Docker Installation Guide

This guide covers the installation of Docker and Docker Compose on **CentOS** and **Amazon Linux**. Follow the respective instructions based on your environment.

Docker Installation for CentOS

Prerequisites

- CentOS 8 or higher
- Root or sudo access
- Minimum 2GB of RAM recommended, 8GB of RAM recommended for all Liberty Framework Services.

Step 1: Update System Packages

Before starting the installation, update your system to ensure all packages are up-to-date.

```
sudo yum update -y
```

if Podman is installed, remove all packages, artifacts and containers storage

```
yum remove buildah skopeo podman containers-common atomic-registries docker container-tools
rm -rf /etc/containers/* /var/lib/containers/* /etc/docker /etc/subuid* /etc/subgid*
cd ~ && rm -rf /.local/share/containers/
```

Step 2: Install Required Dependencies

Install the necessary packages required to set up the Docker repository.

```
sudo yum install -y yum-utils
```

Step 3: Set Up the Docker Repository

Add the Docker repository to your CentOS system.

```
sudo yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
```

Step 4: Install Docker

Install Docker Engine, CLI, and Containerd.

```
sudo yum install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

Step 5: Start and Enable Docker

Start the Docker service and enable it to start on boot.

```
sudo systemctl start docker
sudo systemctl enable docker
```

Step 6: Verify Docker Installation

Verify the installation by running a test Docker container.

```
sudo docker run hello-world
```

If the container runs and displays a welcome message, Docker is installed correctly.

Step 7: Adding Your User to the Docker Group (Optional)

To run Docker commands without `sudo`, add your user to the Docker group.

```
sudo usermod -aG docker $(whoami)
```

Log out and log back in to apply the group changes.

Uninstall Docker

To remove Docker, the CLI, Containerd, and Docker Compose, use the following commands:

```
sudo yum remove docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
docker-ce-rootless-extras
sudo rm -rf /var/lib/docker
sudo rm -rf /var/lib/containerd
```

Docker Installation for Amazon Linux OS

Prerequisites

- Amazon Linux or Amazon Linux 2
- Root or sudo access
- Minimum 2GB of RAM recommended, 8GB of RAM recommended for all Liberty Framework Services.

Step 1: Update System Packages

Before starting the installation, update your system to ensure all packages are up-to-date.

```
sudo yum update -y
```

Step 2: Install Docker

Install Docker using the Amazon Linux Extras & yum package manager.

```
sudo amazon-linux-extras install docker -y
```

Step 3: Start and Enable Docker

Start the Docker service and enable it to start on boot.


```
sudo systemctl start docker
sudo systemctl enable docker
```

Step 4: Verify Docker Installation

Verify the installation by running a test Docker container.

```
sudo docker run hello-world
```

If the container runs and displays a welcome message, Docker is installed correctly.

Step 5: Install Docker Compose

Download the current stable release of Docker Compose:

```
sudo curl -L "https://github.com/docker/compose/releases/download/$(curl -s
https://api.github.com/repos/docker/compose/releases/latest | grep -Po '"tag_name": "\K.*?(?
=")')/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

Apply executable permissions to the binary:

```
sudo chmod +x /usr/local/bin/docker-compose
```

Verify that the installation was successful:

```
docker-compose --version
```

Step 6: Adding Your User to the Docker Group (Optional)

To run Docker commands without `sudo`, add your user to the Docker group.

```
sudo usermod -aG docker $(whoami)
```

Log out and log back in to apply the group changes.

Uninstall Docker

To remove Docker, the CLI, Containerd, and Docker Compose, use the following commands:

```
sudo yum remove docker
sudo rm -rf /var/lib/docker
sudo rm /usr/local/bin/docker-compose
```

Post installation Tasks

If you want to set a custom directory for docker and if you are running behind a proxy, the docker service must be modified

Edit the service: /lib/systemd/system/docker.service

```
[Service]
Type=notify
```

```
# the default is not to use systemd for cgroups because the delegate issues still
# exists and systemd currently does not support the cgroup feature set required
# for containers run by docker
ExecStart=/usr/bin/dockerd --data-root <CUSTOM_DIRECTORY> -H fd:// --
containerd=/run/containerd/containerd.sock
ExecReload=/bin/kill -s HUP $MAINPID
TimeoutStartSec=0
RestartSec=2
Restart=always
Environment="HTTP_PROXY=<PROXY_URL>"
Environment="HTTPS_PROXY=<PROXY_URL>"
```

If you want to change the default IP range (172.17.x.x) for docker Edit the file: /etc/docker/daemon.json

```
# Set the ip range according to your requirements
# bip is for the internal interface
# default-address-pools is for all new networks
{
  "bip": "172.26.0.1/16",
  "default-address-pools": [
    { "base": "172.27.0.0/16", "size": 24 }
  ]
}
```

Conclusion

You have successfully installed Docker and Docker Compose on your CentOS or Amazon Linux OS system. You can now begin deploying and managing your Docker containers for Liberty Framework.

References

- Docker Documentation
- AWS Documentation