Task 5.3

1. In Unix/Linux operating systems, processes can be in one of the following states:

   1) RUNNING & RUNNABLE

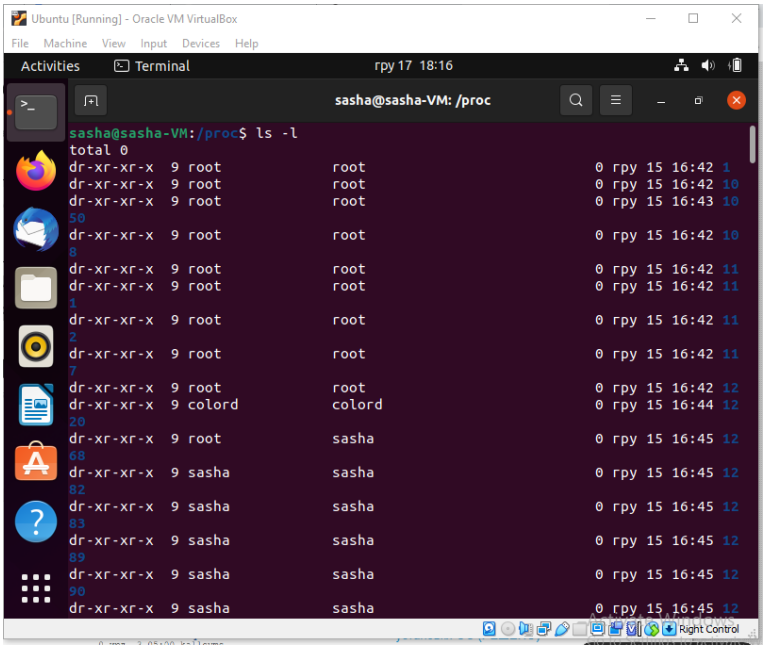
   2) INTERRRUPTABLE_SLEEP

   3) UNINTERRUPTABLE_SLEEP

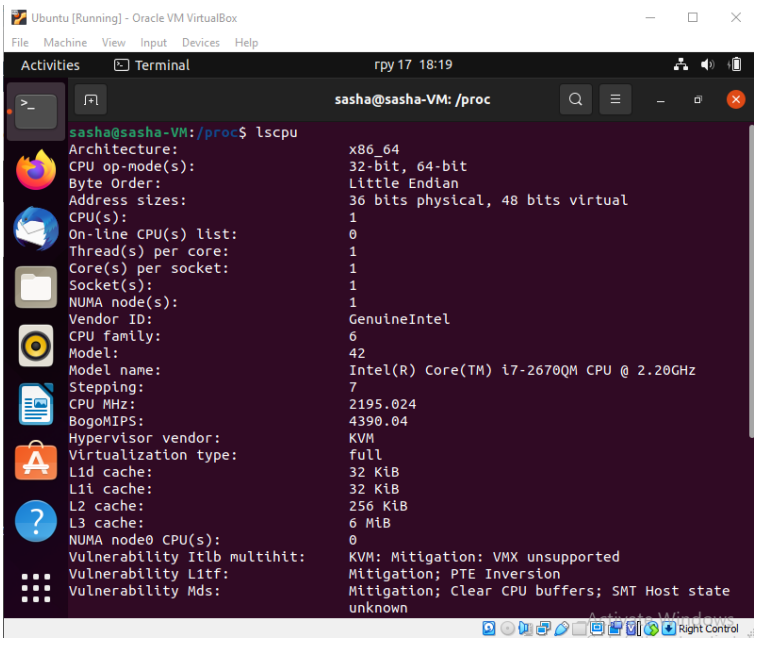
   4) STOPPED

   5) ZOMBIE

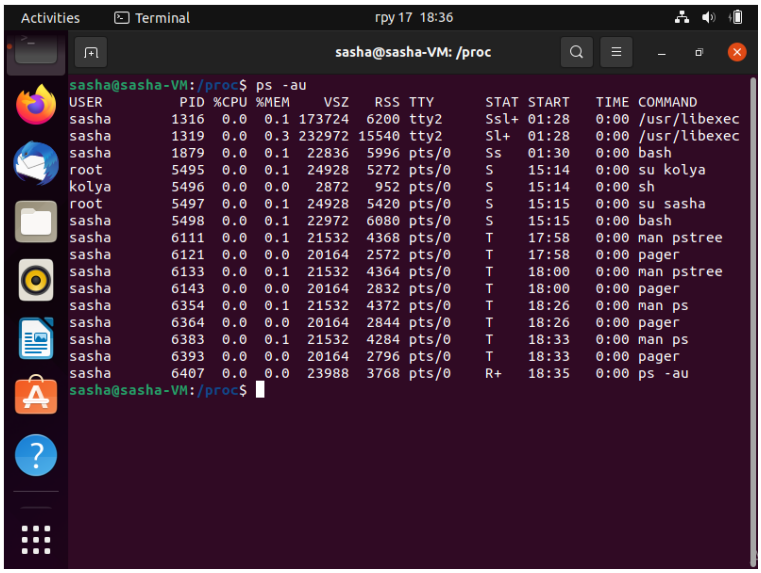
2. The pstree command displays running processes in a tree structure.
   Pstree –h
3. Proc - it is a virtual file system. Inside procfs contains data about processes and other system information. It appears in / proc and is mounted at boot time.



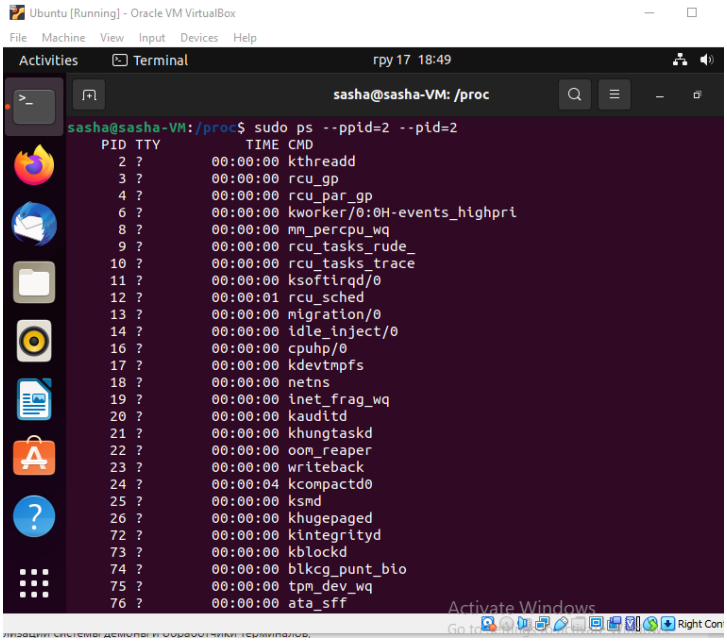
4. Lscpu



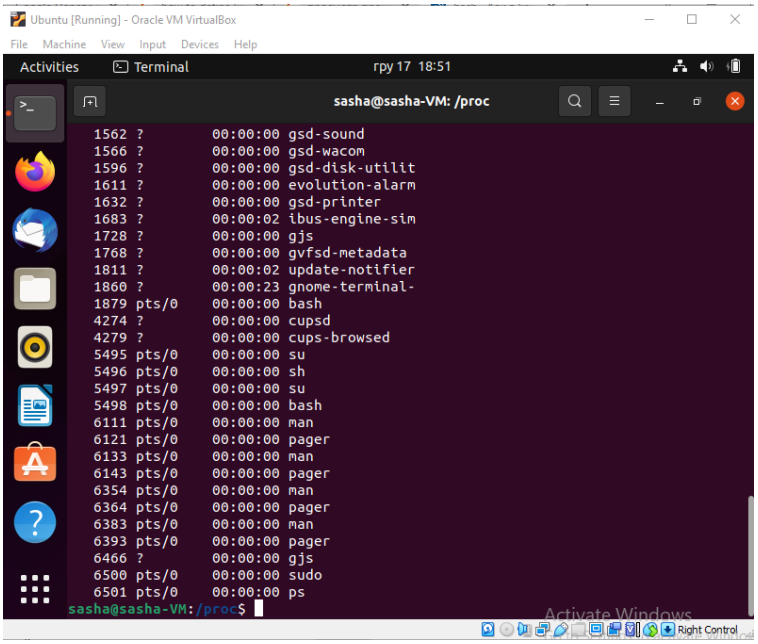
5. Ps –au



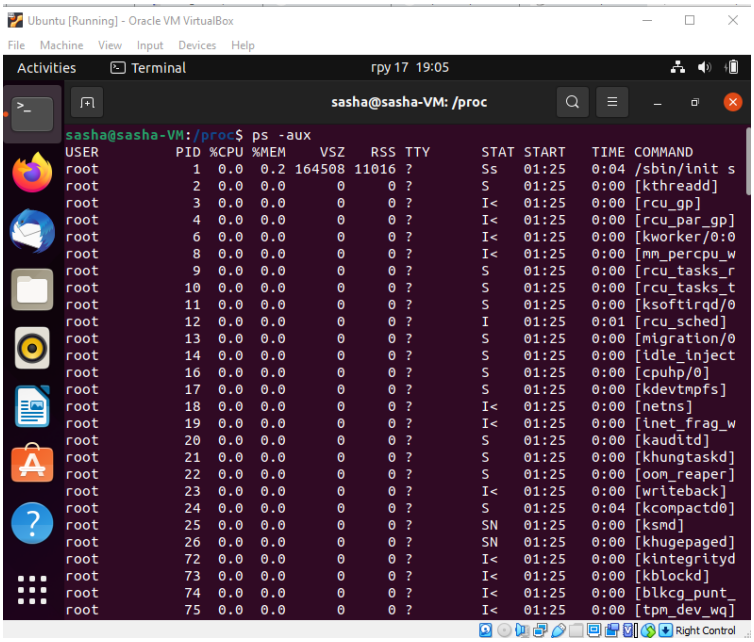
6. Sudo ps –ppid=2 –pid=2 kernel processes



Sudo –N ps –ppid=2 –pid=2 user processes



7. Ps –aux



USER Username of the process;

PID Process identifier;

% CPU The percentage of CPU time allocated to the process;

% MEM The percentage of real memory used by the process;

VSZ Virtual size of the process;

RSS Resident set size (number of memory pages);

TTY Control terminal identifier;

START Date when the process was started;

STAT Current status of the process:

R - in progress;

D - is waiting to be written to disk;

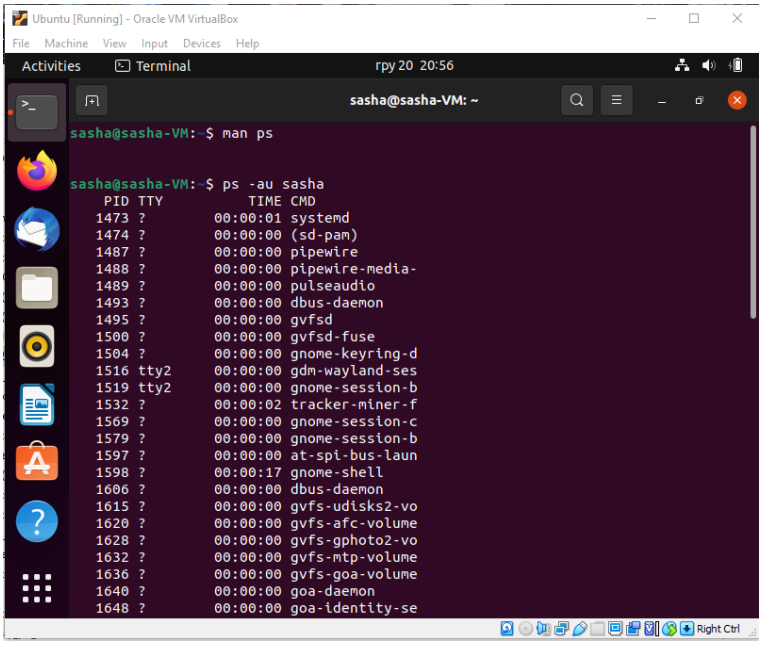
S - inactive (<20 s);

T - suspended;

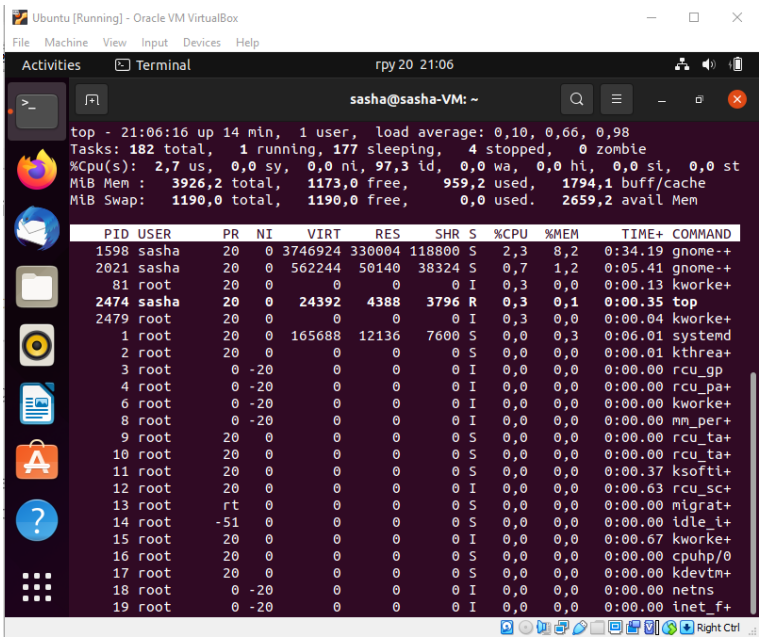
Z - zombie;

Additional flags:
W - the process is uploaded to disk;
<- the process has a higher priority;
N - the process has a lowered priority;
L - some pages are locked in RAM;
s - the process is the leader of the session;
TIME The amount of CPU time spent executing the process;
COMMAND Command name and arguments;

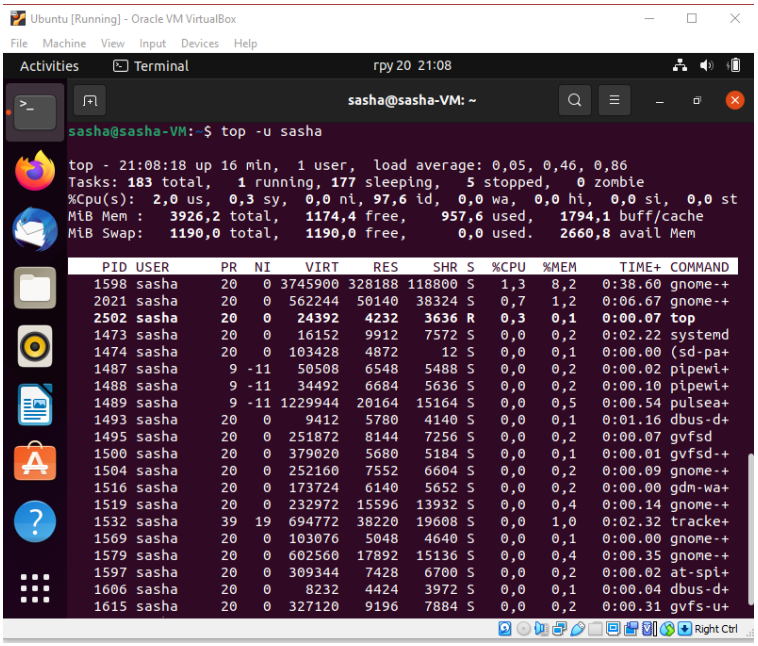
8.



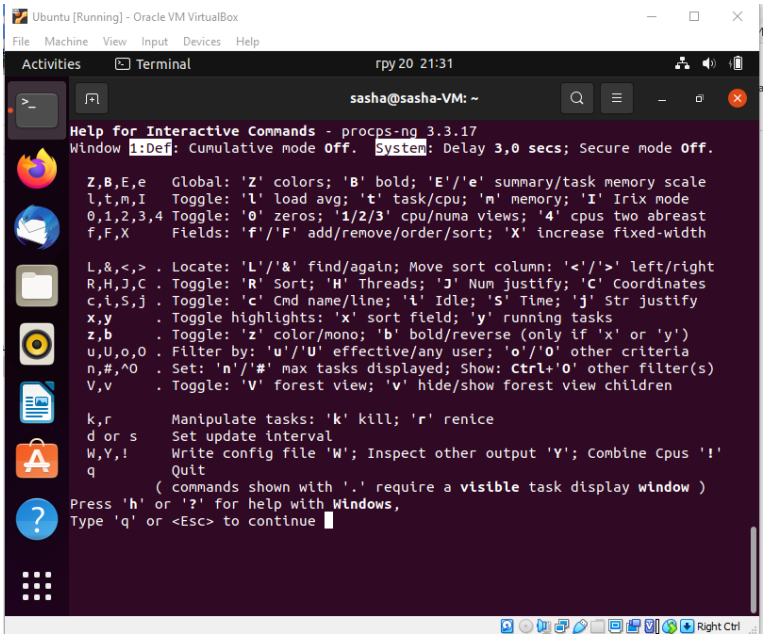
9. Pgrep, pstree, top, proc
10. The top command is used to display all the running and active real-time processes in an ordered list and updates it regularly. It displays CPU usage, Memory usage, Swap Memory, Cache Size, Buffer Size, Process PID, User, Commands, and much more.



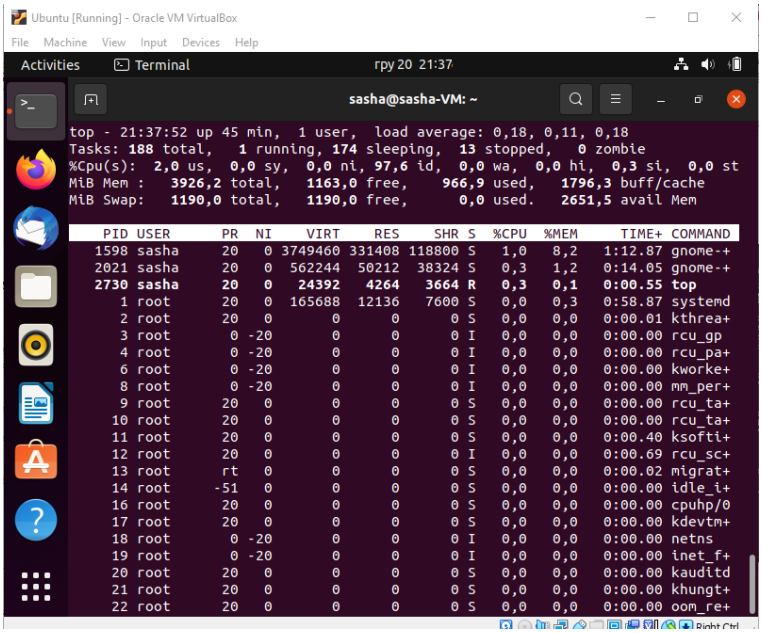
11. Top –u sasha



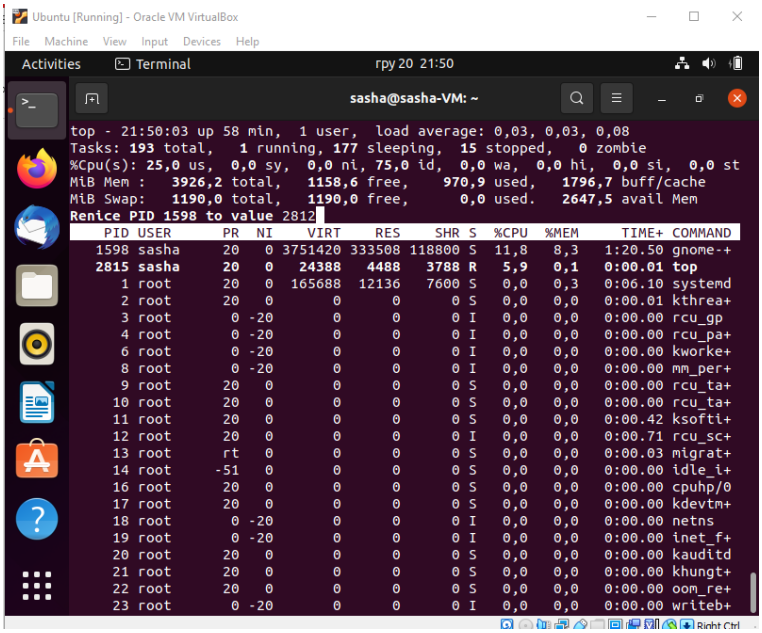
12. h – help
    ESC - update
    u – sort by user
    k – kill process



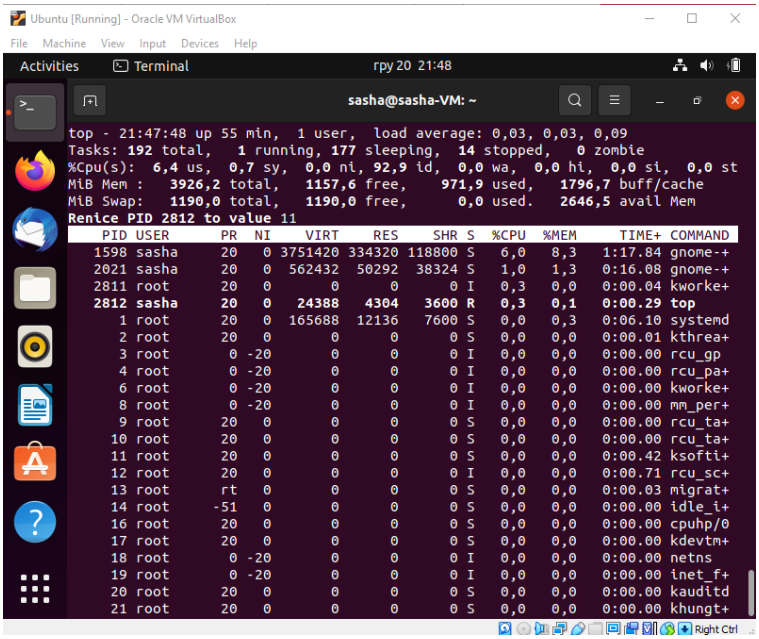
13. sort by processor time taken up

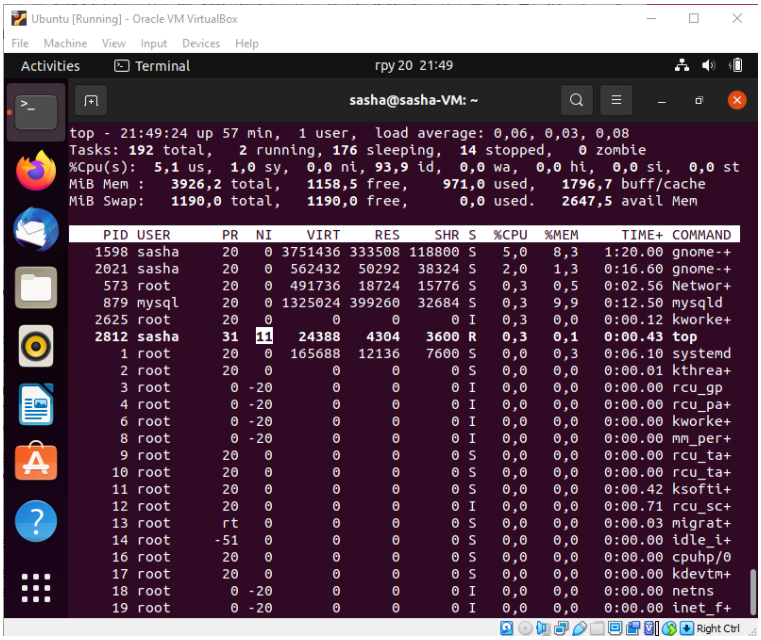


14. To change the priority of a running process, type the following:
    renice Priority -p ProcessID
    where Priority is a number in the range of -20 to 20
15. Run Top
    Press key r
    Introduce Pid 2812

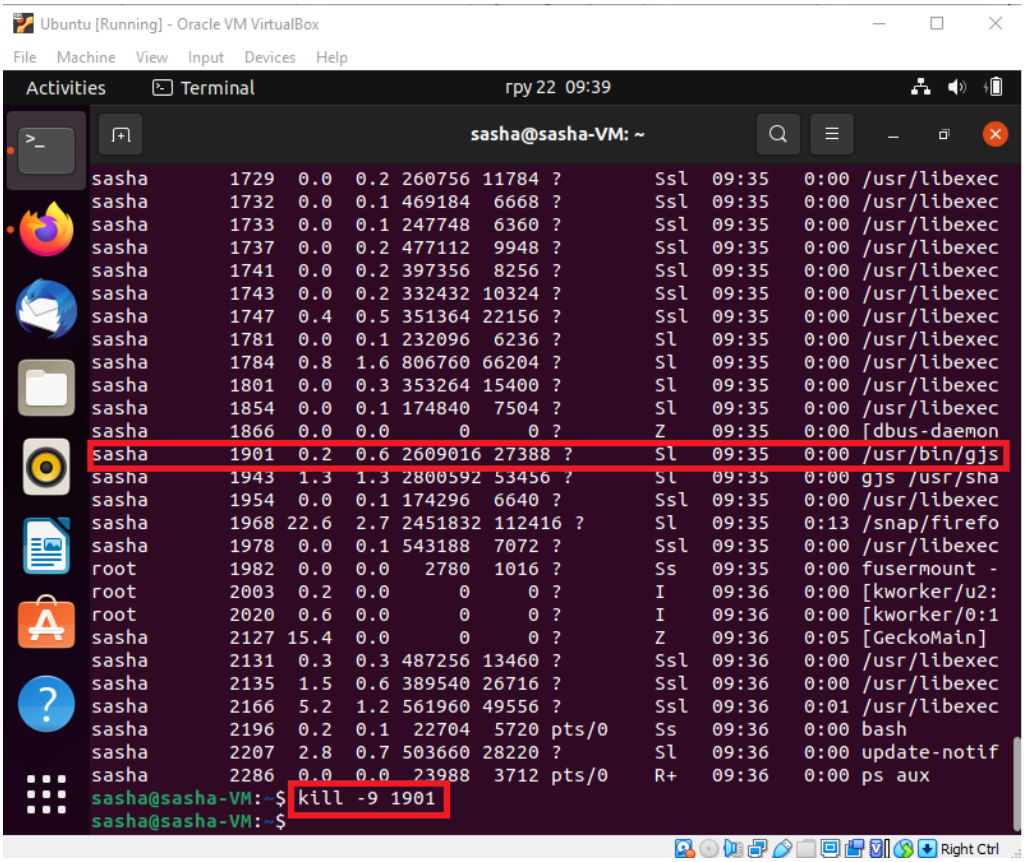


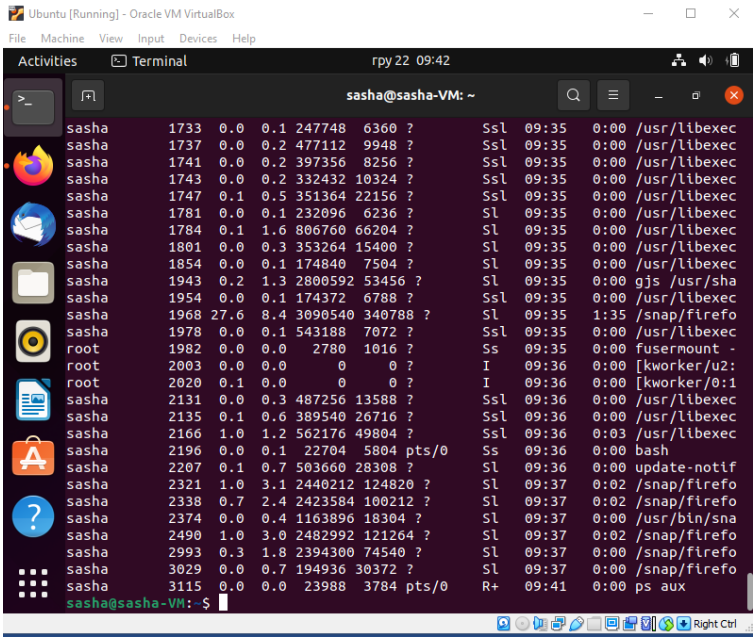
Introduce priority 11



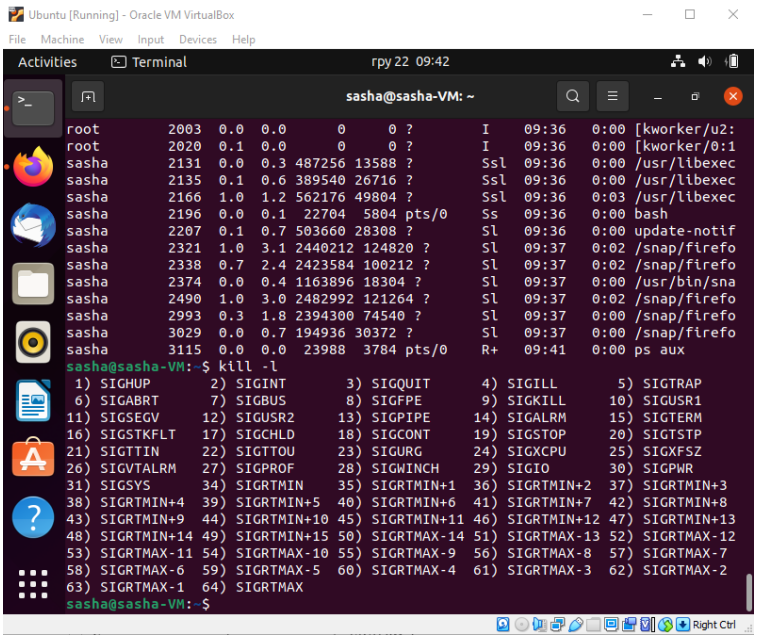


16. Kill -9 1901





View all signal:
Kill –l



Kill [OPTIONS] [PID]

The kill command sends a signal to the specified processes or process groups, causing them to act on the signal. If no signal is specified, the default is -15 (-TERM).

The most commonly used signals:

1 (HUP) - Reload the process.
9 (KILL) - Kill the process.
15 (TERM) - Kill the process as default.

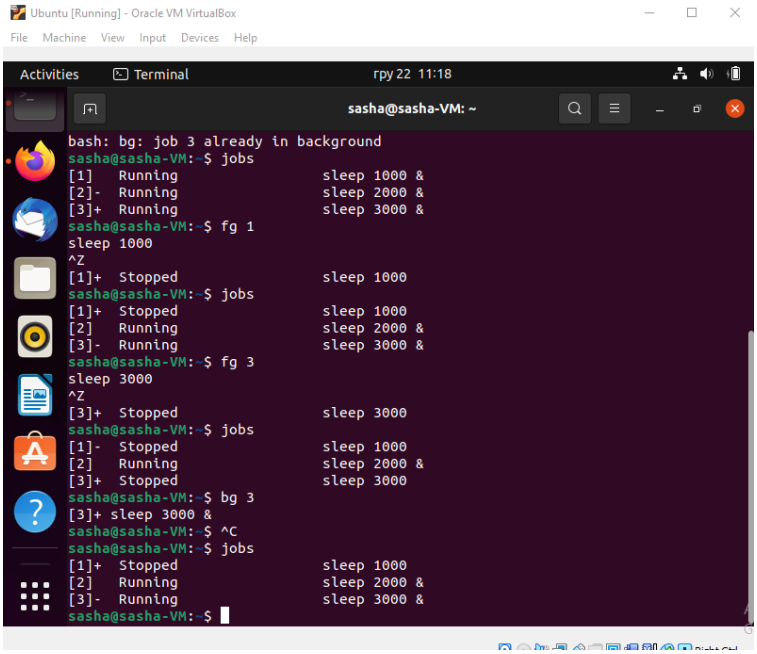
17. Jobs, fg, bg - background process management

jobs lists background processes

fg number brings the process to the front

bg number takes the process to the background

nohup command executes another command, and instructs the system to continue running it even if the session is disconnected.



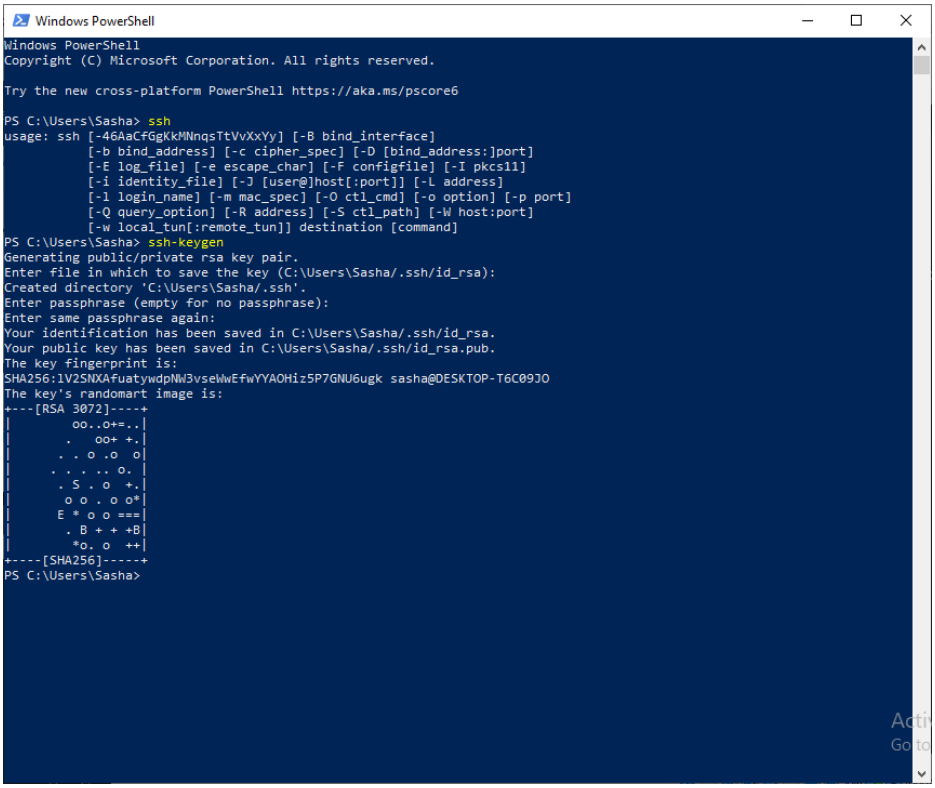
Part 2

1. ssh user @ host - connect to host as user

   ssh -p port user @ host - connect to host on port port as user

   ssh-copy-id user @ host - add your key to the host for user to enable login without password and by keys

   ssh-keygen – add new key



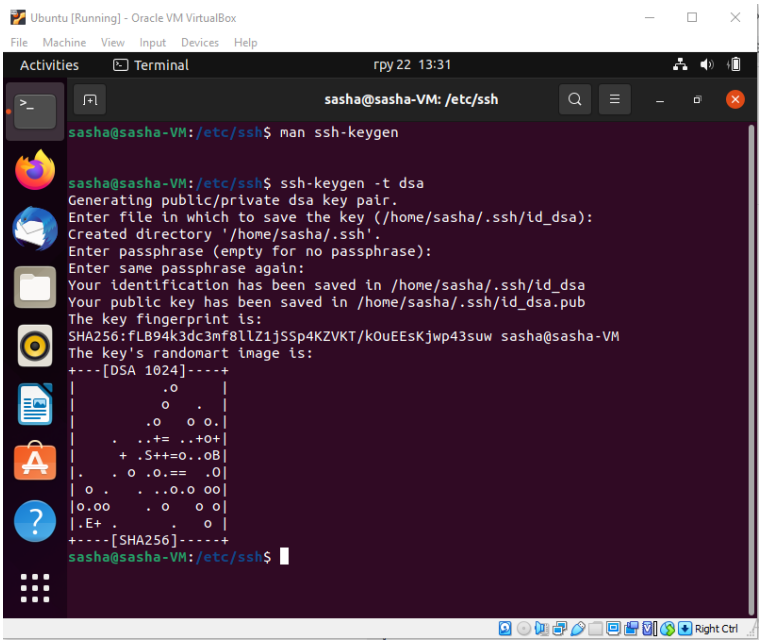
2. nano /etc/ssh/sshd_config- edit config file
   PermitEmptyPasswords no – disable blank passwords
   Port 3456 – change the default ssh ports
   PermitRootLogin no – disable root login via SSH
   ClientAliveInterval 300 – configure the idle timeout interval

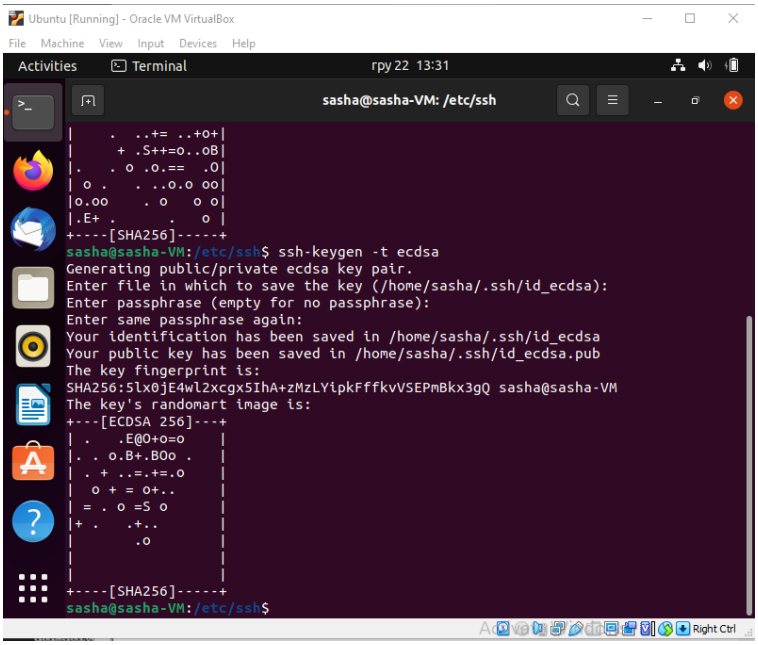
AllowUsers sasha – allow SSH access for selected user only

3. dsa

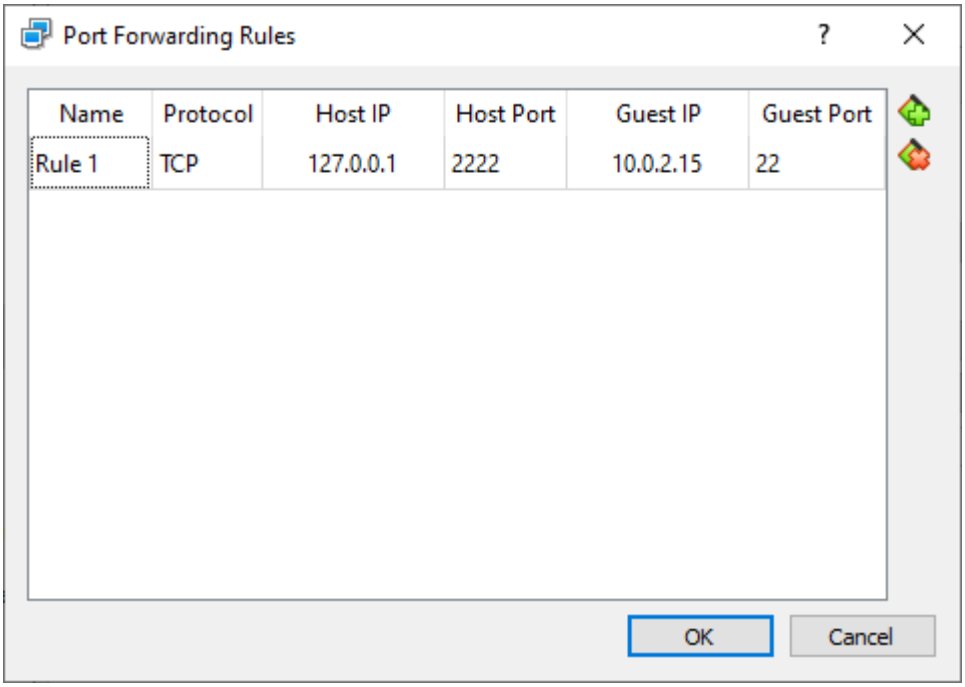
   ecdsa

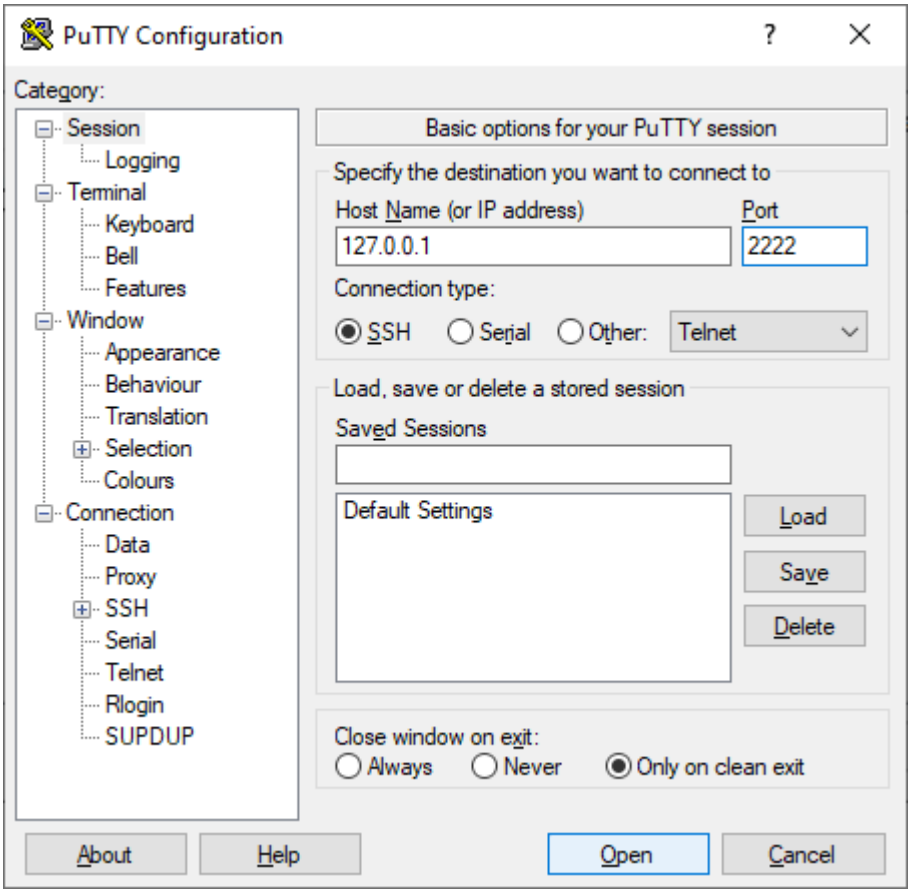
   ecdsa_sk
   ed25519
   ed25519_sk
   rsa





4. Configure ports on VM


Port Forwarding Rules
Name
Protocol
Host IP
Host Port
Guest IP
Guest Port
Rule 1
TCP
127.0.0.1
2222
10.0.2.15
22
OK
Cancel


PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
SSH
Serial
Telnet
Rlogin
SUPDUP
Basic options for your PuTTY session
Specify the destination you want to connect to
Host Name (or IP address)
Port
127.0.0.1
2222
Connection type:
SSH
Serial
Other:
Telnet
Load, save or delete a stored session
Saved Sessions
Default Settings
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Help
Open
Cancel