

Docker Installation

Agenda



In this session, you will learn about:

- Hardware and Software Requirements
- Installing Docker on Linux
- Managing Container Lifecycle

Hardware and Software Requirements

Software	Hardware
<ul style="list-style-type: none">• Linux:<ul style="list-style-type: none">• Any distribution running version 3.10+ of the Linux kernel• Microsoft Windows:<ul style="list-style-type: none">• Windows Server 2019• Windows 10 with Hypervisor• Cloud:<ul style="list-style-type: none">• Amazon EC2• Google Compute Engine• Microsoft Azure	<ul style="list-style-type: none">• The Docker platform runs natively on Linux (on x86-64, ARM and many other CPU architectures) and on Windows (x86-64).• Minimum not stated clearly (it can run on IoT devices too)• Minimum 512MB RAM, 1 Ghz CPU recommended.

Install Docker

- Installed via Distribution-supplied packages on virtually all distros.
 - **CentOS**, Ubuntu, OpenSUSE, RHEL
- Packages supplied by Docker
- Installation script from Docker

Install Docker on CentOS

- `yum install -y docker`
- `systemctl enable --now docker`
- `systemctl status docker`

Verify Installed Docker

- `docker info`
- `docker version`
- `docker container run hello-world`

Docker Configuration Files

```
[root@centos-docker ~]# rpm -qc docker  
/etc/docker/daemon.json  
/etc/docker/seccomp.json  
/etc/sysconfig/docker-network  
/etc/sysconfig/docker-storage
```

Changing Default Registry Lookup

- Stop the docker daemon - **systemctl stop docker**

- Add entry to **/etc/docker/daemon.json**

```
{  
  "insecure-registries" : ["my_registry_address:5000"]  
}
```

- Restart the docker daemon - **systemctl start docker**

Changing Default Storage Location

- Stop the docker daemon - **systemctl stop docker**
- Edit /etc/docker/daemon.json

```
{  
  "data-root": "/path/to/your/docker"  
}
```
- Copy the current data directory to the new one
rsync -aP /var/lib/docker/ /path/to/your/docker
- Rename the old docker directory
mv /var/lib/docker /var/lib/docker.old
- Restart the docker daemon - **systemctl start docker**

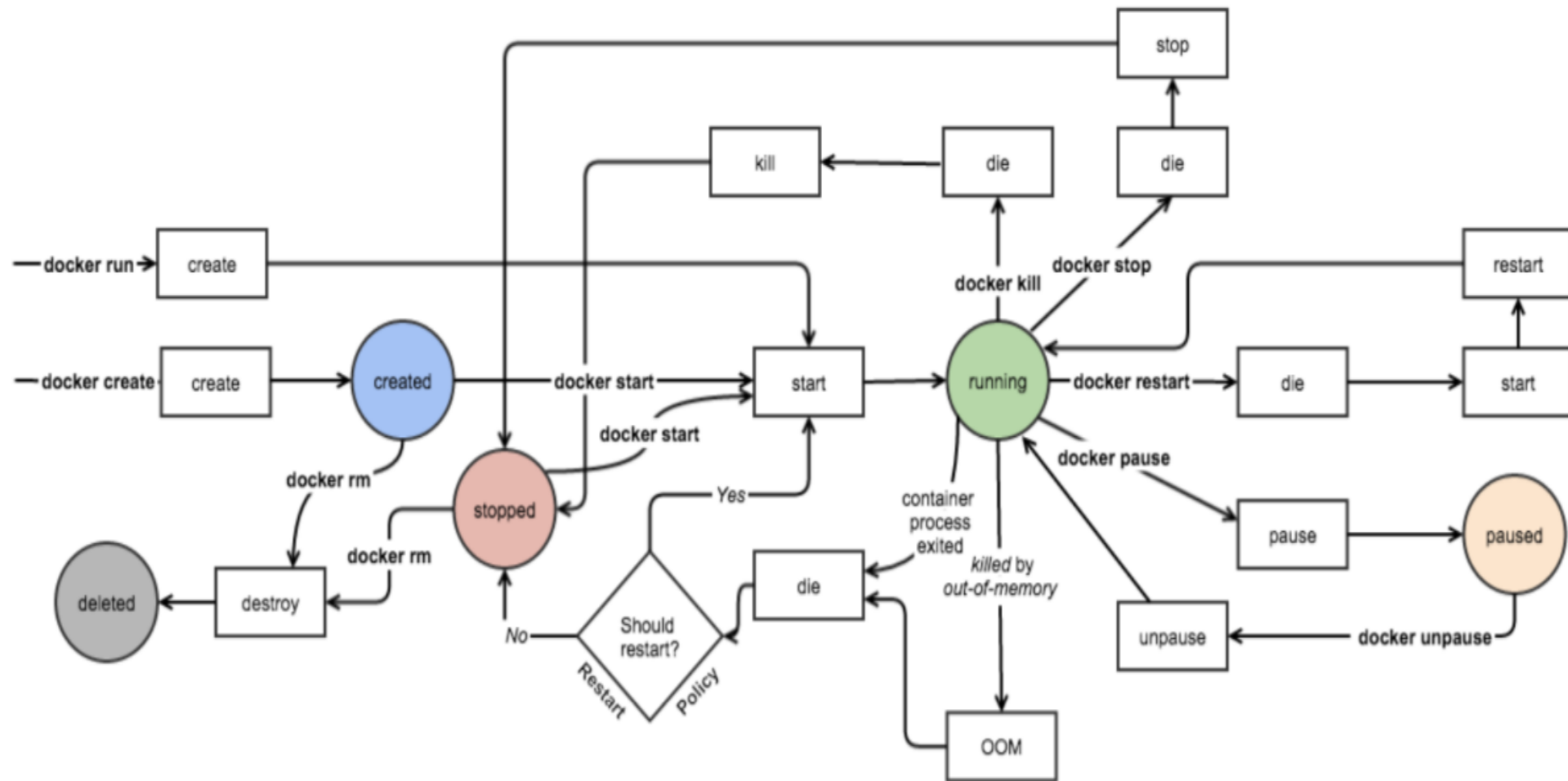
Docker Database Directory

```
[root@centos-docker ~]# tree -d /var/lib/docker/
/var/lib/docker/
├── containers
├── image
│   └── overlay2
│       ├── distribution
│       ├── imagedb
│       │   ├── content
│       │   │   └── sha256
│       │   └── metadata
│       │       └── sha256
│       └── layerdb
├── network
│   └── files
├── overlay2
│   └── 1
├── plugins
│   ├── storage
│   │   └── blobs
│   │       └── tmp
│   └── tmp
├── swarm
├── tmp
├── trust
└── volumes

23 directories
```

Lab – Installing Docker

Docker Container Lifecycle



Docker Management commands

Management Commands:

container	Manage containers
image	Manage images
network	Manage networks
volume	Manage volumes

Managing Containers

```
[root@master ~]# docker container --help
```

```
Usage:  docker container COMMAND
```

```
Manage containers
```

```
Options:
```

```
    --help      Print usage
```

```
Commands:
```

attach	Attach to a running container
commit	Create a new image from a container's changes
cp	Copy files/folders between a container and the local filesystem
create	Create a new container
diff	Inspect changes on a container's filesystem
exec	Run a command in a running container
export	Export a container's filesystem as a tar archive
inspect	Display detailed information on one or more containers
kill	Kill one or more running containers
logs	Fetch the logs of a container
ls	List containers
pause	Pause all processes within one or more containers
port	List port mappings or a specific mapping for the container
prune	Remove all stopped containers
rename	Rename a container
restart	Restart one or more containers
rm	Remove one or more containers
run	Run a command in a new container
start	Start one or more stopped containers
stats	Display a live stream of container(s) resource usage statistics
stop	Stop one or more running containers

Lab – Managing Container Lifecycle