Ishod učenja 3

<u>servera</u>
(root)
adduser ishod3
su ishod3
ssh-keygen
ls -la /home/ishod3/.ssh (~/.ssh)
ssh-copy-id student@serverb
        *password od students: student
Provjera ssh student@serverb
(ako zelimo da se svaki put zatrazi lozinka ne kopirati id kod usera kod kojeg se zelimo spojiti)

(root)
crontab -e
        */10 * * * * echo "nesto" >> /var/log/custom-log.log
        1-31/2 neparni dani
        2-30/2 parni
crontab -l

(root)
vim /etc/rsyslog.d/info.conf (proizvoljno ime datoteke)
        *.info   /var/log/info-log.log
systemctl restart rsyslog
logger -p user.info "poruka"
tail -n 5 /var/log/info-log.log
----

journalctl -n 25
journalctl | grep root
journalctl -f
journalctl -p err
journalctl -p warning
journalctl -b
journalctl -u sshd.service
journalctl - -list-boots
journalctl - -since=10:00 - -until='10 min ago'
journalctl - -since=2024-11-02 -- utc
journalctl -o verbose
journalctl --disk-usage

Ishod učenja 4

ip a
ip route
<u>Serverb</u>
(Root)
hostnamectl hostname primjer-ispita
Hostname
<u>Workstation</u>
Sudo vim /etc/hosts
        *172.25.250.11 serverb primjer-ispita

Provjera
ping -c 4 primjer-ispita

timedatectl
timedatectl list-timezones
timedatectl set-timezone America/Phoenix
timedatectl set-time 9:00:00
timedatectl set-ntp false

Ishod učenja 5

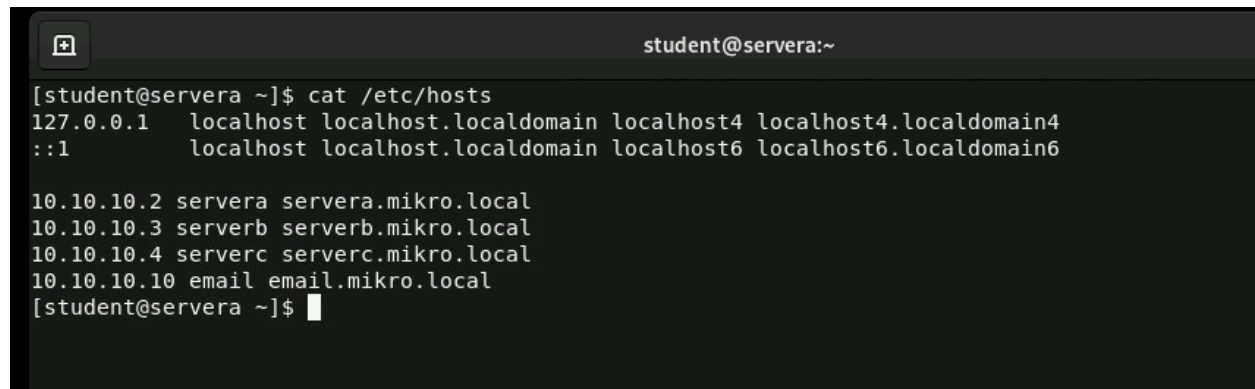**DNSMASQ**

<u>Servera</u>
(Root)
systemctl stop firewalld
dnf install dnsmasq
systemctl enable –now dnsmasq
systemctl status dnsmasq
netstat -tulnp
vim /etc/hosts

```
[student@servera ~]$ cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6

10.10.10.2 servera servera.mikro.local
10.10.10.3 serverb serverb.mikro.local
10.10.10.4 serverc serverc.mikro.local
10.10.10.10 email email.mikro.local
[student@servera ~]$
```

vim /etc/dnsmasq.conf
-----
domain -needed
bogus -priv
no -resolv
interface=eth0
expand-hosts
domain=*mikro.local*
----
*dodatak za email
listen address=172.25.250.10 (IP od servera)
mx-host=mikro.local, mail.mikro.local, 10
----
systemctl restart dnsmasq
systemctl status dnsmasq
netstat -tulnp

<u>Workstation</u>

sudo chattr -i /etc/resolv.conf
vim /etc/resolv.conf

#
#
search   mikro.local
nameserver   172.25.250.10 (IP od servera)
-----
nslookup servera.mikro.local
nslookup serverb.mikro.local
nslookup -type=mx mikro.local
nslookup email

POSTFIX

<u>Serverb</u>

dnf install postfix
systemctl enable –now postfix.service
netstat -tulnp

vim /etc/postfix/main.cf
----
myhostname=mail.mikro.local
mydomain=mikro.local
myorigin=$mydomain
inet_interfaces=all
inet_protocols=all
mydestination=_____ ,$mydomain(dodati)
mynetworks= 127.0.0.0/8, 172.25.250.0/24(dodati potrebnu)
mail_spool_dirctory= /var/spool/mail
------
systemctl restart postfix.service
systemctl status postfix.service
netstat -tulnp

useradd admin
ls -la /var/spool/mail

cat /var/spool/mail/admin (procitati mail)

telnet mail.mikro.local 25
>   MAIL FROM: student@workstation.mikro.local
>   RCPT TO: admin@mikro.local
>   DATA
>   Text emaila
>
>   .
>   quit

Ishod učenja 6

Apache

Servera
(root)
systemctl stop firewalld
setenforce 0 (provjera getenforce)
dnf install httpd
systemctl enable –now httpd
systemctl status httpd
netstat -tulnp
mkdir -p /var/www/www.mikro.local/
mkdir -p /var/www/web.mikro.local/
vim /var/www/www.mikro.local/html/index.html
vim /var/www/web.mikro.local/html/index.html
chown -R apache:apache /var/www/www.mikro.local/
chown -R apache.apache /var/www/web.mikro.local/
ls -la /var/www
vim /etc/httpd/conf.d/www.mikro.local.conf
vim /etc/httpd/conf.d/web.mikro.local.conf
***mkdir -p /etc/httpd/sites-available
mkdir -p /etc/httpd/sites-enabled
vim /etc/httpd/sites-available/web.mikro.local.conf
vim /etc/httpd/sites-available/www.mikro.local.conf***

```
<VirtualHost *:80>

ServerName www.mikro.local
DocumentRoot /var/www/www.mikro.local
ErrorLog /var/log/httpd/www_mikro_local_err.log
CustomLog /var/log/httpd/www_mikro_local_log combined

</VirtualHost>
~
~
~
```

ln -s /etc/httpd/sites-available/web.ines.local.conf /etc/httpd/sites-enabled/web.mikro.local.conf
ln -s /etc/httpd/sites-available/www.ines.local.conf /etc/httpd/sites-enabled/www.mikro.local.conf
vim /etc/httpd/conf/httpd.conf

```
# Supplemental configuration
#
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf
IncludeOptional /etc/httpd/sites-enabled/*.conf
"/etc/httpd/conf/httpd.conf" 359L, 12053B                          351,1
```

httpd -t
systemctl restart httpd

Workstation

sudo chattr -i /etc/resolv.conf
vim /etc/hosts


```
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6

172.25.250.10   www.mikro.local mikro.local web.mikro.local
172.25.250.11   www.ines.local web.ines.local
```
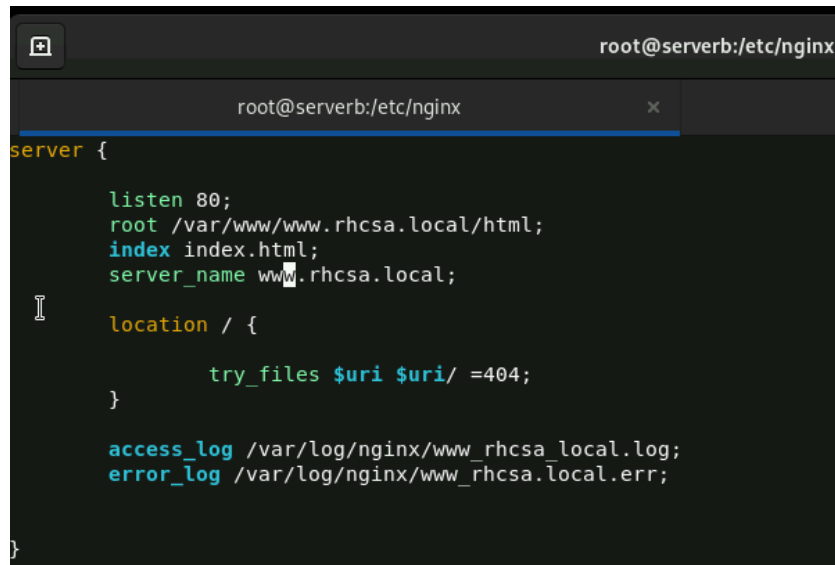
Nginx

Serverb

(root)
systemctl stop firewalld
setenforce 0 (provjera getenforce)
dnf install nginx

systemctl enable –now nginx

systemctl status nginx

netstat -tulnp

mkdir -p /var/www/www.ines.local/html

mkdir -p /var/www/web.ines.local/html

vim /var/www/www.ines.local/html/index.html

vim /var/www/web.ines.local/html/index.html

chown -R nginx:nginx /var/www/www.ines.local/

chown -R nginx:nginx /var/www/web.ines.local/

ls -la /var/www

vim /etc/nginx/conf.d/web.ines.local.conf

vim /etc/nginx/conf.d/www.ines.local.conf

***mkdir -p /etc/ngnix/sites-available

mkdir -p /etc/ngnix/sites-enabled

vim /etc/nginx/sites-available/web.ines.local.conf

vim /etc/nginx/sites-available/www.ines.local.conf***


```
server {

        listen 80;
        root /var/www/www.rhcsa.local/html;
        index index.html;
        server_name www.rhcsa.local;

        location / {

                try_files $uri $uri/ =404;
        }

        access_log /var/log/nginx/www_rhcsa_local.log;
        error_log /var/log/nginx/www_rhcsa.local.err;


}
```
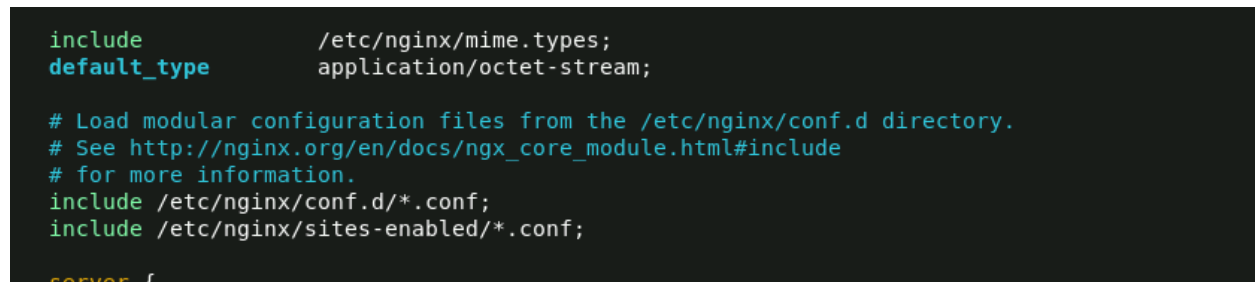
***Ln -s /etc/nginx/sites-available/web.ines.local.conf
/etc/nginx/sites-enabled/web.ines.local.conf

Ln -s /etc/nginx/sites-available/www.ines.local.conf /etc/nginx/sites-enabled/www.ines.local.conf
***

vim /etc/nginx/nginx.conf


```
    include          /etc/nginx/mime.types;
    default_type     application/octet-stream;

    # Load modular configuration files from the /etc/nginx/conf.d directory.
    # See http://nginx.org/en/docs/ngx_core_module.html#include
    # for more information.
    include /etc/nginx/conf.d/*.conf;
    include /etc/nginx/sites-enabled/*.conf;

    server {
```
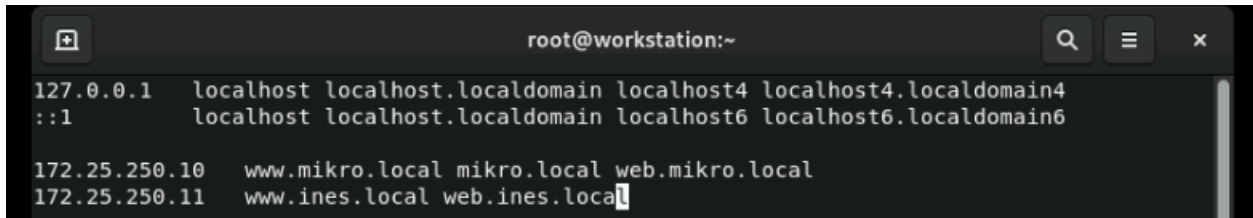
nginx -t
systemctl restart nginx

<u>Workstation</u>

sudo chattr -i /etc/resolv.conf
vim /etc/hosts

Ishod učenja 7

LVM

<u>Servera</u>
(root)
fdisk /dev/vdb
       N-new
       W-write new partion

fdisk /dev/vdc

partprobe
lsblk
pvcreate /dev/vdb1
pvcreate /dev/vdc1
pvdisplay
vgcreate ime-vg -s 512B /dev/vdb1 /dev/vdc1
vgdisplay
lvcreate -L 3G -n ime-lv ime-vg
lvdisplay
lsblk

mkdir /*mount-direktorij*

----

mount /dev/ime-vg/ime-lv /mount-direktorij

vim /etc/mtab (zadnju liniju kopirati u fstab)

mount -av

----

mkfs.xfs /dev/ime-vg/ime-lv

vim /etc/fstab

```
UUID=5e75a2b9-1367-4cc8-bb38-4d6abc3964b8        /boot   xfs     defaults        0       0
UUID=fb535add-9799-4a27-b8bc-e8259f39a767          /     xfs     defaults        0       0
UUID=7B77-95E7   /boot/efi       vfat    defaults,uid=0,gid=0,umask=077,shortname=winnt  0       2

/dev/ime-vg/ime-lv /mount-direktorij xfs defaults 0 0
~
```

mount /*mount-direktorij*

mount -av

Stratis

<u>Serverb</u>

(root)

dnf install stratis-cli stratisd

systemctl enable --now stratisd

stratis pool create ime-poola /dev/vdb

stratis pool add-data ime-poola /dev/vdc

lsblk

mkdir -p /*mount-direktorij*/fs

stratis filesystem create ime-poola ime-fs

stratis filesystem list

vim /etc/fstab

systemctl daemon-reload

mount /*mount-direktorij*

mount -av

touch /*mount-direktorij*/fs/file.txt

stratis filesystem snapshot ime-poola ime-fs ime-snapshota

stratis filesystem list

Rm -r /*mount-direktorij*/fs/file.txt

Mkdir /*mount-direktorij*/fs-recovery

vim /etc/fstab

mount -av

rsync -a /*mount-direktorij*/fs-recovery /*mount-direktorij*/fs

NFS

<u>Servera</u>

(Root)

Systemctl stop firewalld
Setenforce 0
systemctl enable –now nfs-server
(ako nije instaliran dnf install nfs-service)
Mkdir -p /data/nfs/share{1,2,3,4}
echo "text" >> /data/nfs/share1/novi.txt
 vim /etc/exports

-nesmije biti razmak između IP adrese i (rw,...)
Exportfs -av

<u>Serverb</u>

<u>Persistent mount</u>

<u>(root)</u>
Mkdir /mnt/share{1,2,4}
vim /etc/fstab

Mount -av
tree /mnt
cat /mnt/share1/novi.txt
echo "11" >> /mnt/share1/novi.txt

Workstation

AutoFS

Dnf install autofs
Systemctl enable –now autofs
Mkdir /shared-files

Indirect mount-point mapping
vim /etc/auto.master.d/primjer.autofs

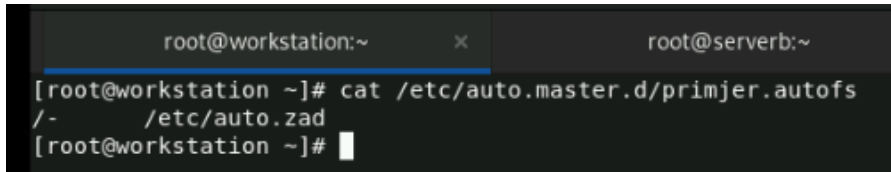vim /etc/auto.zad

Direct mount-point mapping
vim /etc/auto.master.d/primjer.autofs

```
         root@workstation:~        ×              root@serverb:~

[root@workstation ~]# cat /etc/auto.master.d/primjer.autofs
/-        /etc/auto.zad
[root@workstation ~]# 
```
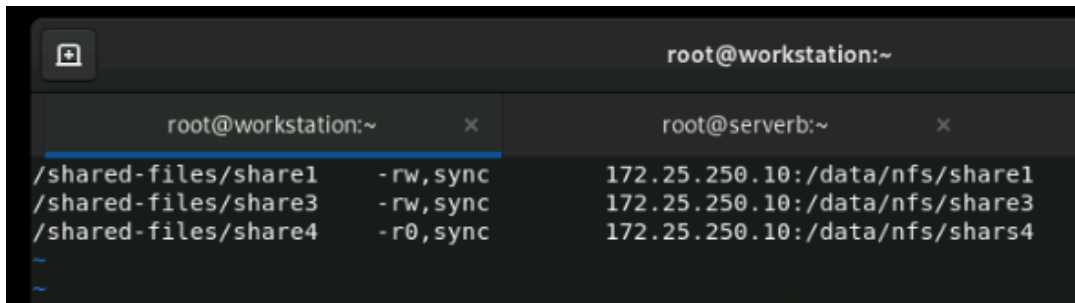
vim /etc/auto.zad

```
  ⊞                                    root@workstation:~

           root@workstation:~       ×           root@serverb:~           ×
/shared-files/share1     -rw,sync       172.25.250.10:/data/nfs/share1
/shared-files/share3     -rw,sync       172.25.250.10:/data/nfs/share3
/shared-files/share4     -r0,sync       172.25.250.10:/data/nfs/shars4
~
~
```

systemctl restart autofs
cat /shared-files/share1/novi.txt
vim /shared-files/share1/novi.txt

Ishod učenja 8

Mariadb, PHP, HTTPD, Phpmyadmin

<u>Servera</u>
(root)
systemctl stop firewalld
setenforce 0
dnf update
dnf install httpd
systemctl enable --now httpd
dnf install mariadb-server
systemctl enable – now mariadb
mysql_secure_installation
dnf install php php-mysqlnd php-json php-mbstring
systemctl enable - -now php-fpm.service

cd /var/www/html
wget https://www.phpmyadmin.net/downloads/phpMyAdmin-latest-all-languages.tar.gz
tar -xvzf phpMyAdmin-latest-all-languages.tar.gz
mv phpMyAdmin-*/ phpmyadmin
cp /var/www/html/phpmyadmin/config.sample.inc.php /var/www/html/phpmyadmin/config.inc.php

Vim /var/www/html/phpmyadmin/config.inc.php

```
declare(strict_types=1);

/**
 * This is needed for cookie based authentication to encrypt the cookie.
 * Needs to be a 32-bytes long string of random bytes. See FAQ 2.10.
 */
$cfg['blowfish_secret'] = 'napisatibilosto'; /* YOU MUST FILL IN THIS FOR COOKIE AUTH!
 */

/**
 * Servers configuration
 */
```

systemctl restart httpd

Provjera http://servera/phpmyadmin

(student)
mysql -u root -p
(password od root-a zadan u mysql_secure_installation)

(mariadb)

```
create database db1;
use db1;
show databases;
create table students(id int, fname varchar(100) ,lname varchar(100));
insert into students (id,fname, lname) values (1,'ivan,'ivic');
select * from students;
delete from students where fname = 'ivan';
Exit

(root)
mysqldump -u root -p db1 > db1_backup_$(date +%F).sql
(password od root-a zadan u mysql_secure_installation)
```

<u>Workstation</u>

```
(root)
Vim  /etc/hosts
Dodati server a i naziv domene
172.25.250.10    phpmydomain.rhcsa.local
```

Postgresql
https://gist.github.com/apolloclark/ea5466d5929e63043dcf

<u>Serverb</u>
```
(root)
dnf install postgresql-server
dnf module install postgresql:15/server
postgresql-setup --initdb
systemctl enable –now postgresql.service
sudo su - postgres

(postgres)
psql
create database db2;
\l
create table cities (id int, name varchar, postcode int);
insert into cities values (1, 'London', 10090);
select * from cities;

pg_dump db2 > db2_backup_$(date +%F).sql
Exit
Ls -la
```
LAMP(wordpress)

(root)
systemctl stop firewalld
setenforce 0
dnf update
dnf install httpd
systemctl enable --now httpd
dnf install mariadb-server
systemctl enable - -now mariadb-server
mysql_secure_installation
dnf install php php-mysqlnd php-json php-mbstring
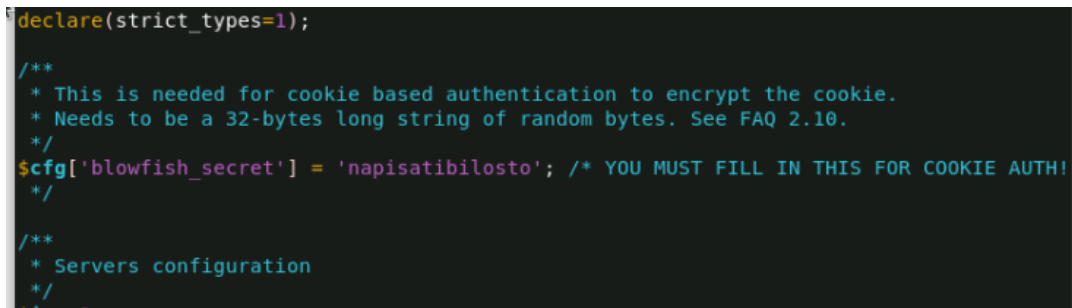systemctl enable - -now php-fpm.service

(student)
mysql -u root -p
(password od root-a zadan u mysql_secure_installation)

(mariadb)
create database wordpress;
show databases;
create user 'wordpress'@'%' identified by 'wordpress';
grant all privileges on wordpress.* to 'wordpress'@'%';
grant all privileges on database.tablica to 'user'@'localhost';
show grants for 'user'@'localhost';
flush privileges;
exit

Servera
(root)
wget https://wordpress.org/latest.tar.gz
tar -xvf latest.tar.gz
cp wordpress/wp-config-sample.php wordpress/wp-config.php
vim wordpress/wp-config.php
cp -R wordpress /var/www/html/
chown -R apache:apache /var/www/html/wordpress
chcon -t httpd_sys_rw_content_t /var/www/html/wordpress -R
chmod -Rf 775 /var/www/html
vim /etc/httpd/conf.d/wordpress.conf
        <VirtualHost *:80>
        ServerAdmin admin@localhost
        DocumentRoot **/var/www/html/wordpress**

```
<Directory "/var/www/html/wordpress">
Options Indexes FollowSymLinks
AllowOverride all
Require all granted
</Directory>

ErrorLog /var/log/httpd/wordpress_error.log
CustomLog /var/log/httpd/wordpress_access.log common
</VirtualHost>
```

systemctl restart httpd
systemctl restart mariadb

Isprobati http://servera/wp-admin

LAMP(Todo app)

Serverb
(root)
systemctl stop firewalld
setenforce 0
dnf update
dnf install httpd
systemctl enable --now httpd
dnf install mariadb-server
systemctl enable - -now mariadb-server
mysql_secure_installation
dnf install php php-mysqlnd php-json php-mbstring
systemctl enable - -now php-fpm.service
dnf install git
dnf install npm
git clone https://github.com/azjishlay/todo-app.git
Cd todo-app/db/
mysql -u root -p < schema.sql
mysql -u root -p todo < seeds.sql
cd todo-app/
npm install

Workstation

(root)
vim /etc/hosts
Dodati server b i naziv domene
172.25.250.11   todo.rhcsa.local

<u>Serverb</u>
(root)
node app.js

Isprobati http://todo.rhcsa.local:8000/todo

Application backup

<u>servera</u>
(student)

sudo mysqldump -u root -p mediawiki > mediawiki-database-2024-05-24.sql
sudo cp mediawiki-database-2024-05-24.sql /var/www/html
sudo tar -czvf mediawiki-backup-2024-05-24.tar.gz mediawiki-database-2024-05-24.sql
mediawiki-1.37.1
du -h mediawiki-backup-2024-05-24.tar.gz

Ishod 9

getenforce
setenforce 1
vim /etc/selinux/config
grep 'SELINUX=' /etc/selinux/config
systemctl enable –now firewalld

Podešenje firewall-a

<u>Servera</u>
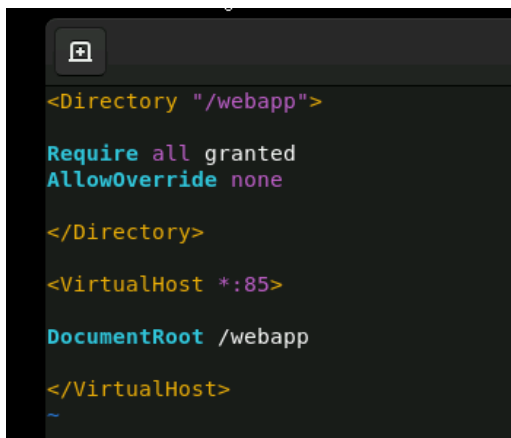(root)
dnf install nginx
systemctl enable –now nginx
netstat -tulnp
curl servera
firewall-cmd - -list-all-zones (provjera koja je zona aktivan)
firewall-cmd - - add-service http - -zone public - - permanent (zona koja je aktivna)
systemctl reload firewalld

mkdir -p /app
vim /app/index.html
vim /etc/nginx/conf.d/simple.conf

```
root@servera:~                    ×

server {

listen 80;

server_name www.simple.com;

root /app;

}
```

vim /etc/httpd/conf.d/simple.conf

```
<Directory "/webapp">

Require all granted
AllowOverride none

</Directory>

<VirtualHost *:85>

DocumentRoot /webapp

</VirtualHost>
~
~
```

```
chown -R nginx:nginx /app
nginx -t
systemctl restart nginx

semange fcontext -a -t httpd_sys_content_t '/app(/.*)?'
restorecon -RFvv /app

curl servera
Firefox http://servera
```

Promjena porta
```
-promjena porta u /etc/nginx/conf.d/simp.conf
systemctl restart nginx

vim /etc/httpd/conf/httpd.conf
        Listen 82
*** semanage port -a -t http_port_t -p tcp 82***
netstat -tulnp
firewall-cmd  - - add-port 82/tcp  - -zone public - - permanent

Provjera:
getenforce
systemctl status firewalld
curl servera:82
firewall-cmd - -list-all
netstat -tulnp
Workstation –> curl servera:82 (isto treba raditi)
```

<u>Workstation</u>

```
vim /etc/hosts
        172.25.250.10  www.simple.com

curl servera
curl http://www.simple.com
```

Promjena PRioritiya i NIcnessa
(https://www.tecmint.com/set-linux-process-priority-using-nice-and-renice-commands/)

Izračun : PR = 20 + NI

ps -eo pid,ppid,ni,comm | grep nginx

renice -n -12 -p 1055(PID procesa)

vim /etc/security/limits.conf
        student hard priority 10 (defaultni priority procesa koje pokreće student je 10)
        student soft priority 10
        Student hard nofile 2000 (student moze otvoriti 2000 file-ova)
ulimit -a

How to enable firewalld logging on Linux

vim /etc/firewalld/firewalld.conf file
        LogDenied=all
systemctl restart firewalld.service
curl servera:8
journalctl -exf -n 5

GREP

Ps -aux | grep root | sort
Ps -aux | grep root | awk ' {print $3, $4}'
Ps -aux | grep root | sed 's/#/ /'

grep -E '^[a-Z]e|^[0-9]' /file
-pocinje sa slovom pa slovo e ili riječ počinje s brojem

grep -E -x 'dog|cat' /file
-dohvaća samo riječ dog i cat

grep -E -c 'dog|cat' /file
-koliko riječi u sebi sadrži dog ili cat

grep -E -n 'dog|cat' /file
-riječi koje u sebi sadrži dog ili cat i broj redka

grep -E '^.{25}$' /file
-riječi koje imaju 25 slova

find / -type f -name '*pass'
find / -type f -name 'pass*'
find / -type f -name '*pass*'