

Презентация по лабораторной работе №1

Установка и конфигурация операционной системы на виртуальную машину

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Цель

Целью данной работы является приобретение практических навыков установки операционной системы на виртуальную машину, настройки минимально необходимых для дальнейшей работы сервисов.

Прагматика выполнения

VirtualBox

Программное обеспечение, которое имитирует настоящий компьютер, что дает возможность пользователю устанавливать, запускать и использовать другие операционные системы, как обычные приложения.

Rocky Linux

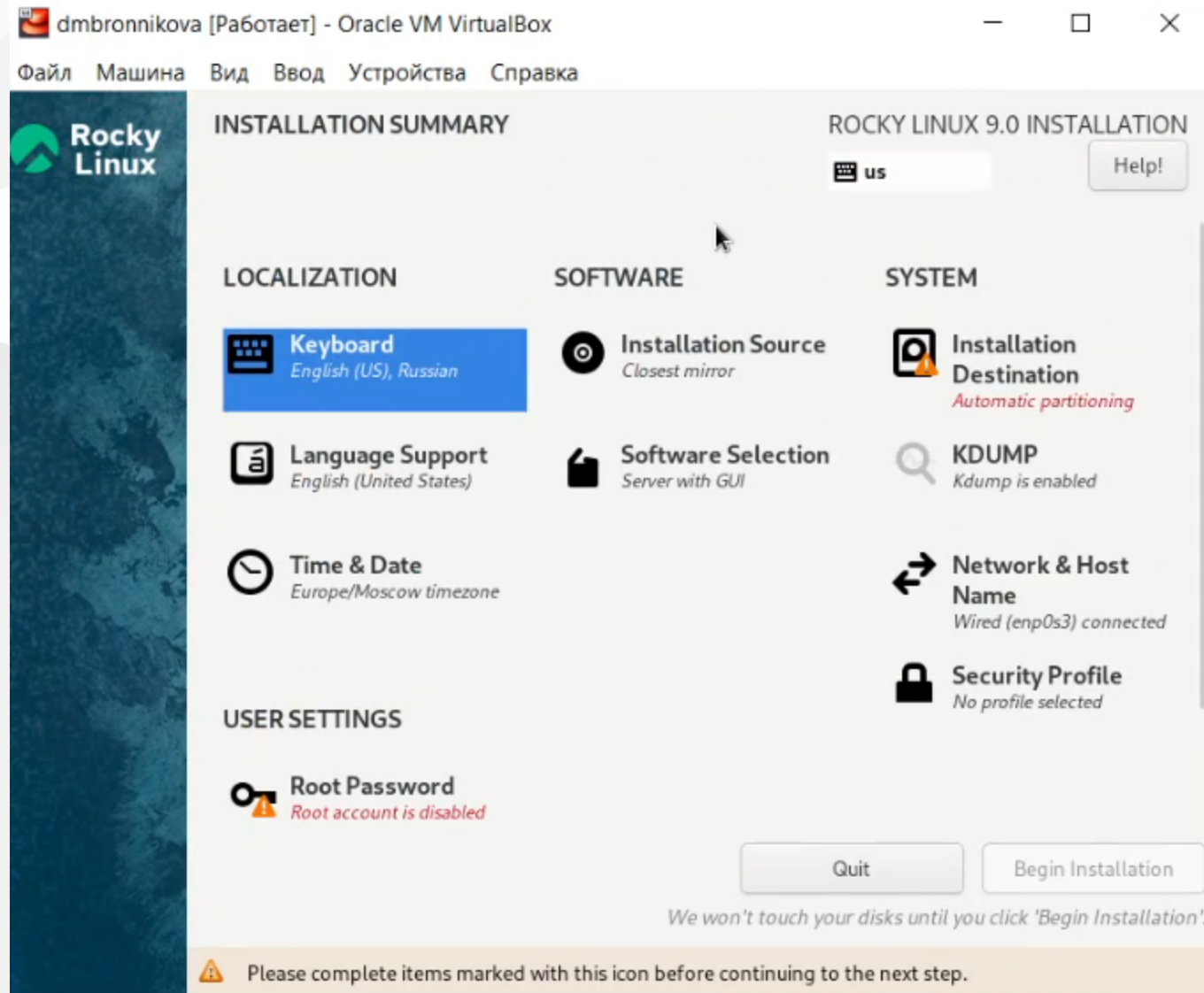
Корпоративная операционная система с открытым исходным кодом, разработанная для полной совместимости с Red Hat Enterprise Linux. Является альтернативой CentOS.

Задачи

1. Создать виртуальную машины.
2. Использовать поиск с помощью команды `dmesg` для получения следующей информации:
 - Версия ядра Linux (Linux version).
 - Частота процессора (Detected Mhz processor).
 - Модель процессора (CPU0).
 - Объем доступной оперативной памяти (Memory available).
 - Тип обнаруженного гипервизора (Hypervisor detected).
 - Тип файловой системы корневого раздела.
 - Последовательность монтирования файловых систем.

Результаты выполнения

1. Создание виртуальной машины



2. Поиск с командой dmesg

```
[dmbronnikova@dmbronnikova ~]$ dmesg
[ 0.000000] Linux version 5.14.0-70.22.1.el9_0.x86_64 (mockbuild@dall-prod-builder001.bld.equ.rockylin
ux.org) (gcc (GCC) 11.2.1 20220127 (Red Hat 11.2.1-9), GNU ld version 2.35.2-17.el9) #1 SMP PREEMPT Tue A
ug 9 19:45:51 UTC 2022
[ 0.000000] The list of certified hardware and cloud instances for Red Hat Enterprise Linux 9 can be v
iewed at the Red Hat Ecosystem Catalog, https://catalog.redhat.com.
[ 0.000000] Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64 root=/dev/mapper
/rl-root ro resume=/dev/mapper/rl-swap rd.lvm.lv=rl/root rd.lvm.lv=rl/swap rhgb quiet
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
[ 0.000000] x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
[ 0.000000] x86/fpu: Enabled xstate features 0x7, context size is 832 bytes, using 'standard' format.
[ 0.000000] signal: max sigframe size: 1776
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009fbff] usable
[ 0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000100000-0x00000000007ffeffff] usable
[ 0.000000] BIOS-e820: [mem 0x00000000007fff0000-0x00000000007fffffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffffff] reserved
[ 0.000000] NX (Execute Disable) protection: active
[ 0.000000] SMBIOS 2.5 present.
[ 0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
[ 0.000000] Hypervisor detected: KVM
[ 0.000000] kvm-clock: Using msrs 4b564d01 and 4b564d00
[ 0.000000] kvm-clock: cpu 0, msr 53e01001, primary cpu clock
[ 0.000004] kvm-clock: using sched offset of 12452783306 cycles
[ 0.000008] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 8
81590591483 ns
[ 0.000014] tsc: Detected 1800.000 MHz processor
[ 0.002229] e820: update [mem 0x00000000-0x00000fff] usable ==> reserved
[ 0.002239] e820: remove [mem 0x000a0000-0x000fffff] usable
[ 0.002251] last_pfn = 0x7fff0 max_arch_pfn = 0x400000000
[ 0.002275] Disabled
[ 0.002277] x86/PAT: MTRRs disabled, skipping PAT initialization too.
[ 0.002283] CPU MTRRs all blank - virtualized system.
[ 0.002288] x86/PAT: Configuration [0-7]: WB WT UC- UC WB WT UC- UC
[ 0.002433] found SMP MP-table at [mem 0x0009fff0-0x0009ffff]
[ 0.002806] RAMDISK: [mem 0x319cf000-0x34cdffff]
[ 0.002817] ACPI: Early table checksum verification disabled
[ 0.002823] ACPI: RSDP 0x000000000000E000 000024 (v02 VBOX )
[ 0.002833] ACPI: XSDT 0x000000007FFF0030 00003C (v01 VBOX VBOXXSDT 00000001 ASL 00000061)
[ 0.002845] ACPI: FACP 0x000000007FFF00F0 0000F4 (v04 VBOX VBOXFACP 00000001 ASL 00000061)
[ 0.002859] ACPI: DSDT 0x000000007FFF0470 002325 (v02 VBOX VBOXBIOS 00000002 INTL 20100528)
```

dmesg | less

```
dmbroonnikova@dmbroonnikova:~ — less
[ 0.000000] Linux version 5.14.0-70.22.1.el9_0.x86_64 (mockbuild@dall-prod-builder001.bld.equ.rockylin
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[ 0.000000] BIOS-e820: [mem 0x0000000000009fc00-0x0000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x000000000000f0000-0x000000000000ffffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000100000-0x00000000007ffefffff] usable
[ 0.000000] BIOS-e820: [mem 0x00000000007fff0000-0x00000000007ffffffffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00ffff] reserved
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[ 0.002833] ACPI: XSDT 0x000000007FFF0030 00003C (v01 VBOX VBOXXSDT 00000001 ASL 00000061)
[ 0.002845] ACPI: FACP 0x000000007FFF00F0 0000F4 (v04 VBOX VBOXFACP 00000001 ASL 00000061)
[ 0.002859] ACPI: DSDT 0x000000007FFF0470 002325 (v02 VBOX VBOXBIOS 00000002 INTL 20100528)
```

dmesg | grep -i "то, что ищем"

```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "Linux version"
[    0.000000] Linux version 5.14.0-70.22.1.el9_0.x86_64 (mockbuild@dal1-prod-builder001.bld.eg
u.rockylinux.org) (gcc (GCC) 11.2.1 20220127 (Red Hat 11.2.1-9), GNU ld version 2.35.2-17.el9)
#1 SMP PREEMPT Tue Aug 9 19:45:51 UTC 2022
```

```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "Mhz"
[    0.000014] tsc: Detected 1800.000 MHz processor
[    7.304160] e1000 0000:00:03.0 eth0: (PCI:33MHz:32-bit) 08:00:27:cd:76:24
```

```
[    0.303616] smpboot: CPU0: Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz (family: 0x6, model: 0x8
e, stepping: 0xa)
```

```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "available"
[    0.004295] On node 0, zone DMA: 1 pages in unavailable ranges
[    0.004366] On node 0, zone DMA: 97 pages in unavailable ranges
[    0.005671] On node 0, zone DMA32: 16 pages in unavailable ranges
[    0.007098] [mem 0x80000000-0xfebfffff] available for PCI devices
[    0.031539] Memory: 260860K/20966696K available (14345K kernel code, 5949K rwd
ata, 9056K rodata, 2548K init, 5452K bss, 142532K reserved, 0K cma-reserved)
[    5.793996] [TTM] Zone kernel: Available graphics memory: 1007148 KiB
```

```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "Hypervisor"
[    0.000000] Hypervisor detected: KVM
[    0.183465] SRBDS: Unknown: Dependent on hypervisor status
[    6.196925] [drm] Max dedicated hypervisor surface memory is 507904 kiB
```



```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "Filesystem"
```

```
[ 8.876127] XFS (dm-0): Mounting V5 Filesystem
```

```
[ 31.711397] XFS (sda1): Mounting V5 Filesystem
```

```
[dmbronnikova@dmbronnikova ~]$ dmesg | grep -i "mount"
```

```
[ 0.180334] Mount-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
```

```
[ 0.180347] Mountpoint-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
```

```
[ 8.876127] XFS (dm-0): Mounting V5 Filesystem
```

```
[ 9.411321] XFS (dm-0): Ending clean mount
```

```
[ 23.734828] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
```

```
[ 23.893865] systemd[1]: Mounting Huge Pages File System...
```

```
[ 23.904821] systemd[1]: Mounting POSIX Message Queue File System...
```

```
[ 23.914442] systemd[1]: Mounting Kernel Debug File System...
```

```
[ 23.922264] systemd[1]: Mounting Kernel Trace File System...
```

```
[ 24.286424] systemd[1]: Starting Remount Root and Kernel File Systems...
```

```
[ 24.303999] systemd[1]: Mounted Huge Pages File System.
```

```
[ 24.305112] systemd[1]: Mounted POSIX Message Queue File System.
```

```
[ 24.305646] systemd[1]: Mounted Kernel Debug File System.
```

```
[ 24.306235] systemd[1]: Mounted Kernel Trace File System.
```

```
[ 31.711397] XFS (sda1): Mounting V5 Filesystem
```

```
[ 32.033672] XFS (sda1): Ending clean mount
```

Выводы

В ходе выполнения данной лабораторной работы приобрелись практические навыки установки операционной системы на виртуальную машину и были выполнены все задания.