

Лабораторная работа №1

Курс “Операционные Системы”

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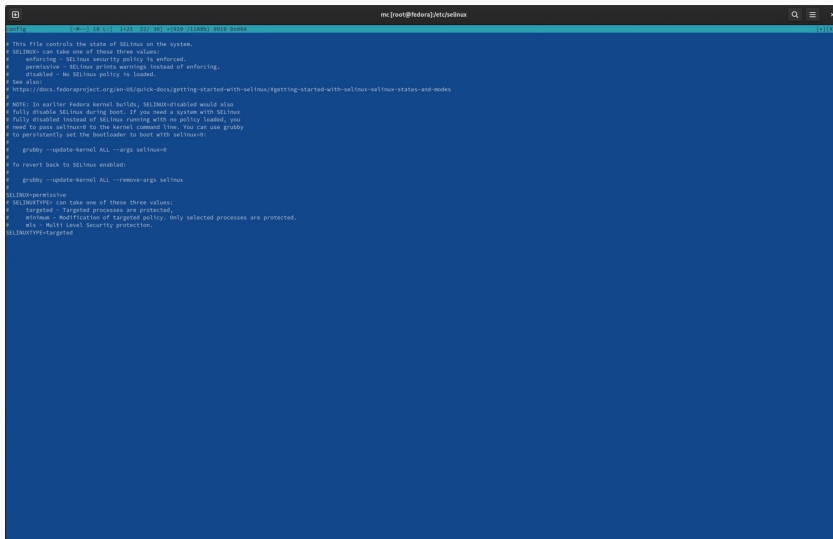
- Приобретение практических навыков установки операционной системы на виртуальную машину
- Настройка минимально необходимых для дальнейшей работы сервисов
- Создать отчет по ходу лабораторной работы и презентацию в Markdown

Выполнение лабораторной работы

Так как виртуальная машина и ОС Linux Fedora были у меня установлены намного раньше, весь процесс настройки VM не удалось запечатлить. Таким образом, приступаю сразу к настройке ОС с автоматического обновления с помощью команды `dnf install dnf-automatic` и запускаю таймер с помощью команды `systemctl enable --now dnf-automatic.timer`

```
[kvgibsher@fedora ~]$ sudo -i
[sudo] пароль для kvgibsher:
Попробуйте ещё раз.
[sudo] пароль для kvgibsher:
[root@fedora ~]# dnf install tmux mc
Последняя проверка окончания срока действия метаданных: 2:07:38 назад, Пн 13 фев 2023 13:03:51.
Пакет tmux-3.3a-1.fc37.x86_64 уже установлен.
Пакет mc-1:4.8.28-3.fc37.x86_64 уже установлен.
Зависимости разрешены.
Отсутствуют действия для выполнения.
Выполнено!
[root@fedora ~]# dnf install dnf-automatic
Последняя проверка окончания срока действия метаданных: 2:08:05 назад, Пн 13 фев 2023 13:03:51.
Пакет dnf-automatic-4.14.0-1.fc37.noarch уже установлен.
Зависимости разрешены.
Отсутствуют действия для выполнения.
Выполнено!
[root@fedora ~]# systemctl enable --now dnf-automatic.timer
[root@fedora ~]#
```

Отключение системы безопасности SELinux



```
mc [root@fedora] /etc/selinux
config [root@fedora] 18 L: 142L 22/ 30 41929 /11884 8010 8x80A
# This file controls the state of SELinux on the system.
# SELinux can take one of three values:
#   enforcing - SELinux security policy is enforced.
#   permissive - SELinux prints warnings instead of enforcing.
#   disabled - No SELinux policy is loaded.
# See also:
# https://docs.fedoraproject.org/en-US/quick-docs/getting-started-with-selinux/getting-started-with-selinux-states-and-modes
#
# NOTE: In earlier Fedora kernel builds, SELinuxdisabled would also
# fully disable SELinux during boot. If you need a system with SELinux
# fully disabled instead of SELinux running with no policy loaded, you
# need to pass selinux=0 to the kernel command line. You can use grubby
# to persistently set the bootloader to boot with selinux=0:
#
#   grubby --update-kernel ALL --args selinux=0
#
# To revert back to SELinux enabled:
#
#   grubby --update-kernel ALL --remove-args selinux
#
SELINUX=permissive
SELINUXTYPE=
SELINUXTYPE can take one of these three values:
#   targeted - Targeted processes are protected.
#   minimum - Modification of targeted policy. Only selected processes are protected.
#   mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

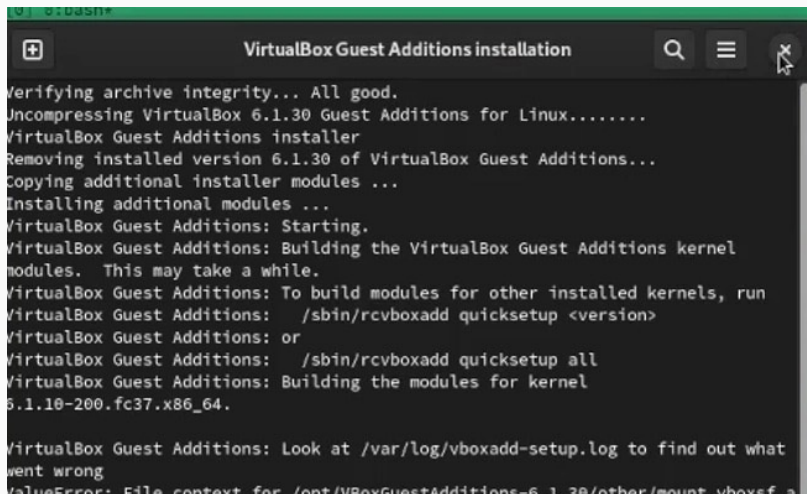
Установка драйверов для VirtualBox

```
kvgibsher@fedora:~ — tmux
[kvgibsher@fedora ~]$ sudo -i
[sudo] пароль для kvgibsher:
[root@fedora ~]# dnf -y install dkms
Последняя проверка окончания срока действия метаданных: 0:27:15 назад, Сб 11 фев 2023 14:35:01.
Зависимости разрешены.
=====
Пакет                Архитектура          Версия                Репозиторий          Размер
=====
Установка:
dkms                  noarch               3.0.10-1.fc37         updates              88 k
Установка зависимостей:
bison                 x86_64               3.8.2-3.fc37          fedora                1.0 M
elfutils-libelf-devel x86_64               0.188-3.fc37          updates              25 k
flex                  x86_64               2.6.4-11.fc37         fedora                313 k
kernel-core           x86_64               6.1.10-200.fc37       updates              49 M
kernel-devel          x86_64               6.1.10-200.fc37       updates              19 M
kernel-devel-matched x86_64               6.1.10-200.fc37       updates              120 k
m4                    x86_64               1.4.19-4.fc37         fedora                303 k
openssl-devel         x86_64               1:3.0.5-3.fc37        fedora                3.1 M
zlib-devel            x86_64               1.2.12-5.fc37         fedora                44 k
=====
Результат транзакции
=====
Установка 10 Пакетов

Объем загрузки: 72 M
Объем изменений: 166 M
Загрузка пакетов:
(1/10): m4-1.4.19-4.fc37.x86_64.rpm                183 kB/s | 303 kB    00:01
(2/10): flex-2.6.4-11.fc37.x86_64.rpm              181 kB/s | 313 kB    00:01
(3/10): zlib-devel-1.2.12-5.fc37.x86_64.rpm         534 kB/s | 44 kB     00:00
(4/10): bison-3.8.2-3.fc37.x86_64.rpm              485 kB/s | 1.0 MB    00:02
(5/10): dkms-3.0.10-1.fc37.noarch.rpm               338 kB/s | 88 kB     00:00
(6/10): elfutils-libelf-devel-0.188-3.fc37.x86_64.rpm 144 kB/s | 25 kB     00:00
(7/10): kernel-core-6.1.10-200.fc37.x86_64.rpm      22 MB/s | 49 MB      00:02
(8/10): kernel-devel-matched-6.1.10-200.fc37.x86_64.rpm 1.6 MB/s | 120 kB    00:00
(9/10): openssl-devel-3.0.5-3.fc37.x86_64.rpm       1.1 MB/s | 3.1 MB    00:02
(10/10): kernel-devel-6.1.10-200.fc37.x86_64.rpm    4.4 MB/s | 19 MB     00:04
```

Образ диска дополнений

В меню виртуальной машины подключаем образ диска дополнений гостевой ОС и наблюдаем за установкой драйверов.

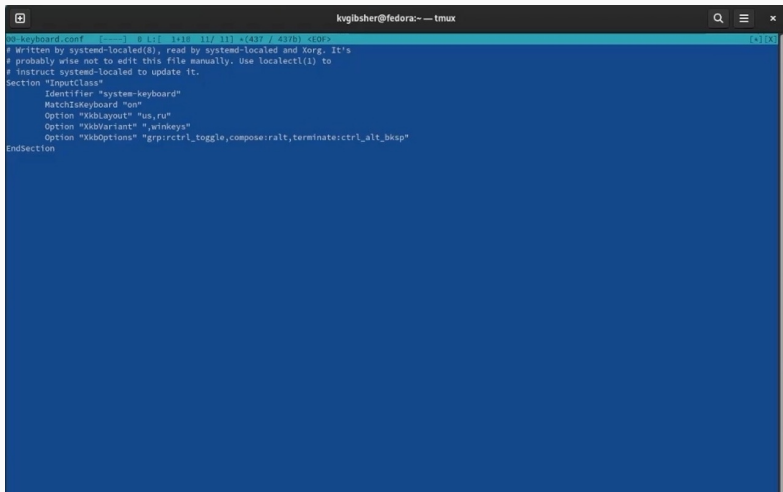


```
VirtualBox Guest Additions installation
Verifying archive integrity... All good.
Uncompressing VirtualBox 6.1.30 Guest Additions for Linux.....
VirtualBox Guest Additions installer
Removing installed version 6.1.30 of VirtualBox Guest Additions...
Copying additional installer modules ...
Installing additional modules ...
VirtualBox Guest Additions: Starting.
VirtualBox Guest Additions: Building the VirtualBox Guest Additions kernel
modules. This may take a while.
VirtualBox Guest Additions: To build modules for other installed kernels, run
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup <version>
VirtualBox Guest Additions: or
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup all
VirtualBox Guest Additions: Building the modules for kernel
6.1.10-200.fc37.x86_64.

VirtualBox Guest Additions: Look at /var/log/vboxadd-setup.log to find out what
went wrong
ValueError: File context for /opt/VRBoxGuestAdditions-6.1.30/other/mount_vboxsf a
```


Настройка раскладки

Редактирование конфигурационного файла `/etc/X11/xorg.conf.d/00-keyboard.conf` для настройки раскладки.



```
kvglbsher@fedora:~ — tmux
00-keyboard.conf [-----] 8 L: [ 1+18 11/ 11] *(437 / 437b) <EOF>
# Written by systemd-locale(8), read by systemd-locale and Xorg. It's
# probably wise not to edit this file manually. Use localectl(1) to
# instruct systemd-locale to update it.
Section "InputClass"
    Identifier "system-keyboard"
    MatchIsKeyboard "on"
    Option "XkbLayout" "us,ru"
    Option "XkbVariant" ",winkeys"
    Option "XkbOptions" "grp:rctrl_toggle,compose:ralt,terminate:ctrl_alt_bksp"
EndSection
```

Так как pandoc был установлен у меня ранее на скриншоте показано его наличие в моей ОС.

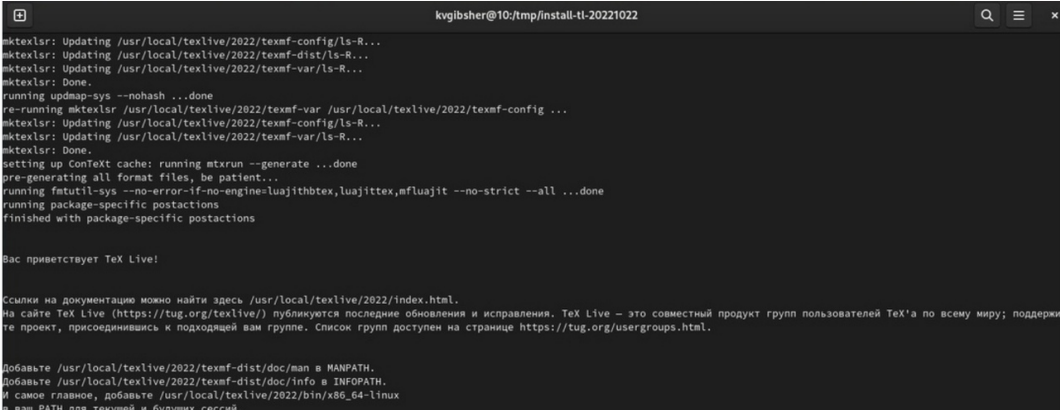
Имя	Размер	Время правки
./	-ВЕРХ-	фев 9 21:21
./cache	396	фев 13 13:39
./config	460	фев 13 14:34
./git	118	фев 13 12:58
./local	32	фев 13 13:39
./mozilla	48	фев 9 21:44
./ssh	84	фев 13 14:46
pandoc-2.19.2	13	фев 9 21:21
./work	10	фев 13 14:32
/Видео	0	фев 9 21:21
/Документы	0	фев 9 21:21
/Загрузки	194	фев 12 14:17
/Изображения	0	фев 9 21:21
/Музыка	0	фев 9 21:21
/Общедоступные	0	фев 9 21:21
/Рабочий стол	0	фев 9 21:21
/Шаблоны	0	фев 9 21:21
.bash_history	4399	фев 13 15:25
.bash_logout	18	сен 27 17:25
.bash_profile	141	сен 27 17:25
.bashrc	492	сен 27 17:25
.gitconfig	245	фев 13 14:34
.lessht	20	фев 13 12:59
.vboxclient-clipboard.pid	5	фев 13 15:39
.vboxclient-display-svga-x11.pid	5	фев 13 15:39
.vboxclient-draganddrop.pid	5	фев 13 15:39
.vboxclient-seamless.pid	5	фев 13 15:39
.wget-hsts	165	фев 13 12:46
pandoc-2.19.2-linux-amd64.tar.gz	16772K	авг 22 22:12

Расширения Pandoc

Но необходимых для курса расширений у меня нет, поэтому провожу установку данных расширений.

[illegible]

Так как ситуация с TeXLive у меня такая же как и pandoc и у меня он уже установлен в подтверждение я привожу скриншот ниже, на котором показано завершение установки TeXLive.

A terminal window titled 'kvgibsher@10:/tmp/install-tl-20221022' showing the output of the TeX Live installation process. The output includes several 'mktexlsr' commands updating configuration and distribution files, running 'updmap-sys', and setting up the ConTeXt cache. It concludes with a 'Вас приветствует TeX Live!' message and instructions on where to find documentation and how to add the installation paths to the system's MANPATH and INFOPATH.

```
kvgibsher@10:/tmp/install-tl-20221022
mktexlsr: Updating /usr/local/texlive/2022/texmf-config/ls-R...
mktexlsr: Updating /usr/local/texlive/2022/texmf-dist/ls-R...
mktexlsr: Updating /usr/local/texlive/2022/texmf-var/ls-R...
mktexlsr: Done.
running updmap-sys --nohash ...done
re-running mktexlsr /usr/local/texlive/2022/texmf-var /usr/local/texlive/2022/texmf-config ...
mktexlsr: Updating /usr/local/texlive/2022/texmf-config/ls-R...
mktexlsr: Updating /usr/local/texlive/2022/texmf-var/ls-R...
mktexlsr: Done.
setting up ConTeXt cache: running mtxrun --generate ...done
pre-generating all format files, be patient...
running fmtutil-sys --no-error-if-no-engine=lua-jitbtx, lua-jitbtx, mflua-jit --no-strict --all ...done
running package-specific postactions
finished with package-specific postactions

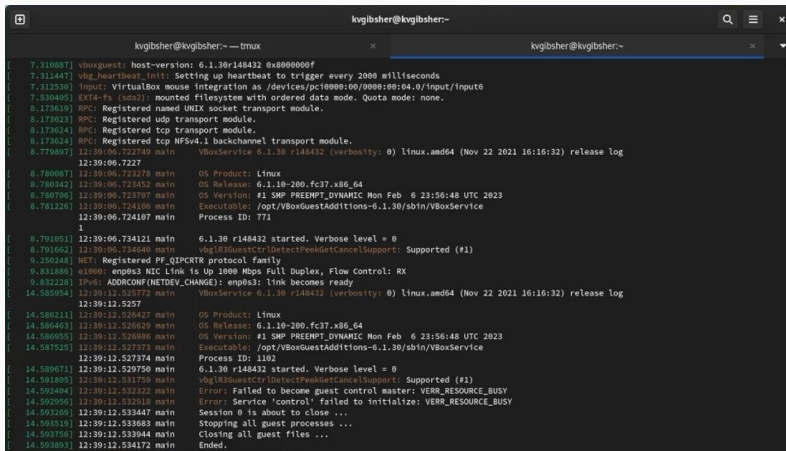
Вас приветствует TeX Live!

Ссылки на документацию можно найти здесь /usr/local/texlive/2022/index.html.
На сайте TeX Live (https://tug.org/texlive/) публикуются последние обновления и исправления. TeX Live – это совместный продукт групп пользователей TeX'a по всему миру; поддержи
те проект, присоединившись к подходящей вам группе. Список групп доступен на странице https://tug.org/usergroups.html.

Добавьте /usr/local/texlive/2022/texmf-dist/doc/man в MANPATH.
Добавьте /usr/local/texlive/2022/texmf-dist/doc/info в INFOPATH.
И самое главное, добавьте /usr/local/texlive/2022/bin/x86_64-linux
в ваш PATH для текущей и будущих сессий.
```

Домашнее задание

Далее приступаю к выполнению домашнего задания и начинаю с того, что дожидается загрузки графического окружения и открываю терминал. В окне терминала провожу анализ последовательность загрузки системы, выполнив команду `dmesg`.



```
kvgibsher@kvgibsher:~ — tmux
[ 7.310887] vboxguest: host-version: 6.1.30r148432 0x8000000f
[ 7.311447] vbg_heartbeat: init: Setting up heartbeat to trigger every 2000 milliseconds
[ 7.312530] input: VirtualBox mouse integration as /devices/pci0000:00/0000:00:04.0/input/input5
[ 7.530405] EXT4-fs (sda2): mounted filesystem with ordered data mode. Quota mode: none.
[ 8.173619] RPC: Registered named UNIX socket transport module.
[ 8.173623] RPC: Registered udp transport module.
[ 8.173624] RPC: Registered tcp transport module.
[ 8.173624] RPC: Registered tcp NFSv4.1 backchannel transport module.
[ 8.779897] 12:39:06.722749 main VBoxService 6.1.30 r148432 (verbosity: 0) linux.amd64 (Nov 22 2021 16:16:32) release log
12:39:06.7227
[ 8.780887] 12:39:06.723278 main OS Product: Linux
[ 8.780342] 12:39:06.723452 main OS Release: 6.1.10-200.fc37.x86_64
[ 8.780706] 12:39:06.723707 main OS Version: #1 SMP PREEMPT_DYNAMIC Mon Feb 6 23:56:48 UTC 2023
[ 8.781226] 12:39:06.724106 main Executable: /opt/VBoxGuestAdditions-6.1.30/sbin/VBoxService
12:39:06.724107 main Process ID: 771
1
[ 8.791051] 12:39:06.734121 main 6.1.30 r148432 started. Verbose level = 0
[ 8.791662] 12:39:06.734640 main vbgIR3GuestCtrlDetectPeekGetCancelSupport: Supported (#1)
[ 9.250248] NET: Registered PF_QIPCRTR protocol family
[ 9.831866] e1000: enp0s3 NIC Link is Up 1000 Mbps Full Duplex, Flow Control: RX
[ 9.832228] IPv6: ADDRCONF(NETDEV_CHANGE): enp0s3: link becomes ready
[ 14.585954] 12:39:12.525772 main VBoxService 6.1.30 r148432 (verbosity: 0) linux.amd64 (Nov 22 2021 16:16:32) release log
12:39:12.5257
[ 14.586211] 12:39:12.526427 main OS Product: Linux
[ 14.586463] 12:39:12.526629 main OS Release: 6.1.10-200.fc37.x86_64
[ 14.586955] 12:39:12.526986 main OS Version: #1 SMP PREEMPT_DYNAMIC Mon Feb 6 23:56:48 UTC 2023
[ 14.587525] 12:39:12.527373 main Executable: /opt/VBoxGuestAdditions-6.1.30/sbin/VBoxService
12:39:12.527374 main Process ID: 1102
[ 14.589671] 12:39:12.529750 main 6.1.30 r148432 started. Verbose level = 0
[ 14.591805] 12:39:12.531759 main vbgIR3GuestCtrlDetectPeekGetCancelSupport: Supported (#1)
[ 14.592404] 12:39:12.532322 main Error: Failed to become guest control master: VERR_RESOURCE_BUSY
[ 14.592956] 12:39:12.532918 main Error: Service 'control' failed to initialize: VERR_RESOURCE_BUSY
[ 14.593269] 12:39:12.533447 main Session 0 is about to close ...
[ 14.593519] 12:39:12.533683 main Stopping all guest processes ...
[ 14.593756] 12:39:12.533944 main Closing all guest files ...
[ 14.593893] 12:39:12.534172 main Ended.
```

Информация о системе

Далее с помощью необходимых команд я получаю следующую информацию: Версия ядра Linux, частота процессора, модель процессора, объём доступной оперативной памяти, тип обнаруженного гипервизора, тип файловой системы корневого раздела и последовательность монтирования файловых систем.

```

root@kvgbshser- [~]
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "Linux Version"
[0.000000] Linux version 6.1.10-200.fc37.x86_64 (mockbuild@bkrn101.iad2.fedoraproject.org) (gcc (GCC) 12.2.1-20231121 [Red Hat 12.2.1-4], GNU ld version 2.38-25.fc37) #1 SMP PREEMPT_DYNAMIC Mon Feb 6 23:04:04 UTC 2023
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "Detected Mhz processor"
[0.000002] tsc: Detected 1193.960 Mhz processor
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "CPU"
[0.157815] smpboot: CPU0: AMD Ryzen 7 5800H with Radeon Graphics (family: 0x19, model: 0x50, stepping: 0x0)
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "Memory available"
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "Memory"
[0.001385] ACPI: Reserving SMM table memory at [mem 0x7ffff000-0x7ffff01c]
[0.001389] ACPI: Reserving DSDT table memory at [mem 0x7ffff040-0x7ffff2a4]
[0.001398] ACPI: Reserving FACS table memory at [mem 0x7ffff020-0x7ffff023f]
[0.001398] ACPI: Reserving FACS table memory at [mem 0x7ffff020-0x7ffff023f]
[0.001391] ACPI: Reserving APIC table memory at [mem 0x7ffff030-0x7ffff033b]
[0.001391] ACPI: Reserving SPP table memory at [mem 0x7ffff040-0x7ffff0475]
[0.000003] Early memory node ranges
[0.012387] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
[0.012389] PM: hibernation: Registered nosave memory: [mem 0x00007000-0x0000ffff]
[0.012389] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x0000ffff]
[0.012390] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x0000ffff]
[0.021023] System RAM: 32768MB/32768MB available (1839K kernel code, 3205K rdata, 12468K rodata, 3032K init, 4396K bss, 120028K reserved, 0K cma-reserved)
[0.054448] Freeing SMP alternatives memory: 44K
[0.161685] x86/mm: Memory block size: 128MB
[0.401425] Freeing initrd memory: 11828K
[0.409242] Non-volatile memory driver v1.3
[0.839292] Freeing unused decrypted memory: 2035K
[0.839701] Freeing unused kernel image (initrd/data gap) memory: 3032K
[0.878240] Freeing unused kernel image (text/rodata gap) memory: 2036K
[0.878241] Freeing unused kernel image (rodata/data gap) memory: 1806K
[2.339547] vmwgfx 0000:00:02:00: [drm] Legacy memory limits: VRAM = 131072 KiB, FIFO = 2048 KiB, surface = 393216 KiB
[2.339553] vmwgfx 0000:00:02:00: [drm] Maximum display memory size is 131072 KiB
[7.739564] systemd[1]: Listening on systemd-oomd.socket - userspace Out-Of-Memory (OOM) Killer Socket.
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "Free-m"
[kvgbshser@kvgbshser ~]$ free-m
bash: free-m: command not found...
[kvgbshser@kvgbshser ~]$ free
              total        used        free      shared  buff/cache   available
Mem:           2016712      1055272       85156      15569      876284      778669
Swap:            2016252           183808      1832444
[kvgbshser@kvgbshser ~]$ dmesg | grep -i "hypervisor detected"
[0.000000] Hypervisor detected: KVM
[kvgbshser@kvgbshser ~]$ sudo -i
[sudo] password on kvgbshser:
root@kvgbshser ~# dnf install -y dnf-plugins-core
Last login: 2023-02-06 22:58:59 on pts/0 from 10.10.10.10
root@kvgbshser ~# cat /etc/os-release
NAME="Fedora Linux"
VERSION="38"
ID="fedora"
ID_LIKE="rhel rhfs centos"
VERSION_ID="38"
BUILD_ID="20230206"
OS_NAME="Fedora Linux"
PRETTY_NAME="Fedora Linux 38"
ANSI_COLOR="0;38;2;33;116;252"
LOGO="fedora-logo-icon"
CPE_NAME="cpe:/o:fedora:38"
VENDOR="Fedora"
PRODUCT_ID="fedora"
VARIANT="Server"
VARIANT_ID="server"
root@kvgbshser ~# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/usr/sbin/nologin
daemon:x:2:2:daemon:/usr/sbin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
kvgbshser:x:1000:1000:kvgbshser:/home/kvgbshser:/bin/bash
root@kvgbshser ~# cat /etc/crontab
# Systemd. This cron file is only used by the Systemd Cron Unit.
# To enable the unit, see https://man7.org/linux/man-pages/crontab.8.html
SHELL=/bin/bash
# Example of job definition:
# . An hour job
# * * * * * root run-parts /etc/cron.hourly
# Example of job definition:
# . An hourly job that can only be run as root (priority = low)
# * * * * * root nice run-parts /etc/cron.hourly
# Example of job definition:
# . A daily job
# * * * * * root run-parts /etc/cron.daily
# Example of job definition:
# . A weekly job
# * * * * * root run-parts /etc/cron.weekly
# Example of job definition:
# . A monthly job
# * * * * * root run-parts /etc/cron.monthly
# Example of job definition:
# . A job that runs only on the 1st of the month
# 1 * * * * root run-parts /etc/cron.monthly
root@kvgbshser ~# cat /etc/crontab
# Systemd. This cron file is only used by the Systemd Cron Unit.
# To enable the unit, see https://man7.org/linux/man-pages/crontab.8.html
SHELL=/bin/bash
# Example of job definition:
# . An hour job
# * * * * * root run-parts /etc/cron.hourly
# Example of job definition:
# . An hourly job that can only be run as root (priority = low)
# * * * * * root nice run-parts /etc/cron.hourly
# Example of job definition:
# . A daily job
# * * * * * root run-parts /etc/cron.daily
# Example of job definition:
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# * * * * * root run-parts /etc/cron.weekly
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# Example of job definition:
# . A job that runs only on the 1st of the month
# 1 * * * * root run-parts /etc/cron.monthly
root@kvgbshser ~# cat /etc/crontab
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# To enable the unit, see https://man7.org/linux/man-pages/crontab.8.html
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# Example of job definition:
# . A monthly job
# * * * * * root run-parts /etc/cron.monthly
# Example of job definition:
# . A job
```

Последовательность монтирования файловых систем

```
[kvgibsher@kvgibsher ~]$ sudo -i
[sudo] пароль для kvgibsher:
[root@kvgibsher ~]# fdisk -l
Диск /dev/sda: 80 GiB, 85899345920 байт, 167772160 секторов
Disk model: VBOX HARDDISK
Единицы: секторов по 1 + 512 = 512 байт
Размер сектора (логический/физический): 512 байт / 512 байт
Размер I/O (минимальный/оптимальный): 512 байт / 512 байт
Тип метки диска: gpt
Идентификатор диска: 69471A11-BA2E-4F3F-9986-E22AF9C601A4

Устр-во    начало    Конец    Секторы  Размер  Тип
/dev/sda1    2048      4095      2048      1M  BIOS boot
/dev/sda2    4096    2101247    2097152    1G  Файловая система Linux
/dev/sda3   2101248  167770111  165668864    79G  Файловая система Linux

Диск /dev/zram0: 1,92 GiB, 2064646144 байт, 504064 секторов
Единицы: секторов по 1 + 4096 = 4096 байт
Размер сектора (логический/физический): 4096 байт / 4096 байт
Размер I/O (минимальный/оптимальный): 4096 байт / 4096 байт
[root@kvgibsher ~]# dmesg | grep -i "mount"
[ 0.053031] Mount-cache hash table entries: 4096 (order: 3, 32768 bytes, linear)
[ 0.053653] Mountpoint-cache hash table entries: 4096 (order: 3, 32768 bytes, linear)
[ 6.733217] systemd[1]: Set up automount proc-sys-fs-binfmt_misc.automount - Arbitrary Executable File Formats File System Automount Point.
[ 6.777664] systemd[1]: Mounting dev-hugepages.mount - Huge Pages File System...
[ 6.779376] systemd[1]: Mounting dev-mqueue.mount - POSIX Message Queue File System...
[ 6.780543] systemd[1]: Mounting sys-kernel-debug.mount - Kernel Debug File System...
[ 6.781811] systemd[1]: Mounting sys-kernel-tracing.mount - Kernel Trace File System...
[ 6.863604] systemd[1]: Starting systemd-remount-fs.service - Remount Root and Kernel File Systems...
[ 6.871223] systemd[1]: Mounted dev-hugepages.mount - Huge Pages File System.
[ 6.872377] systemd[1]: Mounted dev-mqueue.mount - POSIX Message Queue File System.
[ 6.872788] systemd[1]: Mounted sys-kernel-debug.mount - Kernel Debug File System.
[ 6.873410] systemd[1]: Mounted sys-kernel-tracing.mount - Kernel Trace File System.
[ 7.530405] EXT4-fs (sda2): mounted filesystem with ordered data mode. Quota mode: none.
[root@kvgibsher ~]#
```

Рис. 11: Домашнее задание. Вывод ряда информации о системе р.2

Результаты

Таким образом, проделав самостоятельно всю лабораторную работу, я приобрел навыки в настройке Виртуальной машины, установки ОС Linux Fedora и последующую загрузку обновлений и расширений для ее составляющих, таких как pandoc , TexLive. Также научился первоначальным этапам настройки этой операционной системы начиная с имени пользователя и хоста и заканчивая настройкой раскладки клавиатуры. Каждый человек, связывающий себя с компьютерными науками должен знать базу!

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