

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РФ

Федеральное государственное автономное образовательное учреждение высшего образования
«Национальный исследовательский университет ИТМО»

Факультет программной инженерии и компьютерной техники

Лабораторная работа №3.2

по дисциплине
“Технологии виртуализации”

Студент:

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Задача

Ознакомиться с функционалом LXC & LDCX

Установка

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo snap install lxd
[sudo] password for rumskiy:
snap "lxd" is already installed, see 'snap help refresh'
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc list
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc list
+-----+-----+-----+-----+
| NAME | STATE | IPV4 | IPV6 | TYPE | SNAPSHOTS |
+-----+-----+-----+-----+
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc --version
5.21.4 LTS
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

Настройка

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxd init
Error: Failed to connect to local LXD: Get "http://unix.socket/1.0": dial unix /var/snap/lxd/common/lxd/unix.socket: connect: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxd init
[sudo] password for rumskiy:
Would you like to use LXD clustering? (yes/no) [default=no]: no
Do you want to configure a new storage pool? (yes/no) [default=yes]: yes
Name of the new storage pool [default=default]: My_RAM_fs
Name of the storage backend to use (ceph, pure, zfs, dir, lvm, powerflex, btrfs) [default=zfs]:
Create a new ZFS pool? (yes/no) [default=yes]: yes
Would you like to use an existing empty block device (e.g. a disk or partition)? (yes/no) [default=no]:
Size in GiB of the new loop device (1GiB minimum) [default=5GiB]:
Would you like to connect to a MAAS server? (yes/no) [default=no]:
Would you like to create a new local network bridge? (yes/no) [default=yes]:
What should the new bridge be called? [default=lxdbr0]:
What IPv4 address should be used? (CIDR subnet notation, "auto" or "none") [default=auto]:
What IPv6 address should be used? (CIDR subnet notation, "auto" or "none") [default=auto]:
Would you like the LXD server to be available over the network? (yes/no) [default=no]: yes
Address to bind LXD to (not including port) [default=all]:
Port to bind LXD to [default=8443]:
Would you like stale cached images to be updated automatically? (yes/no) [default=yes]:
Would you like a YAML "lxd init" preseed to be printed? (yes/no) [default=no]:
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

Конфигурация компонентов

```
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc profile list
+-----+-----+-----+
| NAME | DESCRIPTION | USED BY |
+-----+-----+-----+
| default | Default LXD profile | 0 |
+-----+-----+-----+

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc network list
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc network list
+-----+-----+-----+-----+-----+-----+-----+-----+
| NAME | TYPE | MANAGED | IPV4 | IPV6 | DESCRIPTION | USED BY | STATE |
+-----+-----+-----+-----+-----+-----+-----+-----+
| docker0 | bridge | NO | | | | 0 | |
+-----+-----+-----+-----+-----+-----+-----+-----+
| enp0s3 | physical | NO | | | | 0 | |
+-----+-----+-----+-----+-----+-----+-----+-----+
| lxdbr0 | bridge | YES | 10.138.209.1/24 | fd42:deb4:517c:4182::1/64 | | 1 | CREATED |
+-----+-----+-----+-----+-----+-----+-----+-----+
| virbr0 | bridge | NO | | | | 0 | |
+-----+-----+-----+-----+-----+-----+-----+-----+

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc storage list
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc storage list
+-----+-----+-----+-----+-----+-----+-----+-----+
| NAME | DRIVER | SOURCE | DESCRIPTION | USED BY | STATE |
+-----+-----+-----+-----+-----+-----+-----+-----+
| My_RAM_fs | zfs | /var/snap/lxd/common/lxd/disks/My_RAM_fs.img | | 1 | CREATED |
+-----+-----+-----+-----+-----+-----+-----+-----+

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

Создание контейнеров

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc launch ubuntu:22.04 Apache
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc launch ubuntu:22.04 Apache
[sudo] password for rumskiy:
Launching Apache
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc launch ubuntu:22.04 Chrome
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc launch ubuntu:22.04 Chrome
Launching Chrome
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc launch ubuntu:22.04 MC
Launching MC
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc start Apache
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc start Apache
Error: The instance is already running
Try 'lxc info --show-log Apache' for more info
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc start MC
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc start MC
Error: The instance is already running
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

```

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc list
+-----+-----+-----+-----+-----+-----+
| NAME | STATE | IPV4 | IPV6 | TYPE | SNAPSHOTS |
+-----+-----+-----+-----+-----+-----+
| Apache | RUNNING | 10.138.209.104 (eth0) | fd42:deb4:517c:4182:216:3eff:fee8:9ef1 (eth0) | CONTAINER | 0 |
+-----+-----+-----+-----+-----+-----+
| Chrome | RUNNING | 10.138.209.123 (eth0) | fd42:deb4:517c:4182:216:3eff:fe2e:4cf7 (eth0) | CONTAINER | 0 |
+-----+-----+-----+-----+-----+-----+
| MC | RUNNING | 10.138.209.46 (eth0) | fd42:deb4:517c:4182:216:3eff:fec6:8277 (eth0) | CONTAINER | 0 |
+-----+-----+-----+-----+-----+-----+
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$

```

```

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc list -c 4
+-----+
| IPV4 |
+-----+
| 10.138.209.46 (eth0) |
+-----+
| 10.138.209.104 (eth0) |
+-----+
| 10.138.209.123 (eth0) |
+-----+
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc list status=STOPPED
+-----+-----+-----+-----+-----+-----+
| NAME | STATE | IPV4 | IPV6 | TYPE | SNAPSHOTS |
+-----+-----+-----+-----+-----+-----+
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$

```

```

rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc delete MC --force
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ lxc list -c t
Error: LXD unix socket "/var/snap/lxd/common/lxd/unix.socket" not accessible: permission denied
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo !!
sudo lxc list -c t
+-----+
| TYPE |
+-----+
| CONTAINER |
+-----+
| CONTAINER |
+-----+
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$

```

Конфигурация

Три контейнера

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc launch ubuntu:22.04 Big
Launching Big
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc launch ubuntu:22.04 Medium
Launching Medium
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc launch ubuntu:22.04 Small
Launching Small
```

info Big

```
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc info Big
Name: Big
Status: RUNNING
Type: container
Architecture: x86_64
PID: 55009
Created: 2025/12/21 10:33 UTC
Last Used: 2025/12/21 10:33 UTC

Resources:
  Processes: 36
  Disk usage:
    root: 2.41MiB
  Disk total:
    root: 2.41MiB
  CPU usage:
    CPU usage (in seconds): 12
  Memory usage:
    Memory (current): 152.44MiB
  Network usage:
    lo:
      Type: loopback
      State: UP
      MTU: 65536
      Bytes received: 1.21kB
      Bytes sent: 1.21kB
      Packets received: 12
      Packets sent: 12
      IP addresses:
        inet: 127.0.0.1/8 (local)
        inet6: ::1/128 (local)
    eth0:
      Type: broadcast
      State: UP
      Host interface: veth94141db3
      MAC address: 00:16:3e:69:ec:5a
      MTU: 1500
      Bytes received: 23.32kB
      Bytes sent: 9.95kB
      Packets received: 90
      Packets sent: 66
      IP addresses:
        inet: 10.138.209.108/24 (global)
        inet6: fd42:deb4:517c:4182:216:3eff:fe69:ec5a/64 (global)
        inet6: fe80::216:3eff:fe69:ec5a/64 (link)
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

info Medium

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2$ sudo lxc info Medium
Name: Medium
Status: RUNNING
Type: container
Architecture: x86_64
PID: 55917
Created: 2025/12/21 10:33 UTC
Last Used: 2025/12/21 10:33 UTC

Resources:
Processes: 36
Disk usage:
  root: 2.41MiB
Disk total:
  root: 2.41MiB
CPU usage:
  CPU usage (in seconds): 10
Memory usage:
  Memory (current): 155.30MiB
Network usage:
  eth0:
    Type: broadcast
    State: UP
    Host interface: veth55c1637c
    MAC address: 00:16:3e:3d:28:ac
    MTU: 1500
    Bytes received: 23.32kB
    Bytes sent: 10.25kB
    Packets received: 97
    Packets sent: 69
    IP addresses:
      inet: 10.138.209.125/24 (global)
      inet6: fd42:deb4:517c:4182:216:3eff:fe3d:28ac/64 (global)
      inet6: fe80::216:3eff:fe3d:28ac/64 (link)
  lo:
    Type: loopback
    State: UP
    MTU: 65536
    Bytes received: 1.22kB
    Bytes sent: 1.22kB
    Packets received: 12
    Packets sent: 12
    IP addresses:
      inet: 127.0.0.1/8 (local)
      inet6: ::1/128 (local)
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2$
```

info Small

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc info Small
Name: Small
Status: RUNNING
Type: container
Architecture: x86_64
PID: 56819
Created: 2025/12/21 10:33 UTC
Last Used: 2025/12/21 10:33 UTC

Resources:
Processes: 37
Disk usage:
  root: 2.41MiB
Disk total:
  root: 2.41MiB
CPU usage:
  CPU usage (in seconds): 13
Memory usage:
  Memory (current): 153.83MiB
Network usage:
  eth0:
    Type: broadcast
    State: UP
    Host interface: veth9baae62c
    MAC address: 00:16:3e:3e:16:46
    MTU: 1500
    Bytes received: 20.98kB
    Bytes sent: 10.05kB
    Packets received: 80
    Packets sent: 66
    IP addresses:
      inet: 10.138.209.35/24 (global)
      inet6: fd42:deb4:517c:4182:216:3eff:fe3e:1646/64 (global)
      inet6: fe80::216:3eff:fe3e:1646/64 (link)
  lo:
    Type: loopback
    State: UP
    MTU: 65536
    Bytes received: 1.22kB
    Bytes sent: 1.22kB
    Packets received: 12
    Packets sent: 12
    IP addresses:
      inet: 127.0.0.1/8 (local)
      inet6: ::1/128 (local)
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

Работа с Big

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc stop Big
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc config set Big limits.cpu 2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc config set Big limits.memory 300MiB
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc info Big
Name: Big
Status: STOPPED
Type: container
Architecture: x86_64
Created: 2025/12/21 10:33 UTC
Last Used: 2025/12/21 10:33 UTC
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc start Big
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc exec Big -- free -h
              total          used          free      shared  buff/cache   available
Mem:           300Mi         86Mi         141Mi          0Ki          71Mi         213Mi
Swap:            0B            0B            0B
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```


Работа с Medium

До изменения объёма ОЗУ

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc exec Medium -- top
[sudo] password for rumskiy:

top - 10:47:28 up 13 min, 0 users, load average: 8.47, 5.48, 2.77
Tasks: 21 total, 1 running, 20 sleeping, 0 stopped, 0 zombie
%Cpu(s): 41.3 us, 34.1 sy, 0.0 ni, 15.8 id, 3.4 wa, 0.0 hi, 5.4 si, 0.0 st
MiB Mem : 7941.9 total, 7758.8 free, 102.2 used, 80.9 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 7839.5 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 27043 root        20   0 1547236 48480 14944 S   28.2   0.6   0:03.73 snapd
    1 root        20   0 167260   952   5200 S    3.7   0.1   0:29.15 systemd
  335 message+  20   0   8600   3040  2528 S    0.7   0.0   0:03.22 dbus-daemon
  342 root        20   0 1242648 19744  8800 S    0.7   0.2   0:02.81 snap
   58 root        20   0   31552   9616  8720 S    0.3   0.1   0:00.77 systemd-journal
  100 root        20   0   11104   3748  2468 S    0.0   0.0   0:00.10 systemd-udev
  300 systemd+  20   0   16128   5896  5000 S    0.0   0.1   0:00.03 systemd-network
  302 systemd+  20   0   26332  10736  5788 S    0.0   0.1   0:00.08 systemd-resolve
  334 root        20   0    7288   1564  1436 S    0.0   0.0   0:00.00 cron
  340 root        20   0   33152  15504  6672 S    0.0   0.2   0:00.05 networkd-dispat
  341 syslog    20   0  152772   3652  2628 S    0.0   0.0   0:00.32 rsyslogd
  345 root        20   0   15052   5388  4492 S    0.0   0.1   0:01.07 systemd-logind
  347 root        20   0   41376  22452  8648 S    0.0   0.3   0:00.23 python3
  353 root        20   0    6220   1464  1336 S    0.0   0.0   0:00.00 agetty
  361 root        20   0   15440   6028  4492 S    0.0   0.1   0:00.00 sshd
  369 root        20   0  110316  17048  8856 S    0.0   0.2   0:00.03 unattended-upgr
  370 root        20   0  235464   5684  4484 S    0.0   0.1   0:00.02 polkitd
 1058 root        20   0  227888   1300  1044 S    0.0   0.0   0:01.97 snapfuse
25894 root        20   0   10796   2504  1992 R    0.0   0.0   0:00.02 top
27182 root        20   0  227756   1192  1064 S    0.0   0.0   0:00.00 snapfuse
27259 root        20   0  227888   1204  1076 S    0.0   0.0   0:00.00 snapfuse
```

После

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LA... x rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LA... x rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LA... x
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc exec Medium -- top
[sudo] password for rumskiy:

top - 10:48:28 up 14 min, 0 users, load average: 7.65, 5.80, 3.05
Tasks: 19 total, 1 running, 18 sleeping, 0 stopped, 0 zombie
%Cpu(s): 17.3 us, 15.6 sy, 0.0 ni, 61.0 id, 4.2 wa, 0.0 hi, 2.0 si, 0.0 st
MiB Mem : 200.0 total, 20.0 free, 104.1 used, 75.9 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used, 95.8 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 29406 root        20   0 1547492 51708 15204 S  23.7   25.2   0:05.98 snapd
   342 root        20   0 1242648 19744  8800 S   0.7    9.6   0:02.98 snap
     1 root        20   0 167264  9552  5200 S   0.0    4.7   0:32.05 systemd
   58 root        20   0  31552  9744  8848 S   0.0    4.8   0:00.83 systemd-journal
  100 root        20   0  11104  3748  2468 S   0.0    1.8   0:00.11 systemd-udev
  300 systemd+    20   0  16128  5896  5000 S   0.0    2.9   0:00.03 systemd-network
  302 systemd+    20   0  26332 10736  5788 S   0.0    5.2   0:00.08 systemd-resolve
  334 root        20   0   7288  1564  1436 S   0.0    0.8   0:00.00 cron
  335 message+    20   0   8600  3040  2528 S   0.0    1.5   0:03.51 dbus-daemon
  340 root        20   0  33152 15504  6672 S   0.0    7.6   0:00.05 networkd-dispat
  341 syslog      20   0 152772  3652  2628 S   0.0    1.8   0:00.35 rsyslogd
  345 root        20   0  15052  5388  4492 S   0.0    2.6   0:01.18 systemd-logind
  347 root        20   0  41376 22452  8648 S   0.0   11.0   0:00.23 python3
  353 root        20   0   6220  1464  1336 S   0.0    0.7   0:00.00 agetty
  361 root        20   0  15440  6028  4492 S   0.0    2.9   0:00.00 sshd
  369 root        20   0 110316 17048  8856 S   0.0    8.3   0:00.03 unattended-upgr
  370 root        20   0  235464  5684  4484 S   0.0    2.8   0:00.02 polkitd
 1058 root        20   0 227888  1300  1044 S   0.0    0.6   0:02.14 snapfuse
25894 root        20   0  10796  2504  1992 R   0.0    1.2   0:00.05 top
```

Работа с Small

До изменения объёма ОЗУ

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
top - 10:52:30 up 18 min, 0 users, load average: 5.06, 5.69, 3.66
Tasks: 21 total, 1 running, 20 sleeping, 0 stopped, 0 zombie
%Cpu(s): 36.0 us, 33.3 sy, 0.0 ni, 18.5 id, 5.6 wa, 0.0 hi, 6.5 si, 0.0 st
MiB Mem : 150.0 total, 15.8 free, 105.5 used, 28.7 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 44.3 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 38887 root        20   0 1473504 43804 6140 S 31.0 28.5   0:03.59 snapd
    1 root        20   0 167320 7600 3248 S  3.0  4.9   0:42.23 systemd
  335 message+   20   0   8696 1896 1384 S  0.7  1.2   0:04.71 dbus-daemon
   58 root        20   0  31544 4332 3436 S  0.3  2.8   0:01.18 systemd-journal
  342 root        20   0 1242648 12944 2128 S  0.3  8.4   0:03.81 snap
  100 root        20   0   11104 2296 1016 S  0.0  1.5   0:00.14 systemd-udev
  300 systemd+   20   0   16128 2856 1960 S  0.0  1.9   0:00.05 systemd-network
  302 systemd+   20   0   26332 6860 1888 S  0.0  4.5   0:00.10 systemd-resolve
  334 root        20   0   7288   840  712 S  0.0  0.5   0:00.00 cron
  340 root        20   0   33152 10668 1836 S  0.0  6.9   0:00.05 networkd-dispat
  341 syslog     20   0  152772 1912 1144 S  0.0  1.2   0:00.44 rsyslogd
  345 root        20   0   15052 2512 1744 S  0.0  1.6   0:01.55 systemd-logind
  347 root        20   0   41376 15892 1956 S  0.0 10.3   0:00.27 python3
  362 root        20   0   15440 3148 1612 S  0.0  2.0   0:00.00 sshd
  363 root        20   0   6220   740  612 S  0.0  0.5   0:00.00 agetty
  368 root        20   0  110316 10092 1900 S  0.0  6.6   0:00.04 unattended-upgr
  375 root        20   0  235468 3536 2280 S  0.0  2.3   0:00.04 polkitd
 1057 root        20   0  302652 1148  764 S  0.0  0.7   0:02.52 snapfuse
38526 root        20   0  10796 2364 1724 R  0.0  1.5   0:00.01 top
 39023 root        20   0  152992 1208 1080 S  0.0  0.8   0:00.00 snapfuse
 39099 root        20   0  227888 1248  992 S  0.0  0.8   0:00.00 snapfuse
```

После

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
top - 10:53:38 up 19 min, 0 users, load average: 5.15, 5.54, 3.74
Tasks: 20 total, 2 running, 18 sleeping, 0 stopped, 0 zombie
%Cpu(s): 12.0 us, 10.5 sy, 0.0 ni, 73.0 id, 2.5 wa, 0.0 hi, 1.9 si, 0.0 st
MiB Mem : 800.0 total, 668.0 free, 73.9 used, 58.1 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 725.9 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 42038 root        20   0 1102156 17060 10532 S  1.0  2.1   0:00.03 snapd
    1 root        20   0  167320 7604 3252 S  0.3  0.9   0:45.18 systemd
  342 root        20   0 1242648 13072 2256 S  0.3  1.6   0:03.99 snap
   58 root        20   0  31544 4716 3820 S  0.0  0.6   0:01.26 systemd-journal
  100 root        20   0   11104 2428 1148 S  0.0  0.3   0:00.15 systemd-udev
  300 systemd+   20   0   16128 3120 2224 S  0.0  0.4   0:00.05 systemd-network
  302 systemd+   20   0   26332 7312 2340 S  0.0  0.9   0:00.10 systemd-resolve
  334 root        20   0   7288   976  848 S  0.0  0.1   0:00.00 cron
  335 message+   20   0   8696 1768 1256 S  0.0  0.2   0:05.02 dbus-daemon
  340 root        20   0   33152 10668 1836 S  0.0  1.3   0:00.05 networkd-dispat
  341 syslog     20   0  152772 1912 1144 S  0.0  0.2   0:00.47 rsyslogd
  345 root        20   0   15052 2512 1744 S  0.0  0.3   0:01.66 systemd-logind
  347 root        20   0   41376 15892 1956 S  0.0  1.9   0:00.29 python3
  362 root        20   0   15440 3148 1612 S  0.0  0.4   0:00.00 sshd
  363 root        20   0   6220   740  612 S  0.0  0.1   0:00.00 agetty
  368 root        20   0  110316 10092 1900 S  0.0  1.2   0:00.04 unattended-upgr
  375 root        20   0  235468 3280 2024 S  0.0  0.4   0:00.04 polkitd
 1057 root        20   0  302652 1148  764 S  0.0  0.1   0:02.63 snapfuse
41800 root        20   0  10796 2568 1928 R  0.0  0.3   0:00.00 top
 42044 root        20   0   1732   284  284 R  0.0  0.0   0:00.00 systemctl
```

Описание

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc config set Small user.description "Контейнер Small для ЛР №3.2"
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc list -c n,user.description
```

NAME	USER DESCRIPTION
Apache	
Big	
Chrome	
Medium	
Small	Контейнер Small для ЛР №3.2

```
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

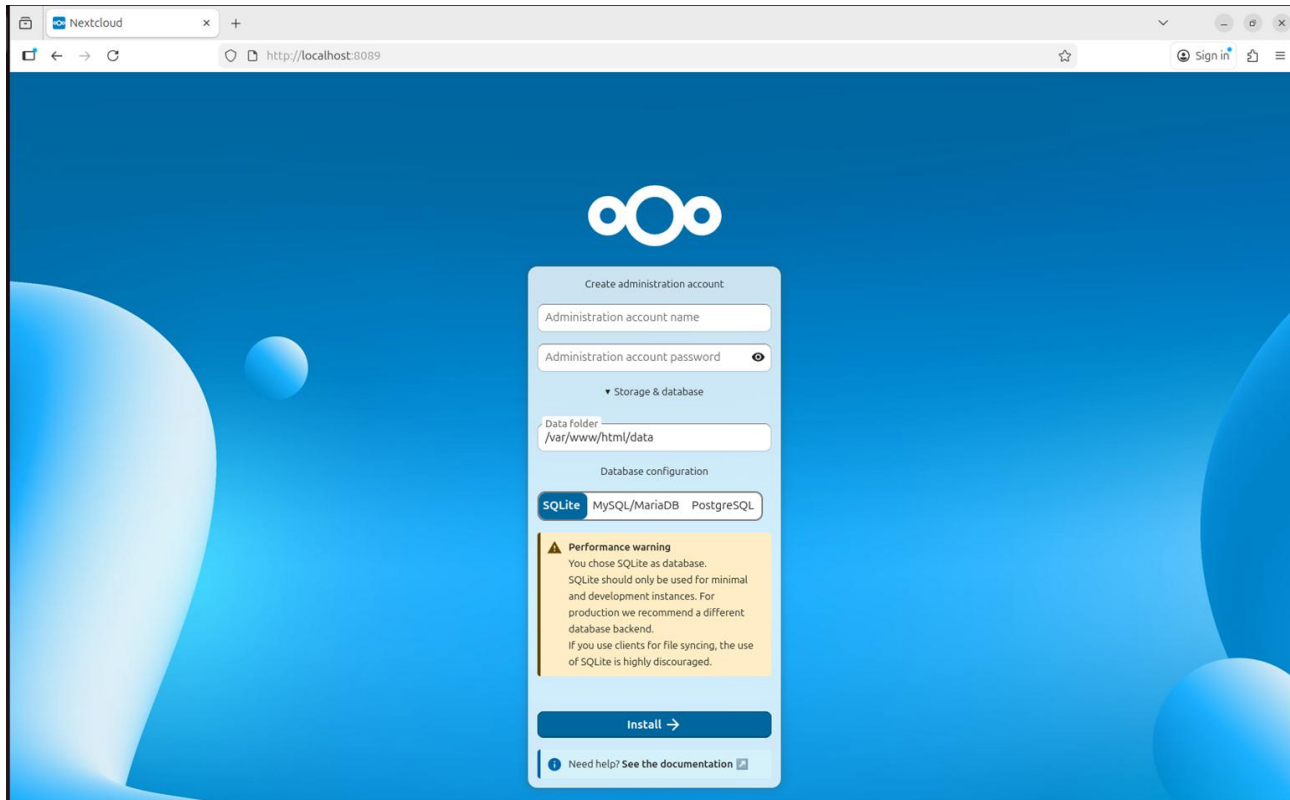
Смена имени

```
rumskiy@WS-RAM-ubuntu: ~/Desktop/VM_LABS/lab3/3.2
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc stop Small
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc rename Small BigBig
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$ sudo lxc list -c n,user.description
```

NAME	USER DESCRIPTION
Apache	
Big	
BigBig	Контейнер Small для ЛР №3.2
Chrome	
Medium	

```
rumskiy@WS-RAM-ubuntu:~/Desktop/VM_LABS/lab3/3.2$
```

NextCloud



A screenshot of the NextCloud installation wizard in a web browser. The browser's address bar shows 'http://localhost:8089'. The page has a blue background with abstract white and light blue shapes. In the center, there is a white box titled 'Create administration account'. Inside this box, there are two input fields: 'Administration account name' and 'Administration account password' (with a toggle for visibility). Below these is a section titled 'Storage & database' with a 'Data folder' field containing '/var/www/html/data'. Under 'Database configuration', three options are listed: 'SQLite' (selected), 'MySQL/MariaDB', and 'PostgreSQL'. A yellow warning box with a triangle icon contains the text: 'Performance warning: You chose SQLite as database. SQLite should only be used for minimal and development instances. For production we recommend a different database backend. If you use clients for file syncing, the use of SQLite is highly discouraged.' At the bottom of the white box is a blue 'Install' button with a right-pointing arrow. Below the button is a link: 'Need help? See the documentation'.

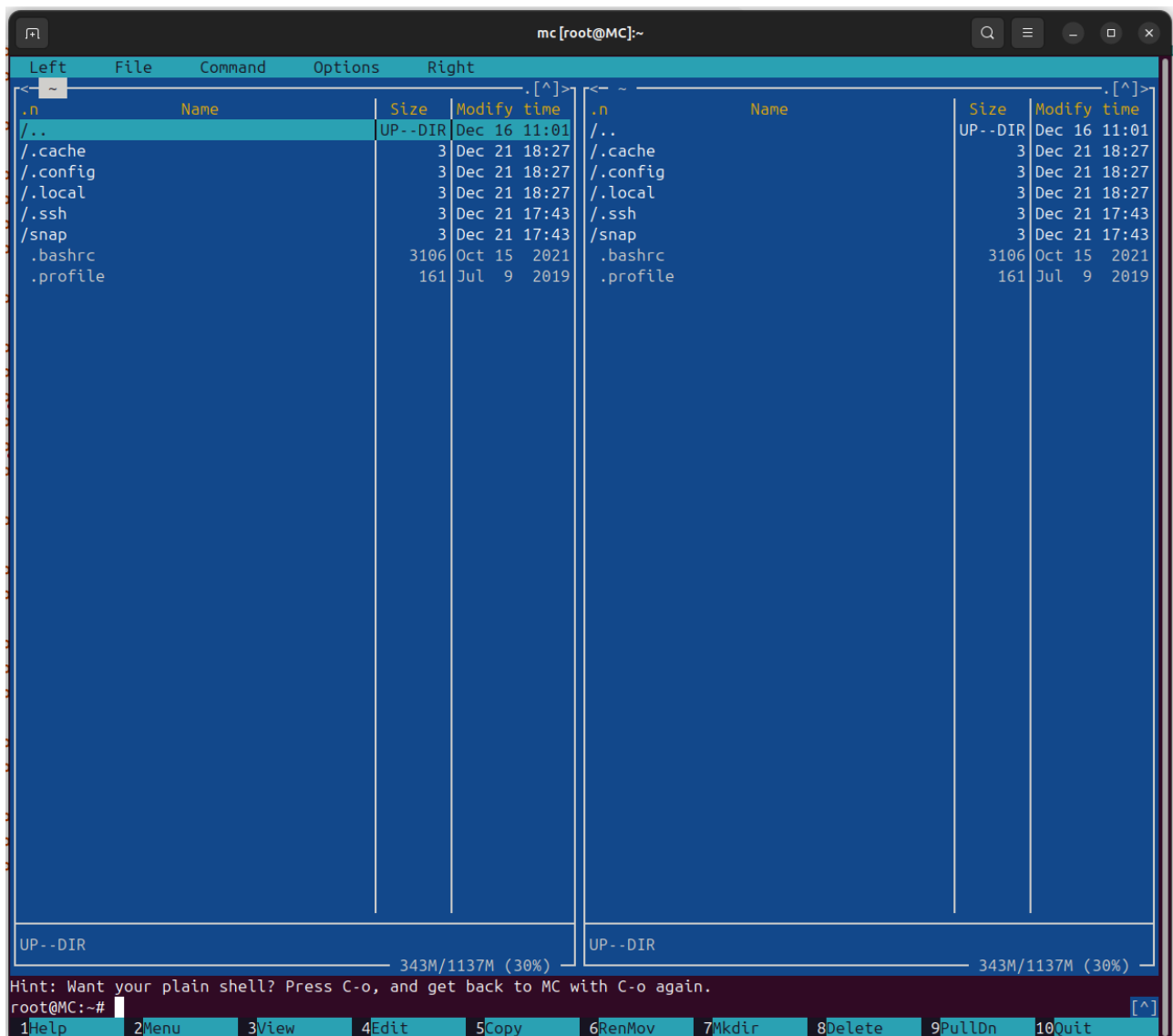
Apache



A screenshot of a web browser showing a page from '10.138.209.104/'. The address bar indicates 'Not Secure' and the URL 'http://10.138.209.104'. The page content consists of a single line of text: 'Rumskiy Aleksandr Maksimovich. Shob eti kodirovki leshiy pobral }:-|'. The rest of the page is empty.

Rumskiy Aleksandr Maksimovich. Shob eti kodirovki leshiy pobral }:-|

MidnightCommander



Вывод

В ходе данной лабораторной работы я ознакомился с утилитами создания и управления линукс контейнерами lxd и lxc. Изучил основные команды, методы конфигурации характеристик машин и сетей.