

Miscellaneous LXD Information & Commands

Brian Mullan (bmullan.mail@gmail.com)

How to install LXD on Fedora:

<https://www.cyberciti.biz/faq/how-to-install-setup-lxd-on-fedora-linux/>

How to install LXD on CentOS:

<https://www.cyberciti.biz/faq/how-to-set-up-and-use-lxd-on-centos-linux-7-x-server/>

Crostini (re LXD) on ChromeOS & Chromebooks

<https://ubuntu.com/blog/using-lxd-on-your-chromebook>

On supported Chromebook, starting with Chrome OS 69, a new feature called Crostini was introduced.

Crostini allows Chrome OS users, on supported Chromebooks to install normal Linux applications from the *Debian* repository and have them integrate with the underlying Chrome OS desktop.

The feature has evolved quite a bit since its introduction, including recent work on getting sound, USB and even GPU acceleration to those Linux applications.

Crostini on Reddit: <https://www.reddit.com/r/Crostini/>

A small sample of various LXD CLI commands

Reference:

LXD Container Configuration key/value pairs in API

<https://lxd.readthedocs.io/en/latest/containers/>

<https://github.com/lxc/lxd/blob/master/doc/containers.md>

Change a single key/value pair on the configuration of a specific container

```
lxc config set [remote:][cn_name] [key] [value]
```

examples:

```
$ lxc config set [cn_name] {key} {value}
```

```
$ lxc config set [cn_name] boot.autostart {true|false}
```

```
$ lxc config set [cn_name] boot.autostart.priority integer
```

```
$ lxc config set [cn_name] boot.autostart.delay integer
```

NOTE: **delay** is in Seconds.

define the order to start the containers in by setting **priority** with highest value starts first etc.

Add a “remote” LXD Host/Server for local LXD Host access

```
$ lxc remote add alias-for-other-server <ip-address>
```

List all Remote LXD Hosts that this LXD Host knows about

```
$ lxc remote list
```

List all Linux Distro “images” you can create an LXD container of:

`$ lxc image list images:`

Launch/Create an LXD container and specify which Distro, version and optionally what architecture (ARM, ARM64, ARMHF, AMD64, i386 etc)

`$ lxc launch images:[distro]/[version]/[architecture]`

example: create & start a centos 7 container (default architecture is amd64)

`$ lxc launch images:centos/7`

example: create & start a fedora 30 container (default architecture is amd64)

`$ lxc launch images:fedora/30`

example: create & start a ubuntu 18.04 container (default architecture is amd64)

`$ lxc launch images:ubuntu/18.04`

Run bash (assuming it's installed) interactively in a container

`$ lxc exec [remote:][name] -- /bin/bash`

or

`$ lxc exec [remote:][name] bash`

Run a command in a container

`$ lxc exec [remote:][name] -- [command]`

example: list the `/etc/group` file in container CN1

Pull a copy of a file from a container to a specific destination

`$ lxc file pull [remote:][container]/[path] [destination]`

Push a copy of a file from Host into a container

`$ lxc file push [filename] [remote][container]/[path]`

example: Copy the Host/Server's `/etc/sources.list` to the CN1 container

`$ lxc file push /etc/sources.list CN1/etc/sources.list`

then run update:

```
$ lxc exec CN1 - - apt update
```

List all remotes

```
$ lxc remote list
```

Create a snapshot of a container with a specified name

```
$ lxc snapshot [remote:][container] [name]
```

Create a new container from an existing container's snapshot

```
$ lxc copy [remote:][cn_name]/[snapshot name] [remote:][cn_name]
```

Devices configuration

LXD will always provide the container with the basic devices which are required for a standard POSIX system to work.

These aren't visible in container or profile configuration and may not be overridden.

Those includes:

- /dev/null (character device)
- /dev/zero (character device)
- /dev/full (character device)
- /dev/console (character device)
- /dev/tty (character device)
- /dev/random (character device)
- /dev/urandom (character device)
- /dev/net/tun (character device)
- /dev/fuse (character device)
- lo (network interface)

Anything else has to be defined in the container configuration or in one of its profiles. The default profile will typically contain a network interface to become eth0 in the container.

To add extra devices to a container, device entries can be added directly to a container, or to a profile.

Devices may be added or removed while the container is running.

Every device entry is identified by a unique name. If the same name is used in a subsequent profile or in the container's own configuration, the whole entry is overridden by the new definition.

Device entries are added to a container configuration through:

```
$ lxc config device add <container> <name> <type> [key=value]...
```

or to a **profile** with:

```
$ lxc profile device add <profile> <name> <type> [key=value]...
```

Device types

LXD supports the following device types:

ID (database)	Name	Description
0	none	Inheritance blocker
1	nic	Network interface
2	disk	Mountpoint inside the container
3	unix-char	Unix character device
4	unix-block	Unix block device
5	usb	USB device
6	gpu	GPU device
7	infiniband	Infiniband device
8	proxy	Proxy device

Examples:

Use LXD Device Proxy to pass Port 80 & 443 on Host to container CN1

```
$ lxc config device add cn1 myport80 proxy listen=tcp:0.0.0.0:80  
connect=tcp:127.0.0.1:80
```

```
$ lxc config device add cn1 myport443 proxy listen=tcp:0.0.0.0:443  
connect=tcp:127.0.0.1:443
```


Currently available LXD images you can create a container with

Distro	Release	Arch	Variant	Build date	LXC (privileged)	LXC (unprivileged)	LXD
alpine	3.10	amd64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.10	arm64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.10	armhf	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.10	i386	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.10	ppc64el	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.10	s390x	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.6	amd64	default	20190619_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.6	arm64	default	20190619_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.6	armhf	default	20190619_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.6	i386	default	20190619_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.7	amd64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.7	arm64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.7	armhf	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.7	i386	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	amd64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	arm64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	armhf	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	i386	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	ppc64el	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.8	s390x	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	amd64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	arm64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	armhf	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	i386	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	ppc64el	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	3.9	s390x	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	amd64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	arm64	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	armhf	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	i386	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	ppc64el	default	20190710_13:15	YES (2.0 and up)	YES (2.0 and up)	YES
alpine	edge	s390x	default	20190710_13:00	YES (2.0 and up)	YES (2.0 and up)	YES
alt	Sisyphus	amd64	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES

alt	Sisyphus	arm64	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	Sisyphus	i386	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	Sisyphus	ppc64el	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p8	amd64	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p8	i386	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p9	amd64	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p9	arm64	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p9	i386	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
alt	p9	ppc64el	default	20190710_01:17	YES (1.0 and up)	YES (1.0 and up)	YES
archlinux	current	amd64	default	20190710_04:18	YES (1.1 and up)	YES (1.1 and up)	YES
archlinux	current	arm64	default	20190710_04:18	YES (1.1 and up)	YES (1.1 and up)	YES
archlinux	current	armhf	default	20190710_04:18	YES (1.1 and up)	YES (1.1 and up)	YES
centos	6	amd64	default	20190710_07:08	YES (1.0 and up)	YES (1.0 and up)	YES
centos	6	i386	default	20190710_11:29	YES (1.0 and up)	YES (1.0 and up)	YES
centos	7	amd64	default	20190710_07:08	YES (1.0 and up)	YES (1.1 and up)	YES
centos	7	arm64	default	20190710_07:08	YES (1.0 and up)	YES (1.1 and up)	YES
centos	7	armhf	default	20190710_07:08	YES (1.0 and up)	YES (1.1 and up)	YES
centos	7	i386	default	20190710_07:08	YES (1.0 and up)	YES (1.1 and up)	YES
centos	7	ppc64el	default	20190710_07:08	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	amd64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	arm64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	armel	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	armhf	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	i386	default	20190710_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	ppc64el	default	20190710_06:06	YES (1.0 and up)	YES (1.1 and up)	YES
debian	buster	s390x	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	amd64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	arm64	default	20180626_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	armel	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	armhf	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	i386	default	20190710_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	powerpc	default	20180626_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	ppc64el	default	20180626_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	jessie	s390x	default	20180626_05:25	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	amd64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	arm64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	armel	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	armhf	default	20190710_05:46	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	i386	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	powerpc	default	20180708_05:25	YES (1.0 and up)	YES (1.1 and up)	YES

debian	sid	ppc64el	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	sid	s390x	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	amd64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	arm64	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	armel	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	armhf	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	i386	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	ppc64el	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
debian	stretch	s390x	default	20190710_05:24	YES (1.0 and up)	YES (1.1 and up)	YES
devuan	ascii	amd64	default	20190710_11:50	YES (1.0 and up)	YES (1.0 and up)	YES
devuan	ascii	arm64	default	20190710_11:50	YES (1.0 and up)	YES (1.0 and up)	YES
devuan	ascii	armel	default	20190710_11:50	YES (1.0 and up)	YES (1.0 and up)	YES
devuan	ascii	armhf	default	20190710_12:25	YES (1.0 and up)	YES (1.0 and up)	YES
devuan	ascii	i386	default	20190710_12:25	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	28	amd64	default	20190709_21:56	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	28	arm64	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	28	armhf	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	28	ppc64el	default	20190227_20:33	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	28	s390x	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	29	amd64	default	20190709_21:35	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	29	arm64	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	29	armhf	default	20190709_21:35	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	29	ppc64el	default	20190709_21:56	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	29	s390x	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	30	amd64	default	20190709_21:56	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	30	arm64	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	30	ppc64el	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
fedora	30	s390x	default	20190709_21:36	YES (1.0 and up)	YES (1.0 and up)	YES
gentoo	current	amd64	default	20190709_16:07	YES (1.0 and up)	YES (1.0 and up)	YES
gentoo	current	armhf	default	20190709_16:07	YES (1.0 and up)	YES (1.0 and up)	YES
gentoo	current	i386	default	20190709_16:07	YES (1.0 and up)	YES (1.0 and up)	YES
gentoo	current	ppc64el	default	20190709_16:07	YES (1.0 and up)	YES (1.0 and up)	YES
gentoo	current	s390x	default	20190709_16:07	YES (1.0 and up)	YES (1.0 and up)	YES
kali	current	amd64	default	20190709_17:14	YES (1.0 and up)	YES (1.0 and up)	YES
kali	current	arm64	default	20190709_17:14	YES (1.0 and up)	YES (1.0 and up)	YES
kali	current	armel	default	20190709_17:14	YES (1.0 and up)	YES (1.0 and up)	YES
kali	current	armhf	default	20190709_17:14	YES (1.0 and up)	YES (1.0 and up)	YES
kali	current	i386	default	20190709_17:14	YES (1.0 and up)	YES (1.0 and up)	YES
opensuse	15.0	amd64	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	15.0	arm64	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES

opensuse	15.0	ppc64el	default	20190322_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	42.3	amd64	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	tumbleweed	amd64	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	tumbleweed	arm64	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	tumbleweed	i386	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
opensuse	tumbleweed	ppc64el	default	20190710_04:20	YES (1.1 and up)	YES (1.1 and up)	YES
openwrt	current	amd64	default	20190710_11:57	YES (1.0 and up)	YES (1.0 and up)	YES
oracle	6	amd64	default	20190710_07:46	YES (1.0 and up)	YES (1.0 and up)	YES
oracle	6	i386	default	20190710_08:51	YES (1.0 and up)	YES (1.0 and up)	YES
oracle	7	amd64	default	20190710_07:46	YES (1.0 and up)	YES (1.0 and up)	YES
plamo	6.x	amd64	default	20190710_01:33	YES (1.0 and up)	YES (1.0 and up)	YES
plamo	6.x	i386	default	20190710_01:33	YES (1.0 and up)	YES (1.0 and up)	YES
plamo	7.x	amd64	default	20190710_01:33	YES (1.0 and up)	YES (1.0 and up)	YES
sabayon	current	amd64	default	20190710_01:52	YES (2.1 and up)	YES (2.1 and up)	YES
ubuntu-core	16	amd64	default	20190709_17:11	NO	NO	YES
ubuntu-core	16	i386	default	20190709_17:11	NO	NO	YES
ubuntu	bionic	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	bionic	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	bionic	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	bionic	i386	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	bionic	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	bionic	s390x	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	i386	default	20190710_07:43	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	cosmic	s390x	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	i386	default	20190710_07:43	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	disco	s390x	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	eoan	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	eoan	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	eoan	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	eoan	i386	default	20190710_07:43	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	eoan	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES

ubuntu	eoan	s390x	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	trusty	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	trusty	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	trusty	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	trusty	i386	default	20190710_07:43	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	trusty	powerpc	default	20180824_07:43	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	trusty	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.0 and up)	YES
ubuntu	xenial	amd64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	arm64	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	armhf	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	i386	default	20190710_07:43	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	powerpc	default	20180824_07:44	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	ppc64el	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES
ubuntu	xenial	s390x	default	20190710_07:42	YES (1.0 and up)	YES (1.1 and up)	YES

**** Updated at Wed July 10 14:45:18 2019**