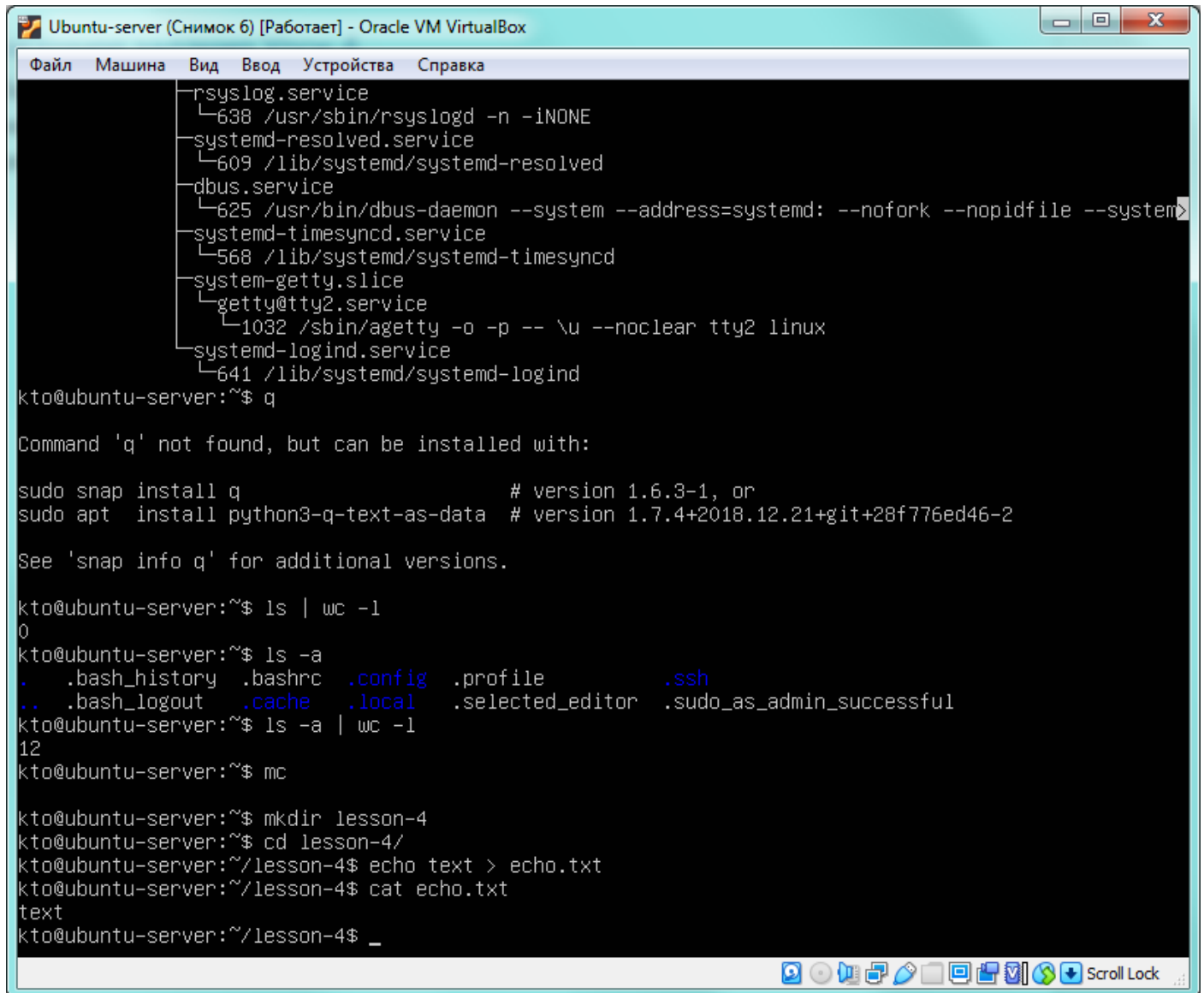


Домашнее задание Урок 4

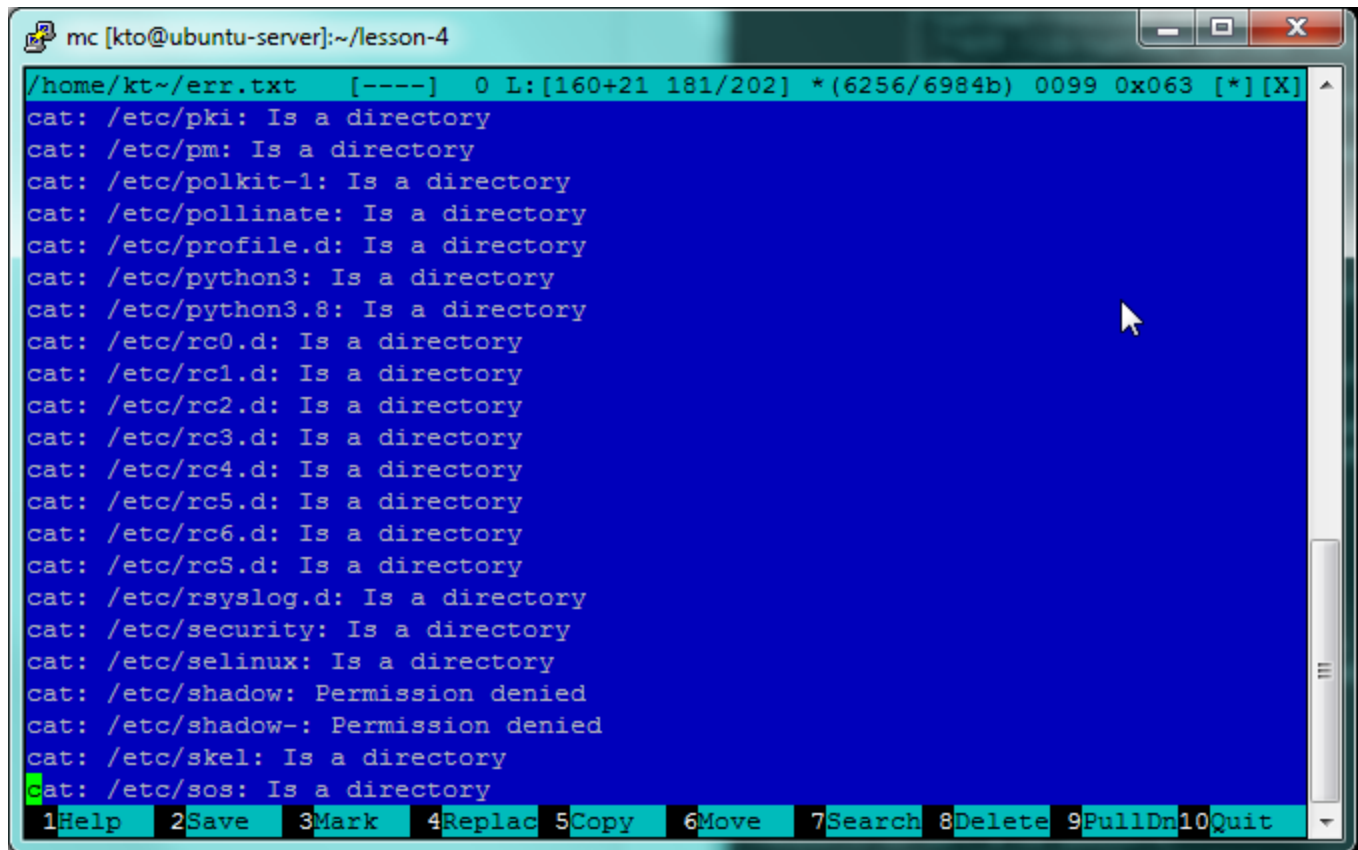
1. Потоки ввода/вывода. Создать файл, используя команду echo. Используя команду cat, прочитать содержимое каталога etc, ошибки перенаправить в отдельный файл:

Echo text > echo.txt

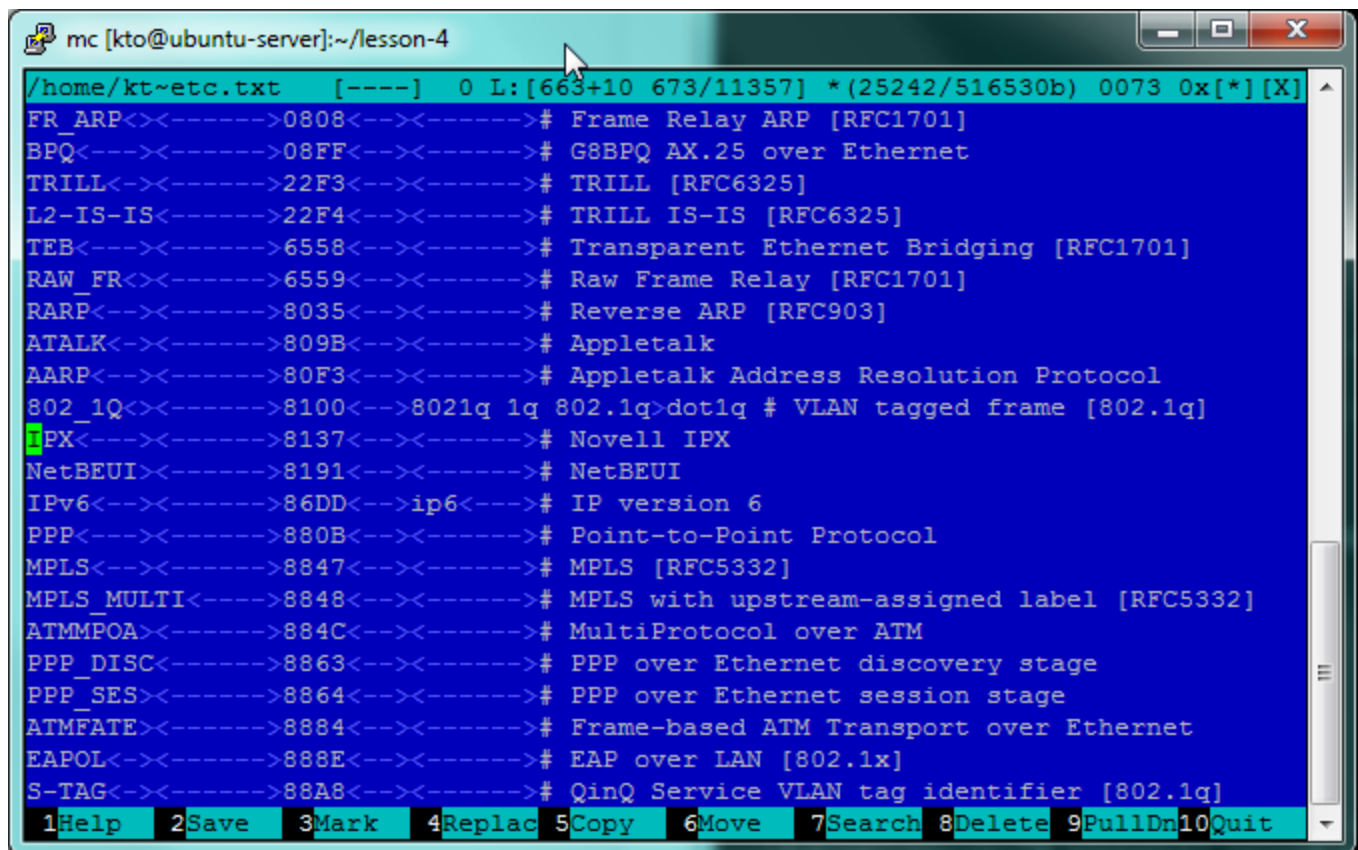


```
Ubuntu-server (Снимок 6) [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
-rsyslog.service
├─638 /usr/sbin/rsyslogd -n -iNONE
├─systemd-resolved.service
├─609 /lib/systemd/systemd-resolved
├─dbus.service
├─625 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --system
├─systemd-timesyncd.service
├─568 /lib/systemd/systemd-timesyncd
├─system-getty.slice
├─├─getty@tty2.service
├─├─1032 /sbin/agetty -o -p -- \u --noclear tty2 linux
├─systemd-logind.service
├─├─641 /lib/systemd/systemd-logind
kto@ubuntu-server:~$ q
Command 'q' not found, but can be installed with:
sudo snap install q # version 1.6.3-1, or
sudo apt install python3-q-text-as-data # version 1.7.4+2018.12.21+git+28f776ed46-2
See 'snap info q' for additional versions.
kto@ubuntu-server:~$ ls | wc -l
0
kto@ubuntu-server:~$ ls -a
.  .bash_history  .bashrc  .config  .profile  .ssh
.. .bash_logout  .cache   .local   .selected_editor  .sudo_as_admin_successful
kto@ubuntu-server:~$ ls -a | wc -l
12
kto@ubuntu-server:~$ mc
kto@ubuntu-server:~$ mkdir lesson-4
kto@ubuntu-server:~$ cd lesson-4/
kto@ubuntu-server:~/lesson-4$ echo text > echo.txt
kto@ubuntu-server:~/lesson-4$ cat echo.txt
text
kto@ubuntu-server:~/lesson-4$ _
```

cat /etc/* > etc.txt 2> err.txt



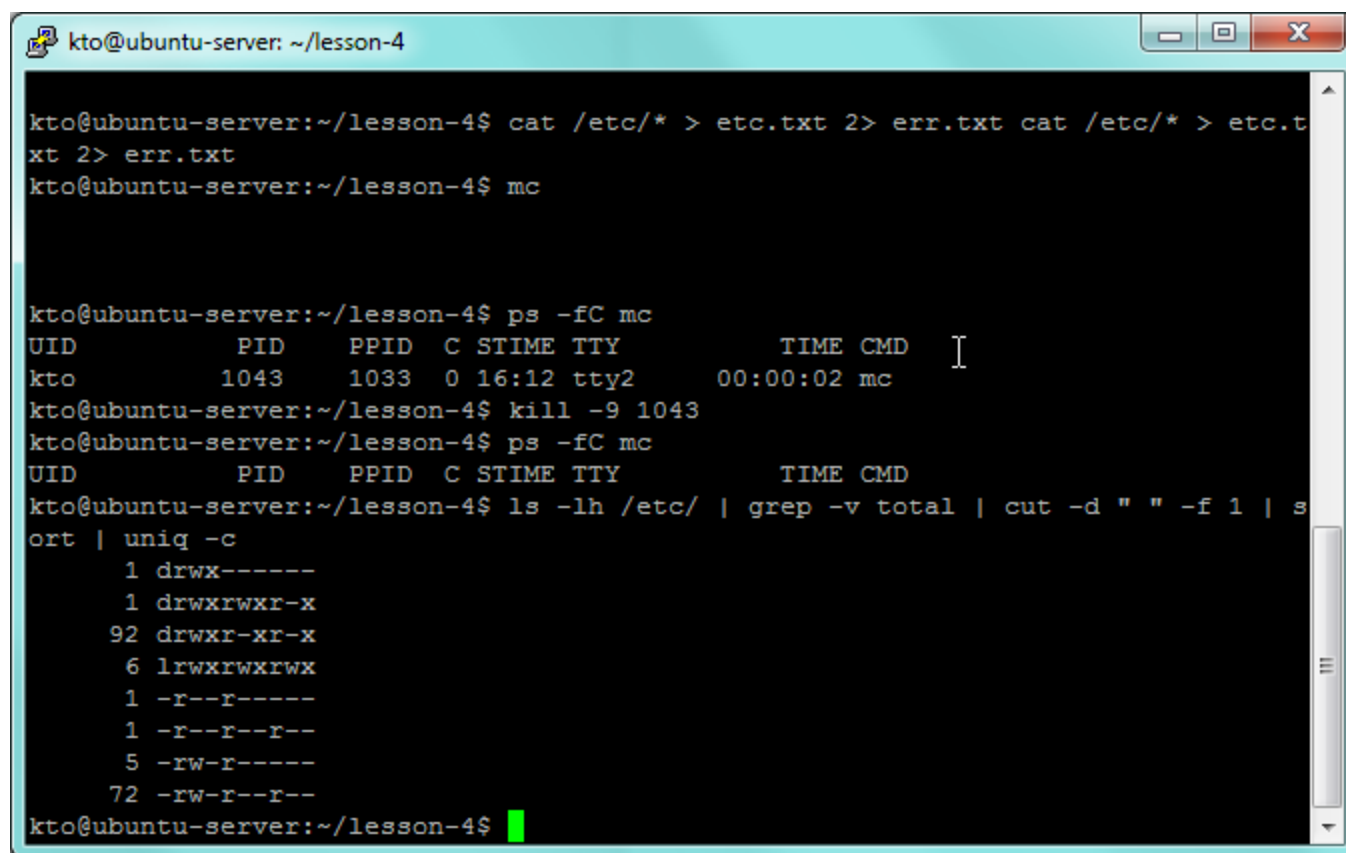
```
mc [kto@ubuntu-server]:~/lesson-4
/home/kt~/err.txt  [----]  0 L:[160+21 181/202] *(6256/6984b) 0099 0x063 [*][X]
cat: /etc/pki: Is a directory
cat: /etc/pm: Is a directory
cat: /etc/polkit-1: Is a directory
cat: /etc/pollinate: Is a directory
cat: /etc/profile.d: Is a directory
cat: /etc/python3: Is a directory
cat: /etc/python3.8: Is a directory
cat: /etc/rc0.d: Is a directory
cat: /etc/rc1.d: Is a directory
cat: /etc/rc2.d: Is a directory
cat: /etc/rc3.d: Is a directory
cat: /etc/rc4.d: Is a directory
cat: /etc/rc5.d: Is a directory
cat: /etc/rc6.d: Is a directory
cat: /etc/rcS.d: Is a directory
cat: /etc/rsyslog.d: Is a directory
cat: /etc/security: Is a directory
cat: /etc/selinux: Is a directory
cat: /etc/shadow: Permission denied
cat: /etc/shadow-: Permission denied
cat: /etc/skel: Is a directory
cat: /etc/sos: Is a directory
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn10Quit
```



```
mc [kto@ubuntu-server]:~/lesson-4
/home/kt~/etc.txt  [----]  0 L:[663+10 673/11357] *(25242/516530b) 0073 0x[*][X]
FR_ARP<-->0808<--># Frame Relay ARP [RFC1701]
BPQ<-->08FF<--># G8BPQ AX.25 over Ethernet
TRILL<-->22F3<--># TRILL [RFC6325]
L2-IS-IS<-->22F4<--># TRILL IS-IS [RFC6325]
TEB<-->6558<--># Transparent Ethernet Bridging [RFC1701]
RAW_FR<-->6559<--># Raw Frame Relay [RFC1701]
RARP<-->8035<--># Reverse ARP [RFC903]
ATALK<-->809B<--># Appletalk
AARP<-->80F3<--># Appletalk Address Resolution Protocol
802_1Q<-->8100<-->8021q 1q 802.1q dot1q # VLAN tagged frame [802.1q]
IPX<-->8137<--># Novell IPX
NetBEUI<-->8191<--># NetBEUI
IPv6<-->86DD<-->ip6<--># IP version 6
PPP<-->880B<--># Point-to-Point Protocol
MPLS<-->8847<--># MPLS [RFC5332]
MPLS_MULTI<-->8848<--># MPLS with upstream-assigned label [RFC5332]
ATMMPOA<-->884C<--># MultiProtocol over ATM
PPP_DISC<-->8863<--># PPP over Ethernet discovery stage
PPP_SES<-->8864<--># PPP over Ethernet session stage
ATMFATE<-->8884<--># Frame-based ATM Transport over Ethernet
EAPOL<-->888E<--># EAP over LAN [802.1x]
S-TAG<-->88A8<--># QinQ Service VLAN tag identifier [802.1q]
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn10Quit
```

2. Конвейер (pipeline). Использовать команду `cut` на вывод длинного списка каталога, чтобы отобразить только права доступа к файлам. Затем отправить в конвейере этот вывод на `sort` и `uniq`, чтобы отфильтровать все повторяющиеся строки.

```
ls -lh /etc/ | grep -v total | cut -d " " -f 1 | sort | uniq -c
```

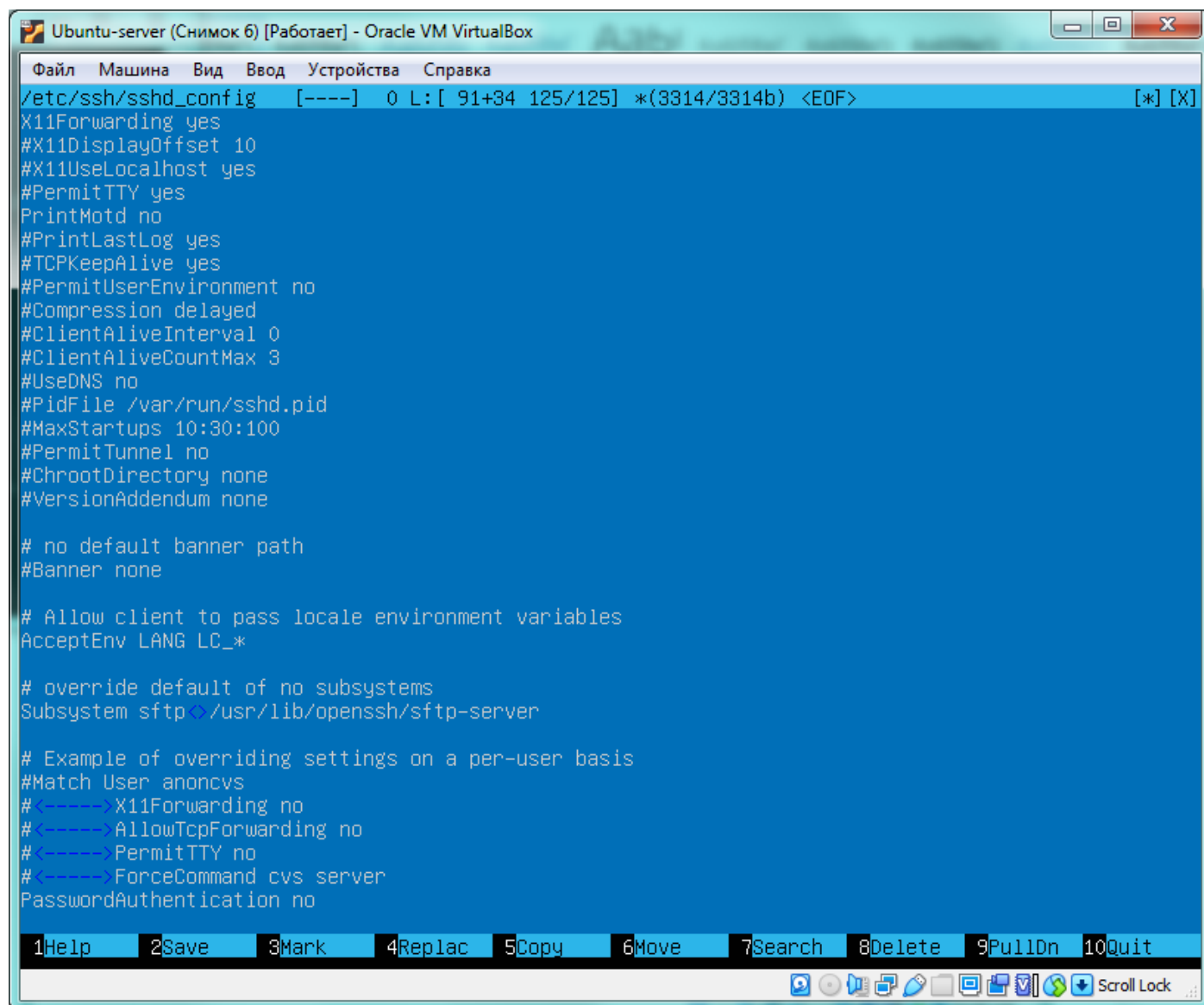


The screenshot shows a terminal window titled "kto@ubuntu-server: ~/lesson-4". The user has executed a series of commands to demonstrate a pipeline. First, they ran `cat /etc/* > etc.txt 2> err.txt` to create a file. Then, they ran `mc` in the background. They used `ps -fC mc` to find the process ID (PID 1043). Finally, they ran `kill -9 1043` to terminate the process. The main part of the screenshot shows the execution of the pipeline command: `ls -lh /etc/ | grep -v total | cut -d " " -f 1 | sort | uniq -c`. The output lists the permissions for various files in the `/etc/` directory, with counts for each unique permission string.

```
kto@ubuntu-server:~/lesson-4$ cat /etc/* > etc.txt 2> err.txt cat /etc/* > etc.t
xt 2> err.txt
kto@ubuntu-server:~/lesson-4$ mc

kto@ubuntu-server:~/lesson-4$ ps -fC mc
UID          PID    PPID  C  STIME TTY          TIME CMD
kto          1043     1033  0   16:12 tty2          00:00:02 mc
kto@ubuntu-server:~/lesson-4$ kill -9 1043
kto@ubuntu-server:~/lesson-4$ ps -fC mc
UID          PID    PPID  C  STIME TTY          TIME CMD
kto@ubuntu-server:~/lesson-4$ ls -lh /etc/ | grep -v total | cut -d " " -f 1 | s
ort | uniq -c
     1 drwx-----
     1 drwxrwxr-x
    92 drwxr-xr-x
     6 lrwxrwxrwx
     1 -r--r-----
     1 -r--r--r--
     5 -rw-r-----
    72 -rw-r--r--
kto@ubuntu-server:~/lesson-4$
```

3. Управление процессами. Изменить конфигурационный файл службы SSH: /etc/ssh/sshd_config, отключив аутентификацию по паролю PasswordAuthentication no. Выполните рестарт службы systemctl restart sshd (service sshd restart), верните аутентификацию по паролю, выполните reload службы systemctl reload sshd (service sshd reload). В чём различие между действиями restart и reload?



```
Ubuntu-server (Снимок 6) [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
/etc/ssh/sshd_config  [----]  0 L: [ 91+34 125/125]  *(3314/3314b)  <E0F>  [*] [X]
X11Forwarding yes
#X11DisplayOffset 10
#X11UseLocalhost yes
#PermitTTY yes
PrintMotd no
#PrintLastLog yes
#TCPKeepAlive yes
#PermitUserEnvironment no
#Compression delayed
#ClientAliveInterval 0
#ClientAliveCountMax 3
#UseDNS no
#PidFile /var/run/sshd.pid
#MaxStartups 10:30:100
#PermitTunnel no
#ChrootDirectory none
#VersionAddendum none

# no default banner path
#Banner none

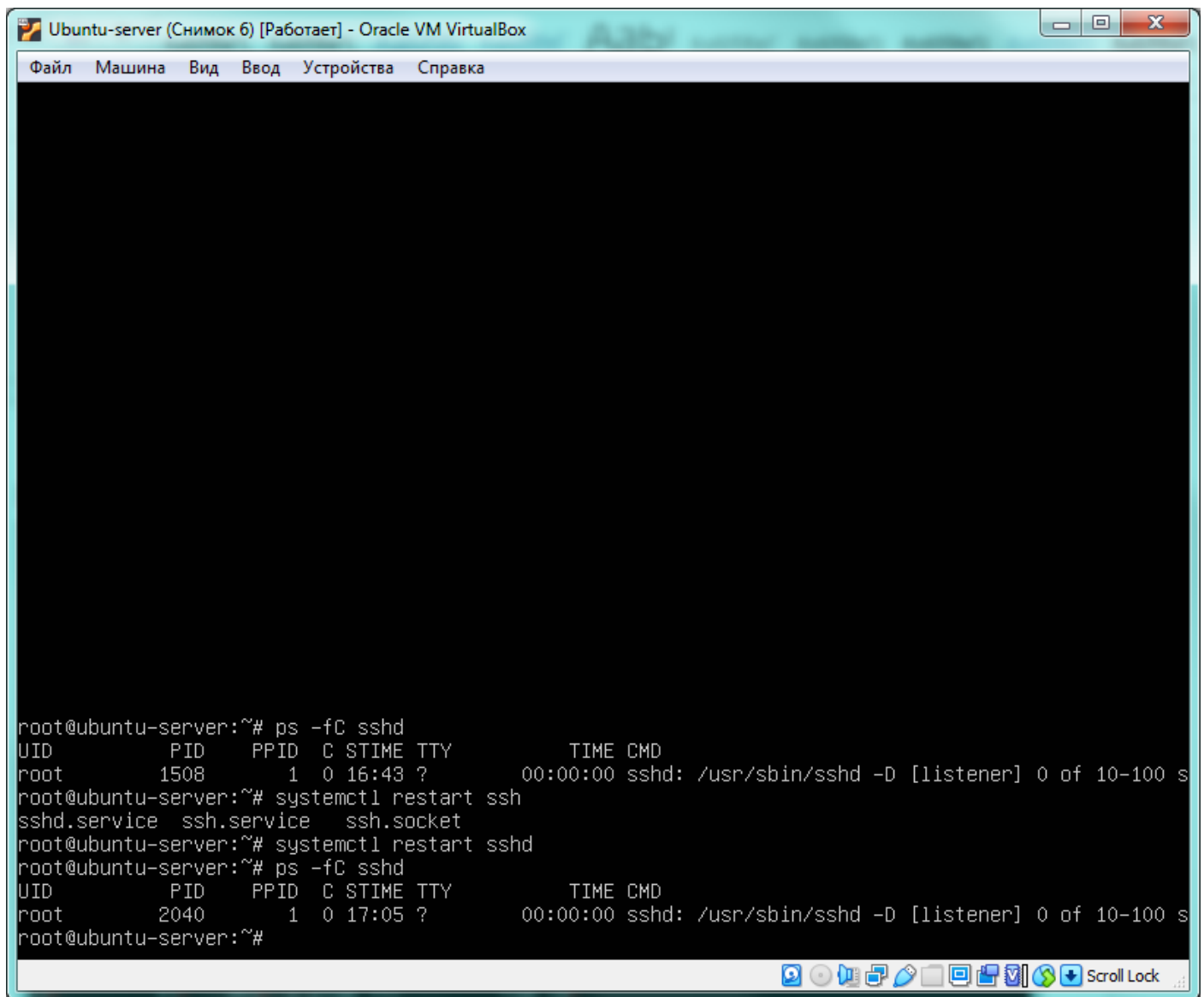
# Allow client to pass locale environment variables
AcceptEnv LANG LC_*

# override default of no subsystems
Subsystem sftp /usr/lib/openssh/sftp-server

# Example of overriding settings on a per-user basis
#Match User anoncvs
#<---->X11Forwarding no
#<---->AllowTcpForwarding no
#<---->PermitTTY no
#<---->ForceCommand cvs server
PasswordAuthentication no

1Help  2Save  3Mark  4Replac  5Copy  6Move  7Search  8Delete  9PullDn  10Quit
```

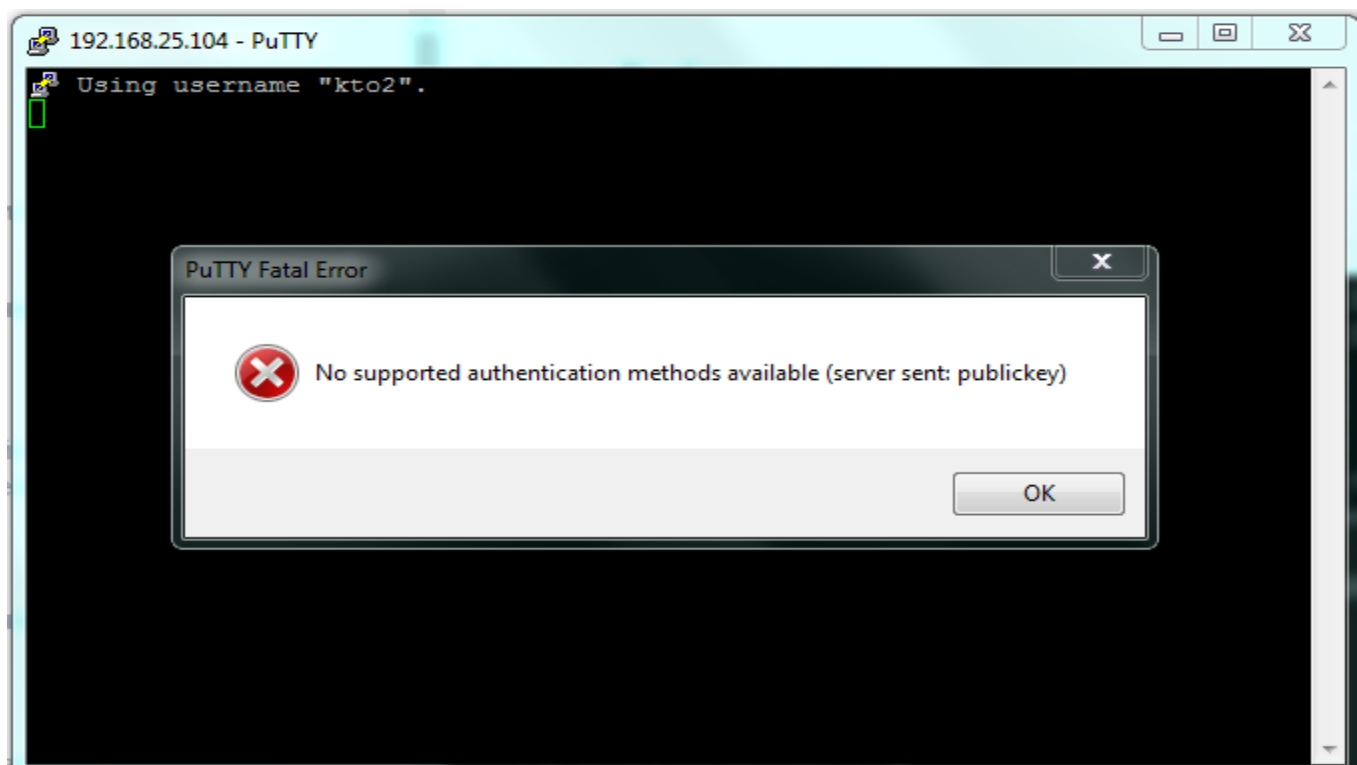
systemctl restart sshd



Ubuntu-server (Снимок 6) [Работает] - Oracle VM VirtualBox

Файл Машина Вид Ввод Устройства Справка

```
root@ubuntu-server:~# ps -fc sshd
UID      PID     PPID  C  STIME TTY          TIME CMD
root      1508         1  0  16:43 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root@ubuntu-server:~# systemctl restart ssh
sshd.service ssh.service ssh.socket
root@ubuntu-server:~# systemctl restart sshd
root@ubuntu-server:~# ps -fc sshd
UID      PID     PPID  C  STIME TTY          TIME CMD
root      2040         1  0  17:05 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root@ubuntu-server:~#
```



Ubuntu-server (Снимок 6) [Работает] - Oracle VM VirtualBox

Файл Машина Вид Ввод Устройства Справка

```
/etc/ssh/sshd_config [----] 26 L:[ 91+33 124/124] *(3314/3314b) <EOF> [*] [X]
X11Forwarding yes
#X11DisplayOffset 10
#X11UseLocalhost yes
#PermitTTY yes
PrintMotd no
#PrintLastLog yes
#TCPKeepAlive yes
#PermitUserEnvironment no
#Compression delayed
#ClientAliveInterval 0
#ClientAliveCountMax 3
#UseDNS no
#PidFile /var/run/sshd.pid
#MaxStartups 10:30:100
#PermitTunnel no
#ChrootDirectory none
#VersionAddendum none

# no default banner path
#Banner none

# Allow client to pass locale environment variables
AcceptEnv LANG LC_*

# override default of no subsystems
Subsystem sftp /usr/lib/openssh/sftp-server

# Example of overriding settings on a per-user basis
#Match User anoncvs
#<----->X11Forwarding no
#<----->AllowTcpForwarding no
#<----->PermitTTY no
#<----->ForceCommand cvs server
PasswordAuthentication yes
```

1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn 10Quit

Scroll Lock

systemctl reload sshd

```
root@ubuntu-server:~# ps -fc sshd
UID          PID    PPID  C STIME TTY          TIME CMD
root         1508      1   0 16:43 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root@ubuntu-server:~# systemctl restart ssh
sshd.service ssh.service  ssh.socket
root@ubuntu-server:~# systemctl restart sshd
root@ubuntu-server:~# ps -fc sshd
UID          PID    PPID  C STIME TTY          TIME CMD
root         2040      1   0 17:05 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root@ubuntu-server:~# systemctl reload sshd
root@ubuntu-server:~# ps -fc sshd
UID          PID    PPID  C STIME TTY          TIME CMD
root         2040      1   0 17:05 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root         2256    2040   0 17:08 ?           00:00:00 sshd: kto [priv]
kto          2336    2256   0 17:08 ?           00:00:00 sshd: kto@pts/3
root@ubuntu-server:~# ps -fc sshd
UID          PID    PPID  C STIME TTY          TIME CMD
root         2040      1   0 17:05 ?           00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root@ubuntu-server:~# _
```

```
* Support:      https://ubuntu.com/advantage

System information as of Wed 29 Sep 2021 05:16:53 PM UTC

System load:   0.08          Processes:            133
Usage of /:    51.2% of 8.79GB Users logged in:         1
Memory usage:  23%          IPv4 address for enp0s3: 192.168.25.104
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

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

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your
Internet connection or proxy settings

Last login: Sun Sep 26 13:26:03 2021 from 192.168.25.102
kto2@ubuntu-server:~$
```

Ps -fC sshd | grep D

```
root@ubuntu-server: ~
Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <s|l|o|t|m|a>'
for additional help text.

For more details see ps(1).
kto@ubuntu-server:~$ ps -fC ssh | grep D
UID          PID    PPID  C STIME TTY          TIME CMD
kto@ubuntu-server:~$ sudo ps -fC ssh | grep D
[sudo] password for kto:
UID          PID    PPID  C STIME TTY          TIME CMD
kto@ubuntu-server:~$ sudo su ps -fC ssh | grep D
su: invalid option -- 'C'
Try 'su --help' for more information.
kto@ubuntu-server:~$ sudo su -
root@ubuntu-server:~# ps -fC ssh | grep D
UID          PID    PPID  C STIME TTY          TIME CMD
root@ubuntu-server:~# ps -fC sshd | grep D
UID          PID    PPID  C STIME TTY          TIME CMD
root          821        1  0 16:09 ?          00:00:00 sshd: /usr/sbin/sshd -D [lis
tener] 0 of 10-100 startups
root@ubuntu-server:~#
```

В чём различие между действиями restart и reload? Первая перезапускает службу, вторая просит службу перечитать конфигурацию.

4. Сигналы процессам. Запустите mc. Используя ps, найдите PID процесса, завершите процесс, передав ему сигнал 9

```
kto@ubuntu-server: ~/lesson-4
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your
Internet connection or proxy settings

Last login: Wed Sep 29 17:12:12 2021 from 192.168.25.102
kto@ubuntu-server:~$ cd lesson-4/
kto@ubuntu-server:~/lesson-4$ cat /etc/* > etc.txt 2> err.txt
kto@ubuntu-server:~/lesson-4$ mc

kto@ubuntu-server:~/lesson-4$ cat /etc/* > etc.txt 2> err.txt cat /etc/* > etc.t
xt 2> err.txt
kto@ubuntu-server:~/lesson-4$ mc

kto@ubuntu-server:~/lesson-4$ ps -fC mc
UID          PID    PPID  C STIME TTY          TIME CMD
kto          1043    1033  0 16:12 tty2          00:00:02 mc
kto@ubuntu-server:~/lesson-4$ kill -9 1043
kto@ubuntu-server:~/lesson-4$ ps -fC mc
UID          PID    PPID  C STIME TTY          TIME CMD
kto@ubuntu-server:~/lesson-4$
```