

Механизмы контрольных групп

Задача 1:

Запустить контейнер с ubuntu, используя механизм LXC.

Ограничить контейнер 256Мб ОЗУ и проверить, что ограничение работает.

Добавить автозапуск контейнеру, перезагрузить ОС и убедиться, что контейнер действительно запустился самотоательно.

При создании указать файл, куда записывать логи.

После перезагрузки проанализировать логи.

```
marty@martyVirtualBox:~$ sudo apt update
Hit:1 http://mirror.yandex.ru/ubuntu jammy InRelease
Get:2 http://mirror.yandex.ru/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://mirror.yandex.ru/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://mirror.yandex.ru/ubuntu jammy-security InRelease [110 kB]
Get:5 http://mirror.yandex.ru/ubuntu jammy-updates/main amd64 Packages [496 kB]
Get:6 http://mirror.yandex.ru/ubuntu jammy-updates/main amd64 DEP-11 Metadata [101 kB]
Get:7 http://mirror.yandex.ru/ubuntu jammy-updates/universe amd64 DEP-11 Metadata [289 kB]
Get:8 http://mirror.yandex.ru/ubuntu jammy-updates/multiverse amd64 DEP-11 Metadata [940 kB]
Get:9 http://mirror.yandex.ru/ubuntu jammy-backports/main amd64 DEP-11 Metadata [4,924 kB]
Get:10 http://mirror.yandex.ru/ubuntu jammy-backports/universe amd64 DEP-11 Metadata [17,7 kB]
Get:11 http://mirror.yandex.ru/ubuntu jammy-security/main amd64 DEP-11 Metadata [43,1 kB]
Get:12 http://mirror.yandex.ru/ubuntu jammy-security/universe amd64 DEP-11 Metadata [40,1 kB]
Fetched 2,346 kB in 25 (959 kB/s)
Building dependency tree... Done
Reading state information... Done
62 packages can be upgraded (Run 'apt list --upgradable' to see them).
marty@martyVirtualBox:~$ sudo apt install lxc debbootstrap bridge-utils lxc-templates
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bridge-utils is already the newest version (1.7-lubuntu3).
bridge-utils set to manually installed.
lxc is already the newest version (1:5.0.0~git209+5a7b9ce67~0ubuntu1).
The following additional packages will be installed:
arch-test binutils-common binutils-x86_64-linux-gnu cloud-image-utils fakechroot fakeroot libverbs-providers libiaio1
liblbcfg0 liblbcfg-nobfd0 liblcf0 libdaxct1 libdistro-info-perl liblbd0 libfakechroot libfile-fcntllock-perl
libfapi0 liblfrpc0 liblusterfs0 liblverbs1 libiscsi17 libndctl6 libpmemobj1 librados2 librbd1 librdmacm1
liburing2 mndebootstrap qemu-block-extra qemu-utils
Suggested packages:
binutils-doc mtools squid-proxy-client debian-archive-keyring gcc | c-compler git bzr qemu-user-static
apt-transport-tor binfmt-support dpkg-dev genfstab perl-doc proftpd user squashfs-tools
The following NEW packages will be installed:
arch-test binutils-common binutils-x86_64-linux-gnu cloud-image-utils fakechroot fakeroot libverbs-providers
libiaio1 libbinutils liblbcfg-nobfd0 liblcf0 libdaxct1 libdistro-info-perl liblbd0 libfakechroot libfile-fcntllock-
libfile-fcntllock-perl libfapi0 liblfrpc0 liblusterfs0 liblverbs1 libiscsi17 libndctl6 libpmemobj1 librados2
librbd1 librdmacm1 liburing2 lxc-templates mndebootstrap qemu-block-extra qemu-utils
0 upgraded, 36 newly installed, 0 to remove and 62 not upgraded.
Need to get 14.1 MB of archives.
After this operation, 66.7 MB of additional disk space will be used.
Do you want to continue? [Y/n]
Get:1 http://mirror.yandex.ru/ubuntu jammy/universe amd64 arch-test all 0.17.2 [12.5 kB]
Get:2 http://mirror.yandex.ru/ubuntu jammy/universe amd64 base10 common amd64 1.22.1ubuntu0.1 [222 kB]
```

```
1:root@test123:~$ 
Setting up libiscsi1:amd64 (1.19.0-0-build2) ...
Setting up liblfrpc0:amd64 (10.1-lubuntu0.1) ...
Setting up liblusterfs0:amd64 (2.38-4ubuntu2.3) ...
Setting up liblusterfs1:amd64 (2.38-4ubuntu2.3) ...
Setting up liblverbs1:amd64 (2.38-4ubuntu2.3) ...
Setting up fakechroot (2.20.1+ds-2) ...
Setting up libfapi0:amd64 (10.1-lubuntu0.1) ...
Setting up libqemu-block-extra (1:6.2+dfsg-2ubuntu6.14) ...
Created symlink /etc/systemd/system/multi-user.target.wants/run-qemu.mount → /lib/systemd/system/run-qemu.mount.
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for lxc (5.18.0-1ubuntu0.1) ...
marty@martyVirtualBox:~$ lxc --version
Command 'lxc' not found, but can be installed with:
  sudo snap install lxd      # version 5.18-0bbcc6f9, or
  sudo snap install lxd      # version 5.18-762f5b2
  sudo apt install lxd-installer # version 1
See 'snap info <snapname>' for additional versions.
marty@martyVirtualBox:~$ systemctl start lxc
marty@martyVirtualBox:~$ lxc-create -n test123 -t ubuntu
Checking cache download ...
Installing packages in template: apt-transport-https,ssh,vim,language-pack-en...
Installing packages in template: apt-transport-https,ssh,vim,language-pack-en...
Downloaded Ubuntu jammy minimal ...
I: Target architecture can be executed
I: Retrieving InRelease
I: Checking Release signature
I: Validating Release signature (Key id F6ECB3762474EDA9021B70228719280D1991BC93C)
I: Retrieving Packages
I: Validating Packages
I: Retrieving Packages
I: Validating Packages
I: Resolving dependencies of required packages...
I: Resolving dependencies of base packages...
I: Checking component main on http://archive.ubuntu.com/ubuntu...
I: Validating Packages
I: Retrieving adduser 3.118ubuntu5
I: Validating adduser 3.118ubuntu5
I: Retrieving apt 2.4.5
I: Validating apt 2.4.5
I: Retrieving apt-utils 2.4.5
I: Validating apt-utils 2.4.5
I: Retrieving base-files 10.1ubuntu4
I: Validating base-files 10.1ubuntu4
I: Retrieving base-passwd 3.5.52build1
I: Validating base-passwd 3.5.52build1
I: Retrieving bash 5.1-ubuntu1
I: Validating bash 5.1-ubuntu1
```

```
Activities Tiltix Oct 3 06:23
1/1 + ↻ x
1:root@test123: ~
Tiltix: root@test123: / [Search] [Maximize] [Close]
Copying roots to /var/lib/lxc/test123/rootfs ...
Generating locales (this might take a while)...
  en_CA.UTF-8... done
Generation complete.
Creating SSH RSA key; this may take some time ...
3072-bit RSA key created, 1 public key(s) saved [root@martystaticbox ~]
Generating SSH ECDSA key; this may take some time ...
256 SHA256+PrkGpi1wmw8jnwKebu5svx3yv0B72015APo6h/P1 root@martystaticbox (RSA)
Creating SSH ED25519 key; this may take some time ...
256 SHA256:jgbpVkb8lyNdnrV6xB8v1D8xaWdExaIFZz4R7DCQlhib4 root@martystaticbox (ED25519)
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy-rc.d denied execution of start.

Current default time zone: 'Etc/UTC'
Local time is now:  Tue Oct  3 09:47:17 UTC 2023.
Universal Time is now: Tue Oct  3 09:47:17 UTC 2023.

A
## 
? The default user is 'ubuntu' with password 'ubuntu' !
# Use the 'sudo' command to run tasks as root in the container.
## 

marty@martyVirtualBox:~$ lxc containers
Command 'lxc' not found, but can be installed with:
sudo snap install lxd # version: 5.18-8dbccf9, or
sudo snap install lxd # version: 18-762f1582
sudo apt install lxd-installer # version 1
See 'snap info <snapname>' for additional versions.
marty@martyVirtualBox:~$ lxc-start -n test123
lxc-start: test123: tools/lxc-start.c: main: 198 You lack access to /home/marty/.local/share/lxc
marty@martyVirtualBox:~$ sudo lxc-attach -n test123
lxc-attach: test123: tools/lxc-attach.c: main: 302 You lack access to /home/marty/.local/share/lxc
marty@martyVirtualBox:~$ sudo lxc containers
[sudo] password for marty:
sudo: lxc: command not found
marty@martyVirtualBox:~$ sudo lxc-start -n test123
marty@martyVirtualBox:~$ sudo lxc-attach -n test123
root@test123:~# ls
Bin lib lib32 lib64 lib32x media mnt opt proc root run sbin srv sys [bin] usr var
root@test123:~# free -m
total        used        free      shared  buff/cache   available
Mem:       8265          28       8232           0          4       8236
Swap:          0          0          0          0
root@test123:~#
```

```
marty@martysVirtualBox:~$ sudo lxc-start -n test123
marty@martysVirtualBox:~$ sudo lxc-attach -n test123
root@test123:~# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys tmp usr var
root@test123:~# free -m
              total        used        free      shared  buff/cache   available
Mem:       8265          28       8232           0          4       8236
Swap:          0          0          0
root@test123:~# exit
exit
marty@martysVirtualBox:~$ lxc-cgroup -n test123 memory.max 256M
lxc-cgroup: test123: tools/lxc cgroup.c: main: 102 '/home/marty/.local/share/lxc/test123' is not running
marty@martysVirtualBox:~$ man lxc
marty@martysVirtualBox:~$ lxc-ls -f
marty@martysVirtualBox:~$ sudo lxc-ls -f
[success] password for marty
NAME    STATE    AUTOSTART GROUPS IPV4    IPV6 UNPRIVILEGED
test123 RUNNING 0
marty@martysVirtualBox:~$ sudo lxc-cgroup -n test123 memory.max 256M
marty@martysVirtualBox:~$ sudo lxc-attach -n test123
root@test123:~# free -m
              total        used        free      shared  buff/cache   available
Mem:       256          27        224           0          4        228
Swap:          0          0          0
root@test123:~#
```

```
marty@martyVirtualBox:~$ sudo ls /var/lib/lxc/test123/  
config  rootfs  
marty@martyVirtualBox:~$ nano /var/lib/lxc/test123/config  
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test123/config
```

```
Activities Tilt Oct 3 07:22
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marty@martymvirtualBox: ~
GNU nano 6.2
/var/lib/lxc/test123/config *
# Template used to create this container: /usr/share/lxc/templates/lxc-ubuntu
# Parameters passed to the template:
# For additional config options, please look at lxc.container.conf(5)

# Uncomment the following line to support nesting containers:
#lxc.include = /usr/share/lxc/config/nesting.conf
# (Be aware this has security implications)

# Common configuration
lxc.include = /usr/share/lxc/config/ubuntu.common.conf

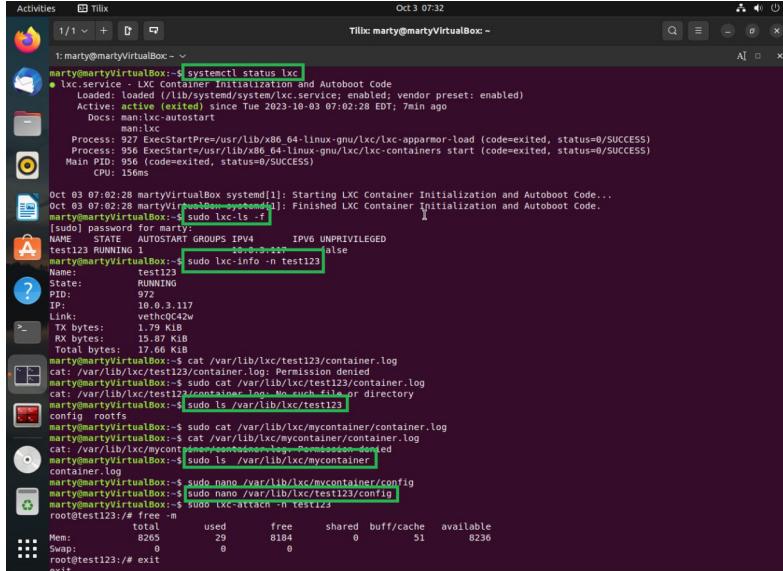
# Container specific configuration
lxc.rootfs.path = dir:/var/lib/lxc/test123/rootfs
lxc.uts.name = test123
lxc.arch = amd64

# Network configuration
lxc.net.0.type = veth
lxc.net.0.link = lxcbr0
lxc.net.0.flags = up
lxc.net.0.hwaddr = 00:16:3e:9d:1f:e2
> # auto =1 and logs doбавил

lxc.start.auto = 1
lxc.cgroup.memory.limit_in_bytes = 268435456
lxc.cgroup.memory.max = 258M
lxc.log.file = /var/lib/lxc/test123/container.log

# Help F6 Exit F7 Write Out F8 Read File F9 Where Is F10 Cut F11 Paste F12 Execute F13 Justify F14 Location F15 Go To Line M-U Undo M-R Redo M-A Set Mark M-B Copy
```

```
marty@martyVirtualBox:~$ sudo ls /var/lib/lxc/test123/  
config rootfs  
marty@martyVirtualBox:~$ nano /var/lib/lxc/test123/config  
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test123/config  
marty@martyVirtualBox:~$ sudo ls /var/lib/lxc/test123/  
config rootfs  
marty@martyVirtualBox:~$ sudo reboot
```



- 1) sudo apt update & sudo apt install lxc
 - 2) sudo lxc-create -n test123 -t ubuntu
 - 3) sudo lxc-start -n test123
 - 4) sudo lxc-attach -n test123
 - 5) free -m
 - 6) sudo lxc-ls -f
 - 7) sudo lxc-info test123 -f
 - 8) sudo lxc-cgroup -n test123 memory.max 256M
 - 9) systemctl status lxc
 - 10) sudo nano /var/lib/lxc/test123/config

```
|  
|_> lxc.start.auto = 1  
|_> lxc.log.file = /var/lib/lxc/test123/container.log  
|_> lxc.cgroup.memory.limit_in_bytes = 256000000  
|_> lxc.cgroup.memory.max = 256 M
```

 - 11) sudo nano /etc/lxc/default.conf

***Задача 2:

Для желающих предлагается настроить автоматическую маршрутизацию между контейнерами.

Адреса можно взять 10.0.12.0/24 и 10.0.13.0/24

```
1:marty@martyVirtualBox: ~ 
marty@martyVirtualBox:~$ lxc-c
lxc-cgroup      lxc-checkconfig  lxc-checkpoint    lxc-config       lxc-console      lxc-copy       lxc-create
marty@martyVirtualBox:~$ sudo lxc-create -n test11 -t ubuntu
Checking cache download in /var/cache/lxc/jammy/rootfs-amd64 ...
Copy /var/cache/lxc/jammy/rootfs-amd64 to /var/lib/lxc/test11/rootfs ...
Copying rootfs to /var/lib/lxc/test11/rootfs ...
Generating locales (this might take a while)...
    en_CA.UTF-8... done
Generation complete.
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:H3281DKSYtTyOwyMbh7radBs1Ef8itzg0W37fjaTSw root@martyVirtualBox (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:5D1PbqF26unhrVM4V6nw1Y02YXur7PnQaryl6u5ZDo root@martyVirtualBox (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:YZfi9g+bqWL6hqIz7ddjXdYCPm6wLNU2UqL4RoXoU root@martyVirtualBox (ED25519)
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy-rc.d denied execution of start.

Current default time zone: 'Etc/UTC'
Local time is now:      Tue Oct  3 11:49:25 UTC 2023.
Universal Time is now: Tue Oct  3 11:49:25 UTC 2023.

##
# The default user is 'ubuntu' with password 'ubuntu'!
# Use the 'sudo' command to run tasks as root in the container.
##

marty@martyVirtualBox:~$ find / -name lxc-veth.conf
find: '/var/lib/snapd/void': Permission denied
find: '/var/lib/snapd/cookie': Permission denied
find: '/var/lib/saned': Permission denied
find: '/var/lib/onlykit-1': Permission denied
```

```
find: '/boot/efi': Permission denied
find: '/root': Permission denied
/usr/share/doc/liblxc-common/examples/lxc-veth.conf
find: '/proc/tty/driver': Permission denied
find: '/proc/1/task/1/fd': Permission denied
```

```
1:marty@martyVirtualBox: ~
GNU nano 6.2          /usr/share/doc/liblxc-common/examples/lxc-veth.conf *
# Container with network virtualized using a pre-configured bridge named br0 and
# veth pair virtual network devices
lxc.uts.name = beta
lxc.net.0.type = veth
lxc.net.0.flags = up
lxc.net.0.link = br0
lxc.net.0.hwaddr = 4a:49:43:49:79:bf
lxc.net.0.ipv4.address = 10.0.12.0/24
lxc.net.0.ipv6.address = 2003:db8:1:0:214:1234:fe0b:3597
```

```
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME STATE AUTOSTART GROUPS IPV4      IPV6 UNPRIVILEGED
test11 STOPPED 1   -   -   -   false
test12 RUNNING 1   10.0.3.117 -   false
marty@martyVirtualBox:~$ sudo nano /usr/share/doc/lxc/examples/lxc-veth.conf
marty@martyVirtualBox:~$ sudo nano /usr/share/doc/liblxc-common/examples/lxc-veth.conf
marty@martyVirtualBox:~$ sudo lxc-start -n test11
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME STATE AUTOSTART GROUPS IPV4      IPV6 UNPRIVILEGED
test11 RUNNING 1   18.0.3.79 -   false
test12 RUNNING 1   10.0.3.117 -   false
marty@martyVirtualBox:~$ sudo lxc-info -n test11
Name:        test11
State:      RUNNING
PID:        4602
IP:         10.0.3.79
Link:       vethMtvxu
TX bytes:   1.59 Kib
RX bytes:   3.62 Kib
Total bytes: 5.21 Kib
marty@martyVirtualBox:~$ sudo nano /usr/share/doc/liblxc-common/examples/lxc-veth.conf
marty@martyVirtualBox:~$ sudo lxc-info -n test11
Name:        test11
State:      RUNNING
PID:        4602
IP:         10.0.3.79
Link:       vethMtvxu
TX bytes:   1.65 Kib
RX bytes:   3.80 Kib
Total bytes: 5.45 Kib
```

Activities Terminator Oct 3 08:10

```

1:marty@martyVirtualBox:~ 
Copying roots to /var/lib/lxc/test22/rootfs ...
Generating locales (this might take a while)...
en_CA.UTF-8... done
Generation complete
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:OsWUNAQLsilahOoRU1B07ooA1Z/JW09vQKExpyU2U root@mar
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:n/TjSiTB0wqjIDUend3pZatGU56Vf3IALJ/RxUo root@marty@mar
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:AfGmkMXFB0rJiaHP1B3mgXgp+bpSWL9BjsV9ui root@marty@mar
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy=rc.d denied execution of start.

Current default time zone: 'Etc/UTC'
Local time is now:  Tue Oct  3 12:04:40 UTC 2023.
Universal Time is now: Tue Oct  3 12:04:40 UTC 2023.

## 
# The default user is 'ubuntu' with password 'ubuntu'!
# Use the 'sudo' command to run tasks as root in the container.
## 

marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME    STATE   AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
test11  RUNNING 1      -      10.0.3.79 -  false
test123 RUNNING 1      -      10.0.3.117 -  false
test22  STOPPED 1      -      10.0.3.55 -  false
marty@martyVirtualBox:~$ sudo lxc-start -n test22
marty@martyVirtualBox:~$ sudo lxc-info -n test22
Name:          test22
State:         RUNNING
PID:           5089
TID:           10.0.3.55
Link:          mybridgevm06
TX bytes:     1.45 KiB
RX bytes:     3.34 KiB
Total bytes:  4.79 KiB
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME    STATE   AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
test11  RUNNING 1      -      10.0.3.79 -  false
test123 RUNNING 1      -      10.0.3.117 -  false
test22  RUNNING 1      -      10.0.3.55 -  false
marty@martyVirtualBox:~$ 

```

Activities Tiliix Oct 3 08:45

```

1:marty@martyVirtualBox:~ 
marty@martyVirtualBox:~$ sudo ip link add name mybridge type bridge
[sudo] password for marty:
marty@martyVirtualBox:~$ sudo ip addr add 10.0.12.1/24 dev mybridge
marty@martyVirtualBox:~$ sudo ip addr add 10.0.13.1/24 dev mybridge
marty@martyVirtualBox:~$ sudo ip link set dev mybridge up
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test11/config
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test11/config
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test22/config
marty@martyVirtualBox:~$ sudo lxc-stop -n test11
lxc-stop: test11: confile.c: set_config Unsupported_key: 164 Invalid argument - Unsupported config key "lxc.network.link"
lxc-stop: test11: parse.c: lxc_file_for_each_line_mmap: 129 Failed to parse config file "/var/lib/lxc/test11/config" at line "lxc.netw
ork.link = mybridge"
Failed to load config for test11
lxc-stop: test11: tools/lxc_stop.c: main: 143 Error opening container
marty@martyVirtualBox:~$ sudo lxc-ls -f
Failed to load config for test11
Failed to load config for test22
NAME    STATE   AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
test123 RUNNING 1      -      10.0.3.117 -  false
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test11/config
marty@martyVirtualBox:~$ sudo lxc-ls -f
Failed to load config for test22
NAME    STATE   AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
test123 RUNNING 1      -      10.0.3.117 -  false
marty@martyVirtualBox:~$ sudo lxc-stop -n test11
lxc-stop: test11: confile.c: set_config Unsupported_key: 164 Invalid argument - Unsupported config key "lxc.network.link"
lxc-stop: test11: parse.c: lxc_file_for_each_line_mmap: 129 Failed to parse config file "/var/lib/lxc/test11/config" at line "lxc.netw
ork.link = mybridge"
Failed to load config for test11
lxc-stop: test11: tools/lxc_stop.c: main: 143 Error opening container
marty@martyVirtualBox:~$ 

```

```
marty@martyVirtualBox: ~  ~
GNU nano 6.2                                     /var/lib/lxc/test11/config *
# Template used to create this container: /usr/share/lxc/templates/lxc-ubuntu
# Parameters passed to the template:
# For additional config options, please look at lxc.container.conf(5)

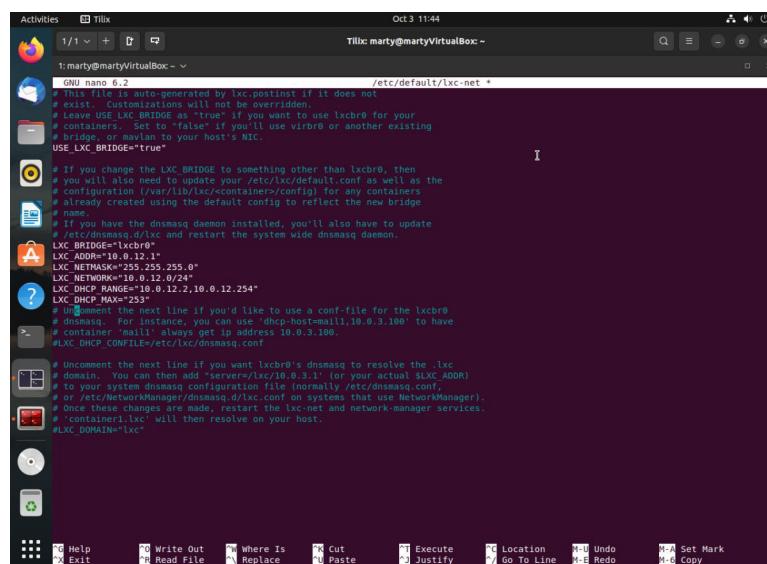
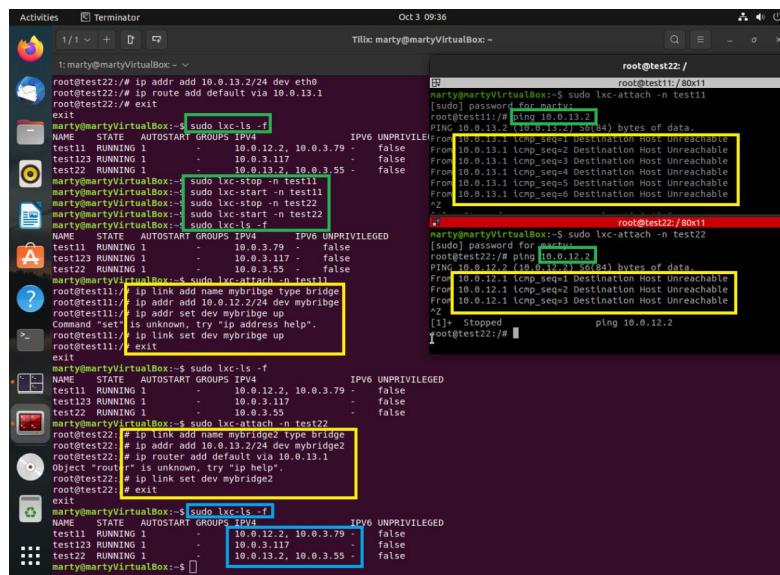
# Uncomment the following line to support nesting containers:
#lxc.include = /usr/share/lxc/config/nesting.conf
# (Be aware this has security implications)

# Common configuration
lxc.include = /usr/share/lxc/config/ubuntu.common.conf

# Container specific configuration
lxc.start.auto = 1
# lxc.cgroup.memory.limit_in_bytes = 268435456
lxc.cgroup.memory.max = 256M
lxc.log.file = /var/lib/lxc/test123/container.log
lxc.rootfs.path = dir:/var/lib/lxc/test11/rootfs
lxc.uts.name = test11
lxc.arch = amd64

# Network configuration
lxc.net.0.type = veth
lxc.net.0.link = lxcbr0
lxc.net.0.flags = up
lxc.net.0.hwaddr = 00:16:3e:ad:28:75

# added by me
lxc.network.link = mybridge
lxc.network.ipv4 = 10.0.12.2/24
lxc.network.ipv4.gateway = 10.0.12.1
```



```

Activities   Tillix
Oct 3 09:12
1: marty@martyVirtualBox: ~
GNU nano 6.2
/var/lib/lxc/test22/config
# Template used to create this container: /usr/share/lxc/templates/lxc-ubuntu
# Parameters passed to the template:
# For additional config options, please look at lxc.container.conf(5)

# Uncomment the following line to support nesting containers:
#lxc.include = /usr/share/lxc/config/nesting.conf
# (Be aware this has security implications)

# Common configuration
lxc.include = /usr/share/lxc/config/ubuntu.common.conf

# Container specific configuration
lxc.start.auto = 1
#lxc.cgroup.memory.limit_in_bytes = 268435456
lxc.log.level = /var/lib/lxc/test123/container.log
lxc.rootfs.path = dir:/var/lib/lxc/test22/rootfs
lxc.uts.name = test22
lxc.arch = amd64

# Network configuration
lxc.net.0.type = veth
lxc.net.0.link = lxcbr0
lxc.net.0.flags = up
lxc.net.0.hweaddr = 00:16:3e:b9:43:a3

# added by me
# lxc.network.link = mybridge
# lxc.network.ipv4 = 10.0.13.2/24
# lxc.network.ipv4.gateway = 10.0.13.1

File Edit View Insert Select Tools Help
G Help F0 Write Out F1 Where Is F2 Cut F3 Paste F4 Execute F5 Justify F6 Location F7 Go To Line M-U Undo M-E Redo M-A Set Mark M-B Copy

```

1) sudo lxc-create -n test11 -t ubuntu

2) sudo lxc-create -n test22 -t ubuntu

3) sudo ip link add name mybridge type bridge

4) sudo ip addr add 10.0.12.1/24 dev mybridge

5) # sudo ip addr add 10.0.13.1/24 dev mybridge

5) sudo ip link set dev mybridge up

6) sudo ip route add 10.0.13.0/24 via 10.0.12.1 dev mybridge

7) ip route show

8) ip link show

9) sudo nano /var/lib/lxc/test11/config # так не работает пришлось закомитить

|

|_> lxc.network.type = veth

|_> lxc.network.link = mybridge

|_> lxc.network.ipv4 = 10.0.12.2/24

|_> lxc.network.ipv4.gateway = 10.0.12.1

10) sudo nano /var/lib/lxc/test22/config # так не работает пришлось закомитить

|

|_> lxc.network.type = veth

|_> lxc.network.link = mybridge

|_> lxc.network.ipv4 = 10.0.13.2/24

|_> lxc.network.ipv4.gateway = 10.0.13.1

11) sudo lxc-start -n test11

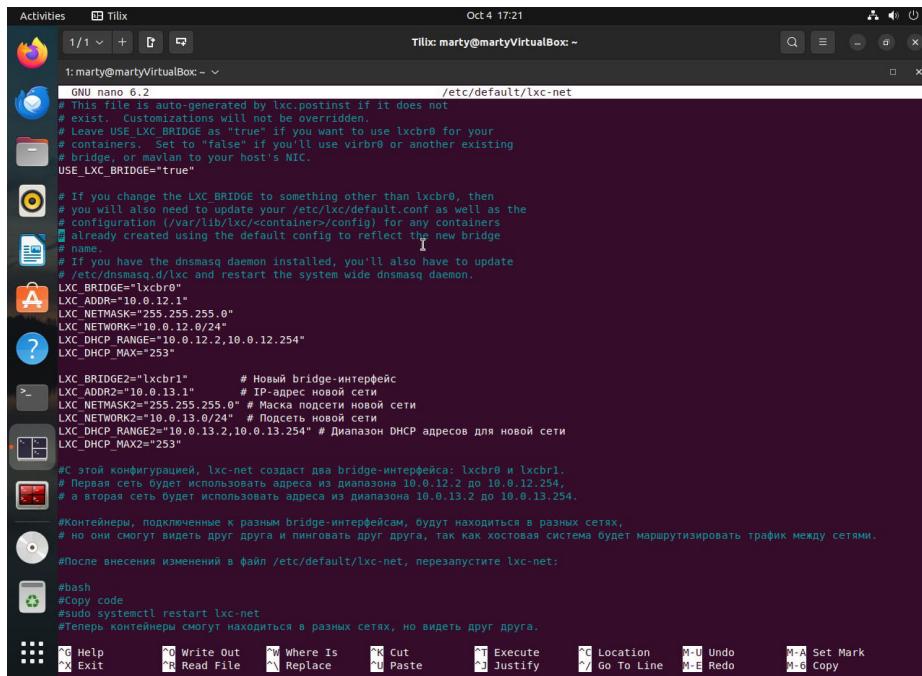
12) sudo lxc-attach -n test11

13) sudo lxc-start -n test22

14) sudo lxc-attach -n test22

РЕШЕНИЕ ЗАДАЧКИ 2:

1) меняем конфигурацию файла /etc/default/lxc-net , вот так :



```
Activities   Tilix          Oct 4 17:21
1/1 +   Tilix
Tilix: marty@martyVirtualBox: ~      /etc/default/lxc-net
GNU name 6.2

# This file is auto-generated by lxc.postinst if it does not
# exist. Customizations will not be overridden.
# Leave USE_LXC_BRIDGE as "true" if you want to use lxcbr0 for your
# containers. Set to "false" if you'll use virbr0 or another existing
# bridge, or maybe to your host's NIC.
USE_LXC_BRIDGE="true"

# If you change the LXC_BRIDGE to something other than lxcbr0, then
# you will also need to update your /etc/lxc/default.conf as well as the
# configuration (/var/lib/lxc/<container>/config) for any containers
# already created using the default config to reflect the new bridge
# name.
# If you have the dnsmasq daemon installed, you'll also have to update
# /etc/dnsmasq.d/lxc and restart the system wide dnsmasq daemon.

LXC_BRIDGE="lxcbr0"
LXC_ADDR="10.0.12.1"
LXC_NETMASK="255.255.255.0"
LXC_NETWORK="10.0.12.0/24"
LXC_DHCP_RANGE="10.0.12.2,10.0.12.254"
LXC_DHCP_MAX="253"

LXC_BRIDGE2="lxcbr1"      # Новый bridge-интерфейс
LXC_ADDR2="10.0.13.1"    # IP-адрес новой сети
LXC_NETMASK2="255.255.255.0" # Мaska подсети новой сети
LXC_NETWORK2="10.0.13.0/24" # Подсеть новой сети
LXC_DHCP_RANGE2="10.0.13.2,10.0.13.254" # Диапазон DHCP адресов для новой сети
LXC_DHCP_MAX2="253"

# С этой конфигурацией, lxc-net создаст два bridge-интерфейса: lxcbr0 и lxcbr1.
# Первая сеть будет использовать адреса из диапазона 10.0.12.2 до 10.0.12.254,
# а вторая сеть будет использовать адреса из диапазона 10.0.13.2 до 10.0.13.254.

#Контейнеры, подключенные к разным bridge-интерфейсам, будут находиться в разных сетях,
# но они смогут видеть друг друга и пинговать друг друга, так как хостовая система будет маршрутизировать трафик между сетями.

#После внесения изменений в файл /etc/default/lxc-net, перезапустите lxc-net:

#bash
#Copy code
#sudo systemctl restart lxc-net
#Теперь контейнеры смогут находиться в разных сетях, но видеть друг друга.
```

```
LXC_BRIDGE="lxcbr0"
LXC_ADDR="10.0.12.1"
LXC_NETMASK="255.255.255.0"
LXC_NETWORK="10.0.12.0/24"
LXC_DHCP_RANGE="10.0.12.2,10.0.12.254"
LXC_DHCP_MAX="253"

LXC_BRIDGE2="lxcbr1"      # Новый bridge-интерфейс
LXC_ADDR2="10.0.13.1"    # IP-адрес новой сети
LXC_NETMASK2="255.255.255.0" # Мaska подсети новой сети
LXC_NETWORK2="10.0.13.0/24" # Подсеть новой сети
LXC_DHCP_RANGE2="10.0.13.2,10.0.13.254" # Диапазон DHCP адресов для новой сети
LXC_DHCP_MAX2="253"
```

С этой конфигурацией, `lxc -net` создаст два bridge-интерфейса: `lxcbr0` и `lxcbr1`. Первая сеть будет использовать адреса из диапазона `10.0.12.2` до `10.0.12.254`, а вторая сеть будет использовать адреса из диапазона `10.0.13.2` до `10.0.13.254`.

Контейнеры, подключенные к разным bridge-интерфейсам, будут находиться в разных сетях, но они смогут видеть друг друга и пинговать друг друга, так как хостовая система будет маршрутизировать трафик между сетями.

После внесения изменений в файл `/etc/default/lxc-net`, перезапустите `lxc -net`:

- 1) `sudo systemctl restart lxc-net`
- 2) `sudo reboot`

2) проверяем сеть и lxc контейнеры , по началу нового интерфейса lxcbr1 видно не будет, это норма
мы его создадим его позже

```

1:marty@martyVirtualBox:~ ~
marty@martyVirtualBox:~$ sudo lxc-ls -f
[sudo] password for marty:
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING 1      -      10.0.12.174 -  false
container2 RUNNING 1      -      10.0.12.23  -  false
t122      RUNNING 1      -      10.0.12.107 -  false
test11     RUNNING 1      -      10.0.12.79  -  false
test123    RUNNING 1      -      10.0.12.117 -  false
test22     RUNNING 1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ sudo nano /etc/default/lxc-net
marty@martyVirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
            inet6 fe80::1%lo brd ff:ff:ff:ff:ff:ff
                valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c1:6d:8 brd ff:ff:ff:ff:ff:ff
        inet 192.168.1.66 brd 192.168.1.255 scope global dynamic noprefixroute enp0s3
            valid_lft 86192sec preferred_lft 86192sec
            inet6 fe80::f800:2e47ff:fe6b/64 scope link noprefixroute
                valid_lft forever preferred_lft forever
3: lxcbr0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 00:00:00:00:00:00 brd ff:ff:ff:ff:ff:ff
        inet 10.0.12.1/24 brd 10.0.12.255 scope global lxcbr0
            valid_lft forever preferred_lft forever
            inet6 fe80::216:3eff:fe00:64 scope link
                valid_lft forever preferred_lft forever
4: vethG6jZWD@if2: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master lxcbr0 state UP group default qlen 1000
    link/ether fe:7d:e4:2c:c7:1e brd ff:ff:ff:ff:ff:ff
        inet6 fe80::fc7d:e4ff:fe2c:c71e/64 scope link
            valid_lft forever preferred_lft forever
5: vethW0609c@if2: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master lxcbr0 state UP group default qlen 1000
    link/ether fe:c7:d8:57:c3:d8 brd ff:ff:ff:ff:ff:ff
        inet6 fe80::fc7c:d8ff:fe57:c3db/64 scope link
            valid_lft forever preferred_lft forever
6: vethmrjC@if2: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master lxcbr0 state UP group default qlen 1000
    link/ether fe:36:d3:1b:99:db brd ff:ff:ff:ff:ff:ff
        inet6 fe80::fc36:d3ff:fe1b:99db/64 scope link
            valid_lft forever preferred_lft forever

```

3) после перезагрузки создаем новый lxc-контейнер :
`sudo lxc-create -n test33 -t ubuntu`

```

Activities   Tilix
Oct 4 18:35
1/marty@martyVirtualBox:~ ~
marty@martyVirtualBox:~$ sudo lxc-create -n test33 -t ubuntu
Checking cache download in /var/cache/lxc/jammy/rootfs-amd64 ...
Copy /var/cache/lxc/jammy/rootfs-amd64 to /var/lib/lxc/test33/rootfs ...
Copying rootfs to /var/lib/lxc/test33/rootfs ...
Generating locales (this might take a while)...
en_CA.UTF-8... done
Generation complete.
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:0IDPMRqkEM5NSzaw60nwR62s+K3vFXm861c3zx54Y root@martyVirtualBox (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:NhZWszOk+5Gv+m2F5ojgMmBAS4+jG12gzcMc0vSawcE root@martyVirtualBox (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:q+QP8xipGXQL7N0KsYMPb1zeMnLf3DDFvxTT2VcseM root@martyVirtualBox (ED25519)
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy-rc.d denied execution of start.

A Current default time zone: 'Etc/UTC'.
Local time is now:      Wed Oct  4 21:27:42 UTC 2023.
Universal Time is now: Wed Oct  4 21:27:42 UTC 2023.

?
## 
# The default user is 'ubuntu' with password 'ubuntu'!
# Use the 'sudo' command to run tasks as root in the container.
## 

marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING 1      -      10.0.12.174 -  false
container2 RUNNING 1      -      10.0.12.23  -  false
t122      RUNNING 1      -      10.0.12.107 -  false
test11     RUNNING 1      -      10.0.12.79  -  false
test123    RUNNING 1      -      10.0.12.117 -  false
test22     RUNNING 1      -      10.0.12.55  -  false
test33     STOPPED 1      -      -           -  false
marty@martyVirtualBox:~$ sudo ls /var/lib/lxc/test33/
config  rootfs
marty@martyVirtualBox:~$ sudo nano /var/lib/lxc/test33/config
marty@martyVirtualBox:~$ sudo lxc-start -n test33 -f config
lxc-start: test33: parse.c: lxc_file for each line mmap: 78 No such file or directory - Failed to open file "config"
lxc-start: test33: tools/lxc_start.c: main: 213 Failed to load rcfile
marty@martyVirtualBox:~$ sudo lxc-start -n test33 -f /var/lib/lxc/test33/config
lxc-start: test33: lxccontainer.c: Wait_on_daemonized_start: 87 Received container state "ABORTING" instead of "RUNNING"
lxc-start: test33: tools/lxc_start.c: main: 306 The container failed to start
lxc-start: test33: tools/lxc_start.c: main: 309 To get more details, run the container in foreground mode
lxc-start: test33: tools/lxc_start.c: main: 311 Additional information can be obtained by setting the --logfile and --logpriority options

```

как видно test33 не запущен, но это к лучшему, пока test33 не видит новый интерфейс lxcbr1, точнее интерфейс lxcbr1 еще не создан, следующий этап создать этот интерфейс.

проверка логов, ну так для галочки ^V^

```
Activities Tilk Oct 4 18:43
1/marty@martyVirtualBox ~
lxc-start: test33: tools/lxc_start.c: main: 311 Additional information can be obtained by setting the --logfile and --logpriority options
marty@martyVirtualBox: ~$ sudo lxc-start -n test33
lxc-start: test33: lxccontainer.c: Wait on daemonized start: 877 Received container state "ABORTING" instead of "RUNNING"
lxc-start: test33: tools/lxc_start.c: main: 306 The container failed to start
lxc-start: test33: tools/lxc_start.c: main: 309 To get more details, run the container in foreground mode
lxc-start: test33: tools/lxc_start.c: main: 311 Additional information can be obtained by setting the --logfile and --logpriority options
marty@martyVirtualBox: ~$ sudo nano /var/lib/lxc/test33/config
marty@martyVirtualBox: ~$ sudo lxc-start -n test33
lxc-start: test33: lxccontainer.c: Wait on unprivileged start: 877 Received container state "ABORTING" instead of "RUNNING"
lxc-start: test33: tools/lxc_start.c: main: 306 The container failed to start
lxc-start: test33: tools/lxc_start.c: main: 309 To get more details, run the container in foreground mode
lxc-start: test33: tools/lxc_start.c: main: 311 Additional information can be obtained by setting the --logfile and --logpriority options
marty@martyVirtualBox: ~$ sudo lxc-start -n test33 -L DEBUG -o /var/log/lxc/test33.log
lxc-start: test33: lxccontainer.c: Wait on daemonized start: 877 Received container state "ABORTING" instead of "RUNNING"
lxc-start: test33: tools/lxc_start.c: main: 306 The container failed to start
lxc-start: test33: tools/lxc_start.c: main: 309 To get more details, run the container in foreground mode
lxc-start: test33: tools/lxc_start.c: main: 311 Additional information can be obtained by setting the --logfile and --logpriority options
marty@martyVirtualBox: ~$ sudo cat /var/log/lxc/test33.log
lxc-start test33 2023/04/21 14:39:1.262 INFO lxccontainer.c:lxcontainer:c:do_lxcap_start:997 - Set process title to [lxc monitor] /var/lib/lxc/test33
lxc-start test33 2023/04/21 14:39:1.263 DEBUG lxccontainer - lxcontainer.c:wait on daemonized start:858 - First child 5842 exited
lxc-start test33 2023/04/21 14:39:1.264 INFO lsm - lsm/lsm.c:lsm_init static@: 9 Initialized LSM security driver AppArmor
lxc-start test33 2023/04/21 14:39:1.264 DEBUG seccomp - seccomp:c:parse_config v2:856 - Host native arch is [32bit/22353#]
seccomp - seccomp:c:parse_config v2:857 - Processing 'reject force_umount' # comment this
lxc-start test33 2023/04/21 14:39:1.264 INFO to allow umount - not recommended"
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:524 - Set seccomp rule to reject force umounts
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:524 - Set seccomp rule to reject force umounts
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:parse_config v2:807 - Processing "[all]"
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:parse_config v2:807 - Processing 'kexec_load errno 1'
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:564 - Adding native rule for sysctl[246:kexec_lo
ad] action[327681:errno] arch[0]
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:564 - Adding compat rule for sysctl[246:kexec_lo
ad] action[327681:errno] arch[1073741827]
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:564 - Adding compat rule for sysctl[246:kexec_lo
ad] action[327681:errno] arch[1073741886]
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:parse_config v2:807 - Processing 'open by handle_at errno 1'
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:564 - Adding native rule for sysctl[304:open_by_
handle_at] action[327681:errno] arch[1073741827]
lxc-start test33 2023/04/21 14:39:1.264 INFO seccomp - seccomp:c:do_resolve add rule:564 - Adding compat rule for sysctl[304:open_by_
handle_at] action[327681:errno] arch[1073741886]
```

4) пропишем команды bash, создадим lxcbr1 с помощью следующих команд:

- 1) sudo brctl addbr lxcbr1
 - 2) sudo ip addr add 10.0.13.1/24 dev lxcbr1
 - 3) sudo ip link set dev lxcbr1 up

еще до запуска нужно проверить config test33, там должен быть указан интерфейс lxcbr1, а не lxcbr0 иначе нечего не выйдет, это очень важно:

4) lxc.net.0.link = lxcbr1

The screenshot shows a Tiliix terminal window titled "Tiliix: marty@martyVirtualBox: ~". The terminal is displaying the contents of a file named "nano 6.2" which contains configuration for an LXC container. The configuration includes parameters like memory limit, log file, rootfs path, and network interface settings. A portion of the configuration is highlighted with a green box, specifically the line "lxc.net.0.link = lxcbr1".

```
GNU nano 6.2 /var/lib/lxc/test33/config *
# Template used to create this container: /usr/share/lxc/templates/lxc-ubuntu
# Parameters passed to the template:
# For additional config options, please look at lxc.container.conf(5)

# Uncomment the following line to support nesting containers:
#lxc.include = /usr/share/lxc/config/nesting.conf
# (Be aware this has security implications)

# Common configuration
lxc.include = /usr/share/lxc/config/ubuntu.common.conf

# Container specific configuration
lxc.start.auto = 1
# lxc.cgroup.memory.limit_in_bytes = 268435456
lxc.cgroup.memory.max = 256M
lxc.log.file = /var/lib/lxc/test123/container.log
lxc.rootfs.path = dir:/var/lib/lxc/test33/rootfs
lxc.uts.name = test33
lxc.arch = amd64

# Network configuration
lxc.net.0.type = veth
lxc.net.0.link = lxcbr1
lxc.net.0.flags = up
lxc.net.0.hwaddr = 00:16:3e:48:a0:35

lxc.net.0.ipv4.address = 10.0.13.2/24
lxc.net.0.ipv4.gateway = 10.0.13.1
```

и запускаем lxc test33

5) sudo lxc-start -n test33

```
Activities   Tilix   Oct 4 18:53
1/1  +  Tilix: marty@martyVirtualBox: ~
marty@martyVirtualBox:~$ sudo brctl addbr lxcbr1
marty@martyVirtualBox:~$ sudo ip addr add 10.0.13.1/24 dev lxcbr1
marty@martyVirtualBox:~$ sudo ip link set dev lxcbr1 up
marty@martyVirtualBox:~$ sudo lxc-start -n test33
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> brd 00:00:00 queueing discipline UNKNOWN group default qlen 1000
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 brd 127.0.0.1 scope host lo
    valid_lft forever preferred_lft forever
inet6 ::1/128 brd :: scope host
    valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> brd 1500 qdisc fq_codel state UP group default qlen 1000
link/ether 08:00:27:c1:6d:f8 brd ff:ff:ff:ff:ff:ff
inet 192.168.1.66/24 brd 192.168.1.255 scope global dynamic no-prefixroute enp0s3
    valid_lft 84621sec preferred_lft 84621sec
    inet6 fe80::c16d:f8ff:fe00:1/64 scope link
        valid_lft forever preferred_lft forever
3: lxcbr0: <BROADCAST,MULTICAST,UP,LOWER_UP> brd 1500 qdisc noqueue state UP group default qlen 1000
link/ether 00:16:3e:00:00:00 brd ff:ff:ff:ff:ff:ff
    valid_lft forever preferred_lft forever
    inet 10.0.12.1/24 brd 10.0.12.255 scope global lxcbr0
        valid_lft forever preferred_lft forever
    inet6 fe80::216:3eff:fe00:1/64 scope link
        valid_lft forever preferred_lft forever
4: veth06jw00if2: <BROADCAST,MULTICAST,UP,LOWER_UP> brd mtu 1500 qdisc noqueue master lxcbr0 state UP group default qlen 1000
link/ether fa:7d:7a:7e:7c:1a brd ff:ff:ff:ff:ff:ff
    valid_lft forever preferred_lft forever
marty@martyVirtualBox:~$
```

у test33 не будет ip-шника, мы его добавим далее в самон config файле,
за одно проверим есть ли интерфейс lxcbr1 в списках ip а

```
Activities   Tilix   Oct 4 18:58
1/1  +  Tilix: marty@martyVirtualBox: ~
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ ip a
14: lxcbr1: <BROADCAST,MULTICAST,UP,LOWER_UP> brd 1500 qdisc noqueue state UP group default qlen 1000
link/ether 5e:0a:ef:61:63:c3 brd ff:ff:ff:ff:ff:ff
inet 10.0.13.1/24 brd 10.0.13.255 scope global lxcbr1
    valid_lft forever preferred_lft forever
    inet6 fe80::5e0a:effff:fe61:63c3/64 scope link
        valid_lft forever preferred_lft forever
15: veth0Glmz@lxcbr1: <BROADCAST,MULTICAST,UP,LOWER_UP> brd 1500 qdisc noqueue master lxcbr1 state UP group default qlen 1000
link/ether ad:6d:46:32:brd ff:ff:ff:ff:ff:ff
inet 10.0.13.2/24 brd 10.0.13.255 scope global
    valid_lft forever preferred_lft forever
    inet6 fe80::ad6d:46ff:fea1:4632/64 scope link
        valid_lft forever preferred_lft forever
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$ sudo lxc-ls -f
NAME      STATE    AUTOSTART GROUPS IPV4          IPV6 UNPRIVILEGED
container1 RUNNING  1      -      10.0.12.174 -  false
container2 RUNNING  1      -      10.0.12.23  -  false
t122      RUNNING  1      -      10.0.12.107 -  false
test11     RUNNING  1      -      10.0.12.79  -  false
test123    RUNNING  1      -      10.0.12.117 -  false
test22     RUNNING  1      -      10.0.12.55  -  false
test33     RUNNING  1      -      10.0.12.55  -  false
marty@martyVirtualBox:~$
```

Интерфейс запустился lxcbr1 под номером №14 и его ip = 10.0.13.1/24, то что нужно :)

5) Совсем чуть не забыл, нужно настроить config в test33

точнее :

```
sudo nano /var/lib/lxc/test33/config
```

1 >

|_>1) lxc.net.0.ipv4.address = 10.0.13.2/24

|_>2) lxc.net.0.ipv4.gateway = 10.0.13.1

```
GNU nano 6.2                               /var/lib/lxc/test33/config *
# Template used to create this container: /usr/share/lxc/templates/lxc-ubuntu
# Parameters passed to the template:
# For additional config options, please look at lxc.container.conf(5)

# Uncomment the following line to support nesting containers:
#lxc.include = /usr/share/lxc/config/nesting.conf
# (Be aware this has security implications)

# Common configuration
lxc.include = /usr/share/lxc/config/ubuntu.common.conf

# Container specific configuration
lxc.start.auto = 1
# lxc.cgroup.memory.limit in bytes = 268435456
lxc.cgroup.memory.max = 256M
lxc.log.file = /var/lib/lxc/test123/container.log
lxc.rootfs.path = dir:/var/lib/lxc/test33/rootfs
lxc.uts.name = test33
lxc.arch = amd64

# Network configuration
lxc.net.0.type = veth
lxc.net.0.link = lxcbrl1
lxc.net.0.flags = up
lxc.net.0.hwaddr = 00:16:3e:48:a0:35

lxc.net.0.ipv4.address = 10.0.13.2/24
lxc.net.0.ipv4.gateway = 10.0.13.1
```

Теперь должно работать, проверяем

Activities Tiliax Oct 4 19:03

1 / + Tiliax marty@martyVirtualBox: ~

```
marty@martyVirtualBox: ~
```

```
test22 RUNNING 1 - 10.0.12.55 - false
test33 RUNNING 1 - 10.0.12.55 - false
marty@martyVirtualBox: ~
```

```
sudo lxc-ls -f
```

NAME	STATE	AUTOSTART	GROUPS	IPV4	IPV6	UNPRIVILEGED
container1	RUNNING	1	-	10.0.12.174	-	false
container2	RUNNING	1	-	10.0.12.23	-	false
t122	RUNNING	1	-	10.0.12.107	-	false
test11	RUNNING	1	-	10.0.12.79	-	false
test123	RUNNING	1	-	10.0.12.117	-	false
test22	RUNNING	1	-	10.0.12.55	-	false
test33	RUNNING	1	-	-	-	false

```
marty@martyVirtualBox: ~
```

```
sudo lxc-attach -n test33
```

```
root@test33:/# dhclient
```

```
bash: --: command not found
```

```
root@test33:/# dhclient
```

```
^Z
```

```
[!!] Stopped dhclient
```

```
exit
```

```
There are stopped jobs.
```

```
root@test33:/# exit
```

```
exit
```

```
marty@martyVirtualBox: ~
```

```
sudo lxc-ls -f
```

NAME	STATE	AUTOSTART	GROUPS	IPV4	IPV6	UNPRIVILEGED
container1	RUNNING	1	-	10.0.12.174	-	false
container2	RUNNING	1	-	10.0.12.23	-	false
t122	RUNNING	1	-	10.0.12.107	-	false
test11	RUNNING	1	-	10.0.12.79	-	false
test123	RUNNING	1	-	10.0.12.117	-	false
test22	RUNNING	1	-	10.0.12.55	-	false
test33	RUNNING	1	-	-	-	false

```
marty@martyVirtualBox: ~
```

```
sudo nano /var/lib/test33/config
```

```
marty@martyVirtualBox: ~
```

```
sudo nano /var/lib/lxc/test33/config
```

```
marty@martyVirtualBox: ~
```

```
sudo lxc-stop -n test33
```

```
marty@martyVirtualBox: ~
```

```
sudo lxc-start -n test33
```

```
marty@martyVirtualBox: ~
```

```
sudo lxc-ls -f
```

NAME	STATE	AUTOSTART	GROUPS	IPV4	IPV6	UNPRIVILEGED
container1	RUNNING	1	-	10.0.12.174	-	false
container2	RUNNING	1	-	10.0.12.23	-	false
t122	RUNNING	1	-	10.0.12.107	-	false
test11	RUNNING	1	-	10.0.12.79	-	false
test123	RUNNING	1	-	10.0.12.117	-	false
test22	RUNNING	1	-	10.0.12.55	-	false
test33	RUNNING	1	-	10.0.13.2	-	false

```
marty@martyVirtualBox: ~
```

Bci паѓораæт

Осталось только пингануть сети , что и сделаем :

sudo lxc-attach -n test33

|
|_>root@test33:/# ping 10.0.12.55

|_>PING 10.0.12.55 (10.0.12.55) 56(84) bytes of data.

64 bytes from 10.0.12.55: icmp_seq=1 ttl=63 time=0.119 ms

64 bytes from 10.0.12.55: icmp_seq=2 ttl=63 time=0.112 ms

64 bytes from 10.0.12.55: icmp_seq=3 ttl=63 time=0.113 ms

64 bytes from 10.0.12.55: icmp_seq=4 ttl=63 time=0.153 ms

теперь для второй сети:

sudo lxc-attach -n test22

|
|_>root@test22:/# ping 10.0.13.2

|_>PING 10.0.13.2 (10.0.13.2) 56(84) bytes of data.

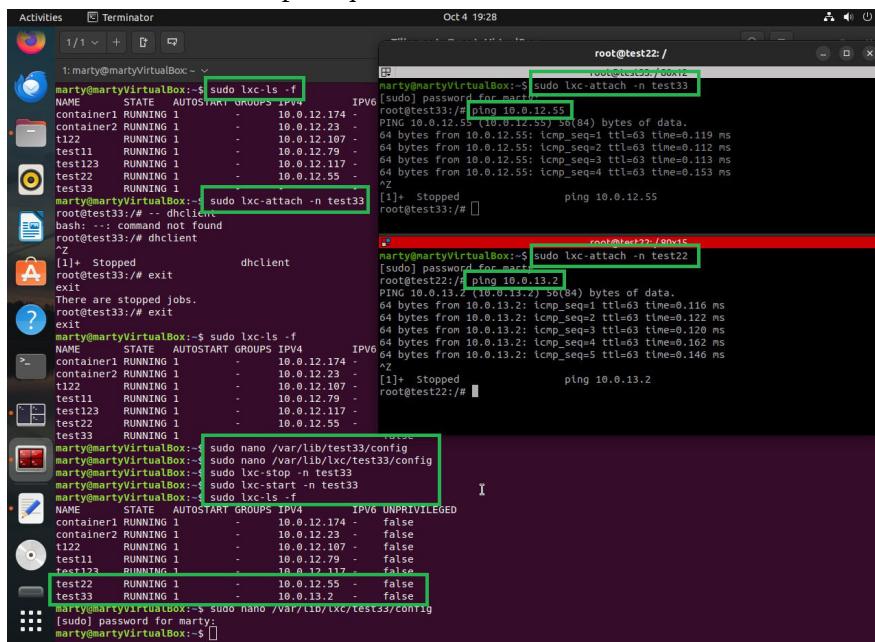
64 bytes from 10.0.13.2: icmp_seq=1 ttl=63 time=0.116 ms

64 bytes from 10.0.13.2: icmp_seq=2 ttl=63 time=0.122 ms

64 bytes from 10.0.13.2: icmp_seq=3 ttl=63 time=0.120 ms

64 bytes from 10.0.13.2: icmp_seq=4 ttl=63 time=0.162 ms

64 bytes from 10.0.13.2: icmp_seq=5 ttl=63 time=0.146 ms



Спасибо, всего хорошего ;)