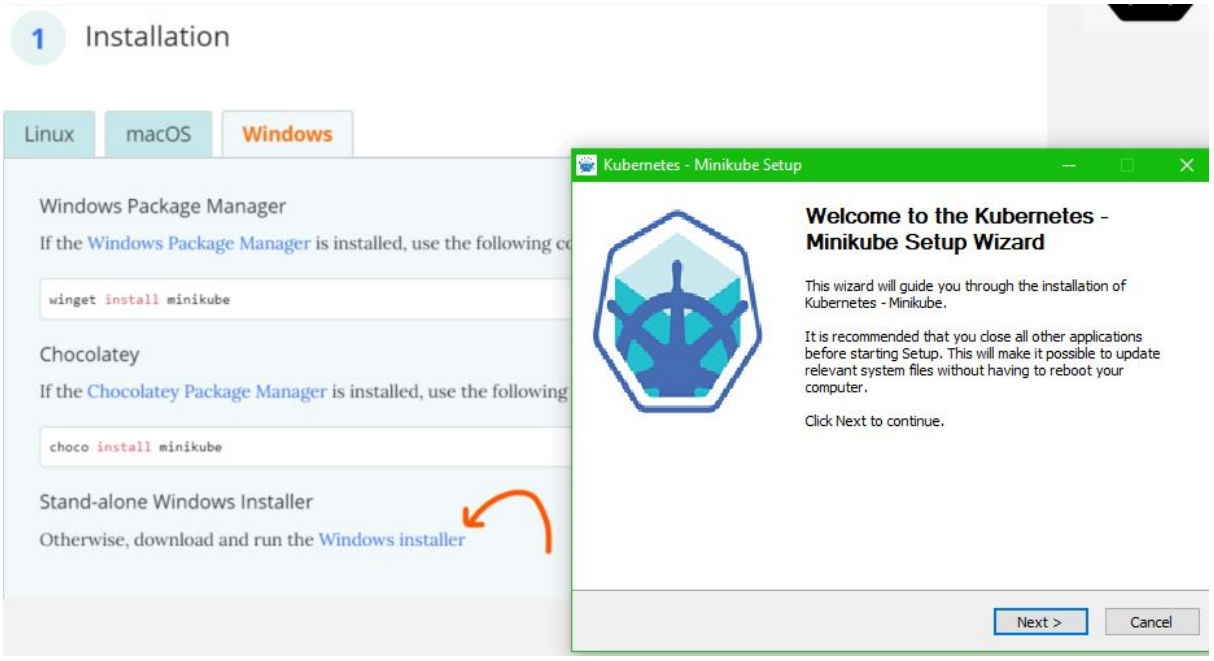
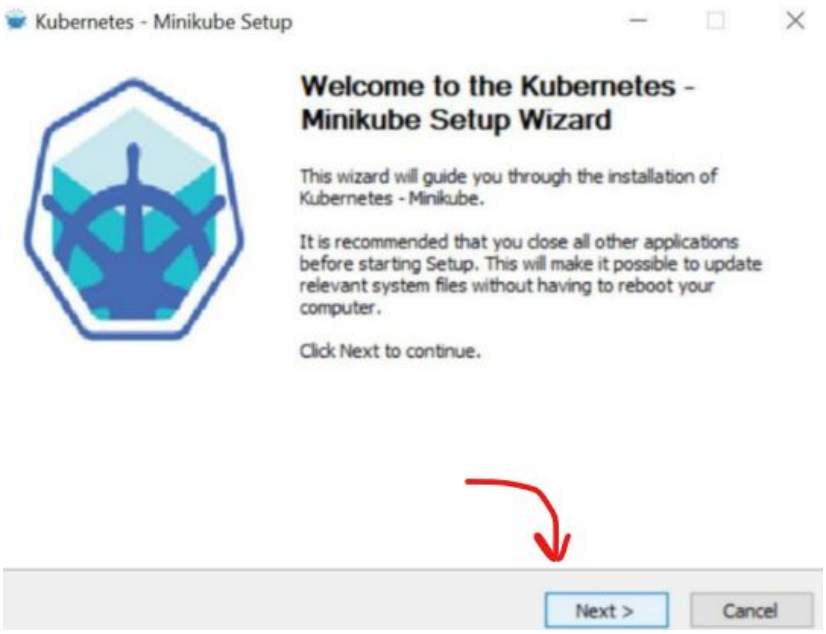
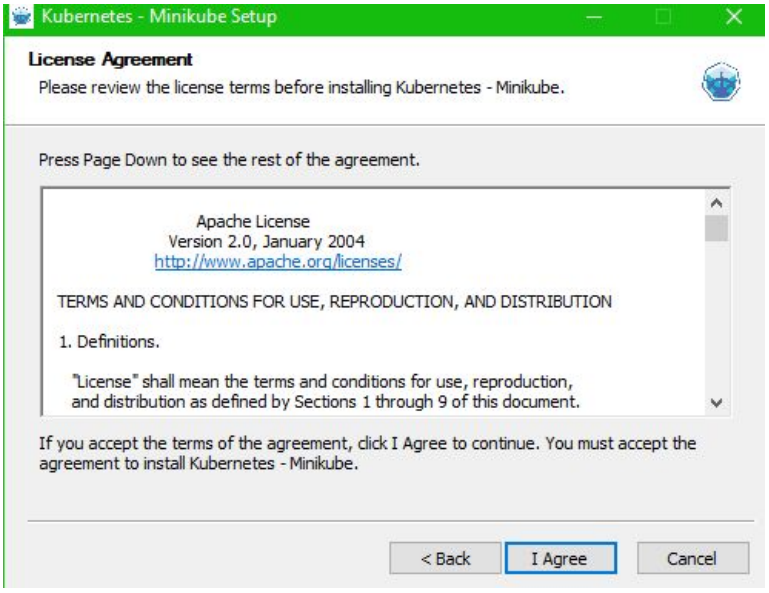
INSTALLING KUBERNETES

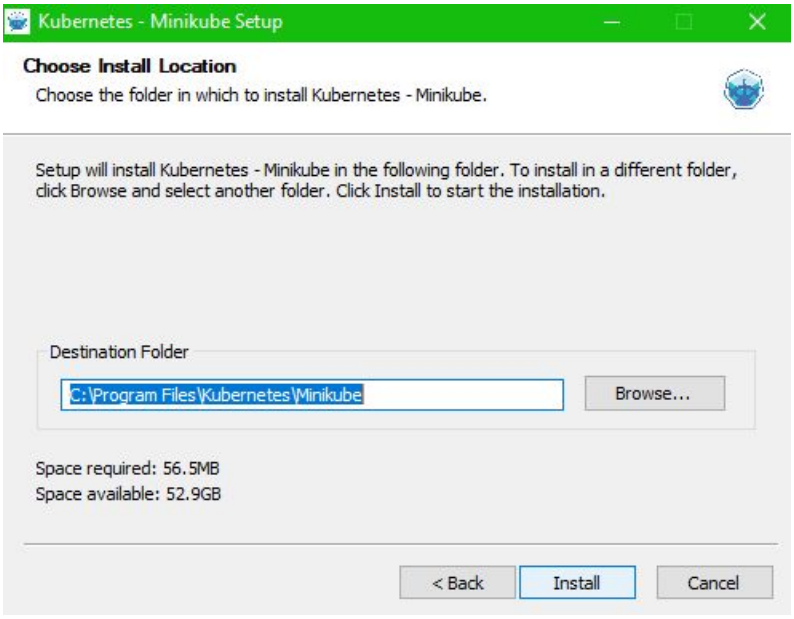
Click on the link below to Install minikube.
https://minikube.sigs.k8s.io/docs/start/

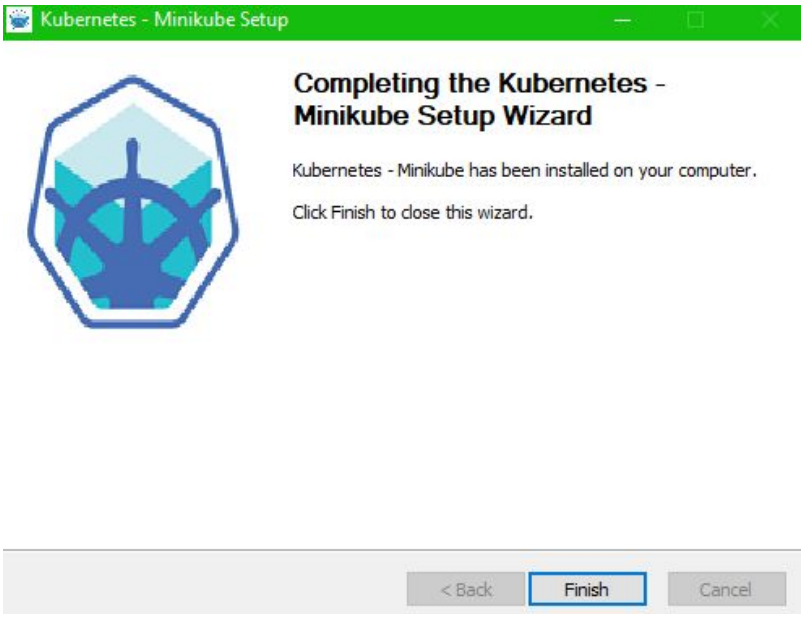


Download and run the application
Enter Next


Kubernetes - Minikube Setup
Welcome to the Kubernetes - Minikube Setup Wizard
This wizard will guide you through the installation of Kubernetes - Minikube.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel


Kubernetes - Minikube Setup
License Agreement
Please review the license terms before installing Kubernetes - Minikube.
Press Page Down to see the rest of the agreement.
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION
1. Definitions.
"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Kubernetes - Minikube.
< Back
I Agree
Cancel


Kubernetes - Minikube Setup
Choose Install Location
Choose the folder in which to install Kubernetes - Minikube.
Setup will install Kubernetes - Minikube in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\Kubernetes\Minikube
Browse...
Space required: 56.5MB
Space available: 52.9GB
< Back
Install
Cancel



Go to your Local Directory in your COmmand Prompt where you have saved my minikube

```
C:\Users\Abhishek kumar> cd "C:\Program Files\Kubernetes\Minikube
```

minikube.exe start --driver=virtualbox –kubernetes-version= v1.20.0

After downloading they will install VM in your vmbox, then they will start the vm and configure complete single-node architecture for you.

use minikube status command to check it properly installed or not.

```
C:\Program Files\Kubernetes\Minikube>minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
timeToStop: Nonexistent
```

Minikube.exe ip

```
C:\Program Files\Kubernetes\Minikube>minikube.exe ip
192.168.99.100
```

Now,

To use Kubernetes as a client you have to use tool/command called **kubectl**.
Open command prompt with administrator power
then

- https://kubernetes.io/docs/tasks/tools/install-kubectl/
  >>curl -LO
  https://storage.googleapis.com/kubernetes-release/release/v1.20.0/bin/windows/amd64/kubectl.exe

```
C:\Program Files\Kubernetes\Minikube>curl -LO https://storage.googleapis.com/kubernetes-release/release/v1.20.0/bin/windows/amd64/kubectl.exe
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 39.5M  100 39.5M    0     0  1710k      0  0:00:23  0:00:23 --:--:-- 1982k
```

- Download client command – kubectl in same folder where minikube installed.

- Kubectl.exe get pods
  - To check how many pods running.
  - Kubectl.exe run myweb1 --image=vimal13/apache-webserver-php

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe run myweb1 --image=vimal13/apache-webserver-php
pod/myweb1 created
```

    - It will launch a pod for you.
  - Kubectl.exe delete pod myweb1
    - Now if you see pod is deleted, but it is not automatically started again.

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe delete pod myweb1
pod "myweb1" deleted

C:\Program Files\Kubernetes\Minikube>Kubectl.exe get pods
NAME     READY   STATUS        RESTARTS   AGE
myweb1   0/1     Terminating   0          6m38s
```

    - In Kubernetes we have deployment controller program that can re-launch container if somehow it is terminated or stopped.
  - Kubectl.exe create deployment myweb1 --image=vimal13/apache-webserver-php

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe create deployment myweb1 --image=vimal13/apache-webserver-php
deployment.apps/myweb1 created
```

    - It will launch one pod for you, with supervision.
    - If you delete this pod, one more pod created.

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe delete pod myweb1-55dbb57599-k7hlc
pod "myweb1-55dbb57599-k7hlc" deleted

C:\Program Files\Kubernetes\Minikube>Kubectl.exe get pods
NAME                      READY   STATUS    RESTARTS   AGE
myweb1-55dbb57599-pjsh9   1/1     Running   0          34s
```

Even after delete

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe delete pod myweb1-55dbb57599-k7hlc
pod "myweb1-55dbb57599-k7hlc" deleted

C:\Program Files\Kubernetes\Minikube>Kubectl.exe get pods
NAME                      READY   STATUS    RESTARTS   AGE
myweb1-55dbb57599-pjsh9   1/1     Running   0          34s
```

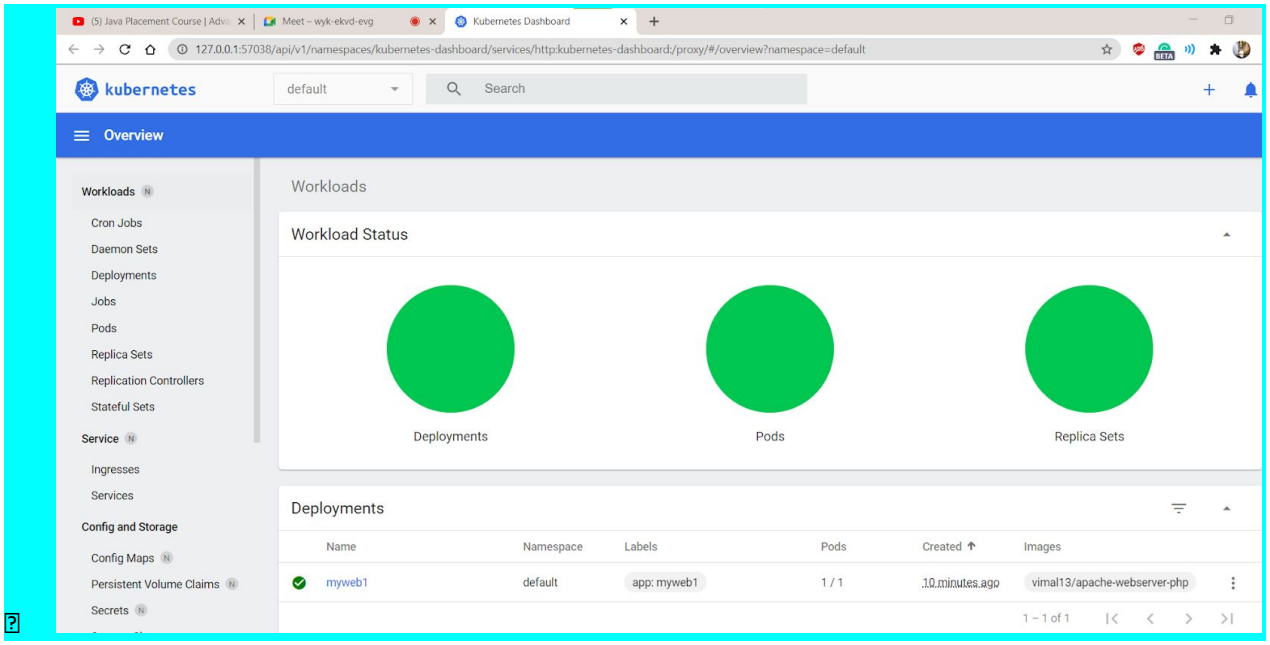
- Kubectl.exe describe pods

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe describe pods
Name:         myweb1-55dbb57599-k7hlc
Namespace:    default
Priority:     0
Node:         minikube/192.168.99.100
Start Time:   Fri, 08 Jan 2021 21:01:07 +0530
Labels:       app=myweb1
              pod-template-hash=55dbb57599
Annotations:  <none>
Status:       Running
IP:           172.17.0.3
IPs:
  IP:           172.17.0.3
Controlled By:  ReplicaSet/myweb1-55dbb57599
Containers:
  apache-webserver-php:
    Container ID:   docker://8e400e3f837dbbe4685ea8b701d8f18b7b4eb5f2710af9e973e01bbd19dfc8dd
    Image:          vimal13/apache-webserver-php
    Image ID:       docker-pullable://vimal13/apache-webserver-php@sha256:faed0a5afaf9f04b6915d
    Port:           <none>
    Host Port:      <none>
```

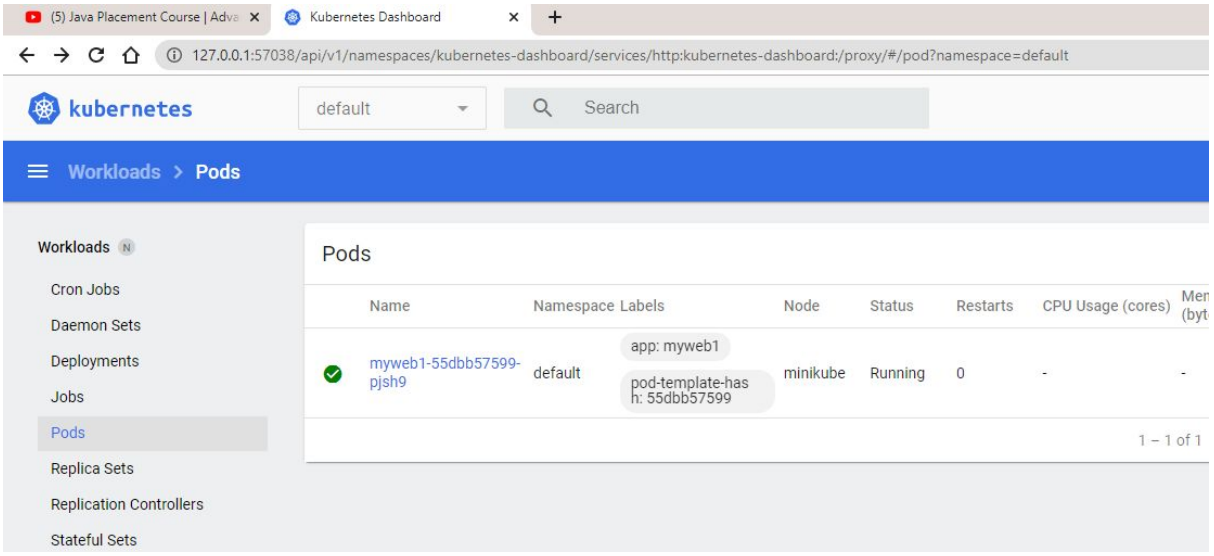
- Minikube dashboard

```
C:\Program Files\Kubernetes\Minikube>minikube dashboard
* Enabling dashboard ...
* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
* Opening http://127.0.0.1:57038/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
```

- It will automatically opened in web browser



- It will launch webUI for you.

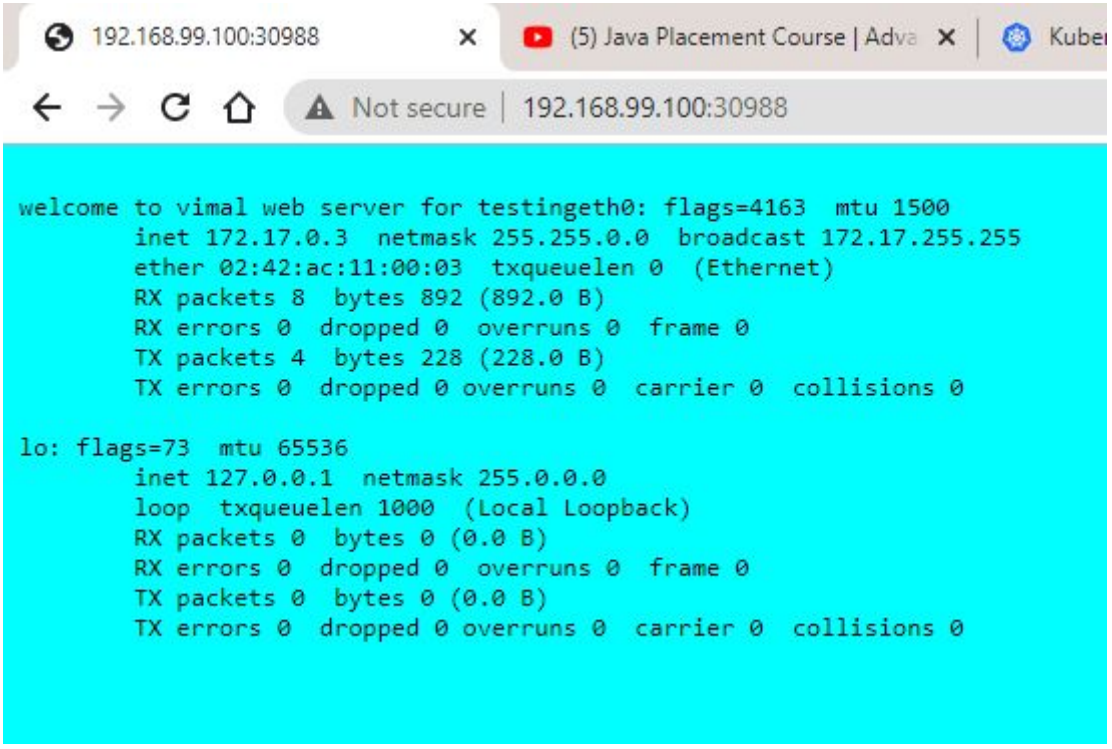


- If you want to connect your container from outside world, you have to expose (PAT) it.
  - Kubectl.exe expose deployments myweb1 --port=80 --type=NodePort
    - Now from windows you can connect to this deployments.
  - Minikube service myweb1 --url

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe expose deployments myweb1 --port=80 --type=NodePort
service/myweb1 exposed

C:\Program Files\Kubernetes\Minikube>minikube service myweb1 --url
http://192.168.99.100:30988
```

  -
    - It will provide you URL for connecting to application (pod). While connecting to that url http://192.168.99.100:30988

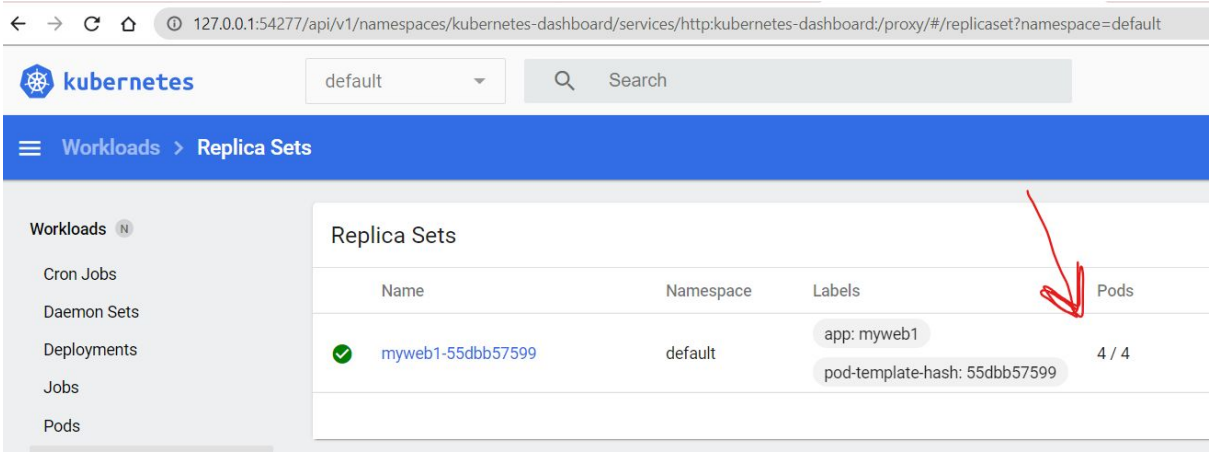


- Kubectl.exe scale deployments myweb1 --replicas=4
  - It will launch 4 replica for you.

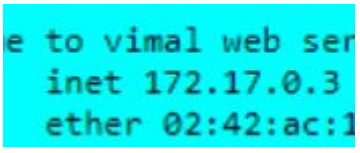
```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe scale deployments myweb1 --replicas=4
deployment.apps/myweb1 scaled
```

Now from dashboard

Lets confirm



And the Ip which seen by url is>



Lets confirm it by VM also,

- For login inside minikube VM, Default login name=docker, password=tcuser
  - By default minikube have IP 100 (192.168.43.100).

- **Session 01 – kubernetes//pod**
  - Monitoring OS
  - More OS, hard to manage
  - Kubernetes
  - Pod
    - Auto scaling
    - Load balancer
  - Multiple container in one mode
  - Master-slave architecture
  - Multi-node cluster
- **Session 02 – minikube//kubectl//demo**
  - Minikube installation
    - Only support vbox
    - https://minikube.sigs.k8s.io/docs/start/
  - Client command
    - Kubectl
    - https://kubernetes.io/docs/tasks/tools/install-kubectl/
  - Kubectl.exe get pods
  - Kubectl.exe run --name=myweb1 --image=vimal13/apache-webserver-php
  - Kubectl.exe delete pod myweb1
  - Kubectl.exe create deployment myweb1 --image=vimal13/apache-webserver-PHP
  - Kubectl.exe describe pods
  - Kubectl.exe expose deployments myweb1 --port=80 --type=NodePort
  - Minikube service myweb1 --URL
  - Kubectl.exe scale deployments myweb2 --replicas=4
  - Minikube dashboard
  - Minikube VM
    - Login = docker
    - Password = tc-user
    - Default IP for minikube VM is 100 (192.168.43.100)