Отчет
Лабораторная работа №1
Прозоренко К.В ИП-312

1. Установил QEMU.
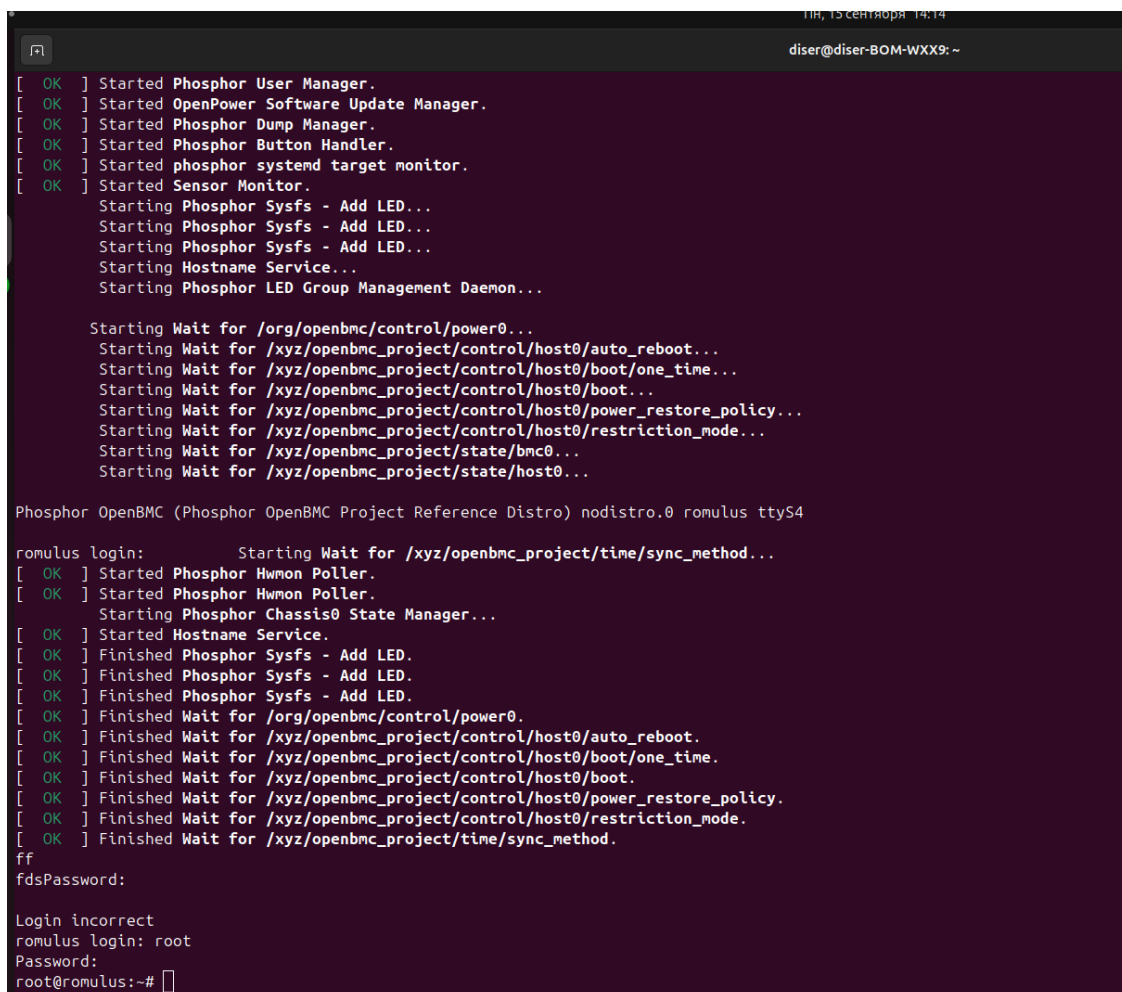
sudo apt install qemu-system-arm

2. Загрузил и разархивировал образ OpenBMC.

wget https://jenkins.openbmc.org/job/ci-openbmc/lastSuccessfulBuild/distro=ubuntu,label=docker-builder,target=romulus/artifact/openbmc/build/tmp/deploy/images/ro
mulus/*zip*/romulus.zip
unzip romulus.zip

3. Запустил QEMU.
qemu-system-arm -m 256 -M romulus-bmc -nographic -drive file=romulus/obmc-phosphor-image-romulus-20250908113600.static.mtd,format=raw,if=mtd -net nic -net user,hostfwd=:0.0.0.0:2222-:22,hostfwd=:0.0.0.0:2443-:443,hostfwd=udp:0.0.0.0:2623-:623,hostname=qemu

```
[ OK ] Started Phosphor User Manager.
[ OK ] Started OpenPower Software Update Manager.
[ OK ] Started Phosphor Dump Manager.
[ OK ] Started Phosphor Button Handler.
[ OK ] Started phosphor systemd target monitor.
[ OK ] Started Sensor Monitor.
        Starting Phosphor Sysfs - Add LED...
        Starting Phosphor Sysfs - Add LED...
        Starting Phosphor Sysfs - Add LED...
        Starting Hostname Service...
        Starting Phosphor LED Group Management Daemon...

    Starting Wait for /org/openbmc/control/power0...
        Starting Wait for /xyz/openbmc_project/control/host0/auto_reboot...
        Starting Wait for /xyz/openbmc_project/control/host0/boot/one_time...
        Starting Wait for /xyz/openbmc_project/control/host0/boot...
        Starting Wait for /xyz/openbmc_project/control/host0/power_restore_policy...
        Starting Wait for /xyz/openbmc_project/control/host0/restriction_mode...
        Starting Wait for /xyz/openbmc_project/state/bmc0...
        Starting Wait for /xyz/openbmc_project/state/host0...

Phosphor OpenBMC (Phosphor OpenBMC Project Reference Distro) nodistro.0 romulus ttyS4

romulus login:          Starting Wait for /xyz/openbmc_project/time/sync_method...
[ OK ] Started Phosphor Hwmon Poller.
[ OK ] Started Phosphor Hwmon Poller.
        Starting Phosphor Chassis0 State Manager...
[ OK ] Started Hostname Service.
[ OK ] Finished Phosphor Sysfs - Add LED.
[ OK ] Finished Phosphor Sysfs - Add LED.
[ OK ] Finished Phosphor Sysfs - Add LED.
[ OK ] Finished Wait for /org/openbmc/control/power0.
[ OK ] Finished Wait for /xyz/openbmc_project/control/host0/auto_reboot.
[ OK ] Finished Wait for /xyz/openbmc_project/control/host0/boot/one_time.
[ OK ] Finished Wait for /xyz/openbmc_project/control/host0/boot.
[ OK ] Finished Wait for /xyz/openbmc_project/control/host0/power_restore_policy.
[ OK ] Finished Wait for /xyz/openbmc_project/control/host0/restriction_mode.
[ OK ] Finished Wait for /xyz/openbmc_project/time/sync_method.
ff
fdsPassword:

Login incorrect
romulus login: root
Password:
root@romulus:~#
```

4. Проверил состояние системы, включил и выключил сервер.

```
root@romulus:~# obmcutil state
CurrentBMCState      : xyz.openbmc_project.State.BMC.BMCState.Ready
CurrentPowerState    : xyz.openbmc_project.State.Chassis.PowerState.Off
CurrentHostState     : xyz.openbmc_project.State.Host.HostState.Off
BootProgress         : xyz.openbmc_project.State.Boot.Progress.ProgressStages.Unspecified
OperatingSystemState: xyz.openbmc_project.State.OperatingSystem.Status.OSStatus.Inactive
root@romulus:~# obmcutil poweron
root@romulus:~# obmcutil poweroff
Host is xyz.openbmc_project.State.Host.HostState.TransitioningToRunning, request rejected, use --force to override
root@romulus:~#
```

5. Получил доступ к BMC через IPMI с другого хоста

```
diser@diser-BOM-WXX9:~$ ipmitool -I lanplus -H 127.0.0.1 -p 2623 -U root -P 0penBmc fru print
FRU Device Description : Builtin FRU Device (ID 0)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : cpu0 (ID 1)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : cpu1 (ID 2)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : system (ID 3)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm0 (ID 4)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm1 (ID 5)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm2 (ID 6)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm3 (ID 7)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm4 (ID 8)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm5 (ID 9)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm6 (ID 10)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm7 (ID 11)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm8 (ID 12)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm9 (ID 13)
 Device not present (Requested sensor, data, or record not found)

FRU Device Description : dimm10 (ID 14)
 Device not present (Requested sensor, data, or record not found)
```

Представляется только fan0.

6. Получил доступ к BMC через RedFish с другого хоста

```
diser@diser-BOM-WXX9:~$ curl -k -u root:0penBmc https://10.149.156.17:2443/redfish/v1/Systems
{
  "@odata.id": "/redfish/v1/Systems",
  "@odata.type": "#ComputerSystemCollection.ComputerSystemCollection",
  "Members": [
    {
      "@odata.id": "/redfish/v1/Systems/system"
    }
  ],
  "Members@odata.count": 1,
  "Name": "Computer System Collection"
}diser@diser-BOM-WXX9:~$
```

7. Изучил логи OpenBMC

```
root@romulus:~# journalctl -u xyz.openbmc_project.State.BMC.service
Sep 15 07:13:19 romulus systemd[1]: Starting Phosphor BMC State Manager...
Sep 15 07:13:20 romulus phosphor-bmc-state-manager[338]: Unit obmc-bmc-service-quiesce@0.target not found: sd_bus_call: org.freedesktop.systemd1.NoSuchUnit: Unit obmc-bmc-service-quies
ce@0.target not loaded.
Sep 15 07:13:20 romulus phosphor-bmc-state-manager[338]: Setting the BMCState field to BMC_NOTREADY
Sep 15 07:13:20 romulus phosphor-bmc-state-manager[338]: Setting the BMCState field to xyz.openbmc_project.State.BMC.BMCState.NotReady
Sep 15 07:13:20 romulus phosphor-bmc-state-manager[338]: Setting the RebootCause field to xyz.openbmc_project.State.BMC.RebootCause.POR
Sep 15 07:13:20 romulus systemd[1]: Started Phosphor BMC State Manager.
Sep 15 07:13:24 romulus phosphor-bmc-state-manager[338]: BMC_READY
Sep 15 07:13:24 romulus phosphor-bmc-state-manager[338]: Setting the BMCState field to xyz.openbmc_project.State.BMC.BMCState.Ready
root@romulus:~#
```

8. Провел анализ потребляемых ресурсов QEMU.

В простое

```
  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ КОМАНДА
 6206 diser     20   0 2779836   1,6g  29800 S  43,0  10,7  16:15.64 qemu-system-arm
 2305 diser     20   0 5730636 417496 204052 R  11,6   2,7   4:23.82 gnome-shell
 4940 diser     20   0 2910096 352608 130236 S   5,3   2,2   1:54.49 Isolated Web Co
 3353 diser     20   0   11,6g 688724 296716 S   3,0   4,4   4:44.86 firefox
 5494 diser     20   0  726964  74052  57004 S   2,3   0,5   0:18.22 gnome-terminal-
 2076 diser      9 -11  137252  25220  10796 S   1,7   0,2   0:16.83 pipewire-pulse
  253 root     -51   0       0      0      0 D   1,3   0,0   0:18.66 irq/57-ELAN2204:00
 2066 diser      9 -11  126692  15900   9024 S   1,0   0,1   0:09.09 pipewire
 7675 diser     20   0   23288   5832   3656 R   0,7   0,0   0:00.11 top
   18 root      20   0       0      0      0 I   0,3   0,0   0:05.12 rcu_preempt
  884 polkitd   20   0  384648  10348   7636 S   0,3   0,1   0:01.03 polkitd
 2273 diser     20   0  530292  19052  16620 S   0,3   0,1   0:00.25 gnome-session-b
 2471 diser     20   0  397908  12132   7176 S   0,3   0,1   0:07.36 ibus-daemon
 3647 diser     20   0 1914304  25184  16256 S   0,3   0,2   0:00.24 snap
 4753 diser     20   0 3035860 476296 117324 S   0,3   3,0   0:32.53 Isolated Web Co
 5233 diser     20   0 2451008  83288  66568 S   0,3   0,5   0:02.17 Isolated Servic
 6732 root      20   0       0      0      0 I   0,3   0,0   0:01.91 kworker/u48:1-gfx
 7480 root      20   0       0      0      0 D   0,3   0,0   0:00.90 kworker/u50:2+events_unbound
    1 root      20   0   23488  14108   9244 S   0,0   0,1   0:02.95 systemd
    2 root      20   0       0      0      0 S   0,0   0,0   0:00.01 kthreadd
```

В небольшой нагрузке

```
Задачи: 345 total,   1 running, 344 sleeping,   0 stopped,   0 zombie
%Cpu(s):  4,5 us,   1,5 sy,   0,0 ni, 93,9 id,   0,0 wa,   0,0 hi,   0,1 si,   0,0 st
МиБ Mem :  15321,8 total,   8248,8 free,   4927,4 used,   2224,5 buff/cache
МиБ Swap:   4096,0 total,   4096,0 free,      0,0 used.  10394,5 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ КОМАНДА
 6206 diser     20   0 2779836   1,6g  29800 S  55,6  10,7  19:11.91 qemu-system-arm
 2305 diser     20   0 5727352 409484 196192 S   7,0   2,6   4:57.15 gnome-shell
 4940 diser     20   0 2921376 403436 130228 S   3,3   2,6   2:28.71 Isolated Web Co
 3353 diser     20   0   11,6g 684228 284564 S   3,0   4,4   5:19.96 firefox
```