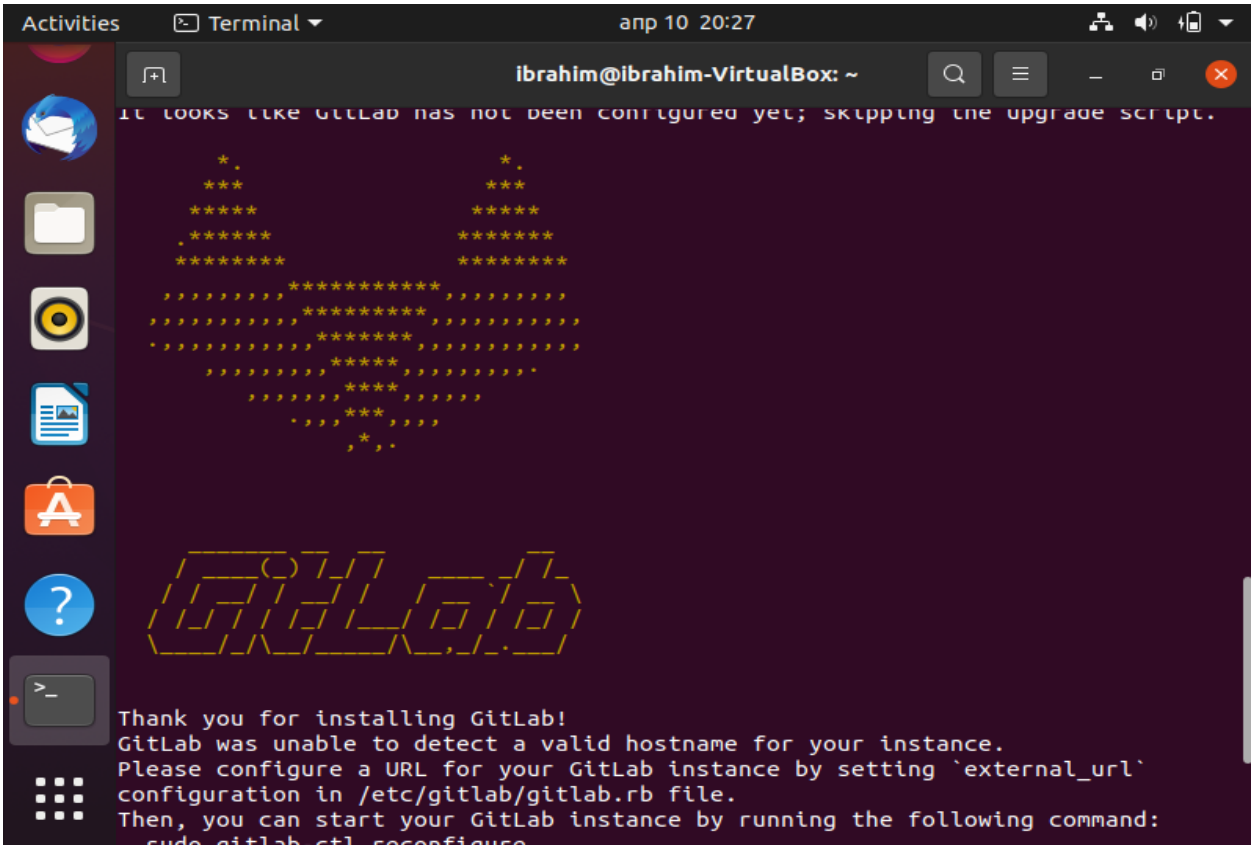
Установка Gitlab

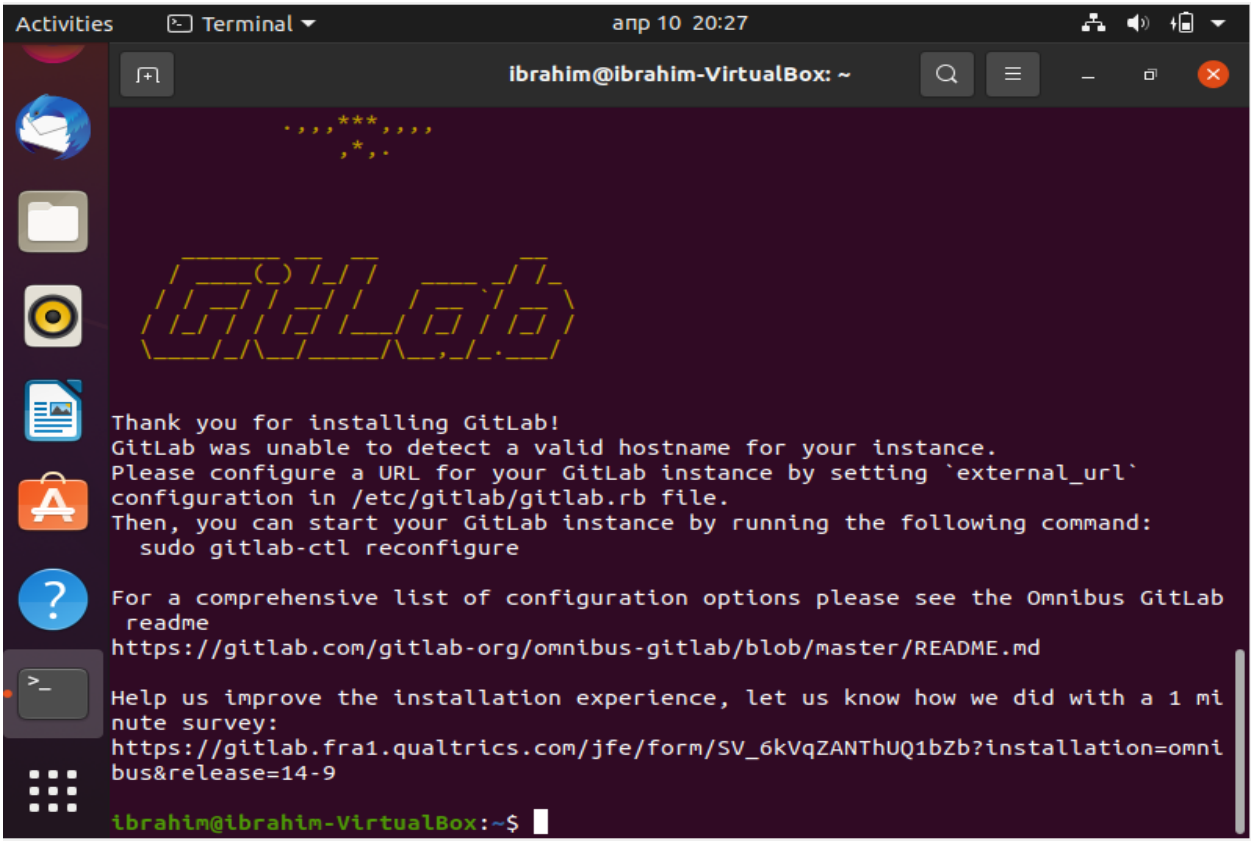




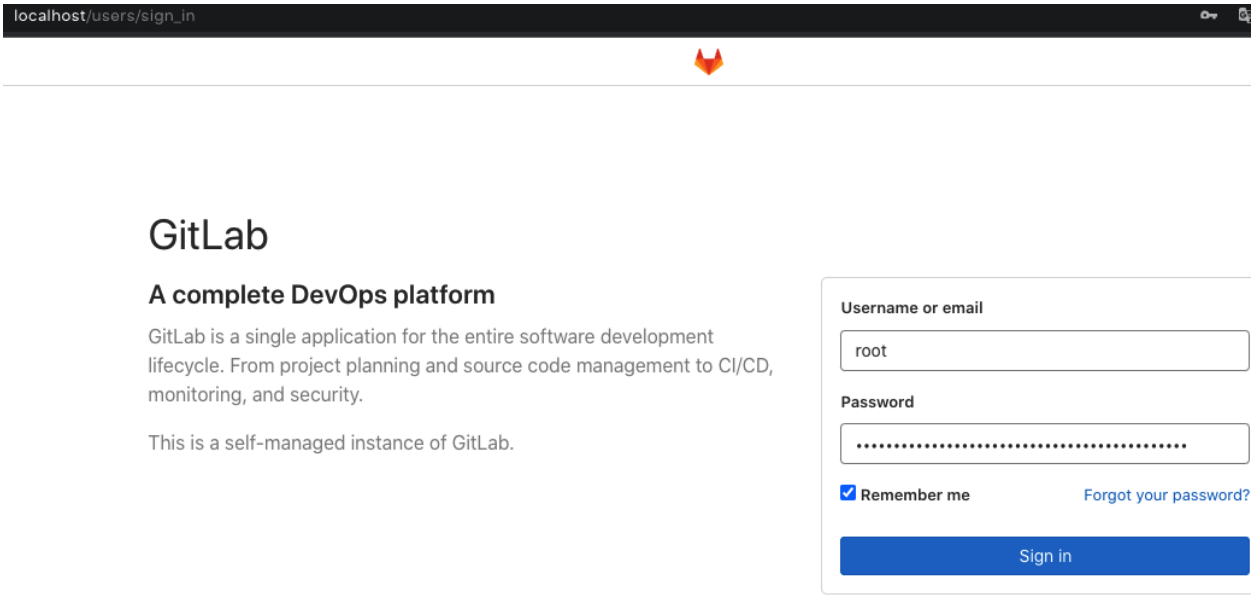

Activities
Terminal
anp 10 20:25
ibrahim@ibrahim-VirtualBox: ~
ibrahim@ibrahim-VirtualBox:~$ sudo apt-get install -y postfix
Reading package lists... Done
Building dependency tree
Reading state information... Done
postfix is already the newest version (3.4.13-0ubuntu1.2).
0 upgraded, 0 newly installed, 0 to remove and 23 not upgraded.
ibrahim@ibrahim-VirtualBox:~$ curl https://packages.gitlab.com/install/repositories/gitlab/gitlab-ee/script.deb.sh | sudo bash
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 5933 100 5933 0 0 563 0 0:00:10 0:00:10 --:--:-- 1486
Detected operating system as Ubuntu/focal.
Checking for curl...
Detected curl...
Checking for gpg...
Detected gpg...
Running apt-get update... done.
Installing apt-transport-https... done.
Installing /etc/apt/sources.list.d/gitlab_gitlab-ee.list...done.
Importing packagecloud gpg key... done.
Running apt-get update... done.
The repository is setup! You can now install packages.
ibrahim@ibrahim-VirtualBox:~$ sudo EXTERNAL_URL="http://gitlab.example.com" apt-get install gitlab-ee
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:

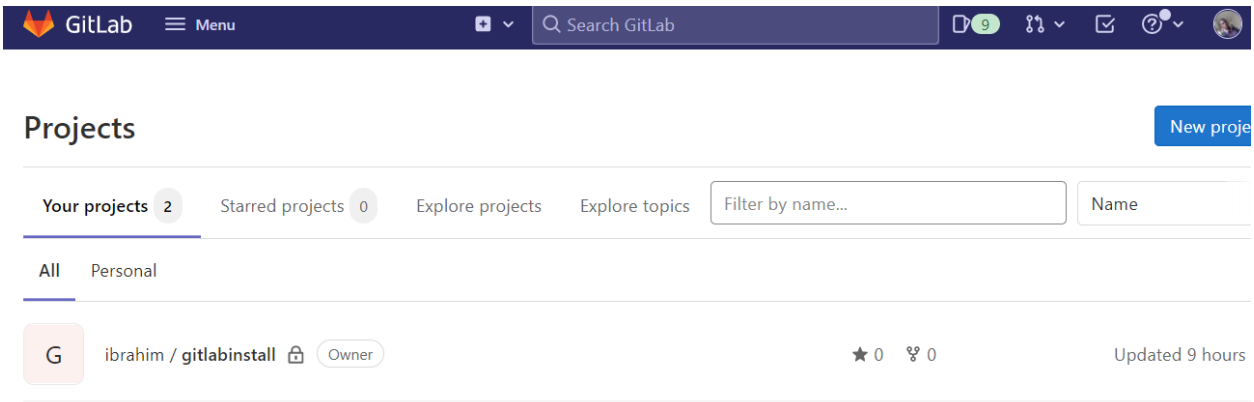

Activities
Terminal
anp 10 20:26
ibrahim@ibrahim-VirtualBox: ~
The repository is setup! You can now install packages.
ibrahim@ibrahim-VirtualBox:~$ sudo EXTERNAL_URL="http://gitlab.example.com" apt-get install gitlab-ee
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
gitlab-ee
0 upgraded, 1 newly installed, 0 to remove and 23 not upgraded.
Need to get 1 126 MB of archives.
After this operation, 3 133 MB of additional disk space will be used.
Get:1 https://packages.gitlab.com/gitlab/gitlab-ee/ubuntu focal/main amd64 gitlab-ee amd64 14.9.2-ee.0 [1 126 MB]
Fetched 1 126 MB in 9min 16s (2 024 kB/s)
Selecting previously unselected package gitlab-ee.
(Reading database ... 182003 files and directories currently installed.)
Preparing to unpack .../gitlab-ee_14.9.2-ee.0_amd64.deb ...
Unpacking gitlab-ee (14.9.2-ee.0) ...
Setting up gitlab-ee (14.9.2-ee.0) ...
It looks like GitLab has not been configured yet; skipping the upgrade script.


Activities
Terminal
апр 10 20:27
ibrahim@ibrahim-VirtualBox: ~
It looks like GitLab has not been configured yet; skipping the upgrade script.
Thank you for installing GitLab!
GitLab was unable to detect a valid hostname for your instance.
Please configure a URL for your GitLab instance by setting `external_url`
configuration in /etc/gitlab/gitlab.rb file.
Then, you can start your GitLab instance by running the following command:

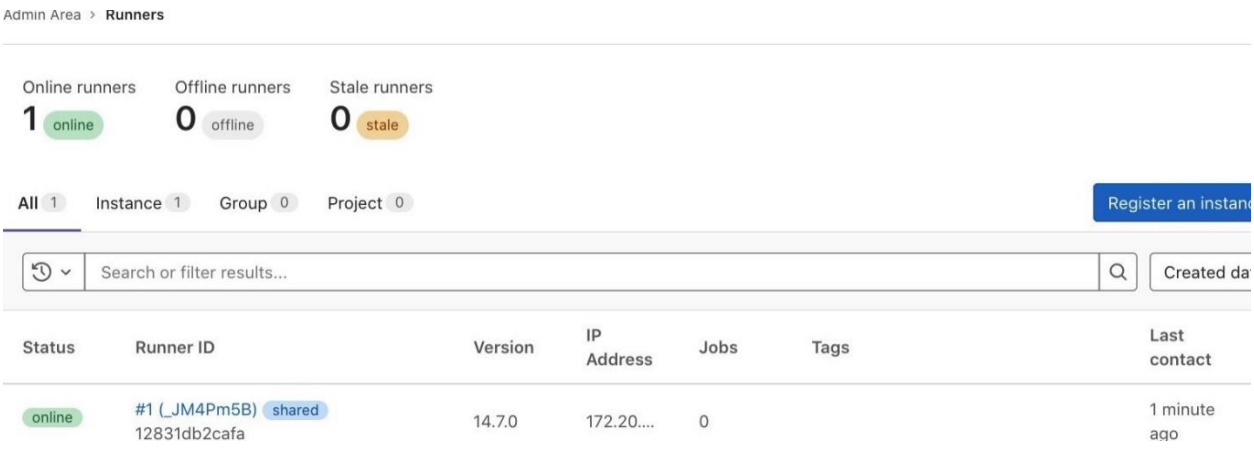

Activities
Terminal
апр 10 20:27
ibrahim@ibrahim-VirtualBox: ~
Thank you for installing GitLab!
GitLab was unable to detect a valid hostname for your instance.
Please configure a URL for your GitLab instance by setting `external_url`
configuration in /etc/gitlab/gitlab.rb file.
Then, you can start your GitLab instance by running the following command:
sudo gitlab-ctl reconfigure
For a comprehensive list of configuration options please see the Omnibus GitLab
readme
https://gitlab.com/gitlab-org/omnibus-gitlab/blob/master/README.md
Help us improve the installation experience, let us know how we did with a 1 mi
nute survey:
https://gitlab.fra1.qualtrics.com/jfe/form/SV_6kVqZANThUQ1bZb?installation=omni
bus&release=14-9
ibrahim@ibrahim-VirtualBox:~$

Войти в Gitlab





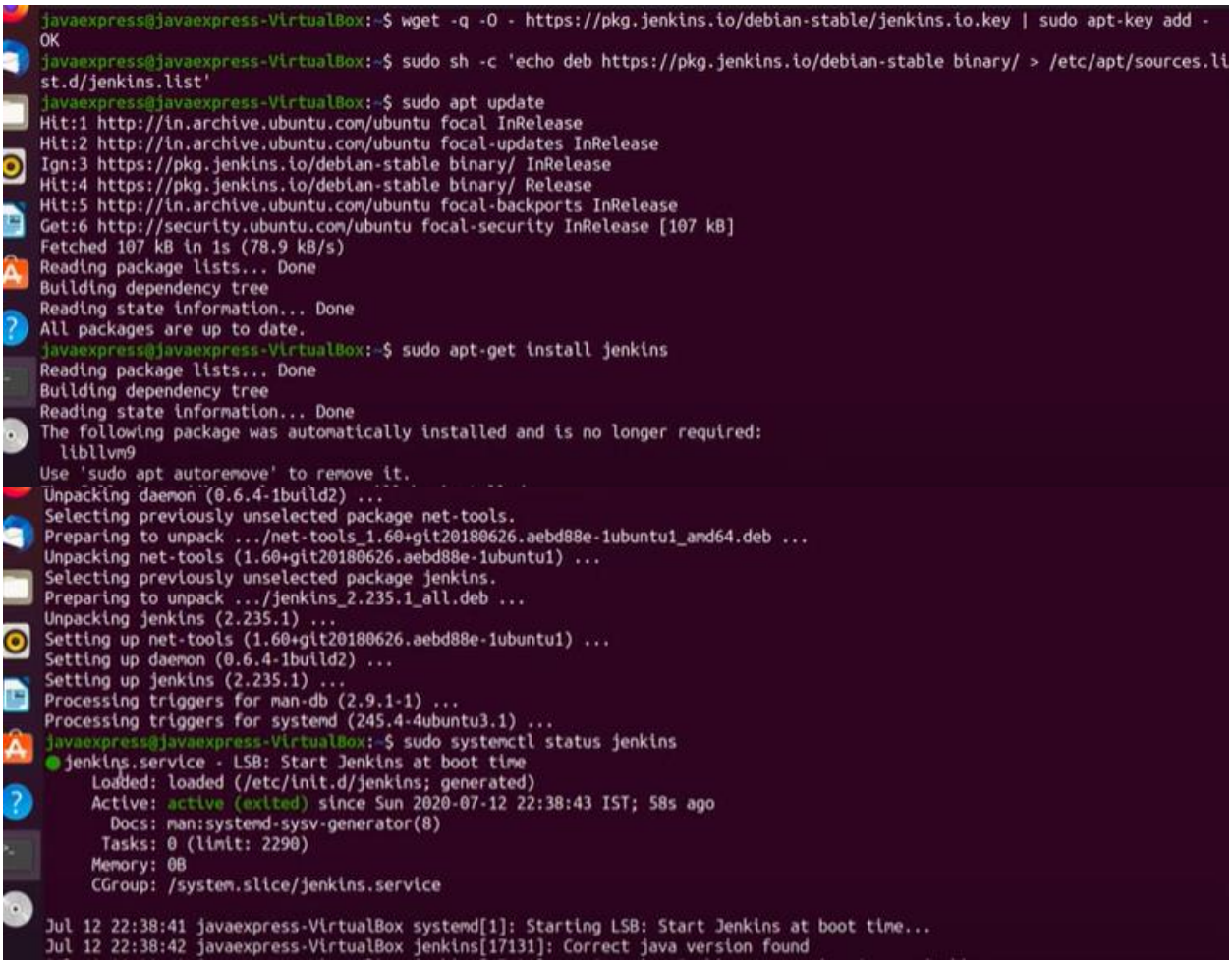
Gitlab-Runner

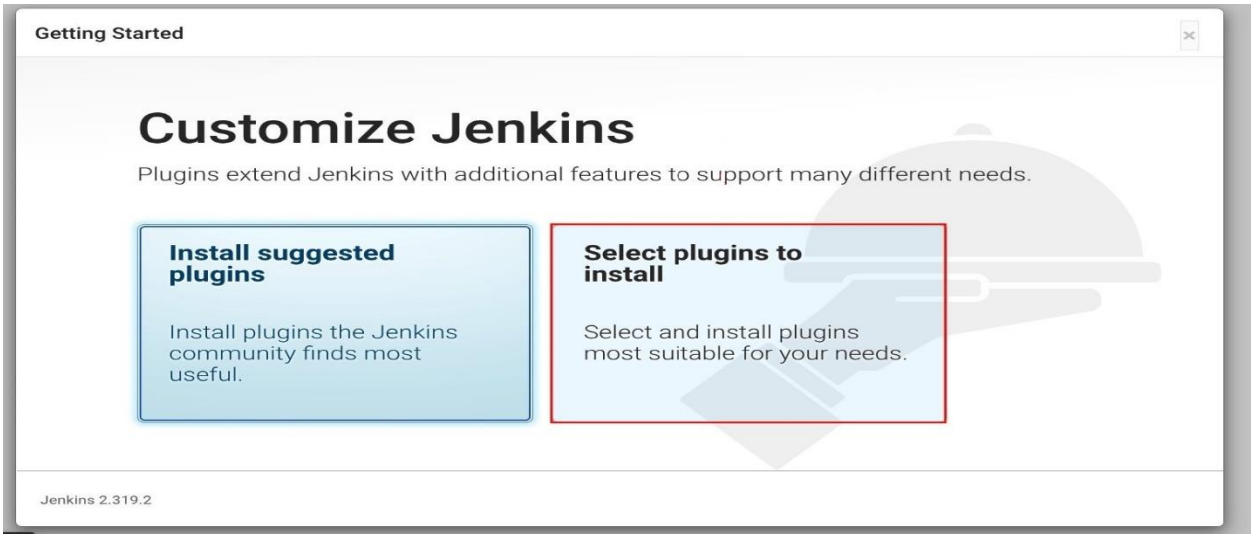


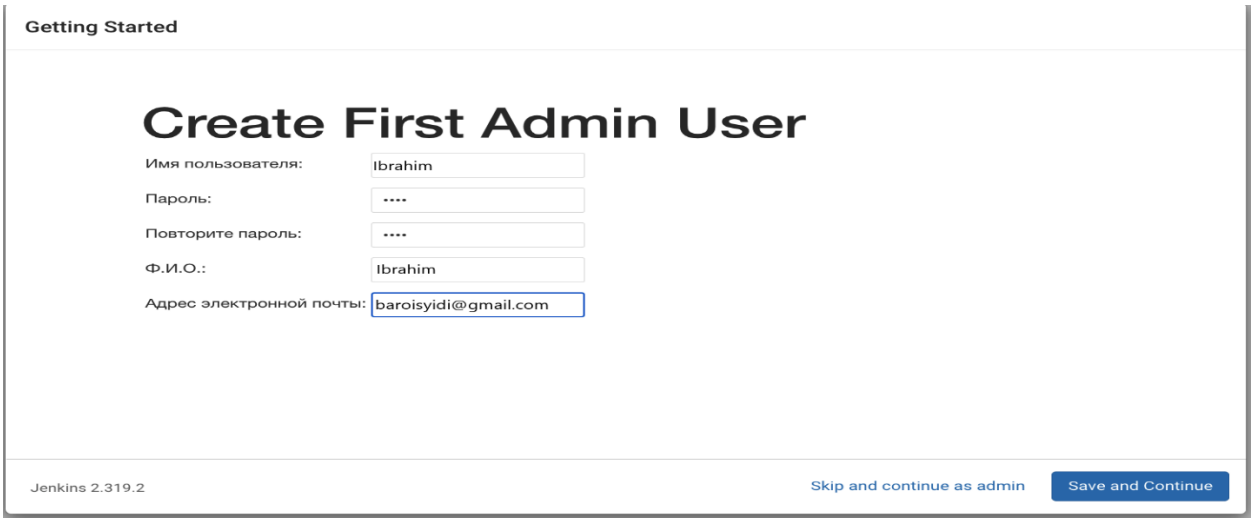
Установка Jenkins

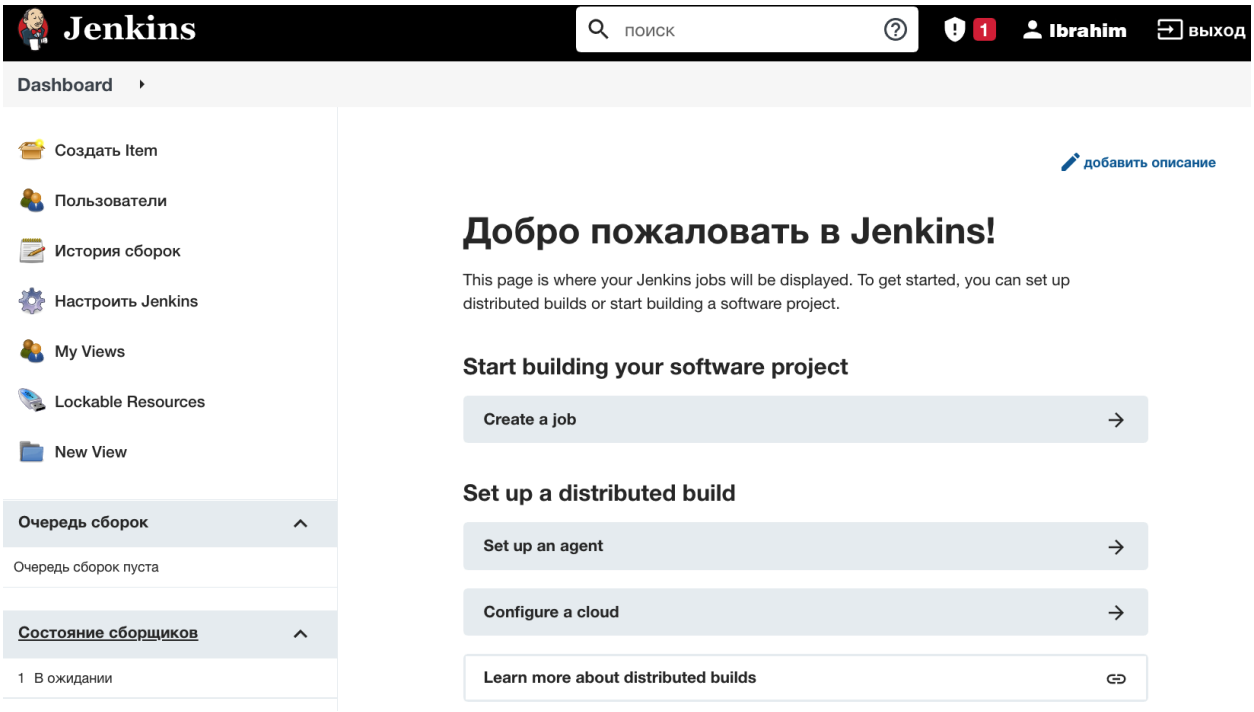
```
javaexpress@javaexpress-VirtualBox:~$ sudo apt install openjdk-8-jdk
[sudo] password for javaexpress:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ca-certificates-java fonts-dejavu-extra java-common libatk-wrapper-java libatk-wrapper-java-jni libice-dev
  libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev libxcb1-dev libxdmcp-dev libxt-dev openjdk-8-jdk-headless
  openjdk-8-jre openjdk-8-jre-headless x11proto-core-dev x11proto-dev xorg-sgml-doctools xtrans-dev
Suggested packages:
  default-jre libice-doc libsm-doc libx11-doc libxcb-doc libxt-doc openjdk-8-demo openjdk-8-source visualvm
  icedtea-8-plugin fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei fonts-wqy-zenhei
The following NEW packages will be installed:
  ca-certificates-java fonts-dejavu-extra java-common libatk-wrapper-java libatk-wrapper-java-jni libice-dev
  libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev libxcb1-dev libxdmcp-dev libxt-dev openjdk-8-jdk
  openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless x11proto-core-dev x11proto-dev xorg-sgml-doctools xtrans-dev
0 upgraded, 21 newly installed, 0 to remove and 10 not upgraded.
```

```
javaexpress@javaexpress-VirtualBox:~$ sudo apt install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 10 not upgraded.
Need to get 5,464 kB of archives.
After this operation, 38.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu focal/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu focal/main amd64 git-man all 1:2.25.1-1ubuntu3 [884 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu focal/main amd64 git amd64 1:2.25.1-1ubuntu3 [4,554 kB]
Fetched 5,464 kB in 2s (3,502 kB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 180779 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17029-1_all.deb ...
Unpacking liberror-perl (0.17029-1) ...
Selecting previously unselected package git-man.
git version 2.25.1
javaexpress@javaexpress-VirtualBox:~$ sudo apt install maven
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libaopalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java
  libcommons-lang3-java libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java
  libguava-java libguice-java libhawtjni-runtime-java libjansi-java libjansi-native-java libjsr305-java
  libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java libmaven3-core-java libplexus-cipher-java
  libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java
  libplexus-sec-dispatcher-java libplexus-utils2-java libsisu-inject-java libsisu-plexus-java libslf4j-java
  libwagon-file-java libwagon-http-shaded-java libwagon-provider-api-java
Suggested packages:
  libaopalliance-java-doc libatinject-jsr330-api-java-doc libservlet3.1-java libcommons-io-java-doc
  libcommons-lang3-java-doc libasm-java libcglib-java libjsr305-java-doc libmaven-shared-utils-java-doc liblogback-java
  libplexus-cipher-java-doc libplexus-classworlds-java-doc libplexus-sec-dispatcher-java-doc libplexus-utils2-java-doc
  junit4 testng libcommons-logging-java liblog4j1.2-java
The following NEW packages will be installed:
  libaopalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java
  libcommons-lang3-java libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java
  libguava-java libguice-java libhawtjni-runtime-java libjansi-java libjansi-native-java libjsr305-java
  libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java libmaven3-core-java libplexus-cipher-java
```


javaexpress@javaexpress-VirtualBox:~$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
javaexpress@javaexpress-VirtualBox:~$ sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'
javaexpress@javaexpress-VirtualBox:~$ sudo apt update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Ign:3 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:4 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:5 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:6 http://security.ubuntu.com/ubuntu focal-security InRelease [107 kB]
Fetched 107 kB in 1s (78.9 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
javaexpress@javaexpress-VirtualBox:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
libllvm9
Use 'sudo apt autoremove' to remove it.
Unpacking daemon (0.6.4-1build2) ...
Selecting previously unselected package net-tools.
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Selecting previously unselected package jenkins.
Preparing to unpack .../jenkins_2.235.1_all.deb ...
Unpacking jenkins (2.235.1) ...
Setting up net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Setting up daemon (0.6.4-1build2) ...
Setting up jenkins (2.235.1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.1) ...
javaexpress@javaexpress-VirtualBox:~$ sudo systemctl status jenkins
jenkins.service - LSB: Start Jenkins at boot time
Loaded: loaded (/etc/init.d/jenkins; generated)
Active: active (exited) since Sun 2020-07-12 22:38:43 IST; 58s ago
Docs: man:systemd-sysv-generator(8)
Tasks: 0 (limit: 2290)
Memory: 0B
CGroup: /system.slice/jenkins.service
Jul 12 22:38:41 javaexpress-VirtualBox systemd[1]: Starting LSB: Start Jenkins at boot time...
Jul 12 22:38:42 javaexpress-VirtualBox jenkins[17131]: Correct java version found


Getting Started
Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs.
Install suggested plugins
Install plugins the Jenkins community finds most useful.
Select plugins to install
Select and install plugins most suitable for your needs.
Jenkins 2.319.2


Getting Started
Create First Admin User
Имя пользователя:
Ibrahim
Пароль:
Повторите пароль:
Ф.И.О.:
Ibrahim
Адрес электронной почты:
baroisyidi@gmail.com
Jenkins 2.319.2
Skip and continue as admin
Save and Continue


Jenkins
поиск
1
Ibrahim
выход
Dashboard
Создать Item
Пользователи
История сборок
Настроить Jenkins
My Views
Lockable Resources
New View
Очередь сборок
Очередь сборок пуста
Состояние сборщиков
1 В ожидании
добавить описание
Добро пожаловать в Jenkins!
This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.
Start building your software project
Create a job
Set up a distributed build
Set up an agent
Configure a cloud
Learn more about distributed builds