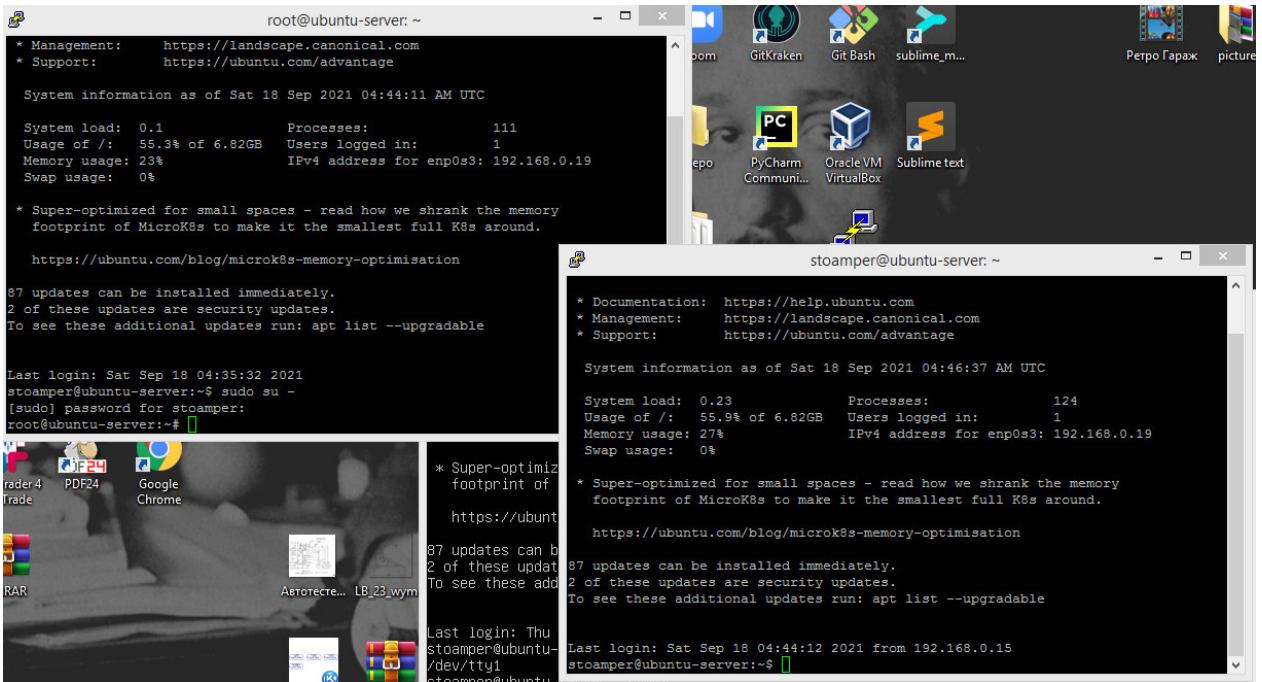


Дополнительное практическое задание по уроку №2 «Настройка интерфейса командной строки и знакомство с ним»

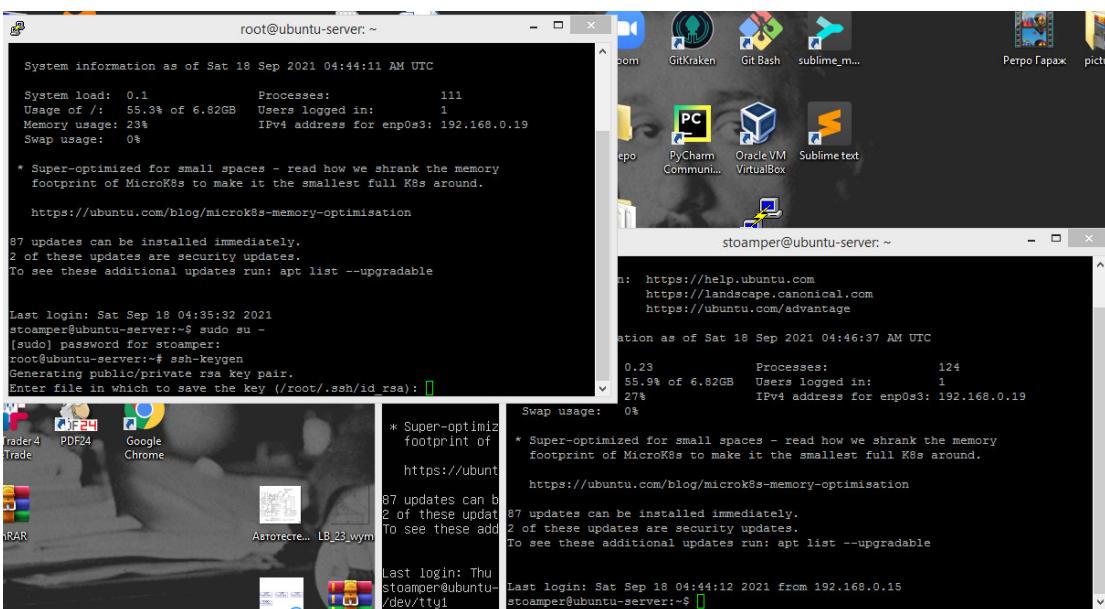
- Используя дополнительный материал настроить авторизацию по SSH с использованием ключей

Решение

- Подключились к одному (root) и второму (stoamper) серверам



- Хотим попадать на второй сервер под пользователем stoamper. Первоначально создаем ключ командой ssh-keygen



Создался приватный ключ (identification) и публичный ключ (public key)

```
stoamper@ubuntu-server:~$ sudo su -
[sudo] password for stoamper:
root@ubuntu-server:~# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:EY3+mcCF9XqyQOXH5frp0D9LCyyU03Yzag0cCu5gPyEs root@ubuntu-server
The key's randomart image is:
----[RSA 3072]----+
| .+.... |
| o... |
| o.o.. |
| . *..oo..+ |
| .SO.+..+o |
| ..o++ O.. |
| E + . B Oo. |
| .. o . O.+ |
| . . o ... |
+---[SHA256]----+
root@ubuntu-server:~#
```

```
stoamper@ubuntu-server:~
n: https://help.ubuntu.com
https://landscape.canonical.com
https://ubuntu.com/advantage
ation as of Sat 18 Sep 2021 04:46:37 AM UTC
0.23 Processes: 124
55.9% of 6.82GB Users logged in: 1
27% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%
* Super-optimized footprint of
footprint of
https://ubunt
87 updates can b
2 of these updat
To see these add
Last login: Thu
stoamper@ubuntu-
/dev/ttys
stoamper@ubuntu-server:~$
```

- Отражаем созданные в директории .ssh ключи

```
root@ubuntu-server:~
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:EY3+mcCF9XqyQOXH5frp0D9LCyyU03Yzag0cCu5gPyEs root@ubuntu-server
The key's randomart image is:
----[RSA 3072]----+
| .+.... |
| o... |
| o.o.. |
| . *..oo..+ |
| .SO.+..+o |
| ..o++ O.. |
| E + . B Oo. |
| .. o . O.+ |
| . . o ... |
+---[SHA256]----+
root@ubuntu-server:~# ls -lh /root/.ssh
total 12K
-rw----- 1 root root 0 Sep 12 06:45 authorized_keys
-rw----- 1 root root 2.6K Sep 18 04:54 id_rsa
-rw-r--r-- 1 root root 572 Sep 18 04:54 id_rsa.pub
-rw-r--r-- 1 root root 222 Sep 12 08:47 known_hosts
root@ubuntu-server:~#
```

```
stoamper@ubuntu-server:~
n: https://help.ubuntu.com
https://landscape.canonical.com
https://ubuntu.com/advantage
ation as of Sat 18 Sep 2021 04:46:37 AM UTC
0.23 Processes: 124
55.9% of 6.82GB Users logged in: 1
27% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%
* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.
https://ubuntu.com/blog/microk8s-memory-optimisation
87 updates can be installed immediately.
2 of these updates are security updates.
To see these additional updates run: apt list --upgradable
Last login: Sat Sep 18 04:44:12 2021 from 192.168.0.15
stoamper@ubuntu-server:~$
```

Id_rsa – приватный ключ (никому не передаем)

Id_rsa.pub – публичный ключ (его передаем)

- Отразим идентификатор созданного публичного ключа с помощью функции cat (просмотр содержимого файла)

```

root@ubuntu-server: ~/.ssh
[...]
total 12K
-rw-r--r-- 1 root root 0 Sep 12 06:45 authorized_keys
-rw-r--r-- 1 root root 2.6K Sep 18 04:54 id_rsa
-rw-r--r-- 1 root root 572 Sep 18 04:54 id_rsa.pub
-rw-r--r-- 1 root root 222 Sep 12 08:47 known_hosts
root@ubuntu-server:~# cd /root/.ssh/
root@ubuntu-server:~/ssh# cat id_rsa.pub
ssh AAAQAB3NzaC1yc2EAAQABAAABgQDdkgX7/w4K0P+bDxfG1veBp2A7GXpr92ERDdIXJsd
Q45HluQ16CkIKoFBTAUyAYD5RGUUp0jdx9Ych5KtnoW/4BRp1OxvM8b18zIozuyEKXhXXZ3eFjW
mQfQXtJWlKa2u643y26uCjs5mPzTSLtBfdLSDrv4lyntPqlMMEkD42HR6RarrZ9SlmY8rE9MOBiIemy
691AnWPcpigF4j72kP9uAP91j1Ajwr3zSG/BfbnvCQgdwvfSM1k1YQEpss1zXElSe5yXYCbtIqIEJTT1
A2auUEyeOcdnEnsbAMCMVJhIEBA1DpAix9CC91lq19gmP39HiqKymfanL+RL0TsyH3wH/UkC1PoAQ1S
UL/M1qVoh2iuKUPIOypesFB70957k/nFvdKDPfpVV9A8lhGspU48+r2F916exmIDXbrPrJ+wyl8K1R
7YlvE5du+xEJy72AdH2mG93PnNtgsq2r8WiXUfu8+MKEC+PDV+k3m5g9EMG72gGDUv5G8= root@ub
untu-server
root@ubuntu-server:~/ssh#

```

Swap usage:

```

* Super-optimized footprint of MicroK8s - read how we shrank the memory footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

87 updates can be installed immediately.
2 of these updates are security updates.
To see these additional updates run: apt list --upgradable

Last login: Thu Sep 16 10:44:12 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ /dev/ftu1

```

- Подключаемся ко второму серверу (stoamper@192.168.0.19) используя утилиту ssh-copy-id. Подключение выполняем с помощью команды ssh stoamper@192.168.0.19

```

stoamper@ubuntu-server: ~
[...]
root@ubuntu-server:~/.ssh# ssh-copy-id ^C
root@ubuntu-server:~/.ssh# ssh stoamper@192.168.0.19
stoamper@192.168.0.19's password:
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

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

 System information as of Sat 18 Sep 2021 05:09:07 AM UTC

 System load: 0.08 Processes: 120
 Usage of /: 55.3% of 6.82GB Users logged in: 1
 Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
 Swap usage: 0%

 * Super-optimized for small spaces - read how we shrank the memory
 footprint of MicroK8s to make it the smallest full K8s around.

 https://ubuntu.com/blog/microk8s-memory-optimisation

 86 updates can be installed immediately.
 1 of these updates is a security update.
 To see these additional updates run: apt list --upgradable

 Last login: Sat Sep 18 04:46:38 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ 

```

Swap usage:

```

* Super-optimized footprint of MicroK8s - read how we shrank the memory footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 04:44:12 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ 

```

Подключились, значит доступ есть

- Выходим обратно в root с помощью команды logout и создаем копию (команда ssh-copy-id stoamper@192.168.0.19)

```

root@ubuntu-server: ~/ssh
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

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

System information as of Sat 18 Sep 2021 05:09:07 AM UTC

System load: 0.08 Processes: 120
Usage of /: 55.3% of 6.82GB Users logged in: 1
Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%

* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 04:46:38 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/.ssh# ssh-copy-id stoamper@192.168.0.19
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/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 prompt-
ed now it is to install the new keys
stoamper@192.168.0.19's password: [REDACTED]

Last login: Thu Sep 16 18:11:11 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ [REDACTED]
Last login: Sat Sep 18 04:44:12 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ [REDACTED]

```

Вводим пароль доступа на сервер

```

root@ubuntu-server: ~/ssh
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

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

System information as of Sat 18 Sep 2021 04:46:38 AM UTC

System load: 0.08 Processes: 120
Usage of /: 55.3% of 6.82GB Users logged in: 1
Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
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86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 04:46:38 2021 from 192.168.0.15
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/.ssh# ssh-copy-id stoamper@192.168.0.19
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/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 prompt-
ed now it is to install the new keys
stoamper@192.168.0.19's password: [REDACTED]

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'stoamper@192.168.0.19'"
and check to make sure that only the key(s) you wanted were added.

root@ubuntu-server:~/.ssh# [REDACTED]

Last login: Thu Sep 16 18:11:11 2021
stoamper@ubuntu-server:~$ ls -la .ssh
total 24
drwxr-xr-x 2 stoamper stoamper 4096 Sep 16 18:12 .
drwxr-xr-x 5 stoamper stoamper 4096 Sep 16 18:07 ..
-rw-r--r-- 1 stoamper stoamper 1148 Sep 18 05:12 authorized_keys
-rw-r--r-- 1 stoamper stoamper 2610 Sep 16 18:08 id_rsa
-rw-r--r-- 1 stoamper stoamper 576 Sep 16 18:08 id_rsa.pub
-rw-r--r-- 1 stoamper stoamper 222 Sep 16 18:12 known_hosts
stoamper@ubuntu-server:~$ [REDACTED]

```

- Была создана папка .ssh и в ней файл authorized keys (доступ только для пользователя!)

stoamper@ubuntu-server:~

```

ed now it is to install the new keys
stoamper@192.168.0.19's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'stoamper@192.168.0.19'"
and check to make sure that only the key(s) you wanted were added.

root@ubuntu-server:~/ssh# ssh stoamper@192.168.0.19
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
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 System information as of Sat 18 Sep 2021 05:13:39 AM UTC

 System load: 0.1 Processes: 121
 Usage of /: 55.3% of 6.82GB Users logged in: 1
 Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
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 * Super-optimized for small spaces - read how we shrank the memory
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86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ ls -la .ssh
Last login: Thu Sep 16 18:11:11 2021
stoamper@ubuntu-server:~$ ls -la .ssh
/dev/tty1
stoamper@ubuntu-server:~$ ls -la .ssh
Доступно 12.7 ГБ

```

stoamper@ubuntu-server:~

```

Usage of /: 55.9% of 6.82GB Users logged in: 1
Memory usage: 27% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%

Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

Updates can be installed immediately.
of these updates are security updates.
see these additional updates run: apt list --upgradable

ls: login: Sat Sep 18 04:44:12 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ ls -la .ssh
total 24
drwxr-x--- 2 stoamper stoamper 4096 Sep 16 18:12 .
drwxr-xr-x 5 stoamper stoamper 4096 Sep 16 18:07 ..
-rw-r--r-- 1 stoamper stoamper 1148 Sep 18 05:12 authorized_keys
-rw-r--r-- 1 stoamper stoamper 2610 Sep 16 18:08 id_rsa
-rw-r--r-- 1 stoamper stoamper 576 Sep 16 18:08 id_rsa.pub
-rw-r--r-- 1 stoamper stoamper 222 Sep 16 18:12 known_hosts
stoamper@ubuntu-server:~$ cat .ssh/authorized_keys

```

- Проверим, что в файле authorized keys находится публичный ключ

stoamper@ubuntu-server:~

```

ed now it is to install the new keys
stoamper@192.168.0.19's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'stoamper@192.168.0.19'"
and check to make sure that only the key(s) you wanted were added.

root@ubuntu-server:~/ssh# ssh stoamper@192.168.0.19
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
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 System information as of Sat 18 Sep 2021 05:13:39 AM UTC

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 * Super-optimized for small spaces - read how we shrank the memory
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To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ ls -la .ssh
Last login: Thu Sep 16 18:11:11 2021
stoamper@ubuntu-server:~$ ls -la .ssh
/dev/tty1
stoamper@ubuntu-server:~$ ls -la .ssh
Доступно 12.7 ГБ

```

stoamper@ubuntu-server:~

```

drwxr-x--- 2 stoamper stoamper 4096 Sep 16 18:12 .
drwxr-xr-x 5 stoamper stoamper 4096 Sep 16 18:07 ..
-rw-r--r-- 1 stoamper stoamper 1148 Sep 18 05:12 authorized_keys
-rw-r--r-- 1 stoamper stoamper 2610 Sep 16 18:08 id_rsa
-rw-r--r-- 1 stoamper stoamper 576 Sep 16 18:08 id_rsa.pub
-rw-r--r-- 1 stoamper stoamper 222 Sep 16 18:12 known_hosts
stoamper@ubuntu-server:~$ cat .ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAABgQC+DqfDj2qzuZYCeXqS/4yWKtpfPow3c54vgAwKJf9
htBDMyf/VsJ3pedHmBuh3v6NpIXtfxZy7X0+wNGB2JQS/2FWWQEE+ZUVHnFV14C/yXxCaQnuaQyhIz3w
OmwsETZfMAnh1T7RgwBNWtGMiMU9sK0eqgzsxrQyaAmc1Edvq2p4cf5yQOQS/m6Eq2AQR0Be0xd0AEEl
IECvIMQeIOFdU1SLciVm/pSem0dq00GHXL1Yd1qeBp6+LXMTHD81rsYY95jDiwOxwzVSIQwPUMSsSTC1
in9SeCoXzebJ6/001426PoxyceW1VMBwQgA80fxTrCulHwboCfaqbZNSPfEpqA9MoeXfFw
yrrxJGNTaCEYedpzICTTpCsorJRKcj2FKUSnrcKCuZsWijFKZ29axmTHAvwZYSEKJd27n3PCbfjFNm/gh
X45mfF4MCNOC1res41lpzT8emE9nFAROzJrT5kgC7bwzxHkSKDK/DV32jpY/1CS/VAcme= stoampe
r@ubuntu-server
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAABgQDDkgX7/w4K0Kp+bDxfG1veBp2A7Gxp92ERdfxJsd
Q45SHLuQj6Ck1KOEBTAUAVAD5RGUJF0+jYdx9yCH5KtnoW/4Rp1Oxv8Mb18zI0zuy8XhnXZ3qFjW
mQPQxtJW1Ka2u643y26uCjssmP2TSLBffDLSDvyiynitPqlHMEKD42HR6Arrz9SLmY8F9M0B1emy
e91AnWPCCpg1F4j72K9uAP91j1Lqr3zSG/BfbnvCQgdvwfSM1K1YQEpse21xElSe5yXVCbtQ1EJT1
A2auEYeOcdnEnsbaMCMVjhIEBA1DpAix9C91lq19gMf39HqKyMfanl+RLoTetH3wH/UK1PoAQ15
UL/M1gVoh2iuKJPIOwpesFbFb70957k/nPvdKDPfpVY9a8IhG9pU48+T2F916exmIDXbrPrj+wyl8Kir
7YIvE5d+x+EJjy72AdH2mG93PnNtqsgZr8WiXUFu8+MKEC+PDV+k3mSq9fM9G7AgJdV5G8= root@ub
untu-server
stoamper@ubuntu-server:~$ 

```

Теперь при подключении с сервера root на stoamper пароль запрашиваться не будет

Рассмотрим обратную ситуацию (с сервера stoamper получить доступ на root по ключу)

- Генерируем ключ на сервере stoamper

```
ed now it is to install the new keys
stoamper@192.168.0.19's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'stoamper@192.168.0.19'"
and check to make sure that only the key(s) you wanted were added.

root@ubuntu-server:~$ ssh stoamper@192.168.0.19
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

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

System information as of Sat 18 Sep 2021 05:13:39 AM UTC

System load: 0.1 Processes: 121
Usage of /: 55.3% of 6.82GB Users logged in: 1
Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%

* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ [REDACTED]

stoamper@ubuntu-server:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/stoamper/.ssh/id_rsa):
/home/stoamper/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/stoamper/.ssh/id_rsa
Your public key has been saved in /home/stoamper/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:ONNhaA34UgDjVBECq69QJBwVSjqY5osFeFxSTigx6aNO stoamper@ubuntu-server
The key's randomart image is:
----[RSA 3072]----+
|.*B+=+ |
|=oooo... |
|*=.=+.. |
|*B=+.E.. |
|O+ +o.B S |
|*o. .+ o |
|.o. . |
| |
|----[SHA256]----+
stoamper@ubuntu-server:~$ [REDACTED]
```

- Пытаемся зайти на сервер stoamper под пользователем root, но зайти туда не можем

```
stoamper@ubuntu-server:~$ 
System information as of Sat 18 Sep 2021 05:13:39 AM UTC

System load: 0.1 Processes: 121
Usage of /: 55.3% of 6.82GB Users logged in: 1
Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%

* Super-optimized for small spaces - read how we shrank the memory
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https://ubuntu.com/blog/microk8s-memory-optimisation

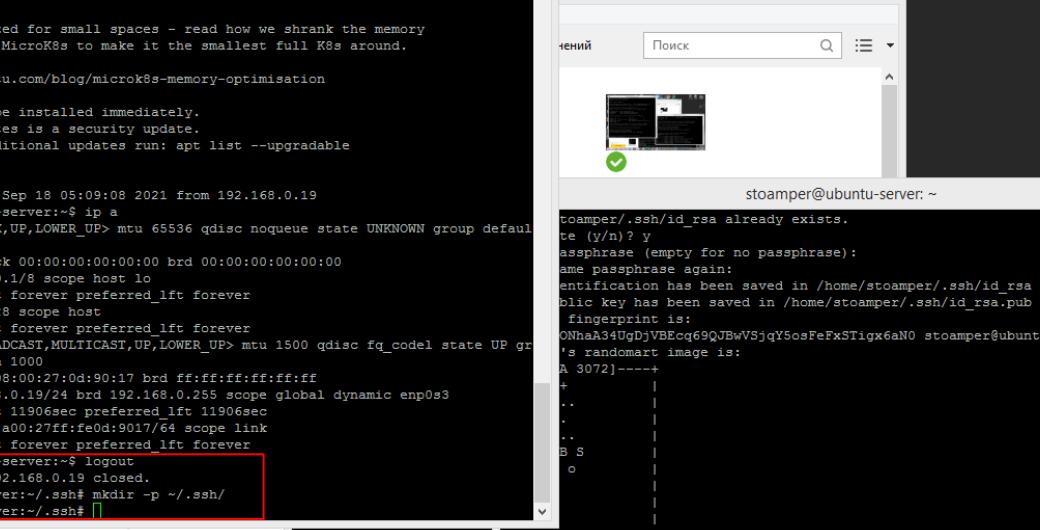
86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group 0
    link/loopback 00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
    link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
        valid_lft 11906sec preferred_lft 11906sec
    inet6 fe80::a00:27ff:fe0d:9017/64 scope link
        valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~$ [REDACTED]

stoamper@ubuntu-server:~$ ssh root@192.168.0.19
root@192.168.0.19's password:
Permission denied, please try again.
root@192.168.0.19's password: [REDACTED]
```

Причина: у пользователя root нет пароля

- Нужно подключиться другой консолью. Для этого создаем папку



```
root@ubuntu-server:~/ssh
Usage of /: 55.3% of 6.82GB Users logged in: 1
Memory usage: 24% IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%

* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

86 updates can be installed immediately.
1 of these updates is a security update.
To see these additional updates run: apt list --upgradable

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
        valid_lft 11906sec preferred_lft 11906sec
    inet6 fe80::a00:27ff:fe0d:764/64 scope link
        valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/ssh# mkdir -p ~/.ssh/
root@ubuntu-server:~/ssh# [REDACTED]
stoamper@ubuntu-server:~$ ssh root@192.168.0.19
root@192.168.0.19's password:
Permission denied, please try again.
root@192.168.0.19's password: [REDACTED]
```

- Создаем файл и туда копируем наш публичный ключ. После копируем публичный ключ на сервер stoamper

root@ubuntu-server: ~/.ssh

```
86 updates can be installed immediately.  
1 of these updates is a security update.  
To see these additional updates run: apt list --upgradable
```

Last login: Sat Sep 18 05:09:08 2021 from 192.168.0.19
stoamper@ubuntu-server:~\$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
 link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
 inet 127.0.0.1/8 scope host lo
 valid_lft forever preferred_lft forever
inet6 ::/128 scope host
 valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
 link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
 inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
 valid_lft 11906sec preferred_lft 11906sec
 inet6 fe80::a00:27ff:fe0d:9017/64 scope link
 valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~\$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~\$ ssh -p ~/ssh/
root@ubuntu-server:~\$ ssh# cat > ~/.ssh/authorized_keys
ssh-rsa AAAQ...
AAAAB3NzaC1yc2EAAQADABQgC2b...
LpZDQuQzQmCMg/j7Edr7cyW0LNJNhYQbhh+gPtaksYDqzaHKVqhgzbM0t4er69SSBSwiS3uIcj...mQT0
JuxKfesvhjDKWvOgi/wttF/SzGzNtSrjXcd2jAxqlrqgg4/8BF2vHdGjbkeENXjMKY...
Np1Pru1KL...XmnPxgrf7jt...
2SWAlipy...
x@ubuntu-server

stoamper@ubuntu-server:~\$ ssh root@192.168.0.19
.168.0.19's password:
on denied, please try again.
.168.0.19's password:
on closed by 192.168.0.19 port 22
cat .ssh/id_rsa.pub
AAAAB3NzaC1yc2EAAQADABQgC2b...
AAAAB3NzaC1yc2EAAQADABQgC2b...
LpZDQuQzQmCMg/j7Edr7cyW0LNJNhYQbhh+gPtaksYDqzaHKVqhgzbM0t4er69SSBSwiS3uIcj...mQT0
JuxKfesvhjDKWvOgi/wttF/SzGzNtSrjXcd2jAxqlrqgg4/8BF2vHdGjbkeENXjMKY...
Np1Pru1KL...XmnPxgrf7jt...
2SWAlipy...
x@ubuntu-server

>> - добавление в конец файла (т.к. если несколько публичных ключей, то чтобы их не затирать)

- Заходим в редактор vim и проверяем, что наш публичный ключ написан в одну строчку

- Устанавливаем права на директорию и на файл

```

root@ubuntu-server: ~/.ssh
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
oup default qlen 1000
    link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
        valid_lft 11906sec preferred_lft 11906sec
    inet6 fe80::a00:27ff:fe0d:9017/64 scope link
        valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/.ssh# mkdir -p ~/.ssh/
root@ubuntu-server:~/.ssh# cat >> ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAADQABAAAABgQC2brCvAOzfBvFWpbNBKGwSmltSBoWl7VgIkafEQp
q68PnF+1ddDqUp5CE0009gUSGTnMRI5PtjZFLu29nZoUQsR70f08/TtjDOLbpkSb2
LpZDQuzQmCMg/j7Edr7cyW01NhbhYQbh+gPtaksYDqzaHKvhghgzkMbtodeR69SSBwiS3uIcjwm
JuxQRiu2J9s+FVnc0RpyPN0ZDpHb6Na0vCzxJBZKeybs6X9QfRt9KmG5Ntp44vhvGk4Jlt7J
NtKPesevnhjDKV0Ogi/wttF/SGzNgtSNrjXcd2jAxqlrgg4q/8BP2vHdGjbkeENXjMKYe6ChvNKQ7LY
Np1Pu1KL+XnmPxgrfi7JtrkptrTcT6tYbddHRS29SPTxujkBnRjCIBgs1hZJgAweStxuDeuOg
3WA1pySnLh1bTPM36zdAE01ILQn2tSr0/UZyew0+j3KM0UwcSDu3JgKGDb9e4oqjchGNrx/M= stoam
r@ubuntu-server
root@ubuntu-server:~/.ssh# vim
root@ubuntu-server:~/.ssh# vim ^C
root@ubuntu-server:~/.ssh# vim .ssh/authorized_keys
root@ubuntu-server:~/.ssh# vim ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh# chmod 700 ~/.ssh/
root@ubuntu-server:~/.ssh# chmod 600 ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh# [REDACTED]
Last login: Thu Sep 16 16:11:11 2021
stoamper@ubuntu-server:~$ ^C
stoamper@ubuntu-server:~$ [REDACTED]
3WA1pySnLh1bTPM36zdAE01ILQn2tSr0/UZyew0+j3KM0UwcSDu3JgKGDb9e4oqjchGNrx/M= stoam
r@ubuntu-server
root@ubuntu-server:~$ cat .ssh/id_rsa.pub
AAAAB3NzaC1yc2EAAADQABAAAABgQC2brCvAOzfBvFWpbNBKGwSmltSBoWl7VgIkafEQp8aT
ddDqUp5CE0009gUSGTnMRI5PtjZFLu29nZoUQsR70f08/TtjDOLbpkSb2q75
QmCMg/j7Edr7cyW01NhbhYQbh+gPtaksYDqzaHKvhghgzkMbtodeR69SSBwiS3uIcjwmQT0
2J9s+FVnc0RpyPN0ZDpHb6Na0vCzxJBZKeybs6X9QfRt9KmG5Ntp44vhvGk4Jlt7J4x4
njdKV0Ogi/wttF/SGzNgtSNrjXcd2jAxqlrgg4q/8BP2vHdGjbkeENXjMKYe6ChvNKQ7LY
L+XnmPxgrfi7JtrkptrTcT6tYbddHRS29SPTxujkBnRjCIBgs1hZJgAweStxuDeuOgJed
r@ubuntu-server
stoamper@ubuntu-server:~$ ^C
stoamper@ubuntu-server:~$ [REDACTED]
3WA1pySnLh1bTPM36zdAE01ILQn2tSr0/UZyew0+j3KM0UwcSDu3JgKGDb9e4oqjchGNrx/M= stoam
r@ubuntu-server
root@ubuntu-server:~$ [REDACTED]

```

- Пробуем подключиться к серверу stoamper пользователем root. Успешно

```

root@ubuntu-server: ~/.ssh
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
oup default qlen 1000
    link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
        valid_lft 11906sec preferred_lft 11906sec
    inet6 fe80::a00:27ff:fe0d:9017/64 scope link
        valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/.ssh# mkdir -p ~/.ssh/
root@ubuntu-server:~/.ssh# cat >> ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAADQABAAAABgQC2brCvAOzfBvFWpbNBKGwSmltSBoWl7VgIkafEQp
q68PnF+1ddDqUp5CE0009gUSGTnMRI5PtjZFLu29nZoUQsR70f08/TtjDOLbpkSb2
LpZDQuzQmCMg/j7Edr7cyW01NhbhYQbh+gPtaksYDqzaHKvhghgzkMbtodeR69SSBwiS3uIcjwm
JuxQRiu2J9s+FVnc0RpyPN0ZDpHb6Na0vCzxJBZKeybs6X9QfRt9KmG5Ntp44vhvGk4Jlt7J
NtKPesevnhjDKV0Ogi/wttF/SGzNgtSNrjXcd2jAxqlrgg4q/8BP2vHdGjbkeENXjMKYe6ChvNKQ7LY
Np1Pu1KL+XnmPxgrfi7JtrkptrTcT6tYbddHRS29SPTxujkBnRjCIBgs1hZJgAweStxuDeuOg
3WA1pySnLh1bTPM36zdAE01ILQn2tSr0/UZyew0+j3KM0UwcSDu3JgKGDb9e4oqjchGNrx/M= stoam
r@ubuntu-server
root@ubuntu-server:~/.ssh# vim
root@ubuntu-server:~/.ssh# vim ^C
root@ubuntu-server:~/.ssh# vim .ssh/authorized_keys
root@ubuntu-server:~/.ssh# vim ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh# chmod 700 ~/.ssh/
root@ubuntu-server:~/.ssh# chmod 600 ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh# [REDACTED]
Last login: Thu Sep 16 18:11:11 2021
stoamper@ubuntu-server:~$ ^C
stoamper@ubuntu-server:~$ [REDACTED]
3WA1pySnLh1bTPM36zdAE01ILQn2tSr0/UZyew0+j3KM0UwcSDu3JgKGDb9e4oqjchGNrx/M= stoam
r@ubuntu-server
root@ubuntu-server:~$ [REDACTED]
root@ubuntu-server:~$ ssh root@192.168.0.19
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

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

System information as of Sat 18 Sep 2021 05:26:35 AM UTC

System load: 0.0          Processes: 123
Usage of /: 55.3% of 6.82GB  Users logged in: 1
Memory usage: 24%          IPv4 address for enp0s3: 192.168.0.19
Swap usage: 0%             [REDACTED]

* Super-optimized for small spaces - read how we shrank the memory
footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

86 updates can be installed immediately.
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To see these additional updates run: apt list --upgradable

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@ubuntu-server:~$ [REDACTED]

```

```
root@ubuntu-server:~/.ssh
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defq
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
        inet6 ::1/128 scope host
            valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state
oup default qlen 1000
    link/ether 08:00:27:0d:90:17 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.19/24 brd 192.168.0.255 scope global dynamic enp0s3
        valid_lft 11906sec preferred_lft 11906sec
    inet6 fe80::a00:27ff:fe0d:9017/64 scope link
        valid_lft forever preferred_lft forever
stoamper@ubuntu-server:~$ logout
Connection to 192.168.0.19 closed.
root@ubuntu-server:~/.ssh# mkdir -p ~/.ssh/
root@ubuntu-server:~/.ssh# cat > ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQc2brCvAOfbvFWpbNSKGwSm1SB0w17VgIkafE
q68PnF+1ddDcup5CE0009gUSGTnMRIFotsyDTI2IK5PtjZFLu29noZUQsR70f08/TtjDOLbpkS
LpZDQUGzCmCMg/j7Edr7cyW01JNbVQbh+h-gPtaksYDqzaHKvhghzKmbtoeR695B8wi3u1cj
JuxQRiuRj9+FVncorppvPN0ZDphb6Na0vCzXJBZKeybs6X9q9Fr9KmG5gNtp4vhvGkj4Jt
NkPesevhjdKVoogi/wtf/SGzNgt5NrjXCd2jAxqlrrgg4q/8BF2vHdGjbKeENXjMKYe6CnVKQ7
Np1PdJ1KL+Xmxzgrfi/7trkprrPic16tYBdndRKs29SPtXcujKBnkJC1QbgsinZjgAweStxuDe
3WAipySnlhkTPM36zdAE011LQn2tSr0/UZyew0+j3KM0uwcSDu3JgKGD9ei0qjchGNrx/M= st
r@ubuntu-server
root@ubuntu-server:~/.ssh# vim
root@ubuntu-server:~/.ssh# vim ^C
root@ubuntu-server:~/.ssh# ^C
root@ubuntu-server:~/.ssh# vim .ssh/authorized_keys
root@ubuntu-server:~/.ssh# vim ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh# chmod 700 ~/.ssh/
root@ubuntu-server:~/.ssh# chmod 600 ~/.ssh/authorized_keys
root@ubuntu-server:~/.ssh#
```

```
stoamper@ubuntu-server:~$ ssh root@192.168.0.19
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-84-generic x86_64)

 * Documentation:  https://help.ubuntu.com
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System load: 0.0          Processes:           123
Usage of /: 55.3% of 6.82GB  Users logged in:      1
Memory usage: 24%          IPv4 address for enp0s3: 192.168.0.19
Swap usage:  0%
* Super-optimized for small spaces - read how we shrank the memory
  footprint of MicroK8s to make it the smallest full K8s around.

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the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@ubuntu-server:~# logout
Connection to 192.168.0.19 closed.
stoamper@ubuntu-server:~$
```