CDW Documentation

Docker Basics – Command Reference

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Docker Installation and Health Checks

docker version

Purpose
Verifies that the Docker CLI is installed and whether it can communicate with the Docker daemon.

What it shows
Client version information and server (daemon) version information.

Usage

docker version

Notes
If the Docker daemon is not running, only client information is shown and the server section fails.

docker info

Purpose
Displays detailed system-wide Docker configuration and runtime information.

What it shows
Docker root directory, storage driver, number of images and containers, OS and architecture details.

Usage

docker info

Working With Containers

docker run

Purpose
Creates and starts a new container from an image.

Common usage

docker run hello-world

docker run -it ubuntu bash

docker run -d –name my-nginx -p 8080:80 nginx

Key options
-it runs the container interactively
-d runs the container in the background
–name assigns a readable name to the container
-p maps host ports to container ports

docker ps

Purpose
Lists containers.

Usage

docker ps

docker ps -a

docker ps shows running containers only.
docker ps -a includes stopped containers.

docker stop and docker start

Purpose
Stops or starts an existing container.

Usage

docker stop my-container

docker start my-container

docker rm

Purpose
Removes a stopped container.

Usage

docker rm my-container

docker inspect

Purpose
Displays low-level JSON metadata for containers or images.

Typical use cases
Inspect environment variables, network settings, mounts, ports, and runtime configuration.

Usage

docker inspect my-container

Executing Commands in Running Containers

docker exec

Purpose
Runs a command inside a running container.

Interactive shell

docker exec -it my-container bash

docker exec -it my-container sh

One-off command

docker exec my-container ls /etc

Logs and Runtime Monitoring

docker logs

Purpose
Displays standard output and error logs from a container.

Usage

docker logs my-container

docker logs -f my-container

docker logs –tail 50 my-container

docker stats

Purpose
Shows real-time CPU, memory, network, and disk usage for containers.

Usage

docker stats

docker stats my-container

Images and Registries

docker pull

Purpose
Downloads an image from a container registry.

Usage

docker pull ubuntu

docker pull nvcr.io/nvidia/pytorch:24.04-py3

docker images

Purpose
Lists all locally available images.

Usage

docker images

docker tag

Purpose
Creates an additional name and tag for an image, commonly used before pushing to a registry.

Usage

docker tag nginx myuser/nginx:demo

docker push

Purpose
Uploads an image to a container registry.

Usage

docker push myuser/nginx:demo

Prerequisite
You must authenticate with the registry using docker login.

Cleanup and Disk Management

docker system df

Purpose
Displays Docker disk usage information.

Usage

docker system df

docker container prune

Purpose
Removes all stopped containers.

Usage

docker container prune

docker image prune

Purpose
Removes dangling and unused images.

Usage

docker image prune

docker system prune

Purpose
Removes unused containers, networks, images, and build cache.

Usage

docker system prune

Aggressive cleanup

docker system prune -a –volumes

This removes all unused images and volumes and should be used with caution.

Docker Contexts

docker context ls

Purpose
Lists available Docker contexts such as local, desktop, or remote environments.

Usage

docker context ls

docker context use

Purpose
Switches the active Docker context.

Usage

docker context use desktop-linux