

Assignment: Docker for Windows and Docker Swarm

Instructions

1. Install: <https://docs.docker.com/docker-for-windows/install/>
2. Follow this tutorial: <https://www.edureka.co/blog/docker-for-windows/>
3. Find answers to the following questions:
What are the methods for creating a docker swarm?

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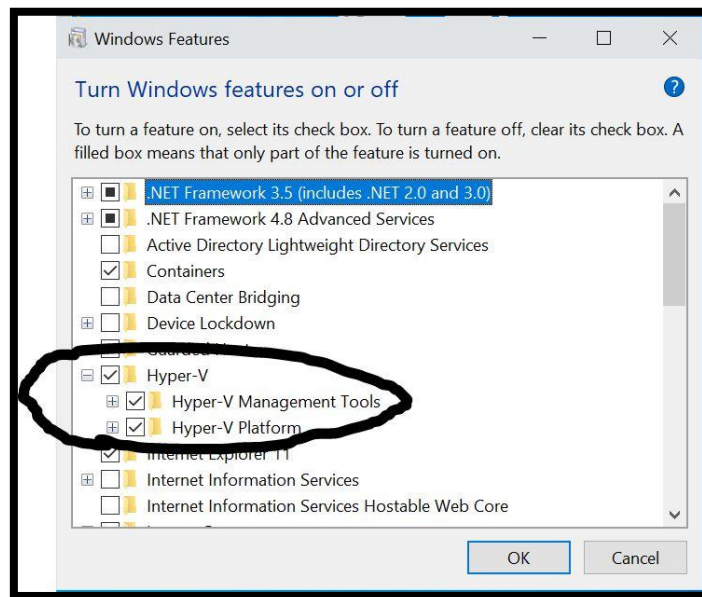
PART-1:

Docker for Windows (Installation)

Install: <https://docs.docker.com/docker-for-windows/install/>

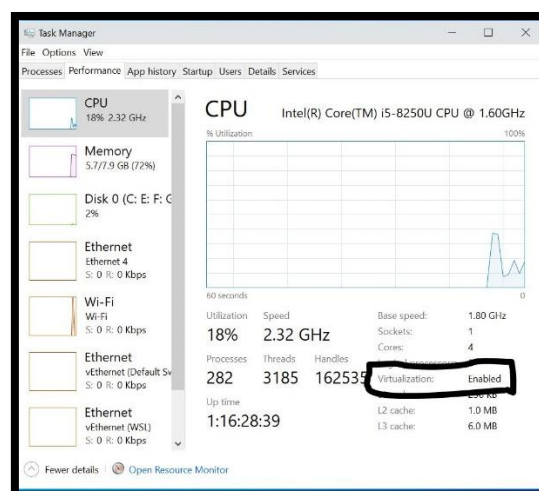
Step 1: Enable Windows native type 1 virtualization (Hyper-V)

- Go to Windows Control Panel > Windows Features
- Enable Hyper-V
- Reboot the Windows



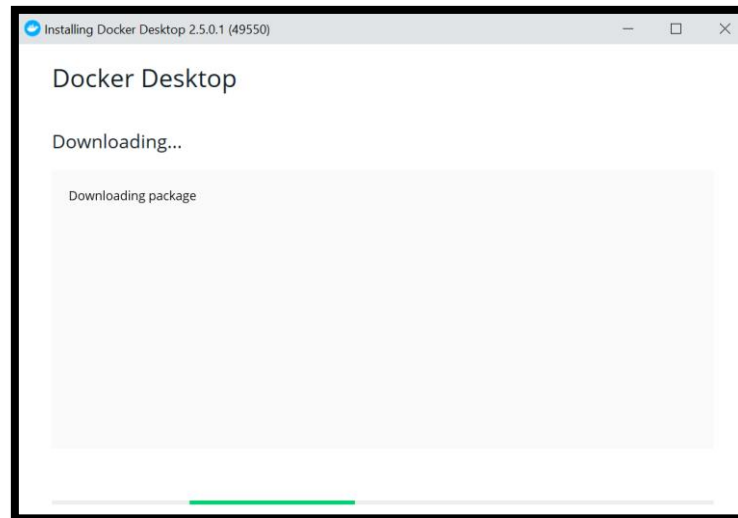
Step 2: Enable processor virtualization (VT)

- Go to BIOS and Processor settings
- Enable processor virtualisation



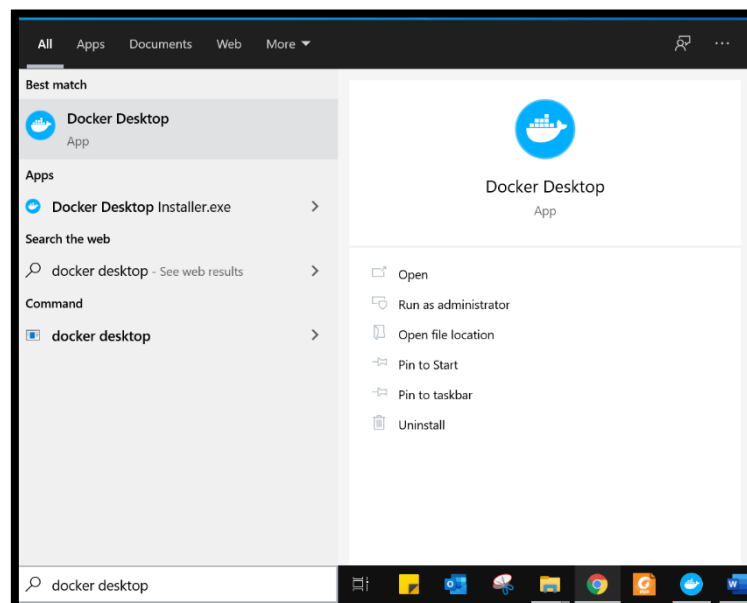
Step 3: Run Docker Installer (administratively)

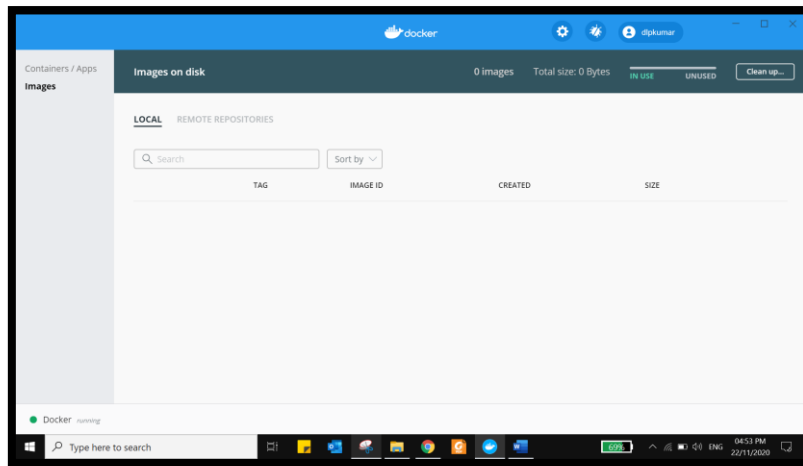
- It will download it docker
- And follow the installation wizard.



Step 4: Restart system and run Docker desktop

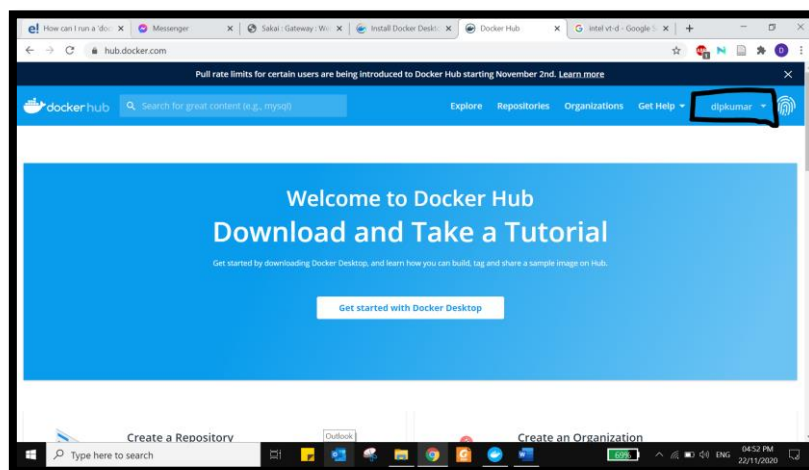
- Reboot the Windows
- Run the Docker Desktop application





Step 5: Create an account and Login in to Docker Hub

- Sign up into www.hub.docker.com
- Login to Docker Desktop app



Step 6: Run Power Shell, and docker commands to interact with the Docker daemon

```
Windows PowerShell
PS C:\Users\win> docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
PS C:\Users\win> docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
NAMES
PS C:\Users\win>
```

PART-2:

Follow the Tutorial

<https://www.edureka.co/blog/docker-for-windows/>

Files are attached in zipped folder.

PART-3:

Find answers to the following question:

What are the methods for creating a docker swarm?

DOCKER SWARM

- * Docker swarm is cluster/network of docker applications running on different physical/virtual machines in the cluster.
- * Or we can say, a network of docker engines is called docker swarm.
- * Techniquelly, to create a docker swarm we need a Docker Manager.
- * Docker Manager is responsible to manage all docker nodes in a Docker swarm.
- * Docker Node; is a physical/virtual machine running Docker Engine.
- * Docker Engine is a framework of Docker daemon (server), Docker client, and REST API.
- * Docker Swarm Nodes: Can be of three types:
 - ⊗ Manager Node: A node that assigns tasks to workers nodes.
 - ⊗ Worker Node: Numerous nodes that executes tasks received from a manager node.
- * Advantage of Docker Swarm:
 - ⊗ Leveraging power of containers
 - ⊗ High service availability
 - ⊗ Automated Load balancing

How to Create Docker Swarm

steps:

1. Create three linux hosts which can communicate over network
 - Manager1 — host1
 - Worker1 — host2
 - Worker2 — host3
2. We will install Docker on all the hosts.
3. Assign static IP addresses to all the hosts.
 - we can use utilities like:
 - ifconfig
 - docker-machine ip <machine-name>
 - Eg. docker-machine ip manager1
 - docker-machine ip worker1
4. Availability of Ports on hosts
 - Following ports must be free on hosts for swarm
 - 2377 TCP: for cluster management and communication.
 - 7946 TCP and UDP: communication among nodes.
 - 4789 UDP: For overlay network traffic.
 - ESP (IP protocol No. 50): traffic need to allowed

5. Use SSH protocol to connect to manager1:

```
$ docker-machine ssh manager1
```

6. Create new swarm using following command

```
$ docker swarm init --advertise-addr <manager-IP>
```

7. Add a worker to this swarm

```
$ docker swarm join --token <token-ID> <IP:Port-no>
```

8. View current state of swarm:

```
$ docker info
```

9. View node info:

```
$ docker node ls
```

10. After it we can deploy any service on this docker swarm.