Incus System containers and VMs

START HERE

`incus launch images:debian/12 <name>`
Create and start a container

`incus stop <name>`
Stop it

`incus list`
List instances

`incus delete <name>`
Remove it

`incus shell <name>`
Root shell inside

`incus snapshot create <name> <snap>`
Save a restore point

`incus exec <name> -- <cmd>`
Run a command

`incus launch images:debian/12 <name> --vm`
Same, as a VM

Remote images: image server → `incus launch` → **Image** cached locally → `incus launch` → **Instance** container or VM; profiles + devices → `incus publish` →

CONCEPTS

Incus runs system containers (a full OS with init, like a light VM) and, with --vm, real QEMU virtual machines. Both use the same commands.

Profiles are reusable bundles of config and devices applied to instances. New instances get the default profile (root disk and NIC) unless you pass --profile.

images: is a remote name, debian/12 an image alias. Add other servers with incus remote add; incus remote list shows what is configured.

Access needs membership of the incus-admin group (full access) or incus (own project only). Run incus admin init once on a new host.

INSTANCES

`incus launch <image> <name>`
Create and start an instance
Example image: images:debian/12 or images:ubuntu/24.04.

`incus launch <image> <name> --vm`
Launch as a virtual machine

`incus init <image> <name>`
Create without starting

`incus list`
List instances with state and IPs

`incus start <name>`
Start an instance

`incus stop <name>`
Stop an instance
Add --force to kill; --stateful keeps memory state.

`incus restart <name>`
Restart an instance

`incus delete <name>`
Delete a stopped instance
Add --force / -f to delete a running one.

`incus info <name>`
Show status, network and snapshots

`incus rename <old> <new>`
Rename a stopped instance

`incus launch <image> <name> -c limits.cpu=2 -c limits.memory=2GiB`
Launch with resource limits

INSTANCES (cont.)

`incus launch <image> <name> --profile default --profile <p>`
Launch with several profiles

ACCESS AND FILES

`incus shell <name>`
Login shell as root

`incus exec <name> -- <cmd>`
Run a command inside
The -- separates incus flags from the command.

`incus console <name>`
Attach to the text console
Detach with Ctrl+a q.

`incus console <name> --type vga`
Open a VM graphical console

`incus file push <local> <name>/<path>`
Copy a file into an instance

`incus file pull <name>/<path> <local>`
Copy a file out

`incus file push -r <dir> <name>/<path>`
Copy a directory recursively

`incus file edit <name>/<path>`
Edit a file in place

IMAGES

`incus image list images:<filter>`
Search a remote image server
Example filter: debian 12 or architecture=x86_64.

`incus image list`
List local images

`incus image copy images:<alias> local: --alias <a>`
Cache a remote image locally

`incus image delete <image>`
Delete a local image

`incus publish <name> --alias <alias>`
Turn an instance into an image

CONFIG AND PROFILES

`incus config show <name>`
Show instance config
Add --expanded to include profile values.

`incus config set <name> <key>=<value>`
Set an option

CONFIG AND PROFILES (cont.)

`incus config get <name> <key>`
Read an option

`incus config edit <name>`
Edit config in $EDITOR as YAML

`incus config device add <name> <dev> disk source=<host> path=<dir>`
Mount a host directory

`incus config device add <name> <dev> proxy listen=tcp:0.0.0.0:<p> connect=tcp:127.0.0.1:<p>`
Publish a port

`incus config device list <name>`
List devices

`incus config device remove <name> <dev>`
Remove a device

`incus config device set <name> root size=<size>`
Resize the root disk

`incus profile list`
List profiles

`incus profile show <profile>`
Show a profile

`incus profile create <profile>`
Create a profile

`incus profile edit <profile>`
Edit a profile as YAML

`incus profile assign <name> <p1>,<p2>`
Replace an instance's profiles

SNAPSHOTS AND COPIES

`incus snapshot create <name> <snap>`
Create a snapshot

`incus snapshot list <name>`
List snapshots

`incus snapshot restore <name> <snap>`
Roll back to a snapshot

`incus snapshot delete <name> <snap>`
Delete a snapshot

`incus copy <name> <new>`
Clone an instance

`incus move <name> <remote>:`
Move to another server

SNAPSHOTS AND COPIES (cont.)

`incus export <name> <file>`
Back up to a tarball

STORAGE AND NETWORK

`incus storage list`
List storage pools

`incus storage create <pool> <driver>`
Create a pool (dir, btrfs, zfs, lvm)

`incus storage volume create <pool> <vol>`
Create a custom volume

`incus network list`
List networks

REMOTES AND PROJECTS

`incus remote list`
List configured remotes

`incus remote add <name> <url>`
Add a remote server

`incus <remote>:list`
Run a command against a remote

`incus project list`
List projects

`incus admin init`
Interactive first-time setup

RECIPES

Throwaway dev VM with a shared folder

```
incus launch
images:ubuntu/24.04 dev --vm -c
limits.cpu=4 -c
limits.memory=8GiB
incus config device add dev src
disk source=$PWD path=/mnt/src
incus shell dev
```

Golden image from a configured container

```
incus launch images:debian/12
base
incus exec base -- apt-get
install -y curl git
incus stop base
incus publish base --alias my-
base
incus launch my-base test1
```

Safe experiment with rollback

```
incus snapshot create web
before
incus exec web -- apt-get -y
upgrade
# not happy? roll back
incus snapshot restore web
before
```