

Предмет	Управление и автоматизация БД
Курс	4
Семестр	2
Работа	Практическая работа №6
Группа	494
Фамилия	Зубкова
Имя	Валерия
Отчество	Геннадьевна

Отчет

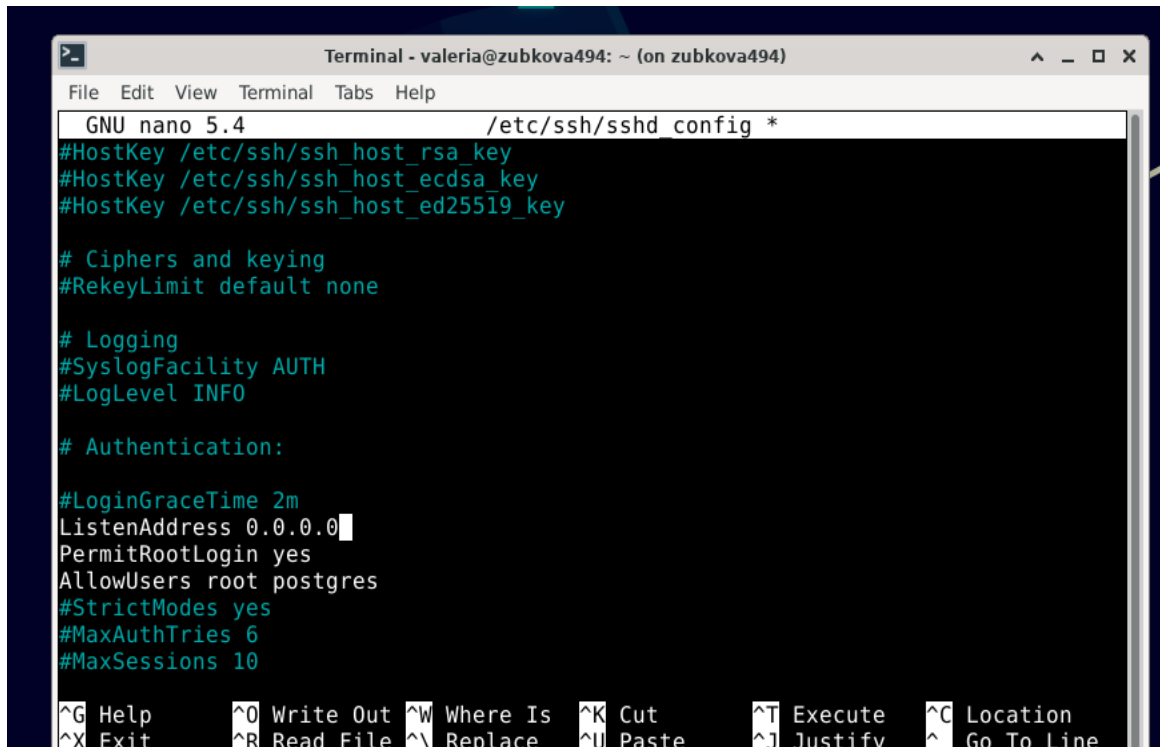
Установка openssh-server

```

Terminal - valeria@zubkova494: ~ (on zubkova494)
File Edit View Terminal Tabs Help
valeria@zubkova494:~$ apt-get install --no-install-recommends openssh-server
E: Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
valeria@zubkova494:~$ sudo su
[sudo] password for valeria:
root@zubkova494:/home/valeria# apt-get install --no-install-recommends openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  openssh-sftp-server runit-helper
Suggested packages:
  molly-guard monkeysphere ssh-askpass ufw
The following NEW packages will be installed:
  openssh-server openssh-sftp-server runit-helper
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 446 kB of archives.
After this operation, 1,765 kB of additional disk space will be used.
Do you want to continue? [Y/n] █

```

Настройка sshd_config



The screenshot shows a terminal window titled "Terminal - valeria@zubkova494: ~ (on zubkova494)". Inside, the GNU nano 5.4 editor is open, editing the file /etc/ssh/sshd_config. The configuration file content is as follows:

```
GNU nano 5.4 /etc/ssh/sshd_config *
#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO

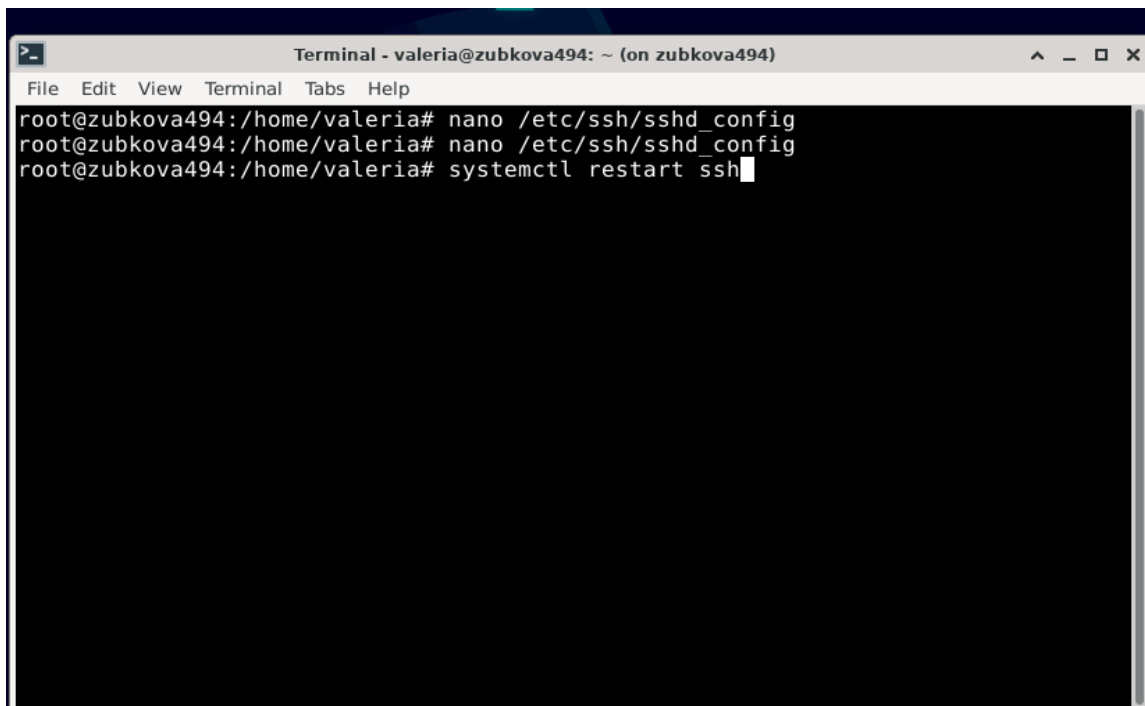
# Authentication:

#LoginGraceTime 2m
ListenAddress 0.0.0.0
PermitRootLogin yes
AllowUsers root postgres
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

At the bottom of the terminal, a help menu is visible with the following options:

```
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line
```

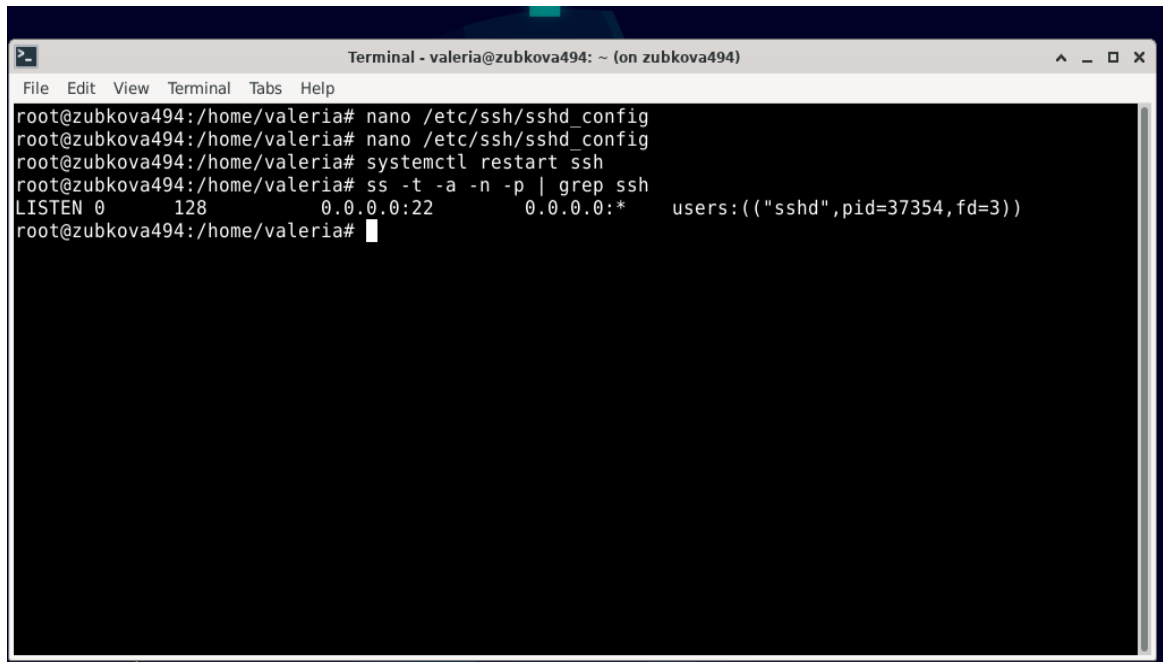
Перезапуск ssh



The screenshot shows a terminal window titled "Terminal - valeria@zubkova494: ~ (on zubkova494)". The user is logged in as root at the machine zubkova494. The following commands are entered and executed:

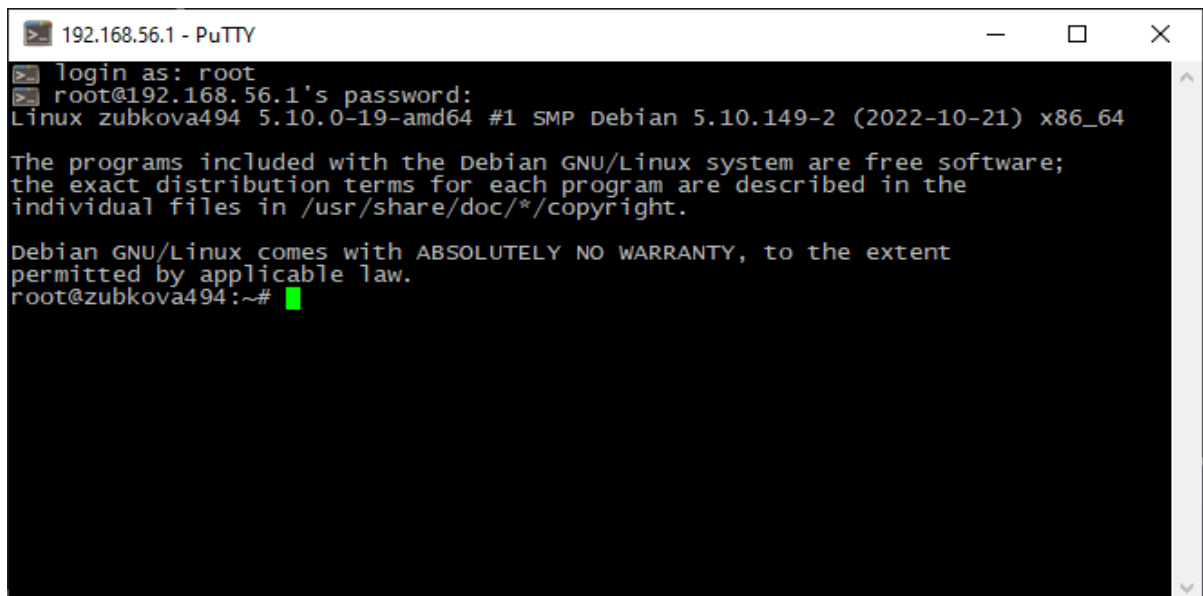
```
root@zubkova494:/home/valeria# nano /etc/ssh/sshd_config
root@zubkova494:/home/valeria# nano /etc/ssh/sshd_config
root@zubkova494:/home/valeria# systemctl restart ssh
```

Проверка службы по подключениям по протоколу IPv4



```
Terminal - valeria@zubkova494: ~ (on zubkova494)
File Edit View Terminal Tabs Help
root@zubkova494:/home/valeria# nano /etc/ssh/sshd_config
root@zubkova494:/home/valeria# nano /etc/ssh/sshd_config
root@zubkova494:/home/valeria# systemctl restart ssh
root@zubkova494:/home/valeria# ss -t -a -n -p | grep ssh
LISTEN 0      128          0.0.0.0:22      0.0.0.0:*      users:(("sshd",pid=37354,fd=3))
root@zubkova494:/home/valeria#
```

Подключение по ssh к серверу

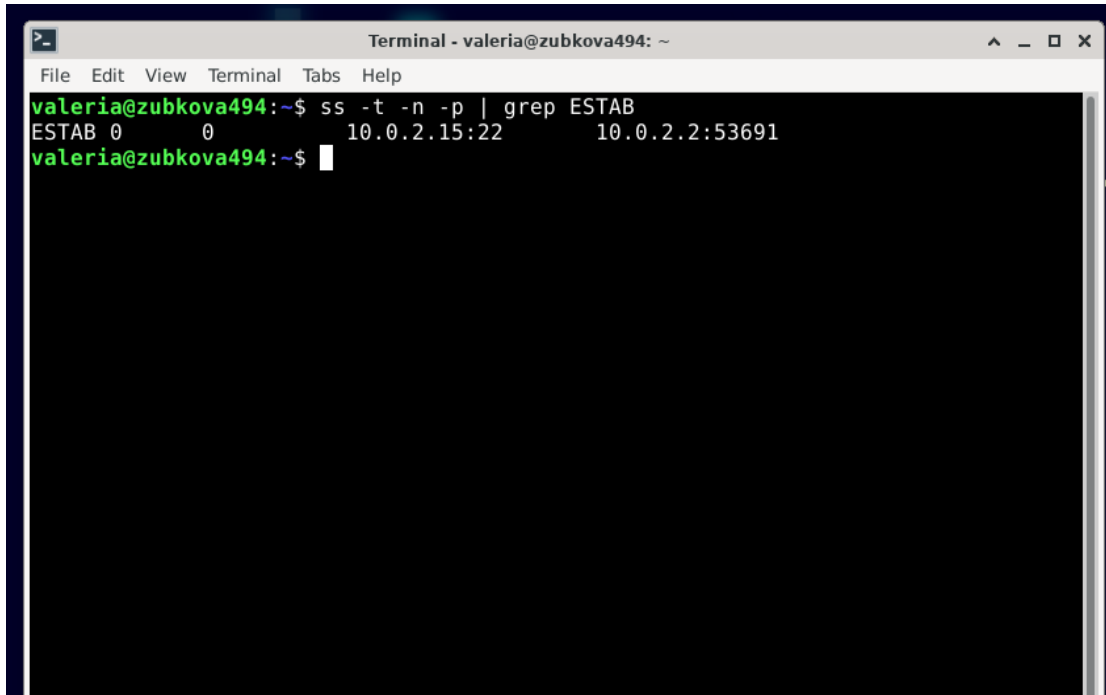


```
192.168.56.1 - PuTTY
login as: root
root@192.168.56.1's password:
Linux zubkova494 5.10.0-19-amd64 #1 SMP Debian 5.10.149-2 (2022-10-21) x86_64

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

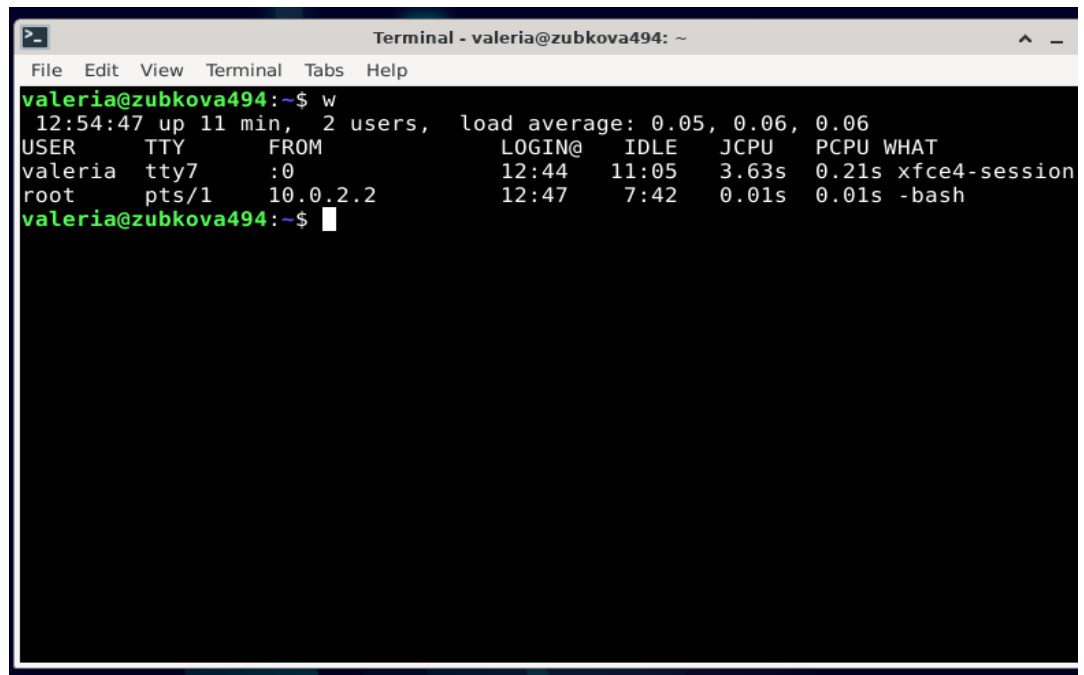
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@zubkova494:~#
```

Проверка подключенных соединений на сервере



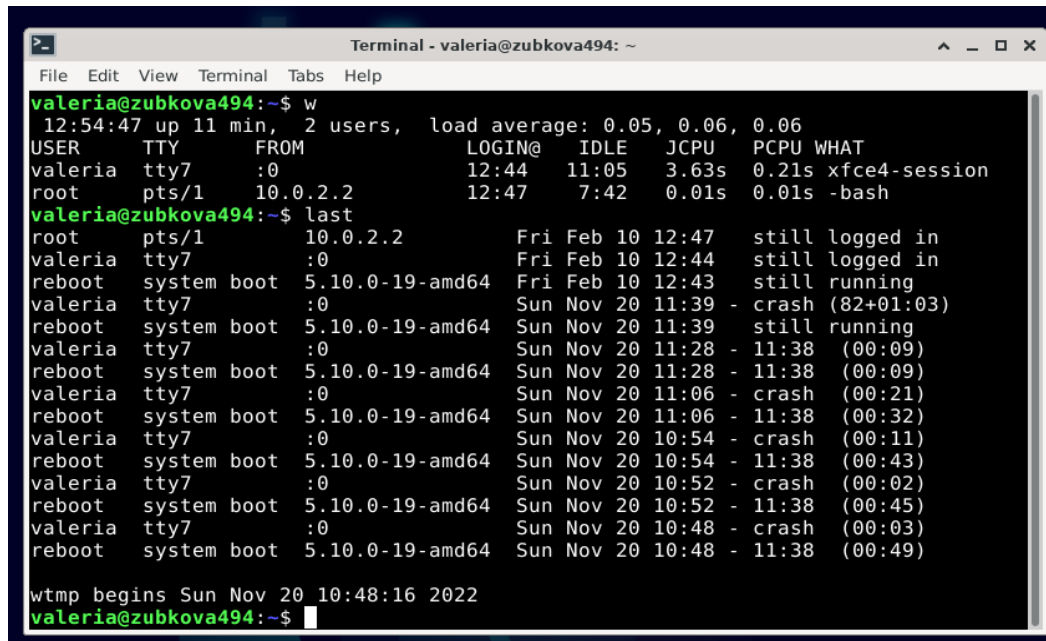
```
Terminal - valeria@zubkova494: ~
File Edit View Terminal Tabs Help
valeria@zubkova494:~$ ss -t -n -p | grep ESTAB
ESTAB 0      0      10.0.2.15:22      10.0.2.2:53691
valeria@zubkova494:~$
```

Просмотр деталей текущих открытых сессий



```
Terminal - valeria@zubkova494: ~
File Edit View Terminal Tabs Help
valeria@zubkova494:~$ w
12:54:47 up 11 min,  2 users,  load average: 0.05, 0.06, 0.06
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
valeria   tty7     :0               12:44    11:05  3.63s  0.21s  xfce4-session
root      pts/1    10.0.2.2         12:47    7:42   0.01s  0.01s  -bash
valeria@zubkova494:~$
```

Просмотр журнала входа в систему



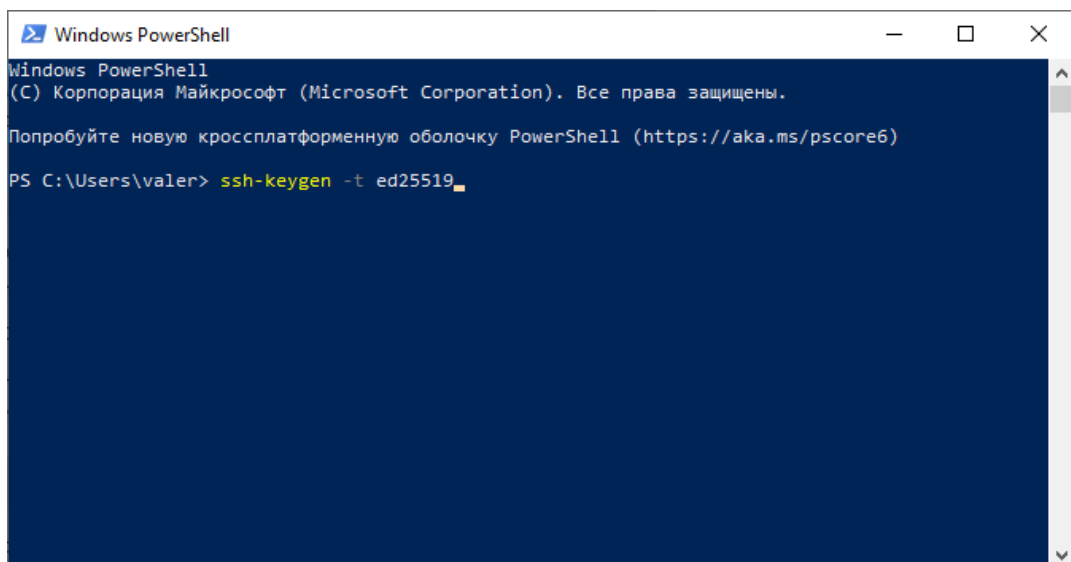
A terminal window titled "Terminal - valeria@zubkova494: ~" showing system status and login history. The user runs the 'w' command, displaying system load and active users. Then, the user runs the 'last' command, showing a list of login attempts and system boots.

```
valeria@zubkova494:~$ w
 12:54:47 up 11 min,  2 users,  load average: 0.05, 0.06, 0.06
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
valeria   tty7     :0               12:44    11:05   3.63s   0.21s  xfce4-session
root     pts/1    10.0.2.2         12:47    7:42    0.01s   0.01s  -bash

valeria@zubkova494:~$ last
root     pts/1    10.0.2.2         Fri Feb 10 12:47    still logged in
valeria   tty7     :0               Fri Feb 10 12:44    still logged in
reboot    system boot  5.10.0-19-amd64   Fri Feb 10 12:43    still running
valeria   tty7     :0               Sun Nov 20 11:39    - crash (82+01:03)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 11:39    still running
valeria   tty7     :0               Sun Nov 20 11:28    - 11:38 (00:09)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 11:28    - 11:38 (00:09)
valeria   tty7     :0               Sun Nov 20 11:06    - crash (00:21)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 11:06    - 11:38 (00:32)
valeria   tty7     :0               Sun Nov 20 10:54    - crash (00:11)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 10:54    - 11:38 (00:43)
valeria   tty7     :0               Sun Nov 20 10:52    - crash (00:02)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 10:52    - 11:38 (00:45)
valeria   tty7     :0               Sun Nov 20 10:48    - crash (00:03)
reboot    system boot  5.10.0-19-amd64   Sun Nov 20 10:48    - 11:38 (00:49)

wtmp begins Sun Nov 20 10:48:16 2022
valeria@zubkova494:~$
```

Создание приватного ключа



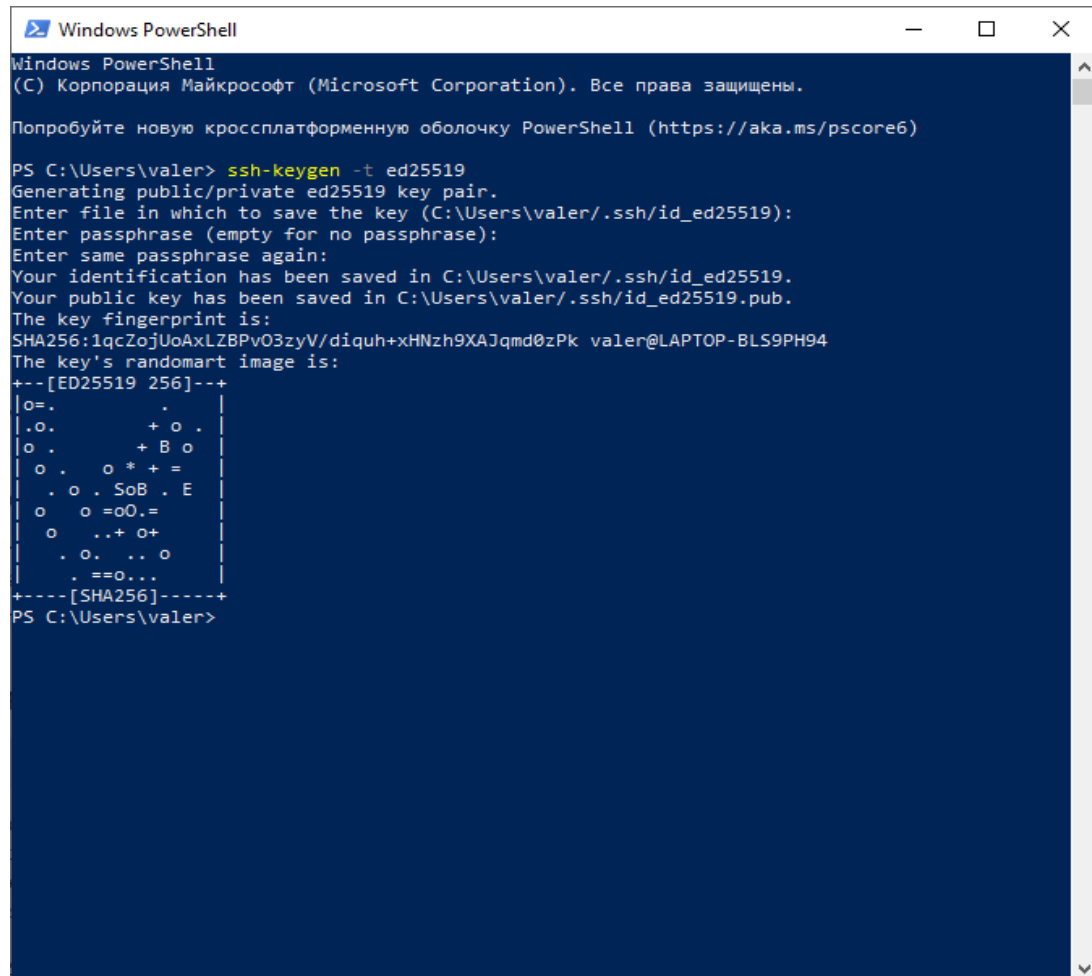
A Windows PowerShell window titled "Windows PowerShell" showing the execution of the 'ssh-keygen' command. The prompt is 'PS C:\Users\valer>' and the command entered is 'ssh-keygen -t ed25519'.

```
Windows PowerShell
(C) Корпорация Майкрософт (Microsoft Corporation). Все права защищены.

Попробуйте новую кроссплатформенную оболочку PowerShell (https://aka.ms/pscore6)

PS C:\Users\valer> ssh-keygen -t ed25519
```

Приватный ключ создан

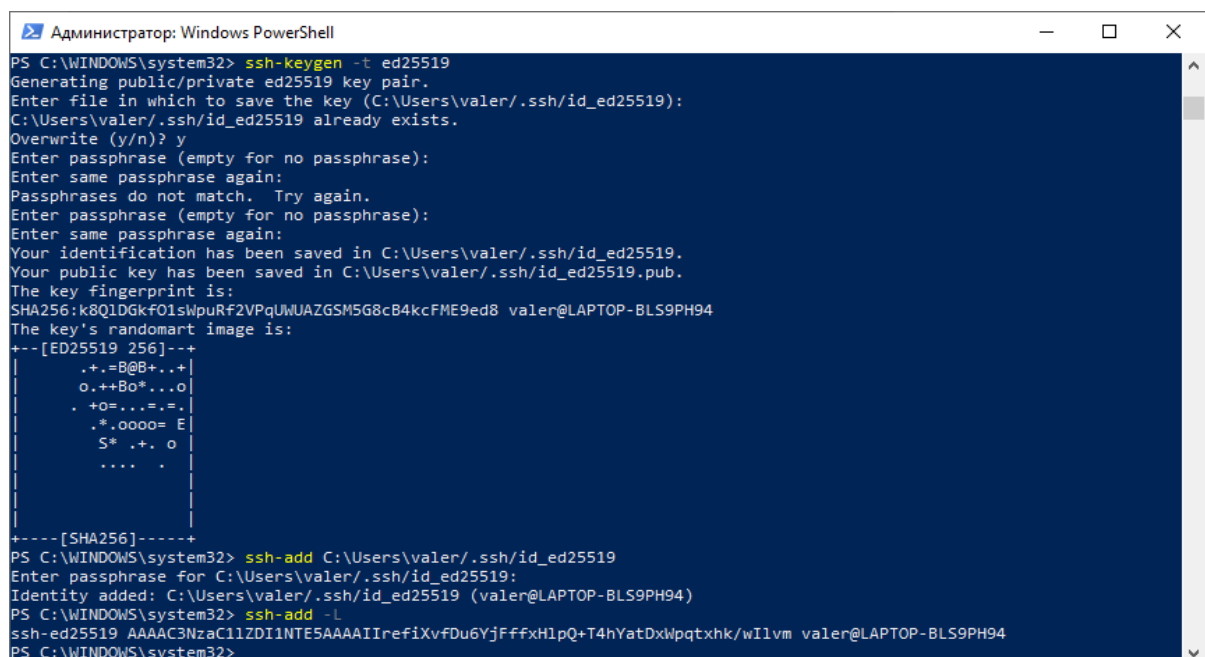


```
Windows PowerShell
(C) Корпорация Майкрософт (Microsoft Corporation). Все права защищены.

Попробуйте новую кроссплатформенную оболочку PowerShell (https://aka.ms/pscore6)

PS C:\Users\valer> ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (C:\Users\valer/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\valer/.ssh/id_ed25519.
Your public key has been saved in C:\Users\valer/.ssh/id_ed25519.pub.
The key fingerprint is:
SHA256:1qcZojUoAxLZBPvO3zyV/diquh+xHNzh9XAJqmd0zPk valer@LAPTOP-BLS9PH94
The key's randomart image is:
+--[ED25519 256]--+
|o=.      .      |
|.o.      + o .   |
|o .      + B o   |
| o .    o * + =   |
| . o . SoB . E    |
| o  o =oO.=       |
| o  ..+ O+        |
| . o.  .. o       |
| . =o...          |
+-----[SHA256]-----+
PS C:\Users\valer>
```

Генерация публичного и приватного ключа на локальной машине через PowerShell



```
Администратор: Windows PowerShell
PS C:\WINDOWS\system32> ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (C:\Users\valer/.ssh/id_ed25519):
C:\Users\valer/.ssh/id_ed25519 already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Passphrases do not match. Try again.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\valer/.ssh/id_ed25519.
Your public key has been saved in C:\Users\valer/.ssh/id_ed25519.pub.
The key fingerprint is:
SHA256:k8Q1DGkf01sWpuRf2VPqUWUAZGSM5G8cB4kcFME9ed8 valer@LAPTOP-BLS9PH94
The key's randomart image is:
+--[ED25519 256]--+
|.+=B@B+...+|
|o.++Bo*...o|
|. +o=...=. =|
|. *.oooo= E |
| S* .+. o   |
| .... .    |
|            |
+-----[SHA256]-----+
PS C:\WINDOWS\system32> ssh-add C:\Users\valer/.ssh/id_ed25519
Enter passphrase for C:\Users\valer/.ssh/id_ed25519:
Identity added: C:\Users\valer/.ssh/id_ed25519 (valer@LAPTOP-BLS9PH94)
PS C:\WINDOWS\system32> ssh-add -L
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIIrefiXvfDu6YjFffxHlpQ+T4hYatDxWpqtXhk/wI1vm valer@LAPTOP-BLS9PH94
PS C:\WINDOWS\system32>
```