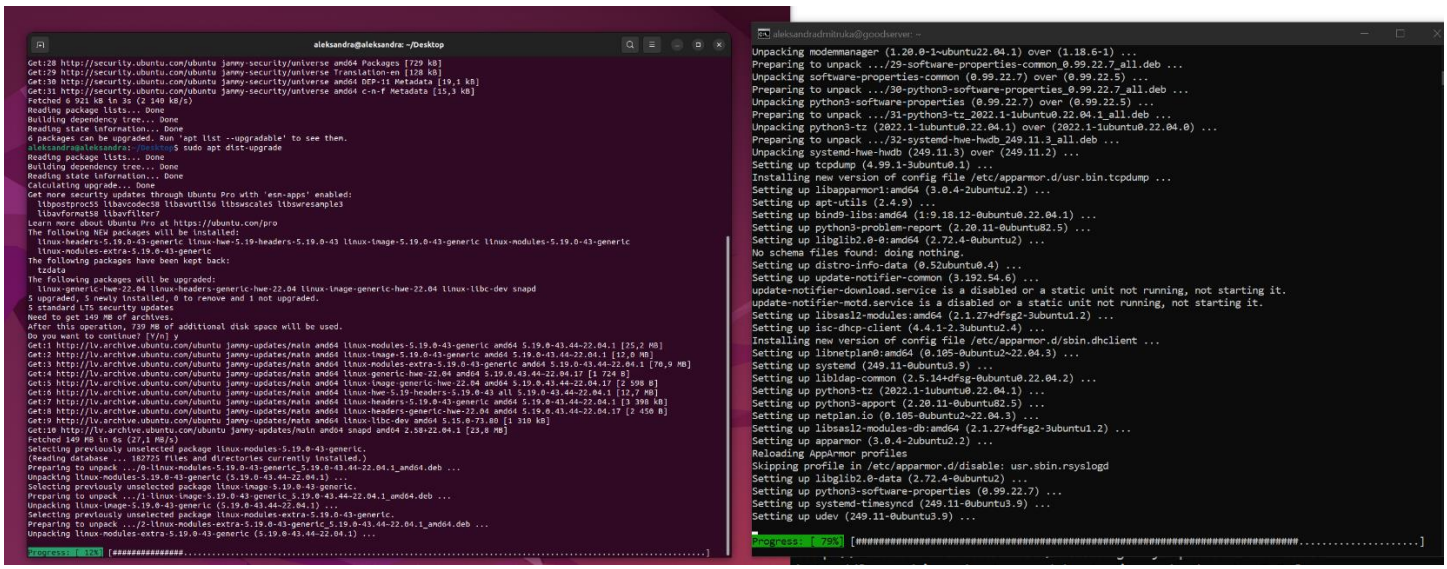
3. mājas darbs

Ansible

Sagatavošanas darbam, Ansible instalācija

Pirms sākam darbu, atjauninām programmatūru gan uz Ubuntu desktop, gan uz Ubuntu servera(instalēts no jauna) ar apt update un pēc tam ar apt dist-upgrade



Kad tas ir paveikts, ieinstalējam uz desktop versijas “pip” rīku priekš python, ka arī pašu Ansible

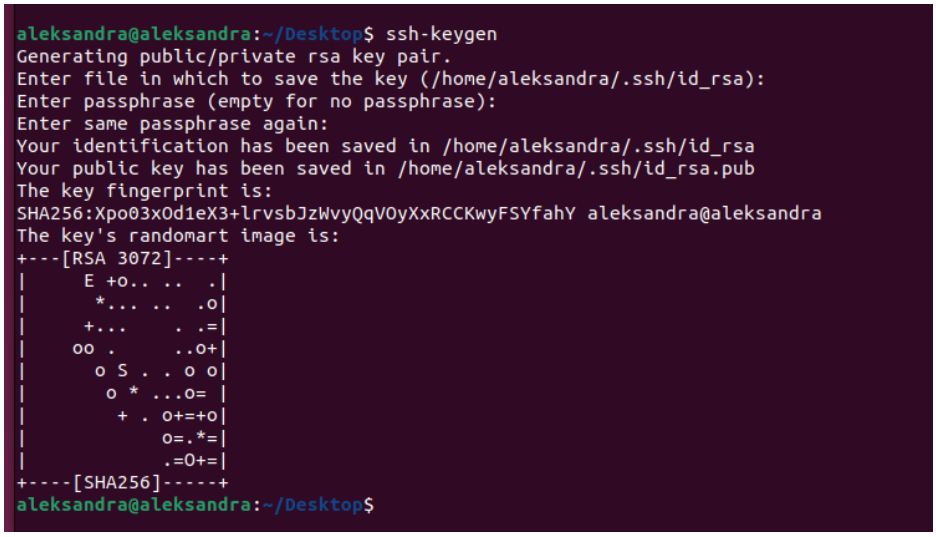
```
aleksandra@aleksandra:~/Desktop$ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-5.19.0-32-generic linux-hwe-5.19-headers-5.19.0-32 linux-image-5.19.0-32-generic linux-modules-5.19.0-32-generic
  linux-modules-extra-5.19.0-32-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  javascript-common libexpat1-dev libjs-jquery libjs-sphinxdoc libjs-underscore libpython3-dev libpython3.10-dev python3-dev python3-distutils
  python3-lib2to3 python3-setuptools python3-wheel python3.10-dev zlib1g-dev
Suggested packages:
  apache2 | lighttpd | httpd python-setuptools-doc
The following NEW packages will be installed:
  javascript-common libexpat1-dev libjs-jquery libjs-sphinxdoc libjs-underscore libpython3-dev libpython3.10-dev python3-dev python3-distutils
  python3-lib2to3 python3-pip python3-setuptools python3-wheel python3.10-dev zlib1g-dev
0 upgraded, 15 newly installed, 0 to remove and 1 not upgraded.
Need to get 8 083 kB of archives.
After this operation, 34,6 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
aleksandra@aleksandra:~/Desktop$ sudo python3 -m pip install ansible
Collecting ansible
  Downloading ansible-8.0.0-py3-none-any.whl (42.2 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 42.2/42.2 MB 5.2 MB/s eta 0:00:00
Collecting ansible-core~=2.15.0
  Downloading ansible_core-2.15.0-py3-none-any.whl (2.2 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 2.2/2.2 MB 6.6 MB/s eta 0:00:00
Requirement already satisfied: PyYAML>=5.1 in /usr/lib/python3/dist-packages (from ansible-core~=2.15.0->ansible) (5.4.1)
Collecting packaging
  Downloading packaging-23.1-py3-none-any.whl (48 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 48.9/48.9 KB 8.4 MB/s eta 0:00:00
Collecting resolvelib<1.1.0,>=0.5.3
  Downloading resolvelib-1.0.1-py2.py3-none-any.whl (17 kB)
Requirement already satisfied: cryptography in /usr/lib/python3/dist-packages (from ansible-core~=2.15.0->ansible) (3.4.8)
Collecting jinja2>=3.0.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 133.1/133.1 KB 3.9 MB/s eta 0:00:00
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.2-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (25 kB)
Installing collected packages: resolvelib, packaging, MarkupSafe, jinja2, ansible-core, ansible
```

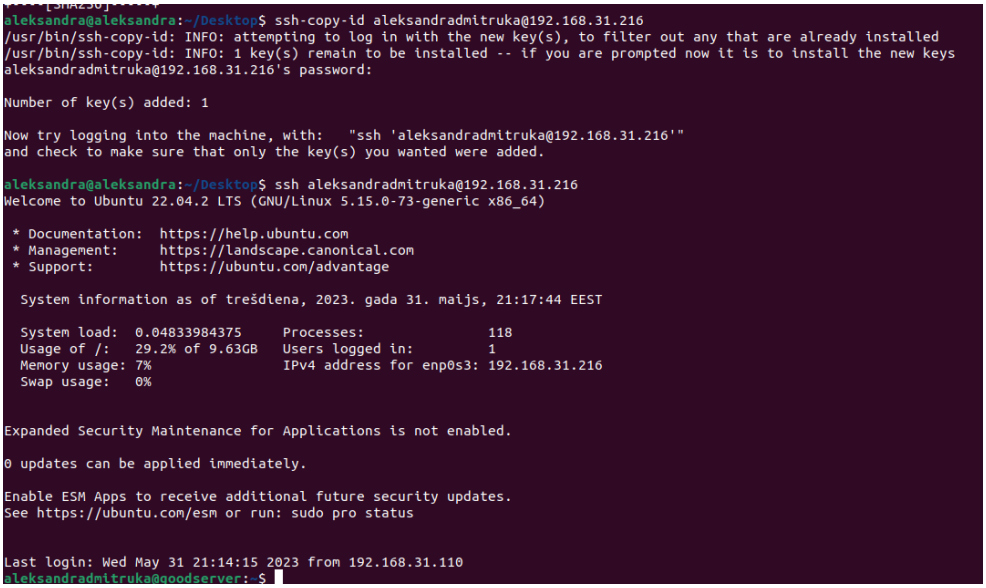
```
aleksandra@aleksandra:~/Desktop$ ansible --version
ansible [core 2.15.0]
  config file = None
  configured module search path = ['/home/aleksandra/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/local/lib/python3.10/dist-packages/ansible
  ansible collection location = /home/aleksandra/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/local/bin/ansible
  python version = 3.10.6 (main, Mar 10 2023, 10:55:28) [GCC 11.3.0] (/usr/bin/python3)
  jinja version = 3.1.2
  libyaml = True
aleksandra@aleksandra:~/Desktop$ pip --version
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)
aleksandra@aleksandra:~/Desktop$
```

1. SSH savienojums

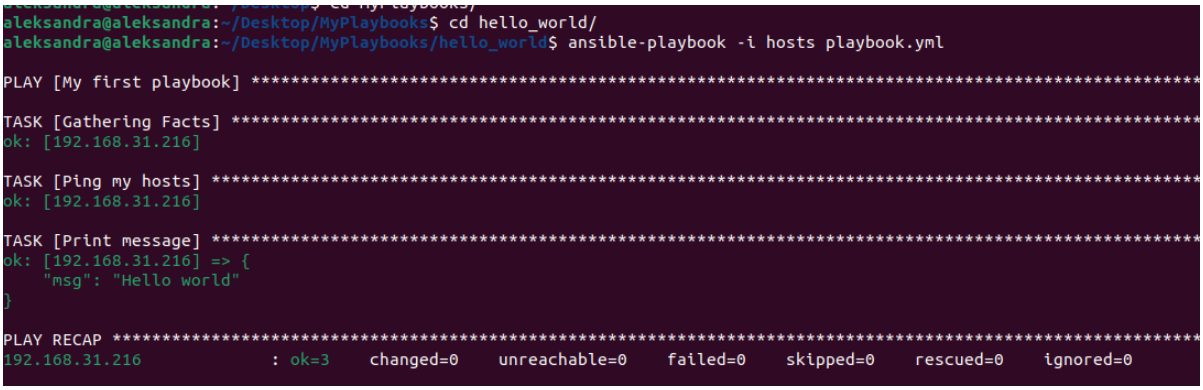
Sākumā ģenerējam jauno ssh atslēgu:



Tad nokopējam to ar ssh-copy-id un varam tam slēgties, neizmantojot paroli



Pamēģināsim notestēt, vai viss strādā, palaižot testa playbook'u. Tā kā mēs nokonfigurējam ssh(pieslēgšanas bez paroles) un atrodamies vajadzīgajā direktorijā, varam rakstīt komandu saīsinātā veidā. Kā redzams, viss strādā



2. Apache tīmekļa serveris

Attiecīgajā playbook'a, kuru paņemam no e-studijam, nomainām hostus, dažus ssl iestatījumus, pārceļam mājas lapu veidošanu citā playbook'a, paņemam nepieciešamo role. Tomēr ieguvām rezultātus, ka vajag sudo paroli

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/apache$ ansible-galaxy role install --roles-path ./roles -r requirements.yml
Starting galaxy role install process
- geerlingguy.apache (3.3.0) is already installed, skipping.
```

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/apache$ ansible-playbook -i hosts playbook.yml

PLAY [Ensure apache configuration] *********************************************************************************

TASK [Gathering Facts] *********************************************************************************************
fatal: [192.168.31.216]: FAILED! => {"msg": "Missing sudo password"}
```

Tāpēc savā serverī ievadām sudo visudo un rediģejam failu, pielikot atļaujas rindu ar mūsu lietotājā vārdu

```
aleksandradmitruka@goodserver: ~
  GNU nano 6.2                                        /etc/sudoers.tmp
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
#
# See the man page for details on how to write a sudoers file.
#
Defaults        env_reset
Defaults        mail_badpass
Defaults        secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/snap/bin"
Defaults        use_pty

# This preserves proxy settings from user environments of root
# equivalent users (group sudo)
#Defaults:%sudo env_keep += "http_proxy https_proxy ftp_proxy all_proxy no_proxy"

# This allows running arbitrary commands, but so does ALL, and it means
# different sudoers have their choice of editor respected.
#Defaults:%sudo env_keep += "EDITOR"

# Completely harmless preservation of a user preference.
#Defaults:%sudo env_keep += "GREP_COLOR"

# While you shouldn't normally run git as root, you need to with etckeeper
#Defaults:%sudo env_keep += "GIT_AUTHOR_* GIT_COMMITTER_*"

# Per-user preferences; root won't have sensible values for them.
#Defaults:%sudo env_keep += "EMAIL DEBEMAIL DEBFULLNAME"

# "sudo scp" or "sudo rsync" should be able to use your SSH agent.
#Defaults:%sudo env_keep += "SSH_AGENT_PID SSH_AUTH_SOCK"

# Ditto for GPG agent
#Defaults:%sudo env_keep += "GPG_AGENT_INFO"

# Host alias specification

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "@include" directives:

@includedir /etc/sudoers.d
aleksandradmitruka ALL=(ALL) NOPASSWD: ALL
```

Tagad noteikt veiksmīga apache instalācija

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/apache$ ansible-playbook -i hosts playbook.yml

PLAY [Ensure apache configuration] *********************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.31.216]

TASK [Include variables] *******************************************************************************************
ok: [192.168.31.216]

TASK [Ensure apache] ***********************************************************************************************

TASK [geerlingguy.apache : Include OS-specific variables.] *********************************************************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Include variables for Amazon Linux.] ****************************************************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Define apache_packages.] ****************************************************************
ok: [192.168.31.216]

TASK [geerlingguy.apache : include_tasks] **************************************************************************
included: /home/aleksandra/Desktop/MyPlaybooks/apache/roles/geerlingguy.apache/tasks/setup-Debian.yml for 192.168.31.216
```

```
TASK [geerlingguy.apache : Remove default vhost in sites-enabled.] *************************************************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Ensure Apache has selected state and enabled on boot.] **********************************
ok: [192.168.31.216]

RUNNING HANDLER [geerlingguy.apache : restart apache] **************************************************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************************************************
192.168.31.216             : ok=17   changed=5    unreachable=0    failed=0    skipped=5    rescued=0    ignored=0
```

```
aleksandradmitruka@goodserver:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2023-06-01 00:01:13 EEST; 9min ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 19548 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 19552 (apache2)
      Tasks: 55 (limit: 4572)
     Memory: 6.0M
        CPU: 118ms
     CGroup: /system.slice/apache2.service
             ├─19552 /usr/sbin/apache2 -k start
             ├─19553 /usr/sbin/apache2 -k start
             └─19554 /usr/sbin/apache2 -k start
```

Tad izveidojam atsevišķo playbook'u priekš mājaslapas saturiem un palaižam to. Pārbaudām, ka izpildīja prasīto (piezīme: uzdevums ar klases direktoriju veidošanu bija nejauši pārsaukts par backup, bet savu uzdevumu izpilda)

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/apache$ ansible-playbook -i hosts playbook_copy.yml

PLAY [Copy webpages] ***********************************************************************

TASK [Gathering Facts] *********************************************************************
ok: [192.168.31.216]

TASK [Create backup directory] *************************************************************
changed: [192.168.31.216]

TASK [Copy website A klase files to host] **************************************************
changed: [192.168.31.216]

TASK [Copy website B klase files to host] **************************************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************************
192.168.31.216             : ok=4    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

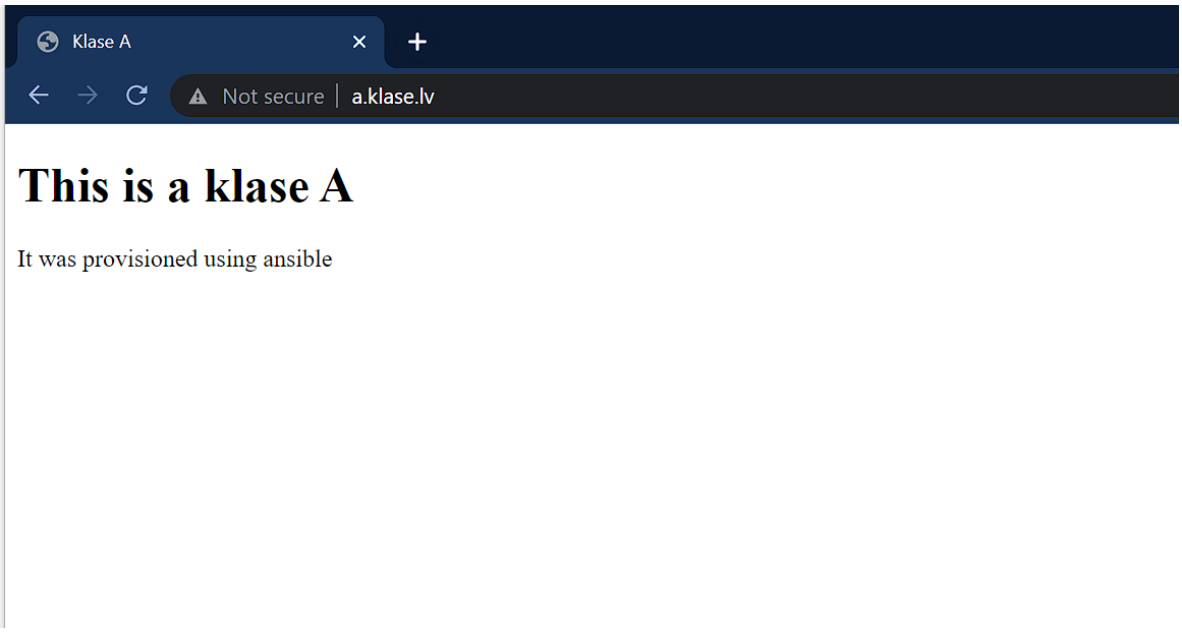
```
aleksandradmitruka@goodserver:/var/www$ ll
total 16
drwxr-xr-x  4 root root 4096 jūn  3 01:19 ./
drwxr-xr-x 14 root root 4096 jūn  1 00:00 ../
drwxr-xr-x  2 root root 4096 jūn  1 00:00 html/
drwxr-xr-x  4 root root 4096 jūn  3 01:19 klase/
aleksandradmitruka@goodserver:/var/www$ cd klase
aleksandradmitruka@goodserver:/var/www/klase$ ll
total 16
drwxr-xr-x 4 root root 4096 jūn  3 01:19 ./
drwxr-xr-x 4 root root 4096 jūn  3 01:19 ../
drwxr-xr-x 2 root root 4096 jūn  3 01:19 a.klase.lv/
drwxr-xr-x 2 root root 4096 jūn  3 01:19 b.klase.lv/
aleksandradmitruka@goodserver:/var/www/klase$
```

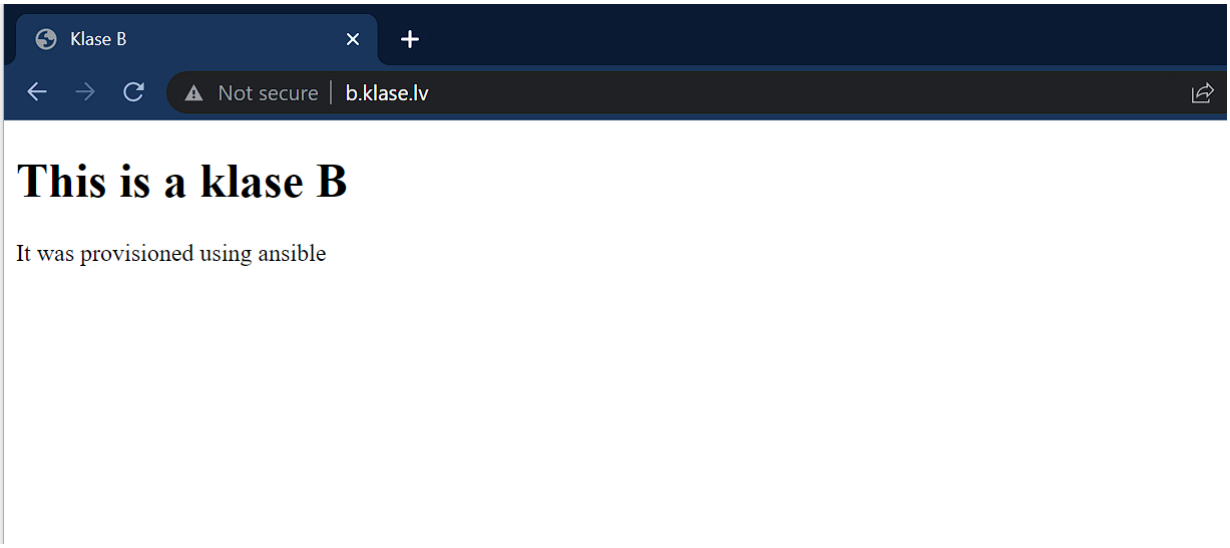
Tā kā DNS vēl nekonfigurējam, pārbaudei nomainām hostu failu ar playbooku

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/templates$ ansible-playbook -i hosts playbook.yml

PLAY [My first playbook] *******************************************************************

TASK [Gathering Facts] *********************************************************************
ok: [192.168.31.216]

TASK [Include variables] *******************************************************************
ok: [192.168.31.216]

TASK [Copy /etc/hosts template] ************************************************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************************
192.168.31.216             : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
aleksandradmitruka@goodserver: ~
  GNU nano 6.2                                                    /etc
# /etc/hosts generated by Ansible
127.0.0.1 localhost

127.0.0.1 goodserver
192.168.31.216 a.klase.lv
192.168.31.216 b.klase.lv

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Redzam, ka tagad varam piekļūt mājas lapām ar http





3. Cronjob

Tā kā ansible tik un tā pieprasa ssh savienojumu, kopējam atslēgu pati uz savu desktop versiju un nomainām sudo tiesības

```
aleksandra@aleksandra:~$
aleksandra@aleksandra:~$ ssh-copy-id aleksandra@192.168.31.110
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
aleksandra@192.168.31.110's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'aleksandra@192.168.31.110'"
and check to make sure that only the key(s) you wanted were added.
```

```
  GNU nano 6.2                                                    /etc/sudoers.tmp
# Completely harmless preservation of a user preference.
#Defaults:%sudo env_keep += "GREP_COLOR"

# While you shouldn't normally run git as root, you need to with etckeeper
#Defaults:%sudo env_keep += "GIT_AUTHOR_* GIT_COMMITTER_*"

# Per-user preferences; root won't have sensible values for them.
#Defaults:%sudo env_keep += "EMAIL DEBEMAIL DEBFULLNAME"

# "sudo scp" or "sudo rsync" should be able to use your SSH agent.
#Defaults:%sudo env_keep += "SSH_AGENT_PID SSH_AUTH_SOCK"

# Ditto for GPG agent
#Defaults:%sudo env_keep += "GPG_AGENT_INFO"

# Host alias specification

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "@include" directives:

@includedir /etc/sudoers.d

aleksandra ALL=(ALL) NOPASSWD:ALL
```

Atsevišķi palaižam playbooku, kas viedo kopijas, pārbaudam, tad mānuali izdzēšam. Viss strāda

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i hosts playbook.yml

PLAY [Create tar gzip archives] ************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.31.216]

TASK [Create backup directory] *************************************************************************************
changed: [192.168.31.216]

TASK [Get current date and time] ***********************************************************************************
changed: [192.168.31.216]

TASK [Create tar gzip archive of /var/www] *************************************************************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************************************************
192.168.31.216             : ok=4    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
aleksandradmitruka@goodserver:~$ ll
total 52
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ./
drwxr-xr-x 3 root               root               4096 mai 31 19:37 ../
drwx------ 3 aleksandradmitruka aleksandradmitruka 4096 mai 31 21:55 .ansible/
-rw------- 1 aleksandradmitruka aleksandradmitruka 2743 jūn  3 01:16 .bash_history
-rw-r--r-- 1 aleksandradmitruka aleksandradmitruka  220 jan  6  2022 .bash_logout
-rw-r--r-- 1 aleksandradmitruka aleksandradmitruka 3771 jan  6  2022 .bashrc
drwx------ 2 aleksandradmitruka aleksandradmitruka 4096 mai 31 19:37 .cache/
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 copy/
-rw------- 1 aleksandradmitruka aleksandradmitruka   20 mai 31 19:39 .lesshst
drwxrwxr-x 3 aleksandradmitruka aleksandradmitruka 4096 jūn  1 02:36 .local/
-rw-r--r-- 1 aleksandradmitruka aleksandradmitruka  807 jan  6  2022 .profile
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka   66 jūn  1 02:36 .selected_editor
drwx------ 2 aleksandradmitruka aleksandradmitruka 4096 mai 31 21:14 .ssh/
-rw-r--r-- 1 aleksandradmitruka aleksandradmitruka    0 mai 31 19:40 .sudo_as_admin_successful
aleksandradmitruka@goodserver:~$ ll copy
total 12
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:16 www_archive_20230603021652.tar.gz
aleksandradmitruka@goodserver:~$ cd copy
aleksandradmitruka@goodserver:~/copy$ sudo rm  www_archive_20230603021652.tar.gz
```

Tagad palaižam mūsu cronjob skriptui, uzgaidām un pārbaudām rezultātu

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i servers  playbook_chrono.yml

PLAY [Cron Job] ***************************************************************************************************

TASK [Gathering Facts] ********************************************************************************************
ok: [192.168.31.110]

TASK [Crontab file exists] ****************************************************************************************
changed: [192.168.31.110]

PLAY RECAP ********************************************************************************************************
192.168.31.110             : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$
```

```
aleksandradmitruka@goodserver:~/copy$ ll
total 24
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:28 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:22 www_archive_20230603022209.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:24 www_archive_20230603022408.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:26 www_archive_20230603022608.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:28 www_archive_20230603022808.tar.gz
```

Izslēdzam cronjob un pārliecināmies, ka nekas nenotiek

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i servers  playbook_stop.yml

PLAY [Cron Job] ***************************************************************************************************

TASK [Gathering Facts] ********************************************************************************************
ok: [192.168.31.110]

TASK [Crontab file exists] ****************************************************************************************
changed: [192.168.31.110]

PLAY RECAP ********************************************************************************************************
192.168.31.110             : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
aleksandradmitruka@goodserver:~/copy$ date
sestdiena, 2023. gada  3. jūnijs, 02:30:30 EEST
aleksandradmitruka@goodserver:~/copy$ ll
total 24
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:28 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:22 www_archive_20230603022209.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:24 www_archive_20230603022408.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:26 www_archive_20230603022608.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 02:28 www_archive_20230603022808.tar.gz
```

4. Piecas rezerves kopijas

Sākuma notestēsim to koda daļu, kas atbild par kopiju skaita kontroli. Mākslīgi saveidojam kopiju skaitu, kas pārsniedz 5(piem.7) un palaižam playbooku. Kā redzams, tas izpildījās pareizi, pat ja atšķirība ir vairāk kā 1. Tāda realizācija ir vajadzīga, lai playbooks būtu universāls pat tiem gadījumiem, kad mēs to palaižam "pārpildītajai" direktorijai, kurā nav precīzi 5 faili sakumā

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i hosts playbook_five.yml

PLAY [Check and delete oldest files in a directory] ****************************************************

TASK [Get file list] ***********************************************************************************
ok: [192.168.31.216]

TASK [Sort files] **************************************************************************************
ok: [192.168.31.216]

TASK [Get number of files] *****************************************************************************
ok: [192.168.31.216]

TASK [Delete oldest files if file count is larger than 5] **********************************************
ok: [192.168.31.216] => (item=None)
ok: [192.168.31.216] => (item=None)
ok: [192.168.31.216]

PLAY RECAP *********************************************************************************************
192.168.31.216             : ok=4    changed=0    unreachable=0    failed=0    skipped=0    rescued=0
```

```
aleksandradmitruka@goodserver:~/copy$ date
sestdiena, 2023. gada  3. jūnijs, 18:31:20 EEST
aleksandradmitruka@goodserver:~/copy$ ll
total 36
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 18:14 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 03:15 www_archive_20230603031509.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 03:15 www_archive_20230603031522.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:04 www_archive_20230603180457.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:05 www_archive_20230603180527.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:10 www_archive_20230603181041.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:12 www_archive_20230603181238.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:14 www_archive_20230603181406.tar.gz
aleksandradmitruka@goodserver:~/copy$ date
sestdiena, 2023. gada  3. jūnijs, 18:33:51 EEST
aleksandradmitruka@goodserver:~/copy$ ll
total 28
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 18:33 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:04 www_archive_20230603180457.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:05 www_archive_20230603180527.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:10 www_archive_20230603181041.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:12 www_archive_20230603181238.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka 3646 jūn  3 18:14 www_archive_20230603181406.tar.gz
```

Tagad izveidojam pilno playbooku, kas veido rezerves kopiju, veic skaita kontroli un ievieto saturu zem var/www. Palaižam to(pirms tā bija daži testi, tāpēc iepriekšēja attēla redzamas kopijas neeksistē)

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i hosts playbook_five_create_copy.yml

PLAY [Check and delete oldest files in a directory] ****************************************************

TASK [Check if klase directory exists] *****************************************************************
ok: [192.168.31.216]

TASK [Create backup directory] *************************************************************************
ok: [192.168.31.216]

TASK [Get current date and time] ***********************************************************************
changed: [192.168.31.216]

TASK [Create tar gzip archive of /var/www] *************************************************************
changed: [192.168.31.216]

TASK [Get file list] ***********************************************************************************
ok: [192.168.31.216]

TASK [Sort files] **************************************************************************************
ok: [192.168.31.216]

TASK [Get number of files] *****************************************************************************
ok: [192.168.31.216]

TASK [Delete oldest files if file count is larger than 5] **********************************************
ok: [192.168.31.216] => (item=None)
ok: [192.168.31.216]

TASK [Check if index.html file exists in A klase] ******************************************************
ok: [192.168.31.216]

TASK [Delete index.html file for A] ********************************************************************
changed: [192.168.31.216]

TASK [Check if index.html file exists in B klase] ******************************************************
ok: [192.168.31.216]

TASK [Delete index.html file for B] ********************************************************************
changed: [192.168.31.216]

TASK [Create backup directory] *************************************************************************
ok: [192.168.31.216]

TASK [Copy website A klase files to host] **************************************************************
changed: [192.168.31.216]

TASK [Copy website B klase files to host] **************************************************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************************************
192.168.31.216             : ok=15   changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Redzam, ka notikusi kopiju rotācija

```
aleksandradmitruka@goodserver:~$ ll copy
total 28
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:32 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  433 jūn  3 20:20 www_archive_20230603202018.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  433 jūn  3 20:22 www_archive_20230603202220.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  256 jūn  3 20:28 www_archive_20230603202800.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  453 jūn  3 20:30 www_archive_20230603203006.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  445 jūn  3 20:32 www_archive_20230603203159.tar.gz
aleksandradmitruka@goodserver:~$ ll copy
total 28
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:34 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  433 jūn  3 20:22 www_archive_20230603202220.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  256 jūn  3 20:28 www_archive_20230603202800.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  453 jūn  3 20:30 www_archive_20230603203006.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  445 jūn  3 20:32 www_archive_20230603203159.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  446 jūn  3 20:34 www_archive_20230603203427.tar.gz
```

Un mājaslapu saturs bija atjaunots

```
aleksandradmitruka@goodserver:~$ ll /var/www/klase/a.klase.lv
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:32 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:32 index.html*
aleksandradmitruka@goodserver:~$ ll /var/www/klase/b.klase.lv
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:32 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:32 index.html*
```

```
aleksandradmitruka@goodserver:~$ ll /var/www/klase/a.klase.lv
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:34 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:34 index.html*
aleksandradmitruka@goodserver:~$ ll /var/www/klase/b.klase.lv
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:34 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:34 index.html*
```

Ir iespēja palaist šo uzdevumu ar cronjob reizi 2 minūtes

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i servers playbook_chrono_five.yml

PLAY [Cron Job] ***************************************************************************************************

TASK [Gathering Facts] ********************************************************************************************
ok: [192.168.31.110]

TASK [Start creating copies and updating var/www] *****************************************************************
changed: [192.168.31.110]

PLAY RECAP ********************************************************************************************************
192.168.31.110             : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Nedaudz uzgaidām un pārbaudām rezultātu. Viss strādā

```
aleksandradmitruka@goodserver:~$ ll copy
total 28
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:34 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  433 jūn  3 20:22 www_archive_20230603202220.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  256 jūn  3 20:28 www_archive_20230603202800.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  453 jūn  3 20:30 www_archive_20230603203006.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  445 jūn  3 20:32 www_archive_20230603203159.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  446 jūn  3 20:34 www_archive_20230603203427.tar.gz
aleksandradmitruka@goodserver:~$ date
sestdiena, 2023. gada  3. jūnijs, 20:37:55 EEST
aleksandradmitruka@goodserver:~$ date
sestdiena, 2023. gada  3. jūnijs, 20:50:09 EEST
aleksandradmitruka@goodserver:~$ ll copy
total 28
drwxrwxr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:50 ./
drwxr-x--- 7 aleksandradmitruka aleksandradmitruka 4096 jūn  3 02:16 ../
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  441 jūn  3 20:42 www_archive_20230603204207.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  444 jūn  3 20:44 www_archive_20230603204407.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  445 jūn  3 20:46 www_archive_20230603204607.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  458 jūn  3 20:48 www_archive_20230603204807.tar.gz
-rw-rw-r-- 1 aleksandradmitruka aleksandradmitruka  454 jūn  3 20:50 www_archive_20230603205006.tar.gz
aleksandradmitruka@goodserver:~$ ll /var/www/klase/a.klase.lv/
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:50 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:50 index.html*
aleksandradmitruka@goodserver:~$ ll /var/www/klase/b.klase.lv/
total 12
drwxr-xr-x 2 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:50 ./
drwxr-xr-x 4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 19:54 ../
-rwxr-xr-x 1 aleksandradmitruka aleksandradmitruka  163 jūn  3 20:50 index.html*
```

Izslēdzam cronjob

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i servers playbook_stop_five.yml

PLAY [Cron Job] ***************************************************************************************************************

TASK [Gathering Facts] ********************************************************************************************************
ok: [192.168.31.110]

TASK [Stop copy and creation] *************************************************************************************************
changed: [192.168.31.110]

PLAY RECAP ********************************************************************************************************************
192.168.31.110             : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Pabaudām izņēmumā gadījumu, kad klase direktorijā un index neeksistē. Viss strādā pareizi, nevajadzīgi uzdevumi izlaisti

```
aleksandradmitruka@goodserver:/var/www$ sudo rm -R klase
aleksandradmitruka@goodserver:/var/www$ ll
total 12
drwxr-xr-x  3 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:54 ./
drwxr-xr-x 14 aleksandradmitruka aleksandradmitruka 4096 jūn  1 00:00 ../
drwxr-xr-x  2 aleksandradmitruka aleksandradmitruka 4096 jūn  1 00:00 html/
aleksandradmitruka@goodserver:/var/www$ ll
total 16
drwxr-xr-x  4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:54 ./
drwxr-xr-x 14 aleksandradmitruka aleksandradmitruka 4096 jūn  1 00:00 ../
drwxr-xr-x  2 aleksandradmitruka aleksandradmitruka 4096 jūn  1 00:00 html/
drwxrwxr-x  4 aleksandradmitruka aleksandradmitruka 4096 jūn  3 20:54 klase/
```

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/copy$ ansible-playbook -i hosts playbook_five_create_copy.yml

PLAY [Check and delete oldest files in a directory] ***************************************************************************

TASK [Check if klase directory exists] ****************************************************************************************
ok: [192.168.31.216]

TASK [Create backup directory] ************************************************************************************************
ok: [192.168.31.216]

TASK [Get current date and time] **********************************************************************************************
changed: [192.168.31.216]

TASK [Create tar gzip archive of /var/www] ************************************************************************************
skipping: [192.168.31.216]

TASK [Get file list] **********************************************************************************************************
ok: [192.168.31.216]

TASK [Sort files] *************************************************************************************************************
ok: [192.168.31.216]

TASK [Get number of files] ****************************************************************************************************
ok: [192.168.31.216]

TASK [Delete oldest files if file count is larger than 5] *********************************************************************
skipping: [192.168.31.216]

TASK [Check if index.html file exists in A klase] *****************************************************************************
ok: [192.168.31.216]

TASK [Delete index.html file for A] *******************************************************************************************
skipping: [192.168.31.216]

TASK [Check if index.html file exists in B klase] *****************************************************************************
ok: [192.168.31.216]

TASK [Delete index.html file for B] *******************************************************************************************
skipping: [192.168.31.216]

TASK [Create backup directory] ************************************************************************************************
changed: [192.168.31.216]

TASK [Copy website A klase files to host] *************************************************************************************
changed: [192.168.31.216]

TASK [Copy website B klase files to host] *************************************************************************************
changed: [192.168.31.216]

PLAY RECAP ********************************************************************************************************************
192.168.31.216             : ok=11   changed=4    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
```

5. DNS serveris BIND9

Sakumā redzam, ka mums nav bind9 uz sava servera

```
aleksandradmitruka@goodserver:~$ named -v
Command 'named' not found, but can be installed with:
sudo apt install bind9
aleksandradmitruka@goodserver:~$ date
sestdiena, 2023. gada  3. jūnijs, 20:51:47 EEST
```

Palaižam playbooku, kurš konfigurēs dns un atjaunos hostus. Visas sagataves(templates) veidojam paši mūsu gadījumam

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/bind9$ ansible-playbook -i hosts playbook.yml

PLAY [DNS configuration] ***********************************************************************************************

TASK [Gathering Facts] *************************************************************************************************
ok: [192.168.31.216]

TASK [Install bind9] ***************************************************************************************************
changed: [192.168.31.216]

TASK [Include variables for DNS] ***************************************************************************************
ok: [192.168.31.216]

TASK [Delete old hosts] ************************************************************************************************
ok: [192.168.31.216]

TASK [Copy /etc/hosts template] ****************************************************************************************
ok: [192.168.31.216]

TASK [Delete old named] ************************************************************************************************
changed: [192.168.31.216]

TASK [Copy named.conf template] ****************************************************************************************
changed: [192.168.31.216]

TASK [Rename file to named.conf] ***************************************************************************************
changed: [192.168.31.216]

TASK [Copy db.klase template] ******************************************************************************************
changed: [192.168.31.216]

TASK [Rename file to db.klase.lv] **************************************************************************************
changed: [192.168.31.216]

TASK [Delete old netplan] **********************************************************************************************
changed: [192.168.31.216]

TASK [Copy netplan template] *******************************************************************************************
changed: [192.168.31.216]

TASK [Rename file to netlan.yaml] **************************************************************************************
changed: [192.168.31.216]

TASK [Apply netplan] ***************************************************************************************************
changed: [192.168.31.216]

PLAY RECAP *************************************************************************************************************
192.168.31.216             : ok=14   changed=9    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Pārbaudām, kas izveidojas. Kā redzams. Bind9 strādā un eksistē

```
aleksandradmitruka@goodserver:~$ named -v
BIND 9.18.12-0ubuntu0.22.04.1-Ubuntu (Extended Support Version) <id:>
aleksandradmitruka@goodserver:~$ date
sestdiena, 2023. gada  3. jūnijs, 23:18:15 EEST
aleksandradmitruka@goodserver:~$
```

```
aleksandradmitruka@goodserver:~$ date
svētdiena, 2023. gada  4. jūnijs, 00:31:33 EEST
aleksandradmitruka@goodserver:~$ netstat -ln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp        0      0 192.168.31.216:53       0.0.0.0:*               LISTEN
```

Darbā gaitā viena no sagatavēm bija pamanīta būtiskā kļūda, tāpēc nācās to izlabot un palaist playbooku vēlreiz. Tieši tāpēc ir redzama laika atšķirība

```
aleksandradmitruka@goodserver:/etc/bind$ ll
total 60
drwxr-sr-x   2 root bind 4096 jūn  4 01:23 ./
drwxr-xr-x 101 root root 4096 jūn  4 01:14 ../
-rw-r--r--   1 root root 2403 mar  8 21:08 bind.keys
-rw-r--r--   1 root root  237 mar  8 21:08 db.0
-rw-r--r--   1 root root  271 aug 25  2020 db.127
-rw-r--r--   1 root root  237 aug 25  2020 db.255
-rw-r--r--   1 root root  353 aug 25  2020 db.empty
-rw-r--r--   1 root root  547 jūn  4 01:18 db.klase.lv
-rw-r--r--   1 root root  270 aug 25  2020 db.local
-rw-r--r--   1 root bind  463 mar  8 21:08 named.conf
-rw-r--r--   1 root bind  498 jūn 25  2021 named.conf.default-zones
-rw-r--r--   1 root root   67 jūn  4 01:18 named.conf.local
-rw-r--r--   1 root bind  846 jūn 25  2021 named.conf.options
-rw-r-----   1 bind bind  100 jūn  4 00:29 rndc.key
-rw-r--r--   1 root root 1317 aug 25  2020 zones.rfc1918
```

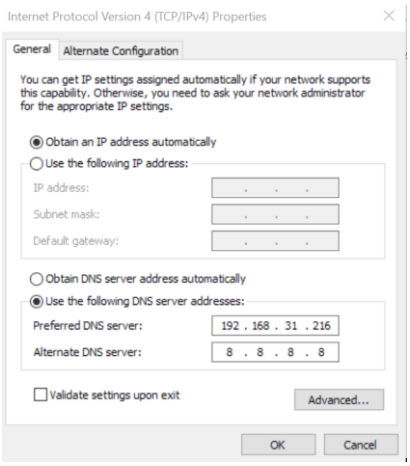
Visi konfigurācijas faili arī ir kartība. Tie bija pārsaukti no .j2 uz parastajiem nosaukumiem pēc autora velmes. Pārsaukšana iekļauta playbookā

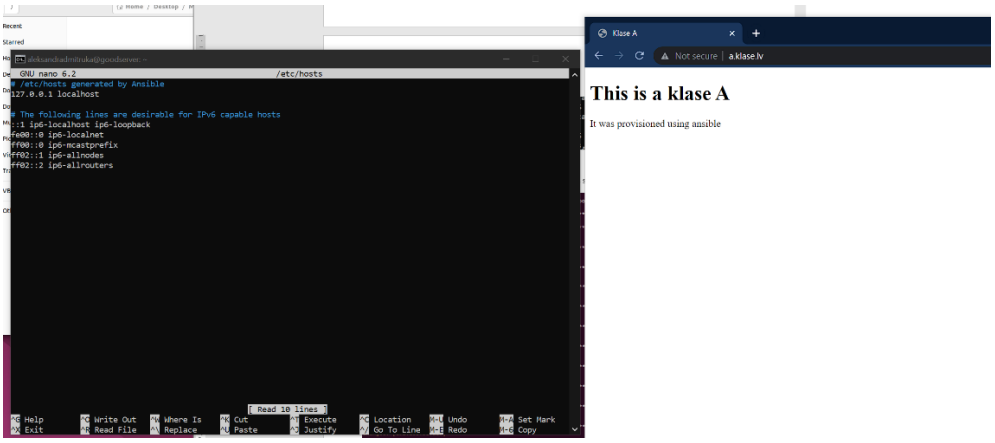
```
aleksandradmitruka@goodserver: /etc/bind
 GNU nano 6.2                                                db.klase.lv

$ORIGIN klase.lv.
$TTL    604800



@       IN      SOA     n.klase.lv. admin.klase.lv. (
                              3         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;

@       IN      NS      n.klase.lv.
@       IN      A       192.168.31.216


n       IN      A       192.168.31.216
a       IN      A       192.168.31.216

b       IN      CNAME       a.klase.lv.
```

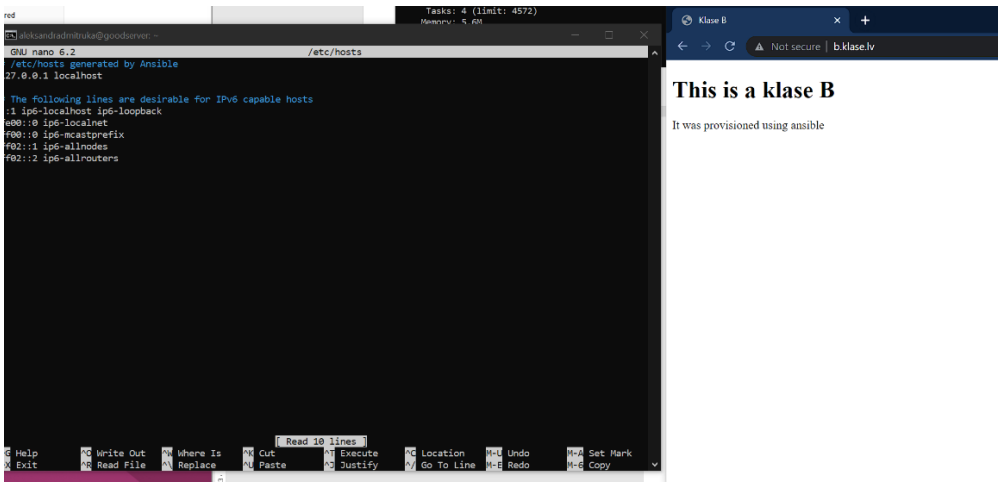
```
aleksandradmitruka@goodserver: /etc/bind
 GNU nano 6.2                                          named.conf.local

zone "klase.lv" {
type master;
file "/etc/bind/db.klase.lv";
};
```

```
aleksandradmitruka@goodserver: /etc/netplan
 GNU nano 6.2                                  00-installer-config.yaml
# This is the network config written by Ansible
network:
  ethernets:
    enp0s3:
      dhcp4: true
      nameservers:
          addresses: [ 192.168.31.216 ]
  version: 2
```

Nomainām DNS iestatījumus uz sava datora. Kā redzams, hosta failā nav ierakstu ar mūsu ip, bet virtuālie hosti strādā. Tātad viss ir veiksmīgi

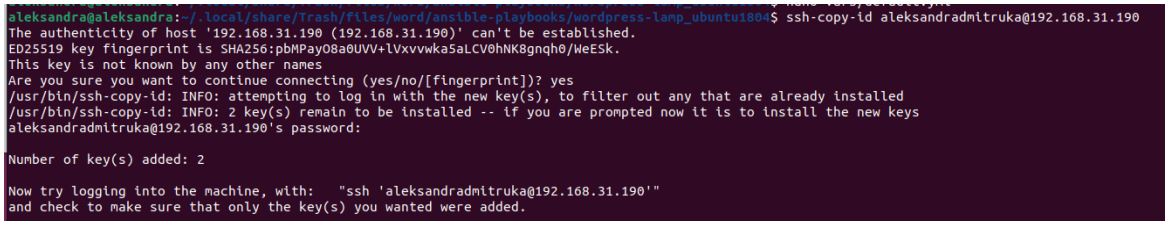


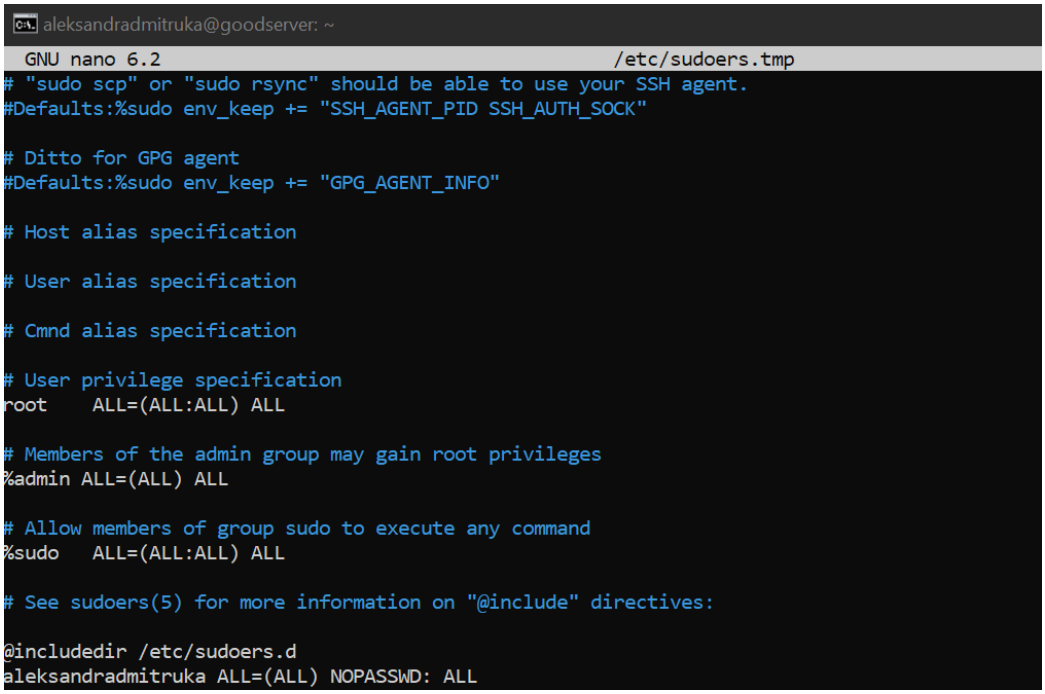




6. Wordpress

Darbā gaitā personīgo iemeslu dēļ radās nepieciešamība izveidot jaunu serveri, lai turpinātu darbu. Tāpēc bija no jauna izveidojam ssh pieslēgumu, kā arī at sudo visudo mainām sudo tiesības





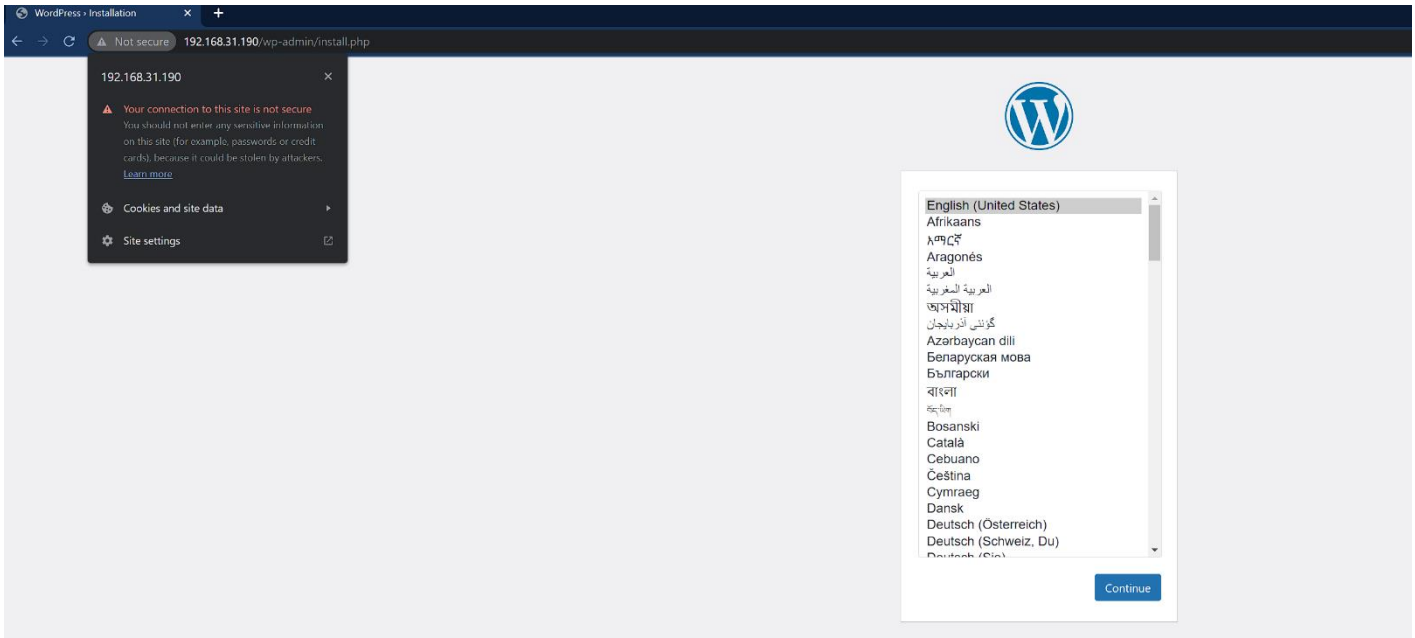
Diemžēl, sameklēt ērtu lamp un wordpress lomu vai kolekciju uz ansible-galaxy nepaveicas, tomēr github repozitorija bija atrasts ērts, uzticams risinājums. Bija aizdomas sameklēt autoru uz ansible-galaxy , tomēr tas neizdevās. Tā kā mums nav aizliegts izmantot publiski pieejamus resursus, bija nolemts to izmantot kā pamatu sava darba veikšanai, jo wordpress pieprasa vairākus soļus, kurus paši rakstītu ilgi.

Tālāk bija paveikta hostu konfigurācija, kā arī visus mainīhus iekš vars. Lietotājs nebija pievienots playbooka, tāpēc to noradījām komandā

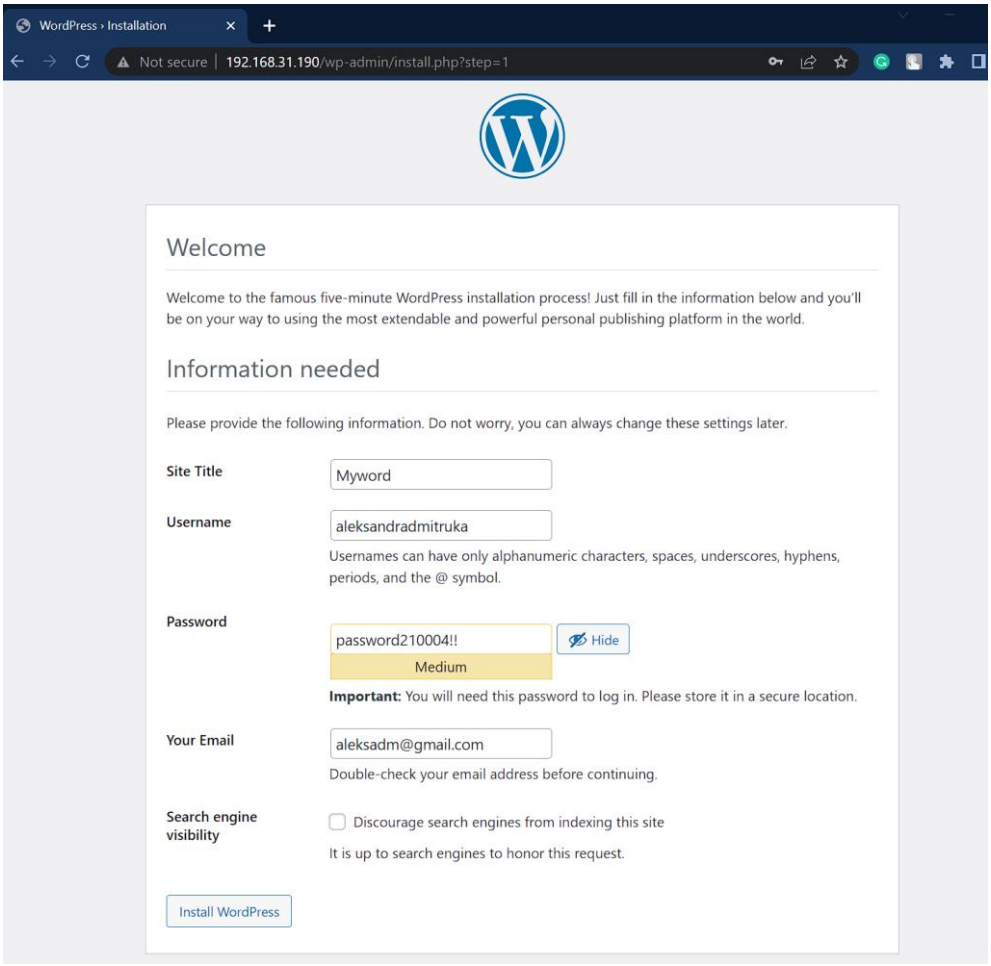
Kā redzams, playbooks veiksmīgi palaižas, ir nokonfigurēti vairāki svarīgi elementi

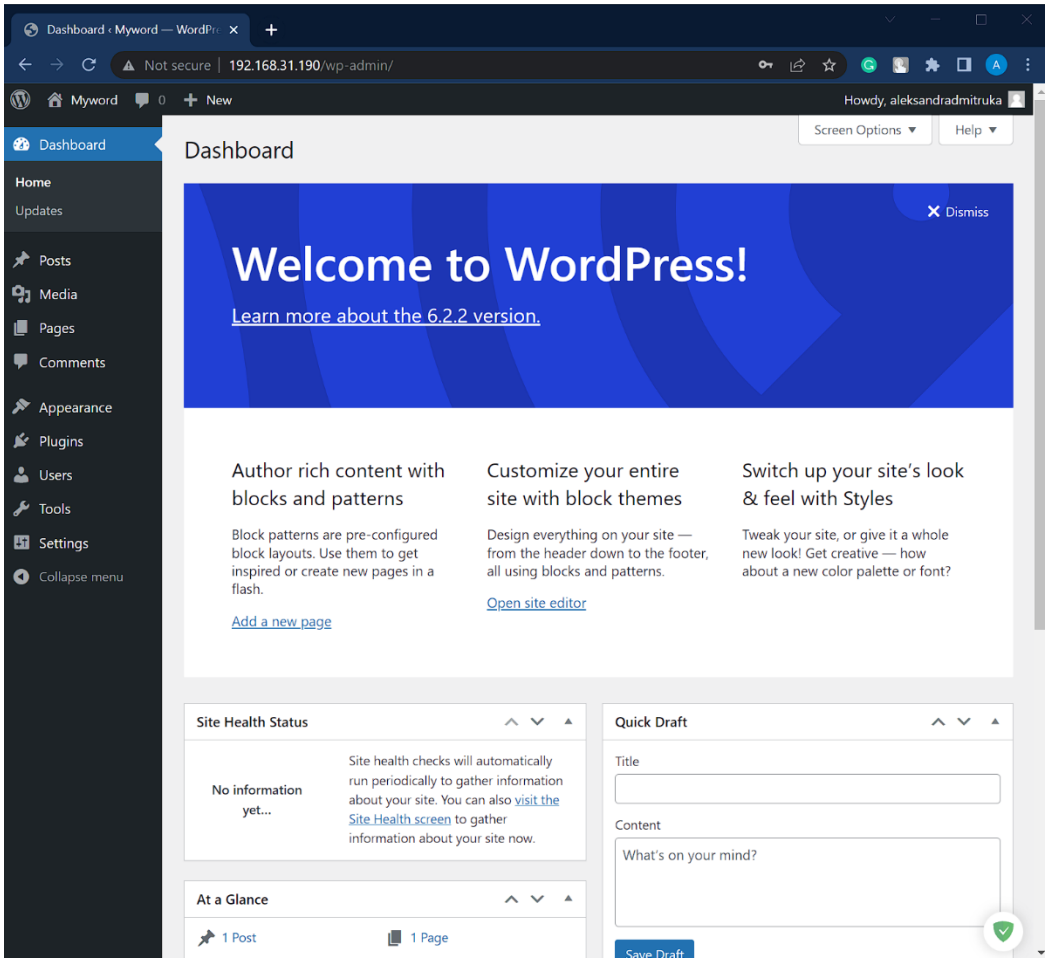
```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/word/ansible-playbooks/wordpress-lamp_ubuntu1804$ ansible-playbook playbook.yml -i hosts  -u aleksandradmitruka

PLAY [servers] *****************************************************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************************************************
ok: [192.168.31.190]

TASK [Install prerequisites] ***************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Install LAMP Packages] ***************************************************************************************************************************************
changed: [192.168.31.190] => (item=apache2)
changed: [192.168.31.190] => (item=mysql-server)
changed: [192.168.31.190] => (item=python3-pymysql)
changed: [192.168.31.190] => (item=php)
changed: [192.168.31.190] => (item=php-mysql)
changed: [192.168.31.190] => (item=libapache2-mod-php)

TASK [Install PHP Extensions] **************************************************************************************************************************************
changed: [192.168.31.190] => (item=php-curl)
changed: [192.168.31.190] => (item=php-gd)
changed: [192.168.31.190] => (item=php-mbstring)
changed: [192.168.31.190] => (item=php-xml)
changed: [192.168.31.190] => (item=php-xmlrpc)
changed: [192.168.31.190] => (item=php-soap)
changed: [192.168.31.190] => (item=php-intl)
changed: [192.168.31.190] => (item=php-zip)

TASK [Create document root] ****************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set up Apache VirtualHost] ***********************************************************************************************************************************
changed: [192.168.31.190]

TASK [Enable rewrite module] ***************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Enable new site] *********************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Disable default Apache site] *********************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set the root password] ***************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Remove all anonymous user accounts] **************************************************************************************************************************
ok: [192.168.31.190]

TASK [Remove the MySQL test database] ******************************************************************************************************************************
ok: [192.168.31.190]

TASK [Creates database for WordPress] ******************************************************************************************************************************
changed: [192.168.31.190]

TASK [Create MySQL user for WordPress] *****************************************************************************************************************************
changed: [192.168.31.190]

TASK [UFW - Allow HTTP on port 80] *********************************************************************************************************************************
changed: [192.168.31.190]

TASK [Download and unpack latest WordPress] ************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set ownership] ***********************************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set permissions for directories] *****************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set permissions for files] ***********************************************************************************************************************************
changed: [192.168.31.190]

TASK [Set up wp-config] ********************************************************************************************************************************************
changed: [192.168.31.190]

RUNNING HANDLER [Reload Apache] ************************************************************************************************************************************
changed: [192.168.31.190]

RUNNING HANDLER [Restart Apache] ***********************************************************************************************************************************
changed: [192.168.31.190]

PLAY RECAP *********************************************************************************************************************************************************
192.168.31.190             : ok=22   changed=19   unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Atveram pārlūku, redzam, ka tiešam viss ir pareizi



Veicam nelieku konfigurāciju un tagad varam brīvi piekļūt savam wordpress. Tas nozīme, ka datubāze, apache, php tiešam strādā kā vajag





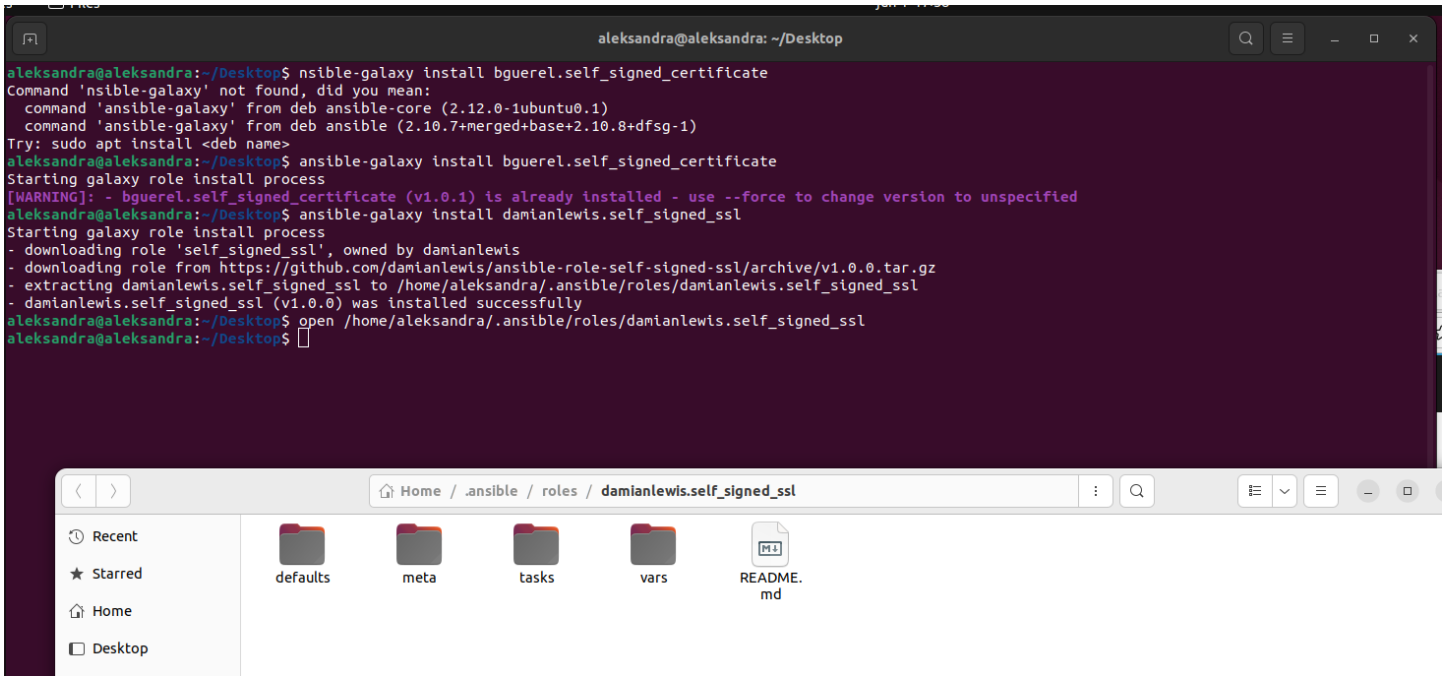
Ja tomēr gribam pārliecināties, ka pamata komponenti ir kartībā

```
aleksandradmitruka@goodserver:~$ systemctl status mysql
● mysql.service - MySQL Community Server
     Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
     Active: active (running) since Sun 2023-06-04 18:47:00 UTC; 34min ago
   Main PID: 4639 (mysqld)
     Status: "Server is operational"
      Tasks: 41 (limit: 2233)
     Memory: 408.7M
        CPU: 20.209s
     CGroup: /system.slice/mysql.service
             └─4639 /usr/sbin/mysqld

Jun 04 18:46:58 goodserver systemd[1]: Starting MySQL Community Server...
Jun 04 18:47:00 goodserver systemd[1]: Started MySQL Community Server.
aleksandradmitruka@goodserver:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Sun 2023-06-04 18:51:41 UTC; 29min ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 24982 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 24986 (apache2)
      Tasks: 11 (limit: 2233)
     Memory: 88.6M
        CPU: 8.794s
     CGroup: /system.slice/apache2.service
             ├─24986 /usr/sbin/apache2 -k start
             ├─24988 /usr/sbin/apache2 -k start
             ├─24989 /usr/sbin/apache2 -k start
             ├─24991 /usr/sbin/apache2 -k start
             ├─24992 /usr/sbin/apache2 -k start
             ├─25001 /usr/sbin/apache2 -k start
             ├─25002 /usr/sbin/apache2 -k start
             ├─25003 /usr/sbin/apache2 -k start
             ├─25004 /usr/sbin/apache2 -k start
             ├─25008 /usr/sbin/apache2 -k start
             └─25027 /usr/sbin/apache2 -k start
```

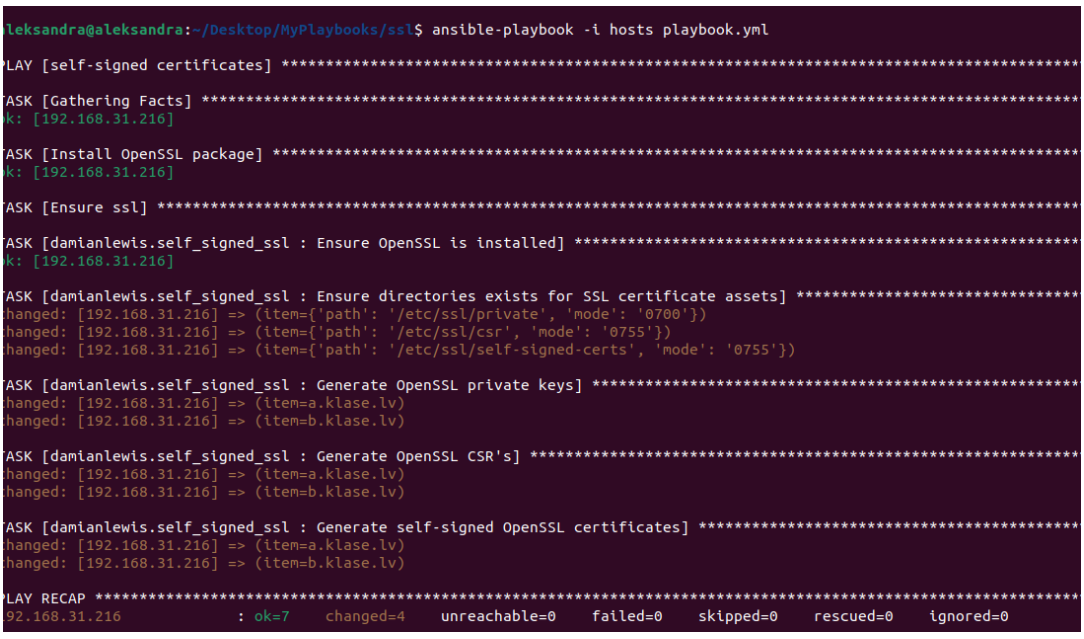
```
aleksandradmitruka@goodserver:~$ php -version
PHP 8.1.2-1ubuntu2.11 (cli) (built: Feb 22 2023 22:56:18) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.2, Copyright (c) Zend Technologies
    with Zend OPcache v8.1.2-1ubuntu2.11, Copyright (c), by Zend Technologies
```

7. Papildus sadaļa: SSL (lūgums to apskatīt, ja tomēr bija nepieciešama lomu izmantošanas demonstrācija vai/un darbā bija trūkumi)

Izmantosim publiski pieejamas lomas, kuri ir atļauti uzdevuma nosacījumos. Iegūstam nepieciešamus failus, rediģējam tos



Palaizām playbooku, ka redzams, viss ir normāli



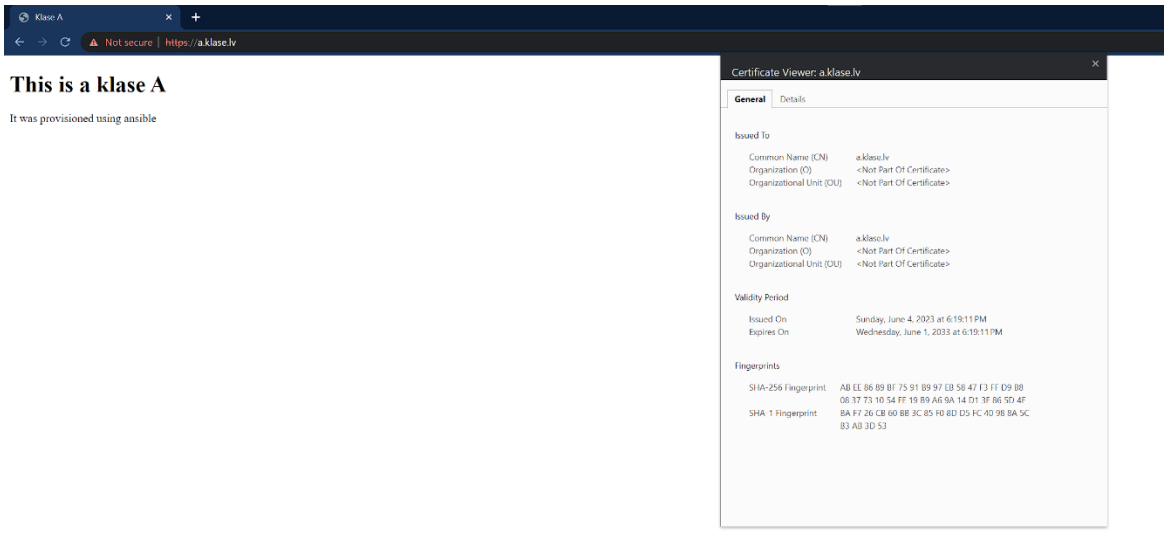
Pārbaudām, kas ir uz servera. Redzam, ka faili, atslēgas, eksistē

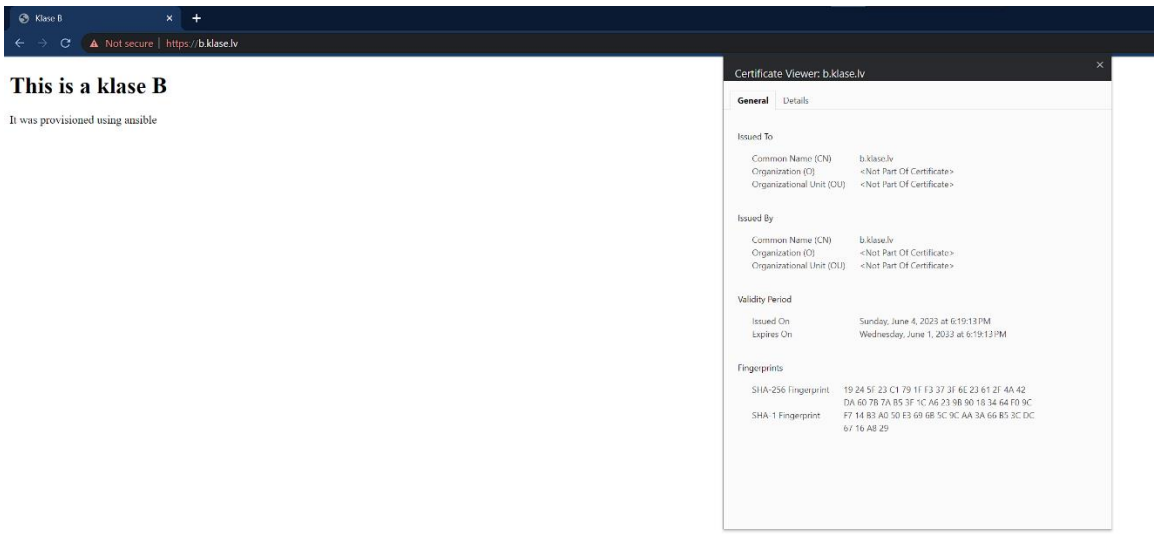
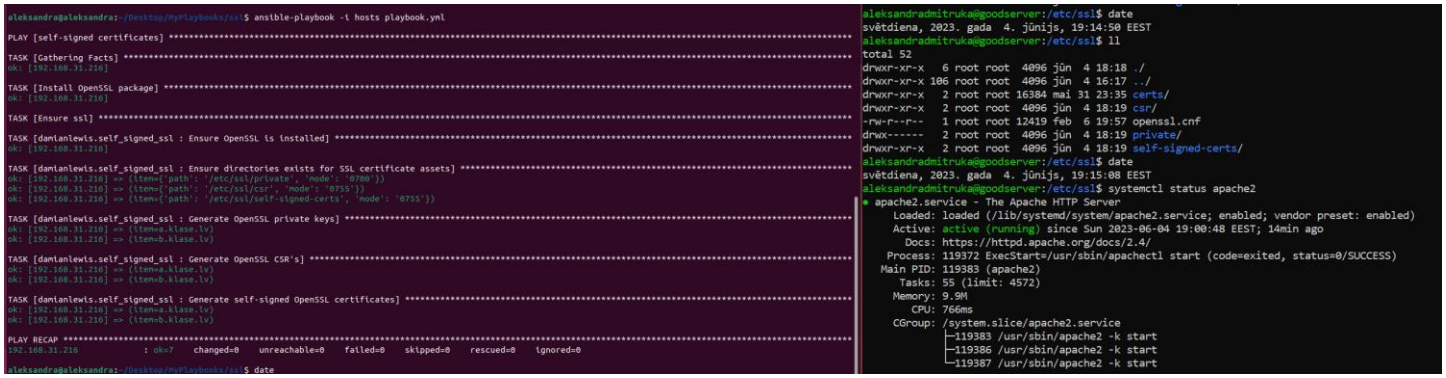
```
aleksandradmitruka@goodserver:/etc/ssl$ cd self-signed-certs
aleksandradmitruka@goodserver:/etc/ssl/self-signed-certs$ ll
total 16
drwxr-xr-x 2 root root 4096 jūn  4 18:19 ./
drwxr-xr-x 6 root root 4096 jūn  4 18:18 ../
-rw-r--r-- 1 root root 1773 jūn  4 18:19 a.klase.lv.crt
-rw-r--r-- 1 root root 1773 jūn  4 18:19 b.klase.lv.crt
aleksandradmitruka@goodserver:/etc/ssl/self-signed-certs$ cat  a.klase.lv.crt
-----BEGIN CERTIFICATE-----
MIIE8DCCAtigAwIBAgIUcEc7DQiL87b+O8CzkL0GUrxUtPkwDQYJKoZIhvcNAQEL
BQAwFTETMBEGA1UEAwwKYS5rbGFzZS5sdjAeFw0yMzA2MDQxNTE5MTFaFw0zMzA2
MDExNTE5MTFaMBUxEzARBgNVBAMMCmEua2xhc2UubHYwggIiMA0GCSqGSIb3DQEB
AQUAA4ICDwAwggIKAoICAQDNdbRRG3GD3ivnqDvcO/ohqfGtAmAlDtG6uWm7RZy5
Bqu59oMBvSZ6xAuZDAxY6vbmqnQs0mK7jdb19Y12rcpEqksMK1NGvawoGJ0vz/bg
rEERg+6FKWEPvuK1sk6Y/GDnV164OAeOFbJm42QkWYD7HirlQ2V+uAdpZs0FrmmJ
qjAS1fPNUE9Hpb9GsiwdmHPOrWQPI2l+meAgsyZaAI3NkZr7ycPITfMjXGE3vf2W
YnNC/NIQEKh7gKM7LPI+goUTPqgTbPj5SX2xaHdqPv2ZA2UFp9ME6F97qTOxZGze
OMCpj7FrnPsY9oKmFxrtPdAZyyxPxGG4v2cROMNbsF4r2q3dIlXSoYDHsZqaSpAM
C/OkNK15hyDPz0LKr8DL+xnzaoiQikSFxygVNKQ37NXsQUI+z0xzKmHq7evFOE35
n11TMQ/DMXCQesIVDD47OhvQfXUv/HUOg1r9BMNwoOb1VSrr2GG6WeV/+2df3Fnv
r6llH6/Bjz4bq47ooi8EHCD+mknslNeTL3tMjL13DB3vC0EZ4wm2uLdu2JpqBWn4
T/LiRcONkiXJSZDiaqDxnEhpmWsAosoWD/XKG+LduKTs3WZxRAdRLO+q+1RtMBvE
P2iNvtx96L0DyTDYWubZ7Iejn2Vgn4TL+Z9MTvdsVFT0/byoBGLH3NExRa3Z9MDT
5wIDAQABozgwNjAVBgNVHREEDjAMggphLmtsYXNlLmx2MB0GA1UdDgQWBBRCr7Dj
VIfdEptbj+C4urMxguoBpTANBgkqhkiG9w0BAQsFAAOCAgEADYLPJYbfA8SKkzMO
5JuAwRKmRGHjQJhYMHbN2fHZpvUF0CzArdoyx+1CaIhC0UIc8EF5YrmL7giANh/X
Sml4IXjqzIXi5fsvA1vTwwxOsFZpfLXOlLDcgkECQB6nRC1/cVMi3Pxe4PqcUvFu
q2nIXSl1plPzv2zDAruKO/V1q5BsqX2/JmDRqJKnZfcT2pan8Xa1gjms36EGhwO1
5Rgf02KPhV4ZZ5X5qnrS9VBhOl5gw4F90+/om/6Z6D5621BYnCpB8DdjUXe+dAPy
d9PaULe+o7By5oquDzBFZ2y3ZK9vAvkzCU89sZiN6ypFZQLd3LZBO2LLV9quFSm2
ZAxox2kibbGb8OeRjPp1eD9Ji0AZ5mUn/wVvyLweB9C0XdOIvd79cNzYT7NYF+n0
dXjAGB0jt6n0VLz7eJ6Iktbl8dYqqeJeqNXV3qSY4hYz4JWfbNhgy+OsNZyPl6aF
EWt5NCaZ4t13sHgjRELvVqHeKLOkSTz348EoNMuemO+RuL/kwnZoiWk+n3mCh9UP
QWyF/pjubRzhMcnq9592sxgO6HqIavqgYpJGN0GM+Q0H/WAKW3+ZSONeLU6EHErY
Pffo9dffIKEM0eOldkAI2rvK9NmYs8yf+x0Hs6zvZodbwkSCauBPSOhW/GlqliW1
qEVRyYJFp8dVK5uFyDL/TCpq6wo=
-----END CERTIFICATE-----
```

Palaižam vēlreiz playbooku ar apache, lai pārstartētu sistēmu

```
aleksandra@aleksandra:~/Desktop/MyPlaybooks/apache$ ansible-playbook -i hosts playbook.yml

PLAY [Ensure apache configuration] *********************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.31.216]

TASK [Include A variables] *****************************************************
ok: [192.168.31.216]

TASK [Ensure apache] ***********************************************************

TASK [geerlingguy.apache : Include OS-specific variables.] *********************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Include variables for Amazon Linux.] ****************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Define apache_packages.] ****************************
ok: [192.168.31.216]

TASK [geerlingguy.apache : include_tasks] **************************************
included: /home/aleksandra/Desktop/MyPlaybooks/apache/roles/geerlingguy.apache/tasks/setup-Debian.yml for 192.168.31.216

TASK [geerlingguy.apache : Update apt cache.] **********************************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Ensure Apache is installed on Debian.] **************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Get installed version of Apache.] *******************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Create apache_version variable.] ********************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Include Apache 2.2 variables.] **********************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Include Apache 2.4 variables.] **********************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Configure Apache.] **********************************
included: /home/aleksandra/Desktop/MyPlaybooks/apache/roles/geerlingguy.apache/tasks/configure-Debian.yml for 192.168.31.216

TASK [geerlingguy.apache : Configure Apache.] **********************************
ok: [192.168.31.216] => (item={'regexp': '^Listen ', 'line': 'Listen 80'})

TASK [geerlingguy.apache : Enable Apache mods.] ********************************
ok: [192.168.31.216] => (item=ssl)

TASK [geerlingguy.apache : Disable Apache mods.] *******************************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Check whether certificates defined in vhosts exist.] ************************************************************************************************************************************************************
ok: [192.168.31.216] => (item={'servername': 'a.klase.lv', 'documentroot': '/var/www/klase/a.klase.lv', 'certificate_file': '/etc/ssl/self-signed-certs/a.klase.lv.crt', 'certificate_key_file': '/etc/ssl/private/a.klase.lv.pem'})
ok: [192.168.31.216] => (item={'servername': 'b.klase.lv', 'documentroot': '/var/www/klase/b.klase.lv', 'certificate_file': '/etc/ssl/self-signed-certs/b.klase.lv.crt', 'certificate_key_file': '/etc/ssl/private/b.klase.lv.pem'})

TASK [geerlingguy.apache : Add apache vhosts configuration.] *******************
changed: [192.168.31.216]

TASK [geerlingguy.apache : Add vhost symlink in sites-enabled.] ****************
ok: [192.168.31.216]

TASK [geerlingguy.apache : Remove default vhost in sites-enabled.] *************
skipping: [192.168.31.216]

TASK [geerlingguy.apache : Ensure Apache has selected state and enabled on boot.] ***********************************************************************************************************************************************************
changed: [192.168.31.216]

RUNNING HANDLER [geerlingguy.apache : restart apache] **************************
changed: [192.168.31.216]

PLAY RECAP *********************************************************************
192.168.31.216             : ok=18   changed=3    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
```

Pārbaudām hostus. Kā redzams, ir iespēja piekļūt ar ssl, sertifikāti arī ir ar minimālo konfigurāciju, laiks sakrīt





Mēģinot palaist no jauna, kļūdu nav un dublikātu nav. Tātad sertifikāti ir ģenerēti tikai tad, ja neeksistē