Linux Server A1-Initial Config Alexander Andreev K8684

1. Network settings and hostname

First checking subnet mask.

```
[root@localhost.localdomain ~]# ip -o -f inet addr show | awk '/scope global/
print $4}'
192.168.1.155/24
```

Finding out what device is the default gateway in network and using that as the gateway.

```
[root@localhost.localdomain ~]# netstat -r
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
default         router.asus.com 0.0.0.0         UG        0 0          0 enp0s3
192.168.1.0     0.0.0.0         255.255.255.0   U         0 0          0 enp0s3
```

Manually – modified :

```
[root@localhost.localdomain ~]# nmcli connection
NAME    UUID                                  TYPE      DEVICE
enp0s3  67771043-7e7b-47f1-b0c0-41a5d7f18889  ethernet  enp0s3
[root@localhost.localdomain ~]# nmcli connection modify enp0s3 ipv4.addresses 19
2.168.1.5/24
[root@localhost.localdomain ~]# ip route | grep default
default via 192.168.1.1 dev enp0s3 proto dhcp metric 100
[root@localhost.localdomain ~]# nmcli connection modify enp0s3 ipv4.gateway 192.
168.1.1
[root@localhost.localdomain ~]# nmcli  connection modify enp0s3 ipv4.method manu
al
```

Finding DNS Servers of ISP, through router menu –

Modifying default DNS

```
[root@localhost.localdomain ~]# nmcli connection modify enp0s3 ipv4.dns 193.210.
18.18,193.210.19.19
```

Restarting Networking

```
[root@localhost.localdomain ~]# /etc/init.d/network restart
Restarting network (via systemctl):                        [  OK  ]
```

As we can see default IP has changed

```
[root@localhost.localdomain ~]# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.5  netmask 255.255.255.0  broadcast 192.168.1.255
```

After this restarting virtual machine, making sure ping is still working 8.8.8.8

```
[root@localhost.localdomain ~]# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=54 time=12.9 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=54 time=13.0 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=54 time=12.9 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=54 time=13.1 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=54 time=13.6 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=54 time=13.1 ms
^C
--- 8.8.8.8 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5021ms
rtt min/avg/max/mdev = 12.908/13.137/13.639/0.262 ms
[root@localhost.localdomain ~]# ping yandex.ru
PING yandex.ru (77.88.55.55) 56(84) bytes of data.
64 bytes from yandex.ru (77.88.55.55): icmp_seq=1 ttl=249 time=6.26 ms
64 bytes from yandex.ru (77.88.55.55): icmp_seq=2 ttl=249 time=6.69 ms
^C
--- yandex.ru ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1011ms
rtt min/avg/max/mdev = 6.262/6.477/6.692/0.215 ms
[root@localhost.localdomain ~]# _
```

Changing hostname of server

```
[root@localhost.localdomain ~]# hostnamectl  set-hostname lab1.k8684.local
```

```
[root@localhost.localdomain ~]# hostnamectl
   Static hostname: lab1.k8684.local
         Icon name: computer-vm
```

Modifying /etc/hosts

```
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.1.5 lab1.k8684.local
```

After modifying /etc/hosts it is possible to ping above given address.

```
[root@localhost.localdomain ~]# ping lab1.k8684.local
PING lab1.k8684.local (192.168.1.5) 56(84) bytes of data.
64 bytes from lab1.k8684.local (192.168.1.5): icmp_seq=1 ttl=64 time=0.052 ms
64 bytes from lab1.k8684.local (192.168.1.5): icmp_seq=2 ttl=64 time=0.132 ms
```

After reboot new hostname is shown up in command line

```
[root@lab1.k8684.local ~]#
```

2. Time and date

Set time and timezone

```
[root@lab1.k8684.local ~]# timedatectl set-time "2019-11-17 20:05"
[root@lab1.k8684.local ~]# timedatectl set-timezone Europe/Helsinki
```

Disabling default ntp servers.

```
#server 0.centos.pool.ntp.org iburst
#server 1.centos.pool.ntp.org iburst
#server 2.centos.pool.ntp.org iburst
#server 3.centos.pool.ntp.org iburst
```

New servers

```
server 0.fi.pool.ntp.org iburst
server 1.fi.pool.ntp.org iburst
server 2.fi.pool.ntp.org iburst
```

After changing /etc/chrony.conf

```
[root@lab1.k8684.local ~]# chronyc tracking
Reference ID    : 5FD84726 (ukk0.internationalconspiracy.org)
Stratum         : 3
Ref time (UTC)  : Sun Nov 17 18:12:36 2019
System time     : 0.000000017 seconds fast of NTP time
Last offset     : +0.002748783 seconds
RMS offset      : 0.002748783 seconds
Frequency       : 9.891 ppm slow
Residual freq   : -4.435 ppm
Skew            : 14.295 ppm
Root delay      : 0.032833710 seconds
Root dispersion : 0.000691835 seconds
Update interval : 1.6 seconds
Leap status     : Normal
```

Output of timedatectl

```
[root@lab1.k8684.local ~]# timedatectl
      Local time: Sun 2019-11-17 20:14:39 EET
  Universal time: Sun 2019-11-17 18:14:39 UTC
        RTC time: Sun 2019-11-17 20:13:59
       Time zone: Europe/Helsinki (EET, +0200)
     NTP enabled: no
NTP synchronized: yes
```

3. User accounts and groups

Creating new user and his home directory using "-m" flag for this

```
useradd -m k8684
```

Adding user to group "Wheel"

```
usermod -append -G wheel k8684
```

As we can see user K8684 has also group wheel now

```
[root@lab1.k8684.local ~]# groups k8684
k8684 : k8684 wheel
```

Creating users teppo and sulo and giving them simple password

```
[root@lab1.k8684.local ~]# passwd sulo
Changing password for user sulo.
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a diction
ary word
Retype new password:
passwd: all authentication tokens updated successfully.
```

Creating a group and adding users to it

```
[root@lab1.k8684.local ~]# groupadd legacy
[root@lab1.k8684.local ~]# usermod -append -G legacy teppo
[root@lab1.k8684.local ~]# usermod -append -G legacy sulo
```

After making this screenshot had to recreate users teppo and sulo. -append flag doesn't let to login into system after adding to group, system says " login doesn't exist"

```
[root@lab1.k8684.local ~]# usermod -G legacy sulo_
```

Changing ownership

```
[root@lab1.k8684.local /]# chown k8684:legacy legacy/
```

```
drwxr-xr-x.   2 k8684 legacy    6 Nov 17 20:28 legacy
```

Granting all permissions to owner and group, using setgid to make sure all new files created in folder are owned by group legacy.

```
[root@lab1.k8684.local /]# chmod 2770 legacy/
[root@lab1.k8684.local /]# ls -l
total 32
lrwxrwxrwx.   1 root  root      7 Feb 21  2019 bin -> usr/bin
dr-xr-xr-x.   5 root  root   4096 Feb 21  2019 boot
drwxr-xr-x.  18 root  root   3000 Nov 17  2019 dev
drwxr-xr-x.  86 root  root   8192 Nov 17 20:27 etc
drwxr-xr-x.   5 root  root     41 Nov 17 20:23 home
drwxrws---.   2 k8684 legacy    6 Nov 17 20:28 legacy
```

Testing permission in folder

```
[k8684@lab1.k8684.local legacy]$ touch text.txt
[k8684@lab1.k8684.local legacy]$ ls
text.txt
```

Did login as every user and created file in legacy folder

```
[teppo@lab1.k8684.local legacy]$ ls -l
total 0
-rw-rw-r--. 1 sulo  legacy 0 Nov 17 22:57 text_sulo.txt
-rw-rw-r--. 1 teppo legacy 0 Nov 17 22:58 text_teppo.txt
-rw-rw-r--. 1 k8684 legacy 0 Nov 17 20:41 text.txt
```

4. Multi-user permission

Using ssh to connect through CMDER

```
λ ssh K8684@student.labranet.jamk.fi
K8684@student.labranet.jamk.fi's password:
```

Account belongs to group

```
[K8684@student ~]$ groups K8684
K8684 : Student-users
```

UID / numerical id is

```
[K8684@student ~]$ id -u K8684
32211
```

```
[K8684@student lx]$ cat extra.txt
Hello World 123
[K8684@student lx]$ pwd
/home/K8684/lx
[K8684@student lx]$
```

Giving all permission to myself, and execute permission to group and others

```
[K8684@student home]$ chmod 2711 K8684
```

```
[K8684@student home]$ ls -ld K8684
drwx--s--x. 8 K8684 Student-users 4096 Nov 17 21:05 K8684
```

Me and group – all permission, others none

```
[K8684@student ~]$ chmod 2770 lx
[K8684@student ~]$ ls -ld lx
drwxrws---. 2 K8684 Student-users 4096 Nov 17 21:05 lx
```

Me – write and read, group – read, others – none

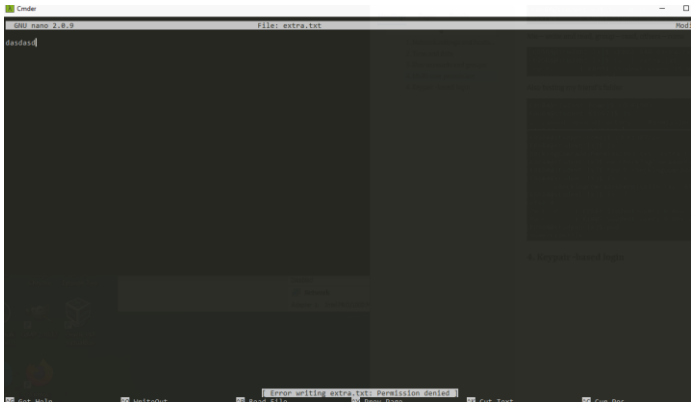
```
[K8684@student lx]$ chmod 640 extra.txt
[K8684@student lx]$ ls -l extra.txt
-rw-r-----. 1 K8684 Student-users 16 Nov 17 21:05 extra.txt
```

Also testing my friend's folder

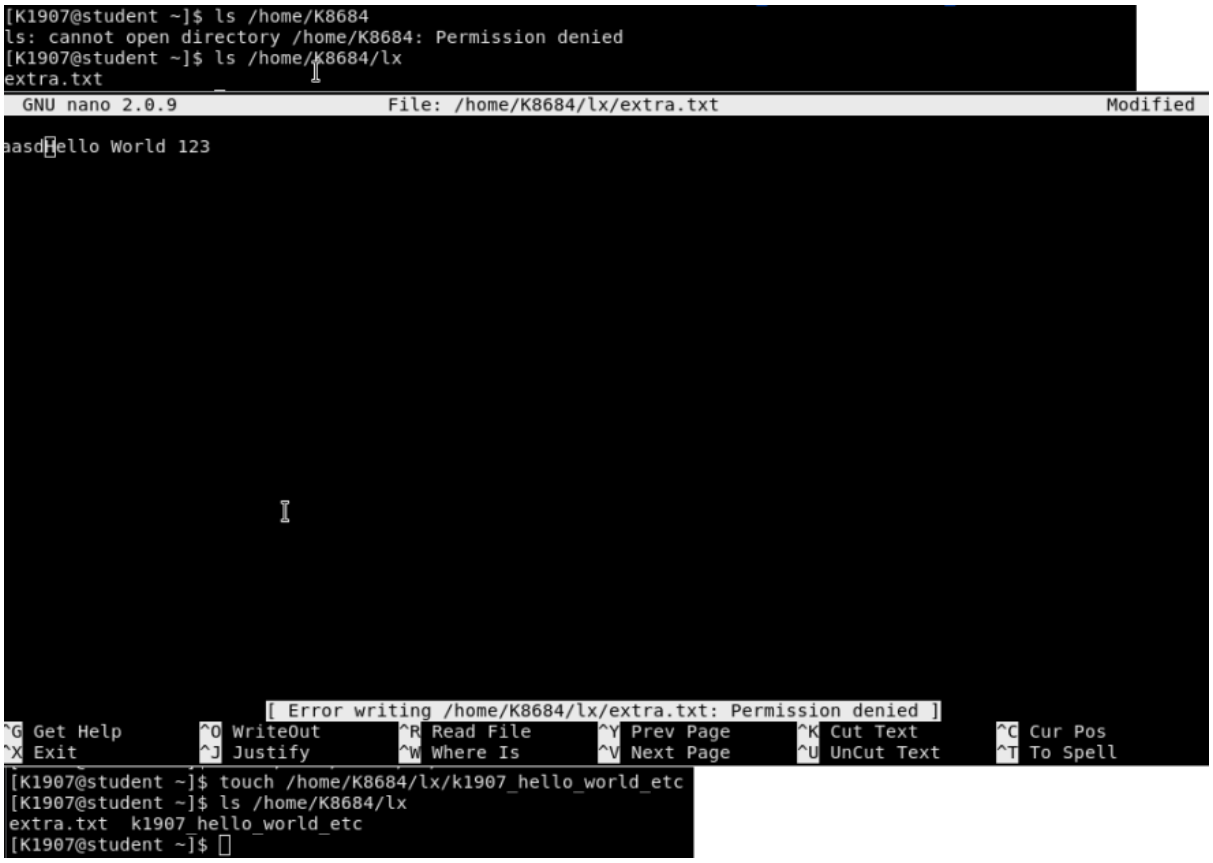
```
K8684@student home]$ cd K1907
K8684@student K1907]$ ls
s: cannot open directory .: Permission denied
```

```
[K8684@student home]$ cd K1907/lx
[K8684@student lx]$ ls
heckingComradesPermissions.txt  extra.txt
[K8684@student lx]$ rm checkingComradesPermissions.txt
[K8684@student lx]$ touch checkingComradesPermission.txt
[K8684@student lx]$ ls -a
.  ..  checkingComradesPermission.txt  extra.txt
[K8684@student lx]$ ls -l
total 0
-rw-r--r--. 1 K8684 Student-users 0 Nov 17 21:18 checkingComradesPermission.txt
-rw-r-----. 1 K1907 Student-users 0 Nov 17 18:55 extra.txt
[K8684@student lx]$ pwd
/home/K1907/lx
```

Trying to modify extra.txt – error comes out as intended.

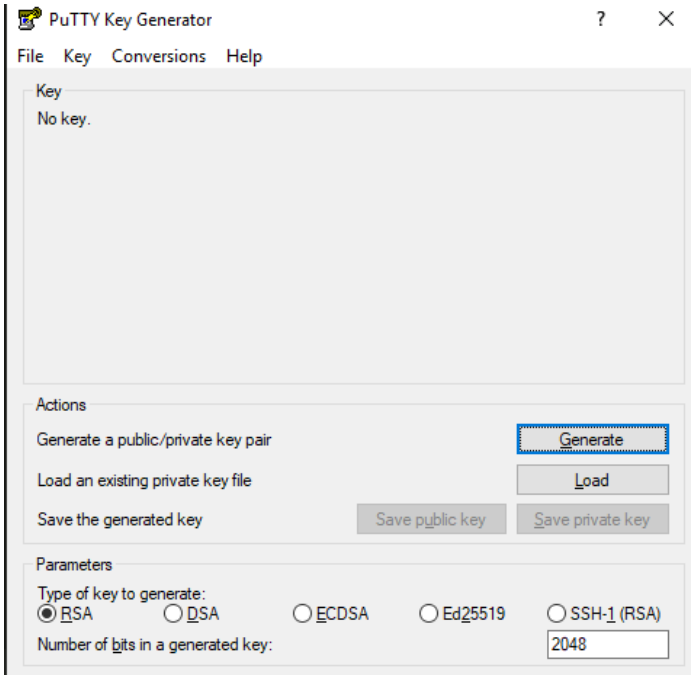


Got his testing of my folders, everything is configured according to task



5. Keypair -based login

Using PuttyGen to create RSA keypair



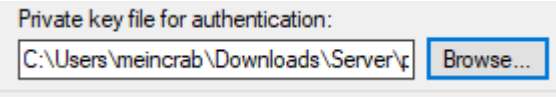
Using SCP to copy public key file, from local machine to server

```
[k8684@labl.k8684.local .ssh]$ ls -l authorized_keys
-rw-------. 1 k8684 k8684 382 Nov 17 22:22 authorized_keys
```

Permissions 600 given to authorized_keys

And permission 700 is given to .ssh

Adding private key to putty




```
login as: k8684
Authenticating with public key "rsa-key-20191117"
Last login: Sun Nov 17 22:24:45 2019 from 192.168.1.13
[k8684@labl.k8684.local ~]$
```

Had to modify publick.key generated by Putty to work on linux with command –

```
[k8684@labl.k8684.local ~]$ ssh-keygen -i -f filenameofwindowsformpub.key
```

It changes format

```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: "rsa-key-20191117"
AAAAB3NzaC1yc2EAAAABJQAAAQEAmibCE
i6fOK9KJhNvRrPOxA6PoglHTK6H//PEqG
e+DTZSjd7cPssCATGgDEMVH0WVWPcUHzy
DyeHHsGYN9YdEDVxpcuoEzuFFbRyWAplH
gqKyLLLv1zva5cAppNqRMWRgJ2DGp6sbn
fvgT4kJoSH+tqknxSMuH8xlh1jTOF3aMX
---- END SSH2 PUBLIC KEY ----
```

To another, which works on unix systems.

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAmibCE6AqyPHcVxCzZ6qPR+9UMcKCWx4W0iEEi6fOK9K
```