

Assignment - 3

Question 3 - Installing Docker Using a Shell Script

Shell script to download and install Docker:

```
prarthana1305@Prarthana:~$ nano install_docker.sh
prarthana1305@Prarthana:~$ chmod +x install_docker.sh
prarthana1305@Prarthana:~$ ./install_docker.sh
Updating package list...
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 126 kB in 1s (113 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
12 packages can be upgraded. Run 'apt list --upgradable' to see them.
Installing prerequisite packages...
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20240203).
ca-certificates set to manually installed.
curl is already the newest version (8.5.0-2ubuntu10.6).
curl set to manually installed.
software-properties-common is already the newest version (0.99.49.1).
software-properties-common set to manually installed.
The following NEW packages will be installed:
  apt-transports-https
0 upgraded, 1 newly installed, 0 to remove and 12 not upgraded.
Need to get 3974 B of archives.
After this operation, 35.8 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/universe amd64 apt-transports-https all 2.7.14build2 [3974 B]
Fetched 3974 B in 1s (6429 B/s)
Selecting previously unselected package apt-transports-https.
(Reading database ... 48159 files and directories currently installed.)
Preparing to unpack .../apt-transports-https.2.7.14build2_all.deb ...
Unpacking apt-transports-https (2.7.14build2) ...
Setting up apt-transports-https (2.7.14build2) ...
Adding Docker's GPG key...
Adding Docker repository...
Updating package list with Docker packages...
Get:1 https://download.docker.com/linux/ubuntu noble InRelease [48.8 kB]
Get:2 https://download.docker.com/linux/ubuntu noble/stable amd64 Packages [18.9 kB]
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
```

Executing shell script:

```
prarthana1305@Prarthana:~$ nano install_docker.sh
GNU nano 7.2 install_docker.sh
#!/bin/bash

# Update package list
echo "Updating package list..."
sudo apt update -y

# Install prerequisite packages
echo "Installing prerequisite packages..."
sudo apt install -y apt-transports-https ca-certificates curl software-properties-common

# Add Docker's official GPG key
echo "Adding Docker's GPG key..."
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg

# Add Docker's repository to sources list
echo "Adding Docker repository..."
echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

# Update package list again to include Docker packages
echo "Updating package list with Docker packages..."
sudo apt update -y

# Install Docker
echo "Installing Docker..."
sudo apt install -y docker-ce docker-ce-cli containerd.io

# Verify installation
echo "Verifying Docker installation..."
docker_version=$(docker --version 2>/dev/null)

if [ -z "$docker_version" ]; then
  echo "Docker installation failed."
else
  echo "Docker installed successfully: $docker_version"
fi
```

Check the version of Docker((if installed)):

```
prarthana1305@Prarthana:~$ sudo apt-get install docker-ce
Unpacking libltdl7:amd64 (2.4.7-7build1) ...
Selecting previously unselected package libslirp0:amd64.
Preparing to unpack .../16-libslirp0_4.7.0-1ubuntu3_amd64.deb ...
Unpacking libslirp0:amd64 (4.7.0-1ubuntu3) ...
Selecting previously unselected package slirp4netns.
Preparing to unpack .../17-slirp4netns_1.2.1-1build2_amd64.deb ...
Unpacking slirp4netns (1.2.1-1build2) ...
Setting up libip4tc2:amd64 (1.8.10-3ubuntu2) ...
Setting up libip6tc2:amd64 (1.8.10-3ubuntu2) ...
Setting up libnftnl1:amd64 (1.2.6-2build1) ...
Setting up docker-buildx-plugin (0.20.0-1-ubuntu.24.04-noble) ...
Setting up containerd.io (1.7.25-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /usr/lib/systemd/system/containerd.service.
Setting up docker-compose-plugin (2.32.4-1-ubuntu.24.04-noble) ...
Setting up libltdl7:amd64 (2.4.7-7build1) ...
Setting up docker-ce-cli (5:27.5.1-1-ubuntu.24.04-noble) ...
Setting up libslirp0:amd64 (4.7.0-1ubuntu3) ...
Setting up pigz (2.8-1) ...
Setting up libnftnl1:amd64 (1.0.2-2build1) ...
Setting up docker-ce-rootless-extras (5:27.5.1-1-ubuntu.24.04-noble) ...
Setting up libnftables1:amd64 (1.0.9-1build1) ...
Setting up nftables (1.0.9-1build1) ...
Setting up slirp4netns (1.2.1-1build2) ...
Setting up libnetfilter-conntrack3:amd64 (1.0.9-6build1) ...
Setting up iptables (1.8.10-3ubuntu2) ...
update-alternatives: using /usr/sbin/iptables-legacy to provide /usr/sbin/iptables (iptables) in auto mode
update-alternatives: using /usr/sbin/ip6tables-legacy to provide /usr/sbin/ip6tables (ip6tables) in auto mode
update-alternatives: using /usr/sbin/iptables-nft to provide /usr/sbin/iptables (iptables) in auto mode
update-alternatives: using /usr/sbin/ip6tables-nft to provide /usr/sbin/ip6tables (ip6tables) in auto mode
update-alternatives: using /usr/sbin/arptables-nft to provide /usr/sbin/arptables (arptables) in auto mode
update-alternatives: using /usr/sbin/ebtables-nft to provide /usr/sbin/ebtables (ebtables) in auto mode
Setting up docker-ce (5:27.5.1-1-ubuntu.24.04-noble) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.3) ...
Verifying Docker installation...
Docker installed successfully: Docker version 27.5.1, build 9f9e405
prarthana1305@Prarthana:~$ docker --version
Docker version 27.5.1, build 9f9e405
prarthana1305@Prarthana:~$
```

Approach of the Script -

- Update System Packages – Ensures package lists are up-to-date.
- Install Dependencies – Installs required packages for secure downloads.
- Add Docker's GPG Key – Verifies package authenticity.
- Add Docker Repository – Enables downloading Docker from the official source.
- Update Packages Again – Fetches the latest Docker-related updates.
- Install Docker – Installs docker-ce, docker-ce-cli, and containerd.io.
- Verify Installation – Checks if Docker was installed successfully.

Automates the entire Docker setup process efficiently on Ubuntu.