

2. mājas darbs

Rezerves kopijas

Sagatavošanas darbam

```
aleksandrmitruka@goodserver:~$ sudo apt dist-upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  linux-headers-5.15.0-71 linux-headers-5.15.0-71-generic linux-image-5.1
  linux-modules-extra-5.15.0-71-generic
The following packages will be upgraded:
  apache2 apache2-bin apache2-data apache2-utils apport apt apt-utils clo
  libldap-2.5-0 libldap-common libnss-systemd libpam-systemd libssl3 libs
  linux-image-generic openssl python3-apport python3-problem-report pytho
  ubuntu-advantage-tools udev vim vim-common vim-runtime vim-tiny xxd
39 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
16 standard LTS security updates
Need to get 142 MB of archives.
After this operation, 596 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Pirms sākam pildīt 2.mājas darbu, slēdzamies serverim ar ssh veicam visus nepieciešamus servera atjauninājumus, jo neesam to darījuši kopš 1.mājas darba. Izmantotajam komandas “sudo apt update” un “sudo apt dist-upgrade”.

1. Mapes “dati” izveidošana

```
aleksandrmitruka@goodserver:~$ ll
total 32
drwxr-x--- 4 aleksandrmitruka aleksandrmitruka 4096 apr 29 14:08 ./
drwxr-xr-x 3 root root 4096 apr 8 11:42 ../
-rw----- 1 aleksandrmitruka aleksandrmitruka 3190 apr 27 06:06 .bash_history
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 220 jan 6 2022 .bash_logout
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 3771 jan 6 2022 .bashrc
drwx----- 2 aleksandrmitruka aleksandrmitruka 4096 apr 8 11:43 .cache/
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 807 jan 6 2022 .profile
drwx----- 2 aleksandrmitruka aleksandrmitruka 4096 apr 27 05:38 .ssh/
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 0 apr 8 11:43 .sudo_as_admin_successful
aleksandrmitruka@goodserver:~$
```

Kā redzams, sakumā mape “dati” mūsu servera neeksistē.

```
aleksandrmitruka@goodserver:~$ mkdir dati
aleksandrmitruka@goodserver:~$ ll
total 52
drwxr-x--- 6 aleksandrmitruka aleksandrmitruka 4096 apr 29 21:39 ./
drwxr-xr-x 3 root root 4096 apr 8 14:42 ../
-rw----- 1 aleksandrmitruka aleksandrmitruka 6558 apr 29 20:33 .bash_history
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 220 jan 6 2022 .bash_logout
-rw-r--r-- 1 aleksandrmitruka aleksandrmitruka 3771 jan 6 2022 .bashrc
drwx----- 2 aleksandrmitruka aleksandrmitruka 4096 apr 8 14:43 .cache/
drwxrwxr-x 2 aleksandrmitruka aleksandrmitruka 4096 apr 29 21:39 dati/
-rw----- 1 aleksandrmitruka aleksandrmitruka 20 apr 29 21:24 .lessht
drwxrwxr-x 3 aleksandrmitruka aleksandrmitruka 4096 apr 29 19:51 .local/
```

Ar komandu mkdir (make directory) izveidojam jaunu mapi un pārlicināmies, ka komanda nostrādāja pareizi, izveidojot mapi “dati” mūsu mājas mapē

```

aleksandrmitruka@goodserver:~$ cd dati
aleksandrmitruka@goodserver:~/dati$ sudo nano atskaites.txt
aleksandrmitruka@goodserver:~/dati$ sudo nano svarigidati.txt
aleksandrmitruka@goodserver:~/dati$ sudo nano kadssaraksts.txt

```

```

aleksandrmitruka@goodserver: ~/dati
GNU nano 6.2 svarigidati.txt *
Linux is one of the most prominent examples of free and open-source software collaboration.
The source code may be used, modified and distributed commercially or non-commercially by anyone under the terms of its
The Linux kernel, for example, is licensed under the GPLv2, with an exception for system calls that allows code that cal

```

```

aleksandrmitruka@goodserver: ~/dati
GNU nano 6.2 atskaites.txt *
Reports use features such as tables, graphics, pictures, voice, or specialized vocabulary in order to persuade a specific aud
Some common elements of written reports include headings to indicate topics and help the reader locate relevant information.
Lengthy written reports will almost always contain a table of contents, appendices, footnotes, and references. A bibliography
Complex terms are explained within the body of the report or listed as footnotes in order to make the report easier to follo
A short summary of the report's contents, called an abstract, may appear in the beginning so that the audience knows what the

```

```

aleksandrmitruka@goodserver: ~/dati
GNU nano 6.2 kadssaraksts.txt *
The name list is also used for several concrete data structures that can be used to implement abstract lists,
especially linked lists and arrays. In some contexts, such as in Lisp programming, the term list may refer
specifically to a linked list rather than an array. In class-based programming, lists are usually provided as instances
of subclasses of a generic "list" class, and traversed via separate iterators.

```

Nomainām komandrindas direktoriju (ieejam mapē). Izveidojam trīs nelielus teksta failus tajā ar sudo nano

```

aleksandrmitruka@goodserver:~/dati$ ls -l
total 12
-rw-r--r-- 1 root root 600 apr 29 21:41 atskaites.txt
-rw-r--r-- 1 root root 420 apr 29 21:43 kadssaraksts.txt
-rw-r--r-- 1 root root 463 apr 29 21:42 svarigidati.txt

```

Apskatam failus un to izmērus

2. Mapes “dati” rezerves kopija arhīvā

```

aleksandrmitruka@goodserver:~$ tar czf bkp_`date +%Y%m%d`.tar.gz dati/
aleksandrmitruka@goodserver:~$ ls -l
total 8
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1036 apr 29 21:46 bkp_20230429.tar.gz
drwxrwxr-x 2 aleksandrmitruka aleksandrmitruka 4096 apr 29 21:43 dati

```

Izmantojot tar (arhīva izveidošana no mapes, kur ir vairāki faili) un gzip(saspiešana) izveidojam mapes “dati” saspieyto arhīvu mājas mapē. Lai panāktu, ka nosaukumā ietilpst arhīva radīšanas datums, izmantojam komandu date un ar pēdīnām paradām, ka vispirms ir jāizpilda to, tad – jāizveido arhīvs.

3. Pieslēgšanās universitātes serverim ar ssh, savas mapes izveidošana tajā

```

C:\Users\aleks>scp C:\Users\aleks\Downloads\students_id_rsa aleksandrmitruka@192.168.31.103:~/.ssh/
aleksandrmitruka@192.168.31.103's password:
students_id_rsa
100% 2602 1.3MB/s 00:00

```

Nokopējam mums doto atslēgu no pamatdatora uz mūsu servera mapi. Šo atslēgu glabāsim tikai mājas darba veikšanas laikā, tāpēc saglabāsim sāļā mapē

```
aleksandrmitruka@goodserver:~$ sudo chmod 600 ~/.ssh/students_id_rsa  
[sudo] password for aleksandrmitruka:
```

```
aleksandrmitruka@goodserver:~$ ssh -i ~/.ssh/students_id_rsa students@dtamd2.df.lu.lv  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-1089-kvm x86_64)
```

```
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/advantage
```

System information as of Sat Apr 29 21:48:54 EEST 2023

```
System load:  0.0           Processes:            75  
Usage of /:   18.8% of 10.48GB Users logged in:       1  
Memory usage: 17%          IPv4 address for ens3: 5.179.27.184  
Swap usage:   0%
```

Nokopētajam failam nomainām tiesības ar `chmod`, lai varētu to izmantot, un slēdzāmies klāt ar `rsa` atslēgu universitātes serverim.

```
students@ubu1:~$ mkdir ad22069  
students@ubu1:~$ ls -l  
total 32  
drwxrwxr-x 2 students students 4096 Apr 21 07:44 aa00001  
drwxrwxr-x 2 students students 4096 Apr 29 21:49 ad22069  
drwxrwxr-x 2 students students 4096 Apr 23 14:56 ar22091  
drwxrwxr-x 2 students students 4096 Apr 27 19:00 dl22027  
drwxrwxr-x 2 students students 4096 Apr 25 22:51 dp22055  
drwxrwxr-x 2 students students 4096 Apr 26 22:55 gz22016  
drwxrwxr-x 2 students students 4096 Apr 28 18:55 ks22098  
drwxrwxr-x 2 students students 4096 Apr 29 20:44 rr22048
```

Izveidojam savu mapi universitātes serverī

```
students@ubu1:~$ date  
Sat Apr 29 21:50:24 EEST 2023  
students@ubu1:~$ exit  
logout  
Connection to dtamd2.df.lu.lv closed.  
aleksandrmitruka@goodserver:~$ date  
sestdiena, 2023. gada 29. aprīlis, 21:50:19 EEST
```

Pārliecināties, ka mūsu un servera laiks sakrīt, lai tiešām tālāk redzētu, ka aktuālas kopijas parādās serverī

4. Mape “kopijas”, bash skripts, sha256

```
aleksandrmitruka@goodserver:~$ mkdir kopijas  
aleksandrmitruka@goodserver:~$ ls -l  
total 12  
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1036 apr 29 21:46 bkp_20230429.tar.gz  
drwxrwxr-x 2 aleksandrmitruka aleksandrmitruka 4096 apr 29 21:43 dati  
drwxrwxr-x 2 aleksandrmitruka aleksandrmitruka 4096 apr 29 21:51 kopijas
```

Izveidojam savā serverī mapi kopijas

```
aleksandradmitruka@goodserver:~$ sudo nano kopijas.sh
[sudo] password for aleksandradmitruka:
```

```
GNU nano 6.2 kopijas.sh *
#!/bin/bash
laiks="date +%Y%m%d_%H%M%S"
AVOTS=/home/aleksandradmitruka/dati/
MERKIS=/home/aleksandradmitruka/kopijas/
cd $AVOTS
tar czf $MERKIS/atteli_$laiks.tgz ./
```

Izveidojam bash skriptu ar absolūtajiem ceļiem, kurš veidos mapes dati arhīvus mapē kopijas

```
aleksandradmitruka@goodserver:~$ sudo chmod a+x kopijas.sh
aleksandradmitruka@goodserver:~$ ./kopijas.sh
```

Piešķiram skriptam tiesības(palaišanas tiesības lietotājiem) un izpildām manuāli

```
aleksandradmitruka@goodserver:~$ ./kopijas.sh
aleksandradmitruka@goodserver:~$ ls -l kopijas/
total 4
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
aleksandradmitruka@goodserver:~$ ./kopijas.sh
aleksandradmitruka@goodserver:~$ ls -l kopijas/
total 8
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
aleksandradmitruka@goodserver:~$ ./kopijas.sh
aleksandradmitruka@goodserver:~$ ls -l kopijas/
total 12
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215444.tgz
```

Rezultāta izveidojam vairākus mapes dati saspiešus arhīvus ar savu skriptu

```
GNU nano 6.2 kopijas.sh
#!/bin/bash
laiks="date +%Y%m%d_%H%M%S"
AVOTS=/home/aleksandradmitruka/dati/
MERKIS=/home/aleksandradmitruka/kopijas/
cd $AVOTS
tar czf $MERKIS/atteli_$laiks.tgz ./
cd $MERKIS
sha256sum atteli_$laiks.tgz > atteli_$laiks.sha256
```

Beigās papildinām skriptu ar sha256 kontrolsummas veidošanas iespēju mapē kopijas

5. Manuālā rsync sinhronizēšana uz universitātes serveri

```
aleksandrmitruka@goodserver:~$ rsync -av -e 'ssh -i /home/aleksandrmitruka/.ssh/students_id_rsa' /home/aleksandrmitruka/kopijas/ students@dtamd2.df.lu.lv:/home/students/ad22069/
sending incremental file list
./
atteli_20230429_215413.tgz
atteli_20230429_215427.tgz
atteli_20230429_215444.tgz

sent 3.403 bytes received 76 bytes 2.319,33 bytes/sec
total size is 3.102 speedup is 0,89
```

Veicam manuālu sinhronizēšanu ar rsync uz fakultātes serverī (var iztikt arī bez absolūtajiem ceļiem, tomēr, zinot, ka liksim komandu skriptā, izdarām to drošības dēļ, lai izpildīšanas laika nebūtu kļūdu)

```
Last login: Sat Apr 29 21:52:59 2023 from 81.198.8.191
students@ubu1:~$ cd ad22069/
students@ubu1:~/ad22069$ ls -l
total 12
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215444.tgz
```

Redzam, ka faili ir universitātes serveri

```
aleksandrmitruka@goodserver:~$ ls -l kopijas/
total 20
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:05 atteli_20230429_220507.tgz
```

Izveidosim vēl vienu kopiju pārbaudei, tagad ar sha256 kontrolsummu (to veidošanas skriptu pievienojam iepriekšējā uzdevumā beigās)

```
aleksandrmitruka@goodserver:~$ rsync -av -e 'ssh -i /home/aleksandrmitruka/.ssh/students_id_rsa' /home/aleksandrmitruka/kopijas/ students@dtamd2.df.lu.lv:/home/students/ad22069/
sending incremental file list
atteli_20230429_220507.sha256
atteli_20230429_220507.tgz

sent 1.500 bytes received 57 bytes 3.114,00 bytes/sec
total size is 4.281 speedup is 2,75
```

```
students@ubu1:~$ ls -l ad22069/
total 20
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:05 atteli_20230429_220507.tgz
students@ubu1:~$
```

Kā redzam, visi jaunie faili nosinhronizējas un ir mūsu mapē universitātes serverī. Tātad viss tiešām strādā korekti

6. Skripta palaišana ar crontab

```
aleksandrmitruka@goodserver: ~
GNU nano 6.2 kopijas.sh
#!/bin/bash
laiks= date +%Y%m%d_%H%M%S
AVOTS=/home/aleksandrmitruka/dati/
MERKIS=/home/aleksandrmitruka/kopijas/
cd $AVOTS
tar czf $MERKIS/atteli_$laiks.tgz ./
cd $MERKIS
sha256sum atteli_$laiks.tgz > atteli_$laiks.sha256
rsync -av -e 'ssh -i /home/aleksandrmitruka/.ssh/students_id_rsa' /home/aleksandrmitruka/kopijas/ students@dtamd2.df.lu.lv:/home/students/ad22069/
```

Pievienojam “kopijas.sh” skriptam jaunu rindu ar iepriekš izmantotu rsync

```

aleksandradmitruka@goodserver:~$ crontab -e
no crontab for aleksandradmitruka - using an empty one

Select an editor. To change later, run 'select-editor'.
 1. /bin/nano      <---- easiest
 2. /usr/bin/vim.basic
 3. /usr/bin/vim.tiny
 4. /bin/ed

Choose 1-4 [1]: 1
crontab: installing new crontab

```

Ar doto komandu izveidojam jaunu crontab failu mūsu serverī, izvēlamies mums pazīstamo nano reduktoru.

```

aleksandradmitruka@goodserver: ~
GNU nano 6.2 /tmp/crontab.QvVuf2/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
*/5 * * * * ./kopijas.sh

```

Jaunajā crontab konfigurācijas faila ierakstam sākojošo rindu. Katra zvaigznīte attiecīgi apzīmē minutes/stundas/mēneša dienas un t.t. Ieraksts */5 nozīmē, ka spriktu ir jāizpilda katras 5 minutes.

```

aleksandradmitruka@goodserver:~$ ll kopijas
total 36
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 apr 29 22:15 ./
drwxr-x-- 7 aleksandradmitruka aleksandradmitruka 4096 apr 29 22:08 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1034 apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 93 apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1086 apr 29 22:05 atteli_20230429_220507.tgz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 93 apr 29 22:15 atteli_20230429_221501.sha256
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 1086 apr 29 22:15 atteli_20230429_221501.tgz

```

```

students@ubu1:~$ ll ad22069/
total 36
drwxrwxr-x 2 students students 4096 Apr 29 22:15 ./
drwxr-xr-x 12 students students 4096 Apr 29 21:49 ../
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:05 atteli_20230429_220507.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:15 atteli_20230429_221501.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:15 atteli_20230429_221501.tgz

```

Uzgaidot 5 minutes, redzam, ka gan mūsu serverī, gan universitātes serverī vienlaicīgi parādās attiecīgas kopijas


```

aleksandrmitruka@goodserver:~$ ls -l kopijas/
total 76
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:05 atteli_20230429_220507.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:15 atteli_20230429_221501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:15 atteli_20230429_221501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:20 atteli_20230429_222001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:20 atteli_20230429_222001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:25 atteli_20230429_222501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:25 atteli_20230429_222501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:30 atteli_20230429_223001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:30 atteli_20230429_223001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:35 atteli_20230429_223501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:35 atteli_20230429_223501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:40 atteli_20230429_224001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:40 atteli_20230429_224001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:45 atteli_20230429_224501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:45 atteli_20230429_224501.tgz
aleksandrmitruka@goodserver:~$

```

```

Last login: Sat Apr 29 22:43:04 2023 from 62.85.110.241
students@ubu1:~$ ls -l ad22069/
total 76
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 students students 1034 Apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:05 atteli_20230429_220507.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:15 atteli_20230429_221501.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:15 atteli_20230429_221501.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:20 atteli_20230429_222001.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:20 atteli_20230429_222001.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:25 atteli_20230429_222501.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:25 atteli_20230429_222501.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:30 atteli_20230429_223001.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:30 atteli_20230429_223001.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:35 atteli_20230429_223501.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:35 atteli_20230429_223501.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:40 atteli_20230429_224001.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:40 atteli_20230429_224001.tgz
-rw-rw-r-- 1 students students 93 Apr 29 22:45 atteli_20230429_224501.sha256
-rw-rw-r-- 1 students students 1086 Apr 29 22:45 atteli_20230429_224501.tgz
students@ubu1:~$

```

Uzgaidot vēl nedaudz, parliecinamies, ka sinhronizēšana tiešām strada un katras 5 minutes ir izveidota un nosinhronizēta jaunā kopija.

```

aleksandrmitruka@goodserver:~$ crontab -r
aleksandrmitruka@goodserver:~$

```

```

aleksandrmitruka@goodserver:~$ crontab -r
no crontab for aleksandrmitruka
aleksandrmitruka@goodserver:~$ date
sestdiena, 2023. gada 29. aprīlis, 22:50:22 EEST
aleksandrmitruka@goodserver:~$ ls -l kopijas/
total 76
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215413.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215427.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1034 apr 29 21:54 atteli_20230429_215444.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:05 atteli_20230429_220507.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:05 atteli_20230429_220507.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:15 atteli_20230429_221501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:15 atteli_20230429_221501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:20 atteli_20230429_222001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:20 atteli_20230429_222001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:25 atteli_20230429_222501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:25 atteli_20230429_222501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:30 atteli_20230429_223001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:30 atteli_20230429_223001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:35 atteli_20230429_223501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:35 atteli_20230429_223501.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:40 atteli_20230429_224001.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:40 atteli_20230429_224001.tgz
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 93 apr 29 22:45 atteli_20230429_224501.sha256
-rw-rw-r-- 1 aleksandrmitruka aleksandrmitruka 1086 apr 29 22:45 atteli_20230429_224501.tgz
aleksandrmitruka@goodserver:~$

```

Beigās izdzēšam crontab failu un pārliecinamies, ka tas neessistē un jaunās kopijas neviedojas, jo negrībam “piesarņot” universitatēs serveri ar nevajadzīgajiem datiem