nerdctl Docker-like CLI for containerd

CONCEPTS

nerdctl is a Docker-compatible CLI that talks straight to containerd. Most docker commands and flags work unchanged; flags that are not implemented yet are rejected.

nerdctl CLI
↓ gRPC
containerd images, namespaces
↓ shim
runc OCI runtime
↓ starts
Container CNI network

Containers and images live in a containerd namespace (default: default). Kubernetes uses k8s.io, so pass --namespace k8s.io to see its containers.

nerdctl build needs a running buildkitd. Rootless use needs a separate rootless containerd setup (see the rootless docs).

RUN

nerdctl run *<image>*
Create and start a container

nerdctl run -d *<image>*
Run in the background

nerdctl run -it *<image>* **sh**
Interactive shell

nerdctl run --rm *<image>*
Delete the container on exit

nerdctl run --name *<name>* *<image>*
Give the container a name

nerdctl run -p *<host>*:*<ctr>* *<image>*
Publish a port

nerdctl run -v *<name>*:*<path>* *<image>*
Mount a named volume

nerdctl run -v *<dir>*:*<path>*:**ro** *<image>*
Bind-mount read-only

nerdctl run -e KEY=VALUE *<image>*
Set an environment variable

nerdctl run --env-file *<file>* *<image>*
Load variables from a file

RUN (cont.)

nerdctl run --net *<network>* *<image>*
Join a network

nerdctl run --restart unless-stopped *<image>*
Restart after crashes and reboots

CONTAINERS

nerdctl ps
List running containers

nerdctl ps -a
List all, including stopped

nerdctl stop *<container>*
Stop gracefully

nerdctl start *<container>*
Start a stopped container

nerdctl restart *<container>*
Stop and start again

nerdctl rm *<container>*
Remove a stopped container

nerdctl rm -f *<container>*
Force-remove a running one

nerdctl ps -q
Print only container IDs

nerdctl ps -f status=exited
Filter the list

nerdctl stats --no-stream
One-shot CPU and memory usage

INSIDE A CONTAINER

nerdctl exec -it *<container>* **sh**
Open a shell in a running container

nerdctl exec *<container>* *<cmd>*
Run one command

nerdctl logs *<container>*
Show output

nerdctl logs -f *<container>*
Follow output live

nerdctl logs -n *<lines>* *<container>*
Only the last lines

IMAGES

nerdctl pull *<image>*
Download an image

IMAGES (cont.)

nerdctl images
List local images

nerdctl build -t *<name>* **.**
Build from a Dockerfile here

nerdctl tag *<image>* *<repo>*:*<tag>*
Add a name to an image

nerdctl push *<repo>*:*<tag>*
Upload to a registry

nerdctl rmi *<image>*
Remove an image

VOLUMES AND NETWORKS

nerdctl volume create *<name>*
Create a named volume

nerdctl volume ls
List volumes

nerdctl network create *<name>*
Create a bridge network

COMPOSE

nerdctl compose up -d
Create and start the stack

nerdctl compose down
Stop and remove containers and networks

nerdctl compose ps
List the stack's containers

nerdctl compose logs -f *<service>*
Follow service logs

nerdctl compose exec *<service>* **sh**
Shell in a service

nerdctl compose up --build
Rebuild images, then start

NAMESPACES AND DAEMON

nerdctl --namespace *<ns>* *<cmd>*
Run against a containerd namespace

nerdctl namespace ls
List namespaces

nerdctl system prune
Remove stopped containers and dangling data