1. Подключить дополнительный репозиторий на выбор: Docker, Nginx, Oracle MySQL. Установить любой пакет из этого репозитория.

1.1 Подключаем репозтиторий nginx

```
root@ubuntu-server:/home/user1# lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 20.04.5 LTS
Release:        20.04
Codename:       focal
root@ubuntu-server:/home/user1# sudo apt search nginx | grep '^nginx'

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

nginx/focal-updates,focal-security 1.18.0-0ubuntu1.4 all
nginx-common/focal-updates,focal-security 1.18.0-0ubuntu1.4 all
nginx-core/focal-updates,focal-security 1.18.0-0ubuntu1.4 amd64
nginx-doc/focal-updates,focal-security 1.18.0-0ubuntu1.4 all
nginx-extras/focal-updates,focal-security 1.18.0-0ubuntu1.4 amd64
nginx-full/focal-updates,focal-security 1.18.0-0ubuntu1.4 amd64
nginx-light/focal-updates,focal-security 1.18.0-0ubuntu1.4 amd64
root@ubuntu-server:/home/user1# sudo apt-add-repository ppa:nginx/stable
 This PPA contains the latest Stable Release version of the nginx web server software.

**Only Non-End-of-Life Ubuntu Releases are supported in this PPA**

**Development releases of Ubuntu are not officially supported by this PPA, and uploads for those will not be available until ac
 More info: https://launchpad.net/~nginx/+archive/ubuntu/stable
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 http://ru.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://ru.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://ru.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:4 http://ru.archive.ubuntu.com/ubuntu focal-security InRelease
Get:5 http://ppa.launchpad.net/nginx/stable/ubuntu focal InRelease [17.5 kB]
Get:6 http://ppa.launchpad.net/nginx/stable/ubuntu focal/main amd64 Packages [4,944 B]
Get:7 http://ppa.launchpad.net/nginx/stable/ubuntu focal/main Translation-en [4,572 B]
Fetched 27.0 kB in 1s (26.3 kB/s)
Reading package lists... Done
root@ubuntu-server:/home/user1#
```

1.2 Устанавливаем.

```
root@ubuntu-server:/home/user1# sudo apt update
Hit:1 http://ru.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://ru.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://ru.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:4 http://ru.archive.ubuntu.com/ubuntu focal-security InRelease
Hit:5 http://ppa.launchpad.net/nginx/stable/ubuntu focal InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
61 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ubuntu-server:/home/user1# sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  libxmlb2 linux-headers-5.4.0-149 linux-headers-5.4.0-149-generic linux-image-5
The following packages will be upgraded:
  apparmor base-files bind9-dnsutils bind9-host bind9-libs bolt cloud-init distr
  libfreetype6 libfwupd2 libfwupdplugin5 libncurses6 libncursesw6 libnss-systemd
  linux-firmware linux-generic linux-headers-generic linux-image-generic motd-ne
  openssh-server openssh-sftp-server openssl python-apt-common python3-apt pytho
  software-properties-common sosreport ssh systemd systemd-sysv systemd-timesync
  update-notifier-common
61 upgraded, 6 newly installed, 0 to remove and 0 not upgraded.
16 standard security updates
Need to get 275 MB of archives.
After this operation, 383 MB of additional disk space will be used.
```

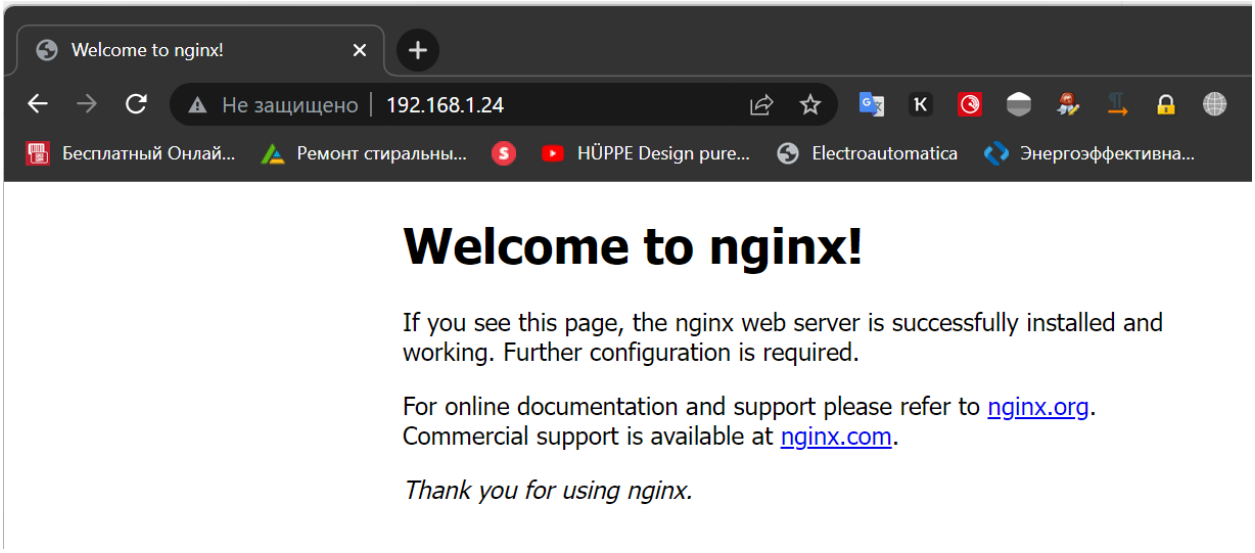
```
root@ubuntu-server:/home/user1# sudo apt install nginx
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core geoip-database libfontconfig1 libgd3 libgeoip1 libjbig0 libjpeg-turbo8 libjpeg8 libnginx-mod-http-image-filter
  libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip libtiff5 libwebp6 libxpm4 nginx-common nginx-core
Suggested packages:
  libgd-tools geoip-bin fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core geoip-database libfontconfig1 libgd3 libgeoip1 libjbig0 libjpeg-turbo8 libjpeg8 libnginx-mod-http-image-filter
  libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip libtiff5 libwebp6 libxpm4 nginx nginx-common nginx-core
0 upgraded, 20 newly installed, 0 to remove and 0 not upgraded.
Need to get 5,791 kB of archives.
After this operation, 18.5 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

1.3 Запускаем и проверяем.

```
root@ubuntu-server:/home/user1# sudo systemctl start nginx.service
root@ubuntu-server:/home/user1# sudo systemctl status nginx.service
● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2023-05-29 14:08:58 UTC; 1min 45s ago
       Docs: man:nginx(8)
    Process: 39773 ExecReload=/usr/sbin/nginx -g daemon on; master_process on; -s reload (code=exited, status=0/SUCCESS)
   Main PID: 39626 (nginx)
      Tasks: 3 (limit: 2271)
     Memory: 6.2M
     CGroup: /system.slice/nginx.service
             ├─39626 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
             ├─39775 nginx: worker process
             └─39776 nginx: worker process

May 29 14:08:58 ubuntu-server systemd[1]: Starting A high performance web server and a reverse proxy server...
May 29 14:08:58 ubuntu-server systemd[1]: Started A high performance web server and a reverse proxy server.
May 29 14:09:01 ubuntu-server systemd[1]: Reloading A high performance web server and a reverse proxy server.
May 29 14:09:01 ubuntu-server systemd[1]: Reloaded A high performance web server and a reverse proxy server.
root@ubuntu-server:/home/user1#
```

1.4 Работает



2. Установить и удалить deb-пакет с помощью dpkg.

2.1 Скачиваем deb пакет

```
root@ubuntu-server:/home/user1# wget http://mirrors.kernel.org/ubuntu/pool/universe/i/ipcalc/ipcalc_0.41-5_all.deb
--2023-05-29 14:16:05--  http://mirrors.kernel.org/ubuntu/pool/universe/i/ipcalc/ipcalc_0.41-5_all.deb
Resolving mirrors.kernel.org (mirrors.kernel.org)... 139.178.88.99, 2604:1380:45e3:2400::1
Connecting to mirrors.kernel.org (mirrors.kernel.org)|139.178.88.99|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://mirrors.edge.kernel.org/ubuntu/pool/universe/i/ipcalc/ipcalc_0.41-5_all.deb [following]
--2023-05-29 14:16:06--  http://mirrors.edge.kernel.org/ubuntu/pool/universe/i/ipcalc/ipcalc_0.41-5_all.deb
Resolving mirrors.edge.kernel.org (mirrors.edge.kernel.org)... 147.75.80.249, 2604:1380:4601:e00::3
Connecting to mirrors.edge.kernel.org (mirrors.edge.kernel.org)|147.75.80.249|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 25914 (25K) [application/octet-stream]
Saving to: ‘ipcalc_0.41-5_all.deb’

ipcalc_0.41-5_all.deb                      100%[=========================================================================

2023-05-29 14:16:06 (412 KB/s) - ‘ipcalc_0.41-5_all.deb’ saved [25914/25914]

root@ubuntu-server:/home/user1#
```

2.2 Устанавливаем

```
root@ubuntu-server:/home/user1# dpkg -i ipcalc_0.41-5_all.deb
Selecting previously unselected package ipcalc.
(Reading database ... 109436 files and directories currently installed.)
Preparing to unpack ipcalc_0.41-5_all.deb ...
Unpacking ipcalc (0.41-5) ...
Setting up ipcalc (0.41-5) ...
Processing triggers for man-db (2.9.1-1) ...
root@ubuntu-server:/home/user1#
```

2.3 Прооверяем

```
root@ubuntu-server:/home/user1# ipcalc
Usage: ipcalc [options] <ADDRESS>[[/]<NETMASK>] [NETMASK]

ipcalc takes an IP address and netmask and calculates the resulting
broadcast, network, Cisco wildcard mask, and host range. By giving a
second netmask, you can design sub- and supernetworks. It is also
intended to be a teaching tool and presents the results as
easy-to-understand binary values.

 -n --nocolor  Don't display ANSI color codes.
 -c --color    Display ANSI color codes (default).
 -b --nobinary Suppress the bitwise output.
 -c --class    Just print bit-count-mask of given address.
 -h --html     Display results as HTML (not finished in this version).
 -v --version  Print Version.
 -s --split n1 n2 n3
               Split into networks of size n1, n2, n3.
 -r --range    Deaggregate address range.
    --help     Longer help text.

Examples:

ipcalc 192.168.0.1/24
ipcalc 192.168.0.1/255.255.128.0
ipcalc 192.168.0.1 255.255.128.0 255.255.192.0
ipcalc 192.168.0.1 0.0.63.255


ipcalc <ADDRESS1> - <ADDRESS2>  deaggregate address range

ipcalc <ADDRESS>/<NETMASK> --s a b c
                               split network to subnets
                               where a b c fits in.

! New HTML support not yet finished.

ipcalc 0.41
root@ubuntu-server:/home/user1#
```

3. Установить и удалить snap-пакет.

3.1 Установка пакета

```
root@ubuntu-server:/home/user1# sudo snap search nginx
Name                       Version  Publisher   Notes  Summary
nginx-prometheus-exporter  0.9.0    nginx-inc✓  -      NGINX Prometheus Exporter for NGINX and NGINX Plus
nginxrtmp-minsikl          0.1      minsikl     -      Live Streaming server based on NGINX and RTMP
edgexfoundry               2.3.0+1  canonical✓  -      EdgeX core, security, and supporting components
root@ubuntu-server:/home/user1# sudo snap install nginxrtmp-minsikl
nginxrtmp-minsikl 0.1 from minsik (minsikl) installed
root@ubuntu-server:/home/user1#
```

3.2 Удаление

```
root@ubuntu-server:/home/user1# sudo snap install nginxrtmp-minsikl
nginxrtmp-minsikl 0.1 from minsik (minsikl) installed
root@ubuntu-server:/home/user1# sudo snap remove -purge nginxrtmp-minsikl
error: unknown flag `p'
root@ubuntu-server:/home/user1# snap remove --purge nginxrtmp-minsikl
nginxrtmp-minsikl removed
root@ubuntu-server:/home/user1#
```

4. Добавить задачу для выполнения каждые 3 минуты (создание директории, запись в файл).
*/3 * * * * var=$(date +\%H\%M\%S) && mkdir /home/user1/dir1/$var/ && touch /home/user1/dir1/$var/test_$var.txt

```
*/1 * * * * var=$(date +\%H\%M\%S) && mkdir /home/user1/dir1/$var/ && touch /home/user1/dir1/$var/test_$var.txt

user1@ubuntu-server:~/dir1$
user1@ubuntu-server:~/dir1$ ll
total 12
drwxrwxr-x 3 user1 user1 4096 May 29 16:58 ./
drwxr-xr-x 8 user1 user1 4096 May 29 14:45 ../
drwxrwxr-x 2 user1 user1 4096 May 29 16:58 165801/
user1@ubuntu-server:~/dir1$ date
Mon 29 May 2023 04:59:00 PM UTC
user1@ubuntu-server:~/dir1$ ll
total 16
drwxrwxr-x 4 user1 user1 4096 May 29 16:59 ./
drwxr-xr-x 8 user1 user1 4096 May 29 14:45 ../
drwxrwxr-x 2 user1 user1 4096 May 29 16:58 165801/
drwxrwxr-x 2 user1 user1 4096 May 29 16:59 165901/
user1@ubuntu-server:~/dir1$ ll 165801/
total 8
drwxrwxr-x 2 user1 user1 4096 May 29 16:58 ./
drwxrwxr-x 4 user1 user1 4096 May 29 16:59 ../
-rw-rw-r-- 1 user1 user1    0 May 29 16:58 test_165801.txt
user1@ubuntu-server:~/dir1$ ll 165
165801/ 165901/
user1@ubuntu-server:~/dir1$ ll 165901/
total 8
drwxrwxr-x 2 user1 user1 4096 May 29 16:59 ./
drwxrwxr-x 4 user1 user1 4096 May 29 16:59 ../
-rw-rw-r-- 1 user1 user1    0 May 29 16:59 test_165901.txt
user1@ubuntu-server:~/dir1$
```

5. * Подключить PPA-репозиторий на выбор. Установить из него пакет. Удалить PPA из системы. Делали в первом шаге. Когда через apt install ставили nginx!

6. * Создать задачу резервного копирования (tar) домашнего каталога пользователя. Реализовать с использованием пользовательских crontab-файлов.

Команда: 30 3 * * * tar -zfc /var/backups/home.tgz /home/user