

## Docker Basics

```
// Check Docker version.  
docker --version or docker -v  
  
// Display system-wide information about Docker.  
docker info  
  
// Download an image from Docker Hub.  
docker pull <image_name>  
  
// List local Docker images.  
docker images or docker image ls  
  
// List running containers.  
docker ps or docker container ls  
  
// List all containers (including stopped ones)  
docker ps -a or docker container ls -a  
  
// Create and start a new container from an image.  
docker run <options> <image_name>
```

## Container Lifecycle

```
// Start a stopped container.  
docker start <container_name/id>  
  
// Stop a running container gracefully.  
docker stop <container_name/id>  
  
// Forcefully stop a running container.  
docker kill <container_name/id>  
  
// Restart a container.  
docker restart <container_name/id>  
  
// Remove a stopped container.  
docker rm <container_name/id>
```

## Images

```
// Build a Docker image from a Dockerfile  
docker build -t <image_name> <path_to_Dockerfile>  
  
// Remove an image  
docker rmi <image_name>  
  
// Remove all unused images.  
docker image prune
```

# Docker Compose

```
// Start services defined in a Docker Compose file
docker-compose up

// Stop and remove services defined in a Docker Compose file.
docker-compose down

// List services in a Compose file and their status.
docker-compose ps

// View logs for a specific service.
docker-compose logs <service_name>

// Run a command in a running service container.
docker-compose exec <service_name> <command>
```

# Volumes

```
// Create a named volume
docker volume create <volume_name>

// Mount a volume to a container.
docker run -v <volume_name>:<container_path>

// List volumes
docker volume ls

// Remove a volume
docker volume rm <volume_name>
```

## Docker Registry and Hub

```
// Log in to a Docker registry.  
docker login  
  
// Push an image to a registry.  
docker push <image_name>  
  
// Pull an image from a registry.  
docker pull <image_name>
```

## Networks

```
// Create a user-defined network.  
docker network create <network_name>  
  
// List networks.  
docker network ls  
  
// Connect a container to a network.  
docker network connect <network_name> <container_name/id>  
  
// Disconnect a container from a network.  
docker network disconnect <network_name> <container_name/id>
```

## Logs and Debugging

```
// View container logs.  
docker logs <container_name/id>  
  
// Start an interactive shell in a running container.  
docker exec -it <container_name/id> /bin/bash  
  
// Display real-time container resource usage.  
docker stats <container_name/id>
```

## Cleanup

```
// Remove all stopped containers, unused networks, and images.  
docker system prune  
  
// Remove all stopped containers.  
docker container prune  
  
// Remove all unused images.  
docker image prune  
  
// Remove all unused volumes  
docker volume prune
```