Proxmox VE Virtualization platform CLI

CONCEPTS

qm manages QEMU/KVM VMs, pct manages LXC containers. Both share one ID space: every guest has a unique numeric VMID (100 and up) across the cluster.

Cluster pvecm, /etc/pve shared
- **Node** one PVE host
  - **Guest** VM (qm) or CT (pct), by VMID
    - **Volume** <storage>:<volume> on a storage

Disks, ISOs, templates and backups are addressed by volume ID, storage:name, e.g. local-lvm:vm-100-disk-0 or local:iso/<file>.iso.

VM LIFECYCLE

qm list
List VMs with status, memory, PID

qm start *<vmid>*
Start a VM

qm shutdown *<vmid>*
Ask the guest to shut down

qm stop *<vmid>*
Hard stop, like pulling the plug

qm reboot *<vmid>*
Clean reboot

qm status *<vmid>*
Running or stopped

qm unlock *<vmid>*
Clear a stale lock

qm destroy *<vmid>* **--purge**
Delete the VM and its disks

VM CONSOLE & GUEST AGENT

qm terminal *<vmid>*
Attach to the serial console

qm set *<vmid>* **--agent enabled=1**
Enable the QEMU guest agent

qm guest cmd *<vmid>* **network-get-interfaces**
Guest IP addresses via the agent

VM CONFIGURATION

qm config *<vmid>*
Show the VM's settings

qm set *<vmid>* **--memory** *<MiB>*
Set RAM

qm set *<vmid>* **--cores** *<n>*
Set CPU cores

qm set *<vmid>* **--onboot 1**
Start with the node

qm set *<vmid>* **--net0 virtio,bridge=vmbr0**
Add or change a NIC

qm create *<vmid>* **--name** *<name>* **--memory 2048**
Create an empty VM

qm disk resize *<vmid>* **scsi0 +10G**
Grow a disk

TEMPLATES, CLONES & SNAPSHOTS

qm snapshot *<vmid>* *<name>*
Take a snapshot

qm rollback *<vmid>* *<name>*
Revert to a snapshot

qm template *<vmid>*
Turn a VM into a template

qm clone *<vmid>* *<newid>* **--name** *<name>*
Clone a VM or template

CONTAINERS (PCT)

pct list
List containers

pct create *<vmid>* *<template>* **--rootfs** *<storage>*:*<GiB>*
Create a container

pct start *<vmid>*
Start a container

pct enter *<vmid>*
Root shell inside

pct shutdown *<vmid>*
Clean shutdown

pct exec *<vmid>* **--** *<cmd>*
Run one command inside

pct config *<vmid>*
Show the container's settings

pct set *<vmid>* **--memory** *<MiB>* **--cores** *<n>*
Change resources

CONTAINER TEMPLATES (PVEAM)

pveam update
Refresh the template index

pveam available --section system
List downloadable OS templates

pveam download *<storage>* *<template>*
Download a template

STORAGE (PVESM)

pvesm status
Storages with type and usage

pvesm list *<storage>*
Volumes on a storage

BACKUP & RESTORE

vzdump *<vmid>* **--storage** *<storage>*
Back up a VM or container

vzdump *<vmid>* **--mode stop --compress zstd**
Consistent backup, stops the guest

pvesm list *<storage>* **--content backup**
List backup archives

qmrestore *<archive>* *<vmid>* **--storage** *<storage>*
Restore a VM backup

pct restore *<vmid>* *<archive>* **--storage** *<storage>*
Restore a container backup

MIGRATION

qm migrate *<vmid>* *<node>*
Move a stopped VM to another node

qm migrate *<vmid>* *<node>* **--online**
Live-migrate a running VM

CLUSTER & API

pvecm status
Quorum and membership

pvecm nodes
Cluster nodes and votes

pvesh get /cluster/resources --type vm
Every guest in the cluster