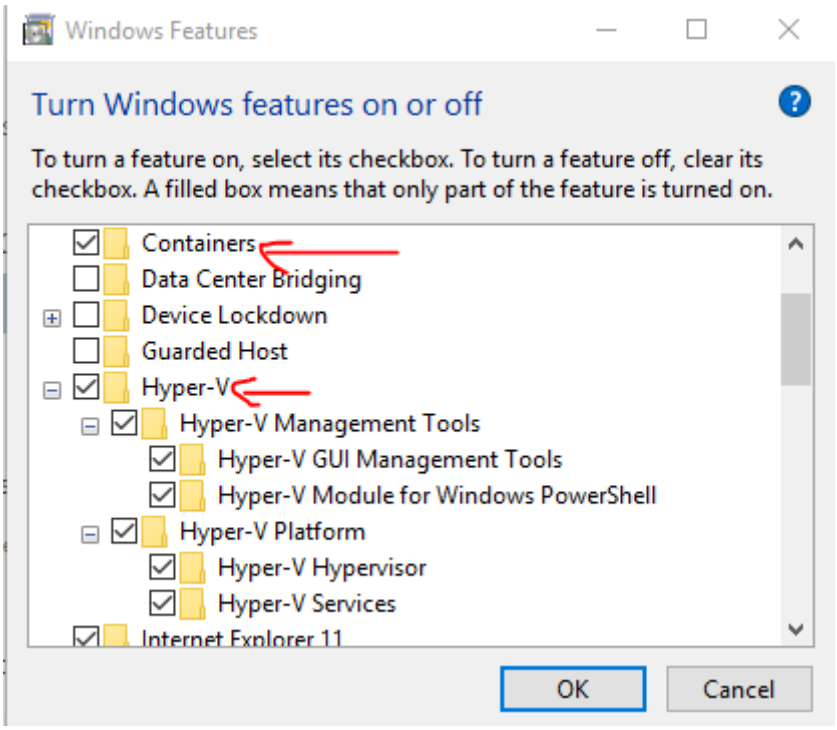
Prerequisites for PC
OS name: Microsoft Windows 10 Pro for Workstations
Version: 10.0.17763.316

Prerequisites for Docker
Name: Docker Desktop for Windows (stable)
Version: Docker version 18.09.2, build 6247962

Minimum System requirement to run Docker Desktop for Windows

- Windows 10 64bit: Pro, Enterprise or Education (1607 Anniversary Update, Build 14393 or later).
- Hyper V and containers must be enabled



- Virtualization is enabled in BIOS (To check whether virtualization is enabled: Go to task manager -> performance -> under virtualization.
- CPU SLAT capable feature. (To check for SLAT: Run command prompt as Administrator -> type systeminfo.exe -> scroll down to Hyper-V requirements ->make sure every option for Hyper-V requirement has a 'Yes' on it.

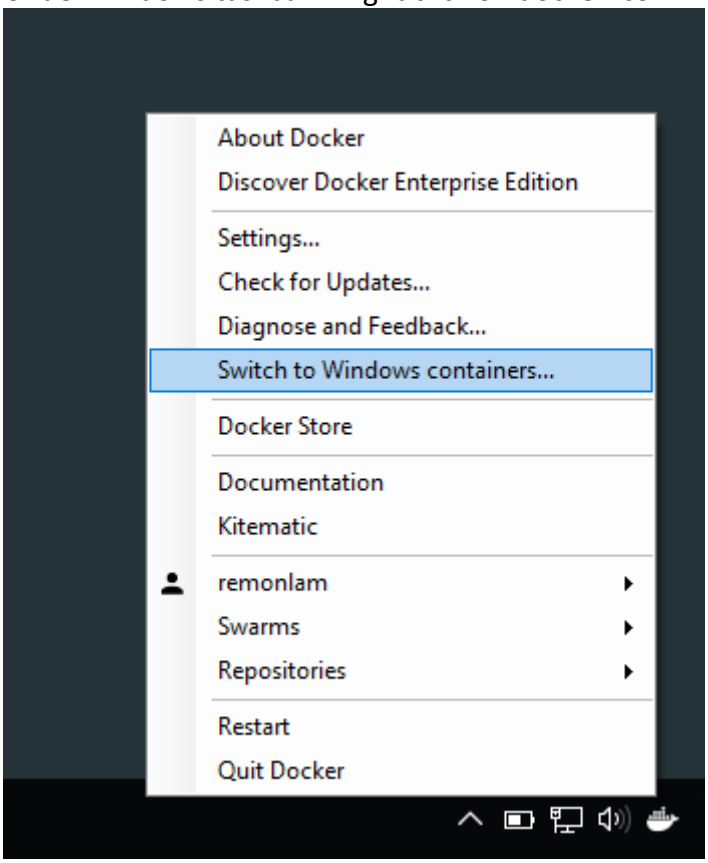
```
Hyper-V Requirements:      VM Monitor Mode Extensions: Yes
                           Virtualization Enabled In Firmware: Yes
                           Second Level Address Translation: No
                           Data Execution Prevention Available: Yes
```

- At least 4GB RAM

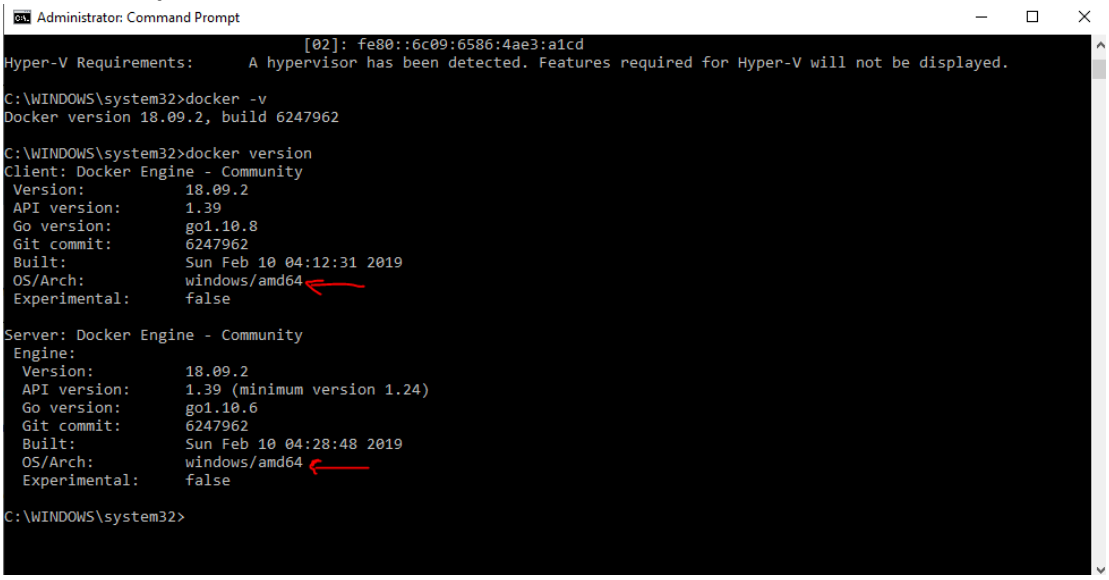
Switch from Linux container to windows container in Docker for desktop

To install Windows Server Core as a base image would require docker desktop to run in windows container.

- Under windows taskbar-> right click on docker icon -> switch to windows contai



- To check whether the switch is successful: Open command prompt(Admin) -> type: docker version-> make sure that OS/Arch for both client and server is set to **windows/amd64**



Running a helloworld.exe in a docker container

1. **Create a docker file**

   Run Command Prompt as Admin -> create a folder using mkdir -> navigate to the directory -> create a docker file using: type nul >Dockerfile

   Using a text editor, enter the following into the docker fi:

```
#Obtain the base image windows server core
FROM mcr.microsoft.com/windows/servercore

#set work directory
WORKDIR /helloapp

#Copy helloworld into helloapp folder
COPY helloworld.exe /helloapp

#Add  Visual C++ Redistributable Package for helloworld.exe
ADD http://download.microsoft.com/download/0/5/6/056DCDA9-D667-4E27-8001-8A0C6971D6B1/vcredist_x86.

#Use powershell to install dll into the container
RUN powershell.exe -Command Start-Process c:\vcredist_x86.exe -ArgumentList '/quiet' -Wait

#Execute helloworld.exe
ENTRYPOINT ["helloworld.exe"]
```

2. **Build the docker image**

   Build the docker image using docker build -t (image name) .

```
C:\testapp1>docker build -t helloapp .
Sending build context to Docker daemon  9.728kB
Step 1/7 : FROM mcr.microsoft.com/windows/servercore
 ---> ea9f7aa13d03
Step 2/7 : WORKDIR /helloapp
 ---> Using cache
 ---> a7ed0eca5a8b
Step 3/7 : COPY helloworld.exe /helloapp
 ---> Using cache
 ---> 296396f76907
Step 4/7 : ADD http://download.microsoft.com/download/0/5/6/056DCDA9-D667-4E27-8001-8A0C6971D6B1/vcredist_x86.exe /vcred
ist_x86.exe
Downloading [==================================================>]  6.511MB/6.511MB
 ---> Using cache
 ---> 1d9e8961c97a
Step 5/7 : RUN powershell.exe -Command Start-Process c:\vcredist_x86.exe -ArgumentList '/quiet' -Wait
 ---> Using cache
 ---> 6d777b1a03df
Step 6/7 : ENTRYPOINT ["helloworld.exe"]
 ---> Using cache
 ---> 0708db433f1f
Step 7/7 : CMD [ "CMD" ]
 ---> Running in 77537af9b1cd
Removing intermediate container 77537af9b1cd
 ---> f7197a424818
Successfully built f7197a424818
Successfully tagged helloapp:latest
```

   Troubleshoot:

   Access is denied error.

   Solution: Disable Mcafee run-time scan

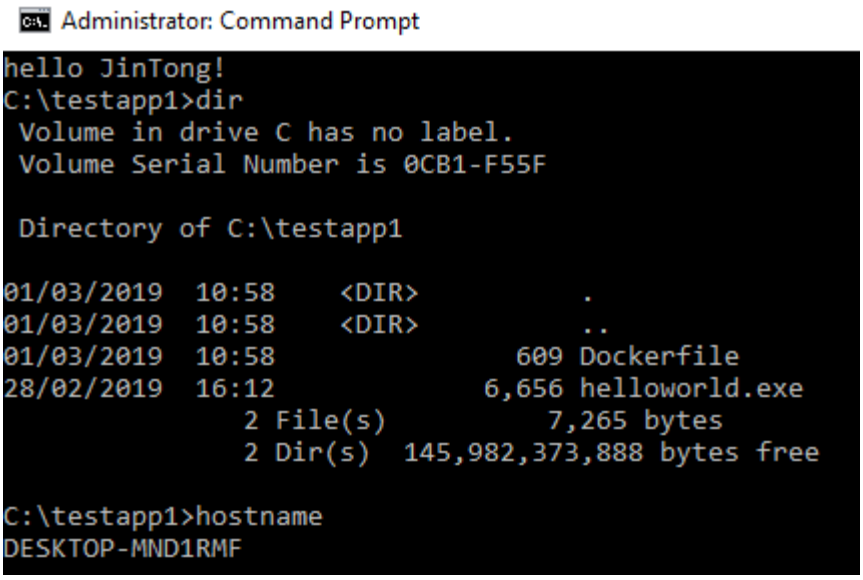
   Version compatibility error between image and host os

   Solution: Check for a match from your host OS version with the list of all available tags for windows server core:
   https://mcr.microsoft.com/v2/windows/servercore/tags/list
   : Check for host OS version -> open cmd -> type : ver

3. **Run the Docker image**

   Create a container using: docker run -it (image name)

   Output:


Administrator: Command Prompt
hello JinTong!
C:\testapp1>dir
Volume in drive C has no label.
Volume Serial Number is 0CB1-F55F
Directory of C:\testapp1
01/03/2019 10:58 <DIR> .
01/03/2019 10:58 <DIR> ..
01/03/2019 10:58 609 Dockerfile
28/02/2019 16:12 6,656 helloworld.exe
2 File(s) 7,265 bytes
2 Dir(s) 145,982,373,888 bytes free
C:\testapp1>hostname
DESKTOP-MND1RMF