007-LXC-Linux container with LXC and ZFS

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LXC-Linux container with LXC & ZFS

Remove the ubuntu native default LXC package LXD,

Find the LXD and related packages & un-install them;

```
dpkg -l|grep lxd
apt remove -y --purge lxd lxd-client
```

Now install LXC and ZFS package

```
apt install lxc lxc-templates
apt install zfsutils-linux
```

Identify the proper disk/disk partition and create zfs pool (zfs storage volume)

```
fdisk -l
zpool create -o ashift=12 -f vol1 /dev/sda5

zfs set atime=off vol1
zfs set compression=on vol1
zfs list
```

Create your first container

```
lxc-create -n group1ct1 -t download -- --dist ubuntu --release xenial --arch amd64
```

Here, you just created an Ubuntu container (release=xenial, arch=amd64, variant=default)

If you want to create a CentOS Container (Optional)

```
apt install librpm3 librpmbuild3 librpmio3 libsqlite0 python-rpm python-sqlite \
python-sqlitecachec python-urlgrabber rpm rpm-common rpm2cpio yum debootstrap

lxc-create -n centos_lxc -t centos -- -R 7 -a x86_64
```

For security reason, container images ship without user accounts and without a root password.

To enable sshd, inside container run: `apt-get install openssh-server`
Use lxc-attach to set a root password or create user accounts.

To the list of created containers

```
lxc-ls --fancy
```

Start and login into the created container

```
lxc-start -n group1ct1 -d
```

```
lxc-attach -n group1ct1
```

Inside Container, Install openssh-server, remove default user & activate root password

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```
apt update
apt install openssh-server
vim.tiny /etc/ssh/sshd_config ; permit root login to yes
userdel -r ubuntu
exit
```

Now we will convert the lxc-container to lxc-zfs-container

```
lxc-ls --fancy
lxc-stop -n group1ct1
lxc-copy -n group1ct1 -N group1ct1_zfs
zfs create vol1/group1ct1_zfs
rsync -av /var/lib/lxc/group1ct1_zfs/ /vol1/group1ct1_zfs
rm -fr /var/lib/lxc/group1ct1_zfs/
ln -s /vol1/group1ct1_zfs /var/lib/lxc/
```

Prepare the networking (Skip this step if you have already created bridge0 interface using OVS

```
vim /etc/network/bridge0.up
```

```
#!/bin/bash
BRIDGE="bridge0"
ovs-vsctl --may-exist add-br $BRIDGE
ovs-vsctl --if-exists del-port $BRIDGE $5
ovs-vsctl --may-exist add-port $BRIDGE $5

vim /etc/network/bridge0.dn
#!/bin/bash
ovsBr=bridge0
ovs-vsctl --if-exists del-port ${obsBr} $5

chmod +x /etc/network/bridge0.*
```

Now, add the bridge interface inside the container configuration file

---

```
vim /var/lib/lxc/group1ct1_zfs/config

#lxc.network.link = lxcbr0 ; comment-out/disable this line
lxc.network.script.up = /etc/network/bridge0.up ; add this line
lxc.network.script.down = /etc/network/bridge0.dn ; add this line
```

Start the container, login and put IP, DNS (as given by instructor) and try to get Internet

---

```
lxc-start -n group1ct1_zfs -d
lxc-ls --fancy
lxc-attach -n group1ct1_zfs

vim /etc/network/interfaces

auto eth0
iface eth0 inet static
```

address 192.168.108.xxx
netmask 255.255.255.0
gateway 192.168.108.1

/etc/init.d/networking restart

vim /etc/resolvconf/resolv.conf.d/head
nameserver 8.8.8.8

service resolvconf restart
reboot

After reboot, check that from container you get Internet

---
ping google.com
userdel -r ubuntu

