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# Containers

1. Install Docker and Kubernetes on both your servers. You can use Microk8 as your Kubernetes installation method Instructions: https://microk8s.io/

microk8s centos download
First install snapd https://snapcraft.io/docs/installing-snap-on-centos

```
[miles@localhost ~]$ sudo yum install snapd
Last metadata expiration check: 1:56:39 ago on Mon 12 Dec 2022 10:59:00 AM EST.
Dependencies resolved.
================================================================================
 Package                 Architecture        Version                 Repository        Size
================================================================================
Installing:
 snapd                   x86_64              2.57.6-1.el8            epel              17 M
Installing dependencies:
 snap-confine            x86_64              2.57.6-1.el8            epel             3.5 M
 snapd-selinux           noarch              2.57.6-1.el8            epel             535 k

Transaction Summary
================================================================================
Install  3 Packages

Total download size: 21 M
Installed size: 58 M
Is this ok [y/N]: _
```

Next enter `sudo systemctl enable --now snapd.socket`

Next enter `sudo ln -s /var/lib/snapd/snap /snap`

After I did this I ran sudo yum update and then used `sudo snap install microk8s --classic`

```
[miles@localhost ~]$ sudo yum update
Last metadata expiration check: 2:02:12 ago on Mon 12 Dec 2022 10:59:00 AM EST.
Dependencies resolved.
Nothing to do.
Complete!
[miles@localhost ~]$ sudo snap install microk8s --classic
2022-12-12T13:01:28-05:00 INFO Waiting for automatic snapd restart...
microk8s (1.25/stable) v1.25.4 from Canonical▮ installed
[miles@localhost ~]$ _
```

I installed both docker and Mickrok8 when i set up my ubuntu vm you can get it by checking the box for them on install.

- To download docker you ca go to the docker site https://docs.docker.com/engine/install/ubuntu/ and follow the steps if you dont have it enter in the command line
- To download kubernetes(kubectl) enter into the command line

```
curl -o kubectl
https://s3.us-west-2.amazonaws.com/amazon-eks/1.24.7/2022-10-31/bin/linux/amd64/kubectl
```

Kubectl download

```
[miles@localhost ~]$ curl -o kubectl https://s3.us-west-2.amazonaws.com/amazon-eks/1.24.7/2022-10-31
/bin/linux/amd64/kubectl
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 43.6M  100 43.6M    0     0  14.9M      0  0:00:02  0:00:02 --:--:-- 14.9M
[miles@localhost ~]$
```

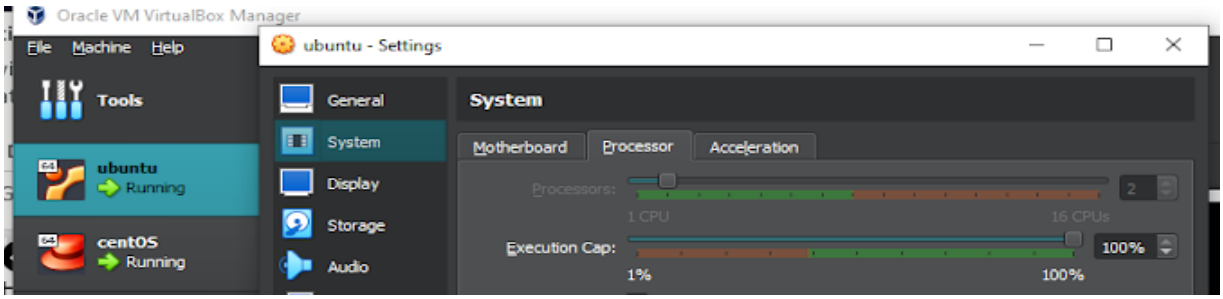
Link: https://docs.aws.amazon.com/eks/latest/userguide/install-kubectl.html

2. Install Minikube on both your servers
Tutorial: https://kubernetes.io/docs/tutorials/hello-minikube/

Before you can use minikube you need to have kubectl.

Install link: https://minikube.sigs.k8s.io/docs/start/

First make sure your vm has two processors you cand do this by right clicking th vm, go to settings, then choose system, then processor, then slide it to two. You have to have the selected vm off at the time you do this.




## Ubuntu:

## Minikube download

The commands to download from their website

```
miles@ubuntuserver:~$ curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube_late
st_amd64.deb
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 26.1M  100 26.1M    0     0  28.8M      0 --:--:-- --:--:-- --:--:-- 28.8M
miles@ubuntuserver:~$ _
```

```
miles@ubuntuserver:~$ sudo dpkg -i minikube_latest_amd64.deb
Selecting previously unselected package minikube.
(Reading database ... 73596 files and directories currently installed.)
Preparing to unpack minikube_latest_amd64.deb ...
Unpacking minikube (1.28.0-0) ...
Setting up minikube (1.28.0-0) ...
miles@ubuntuserver:~$ _
```

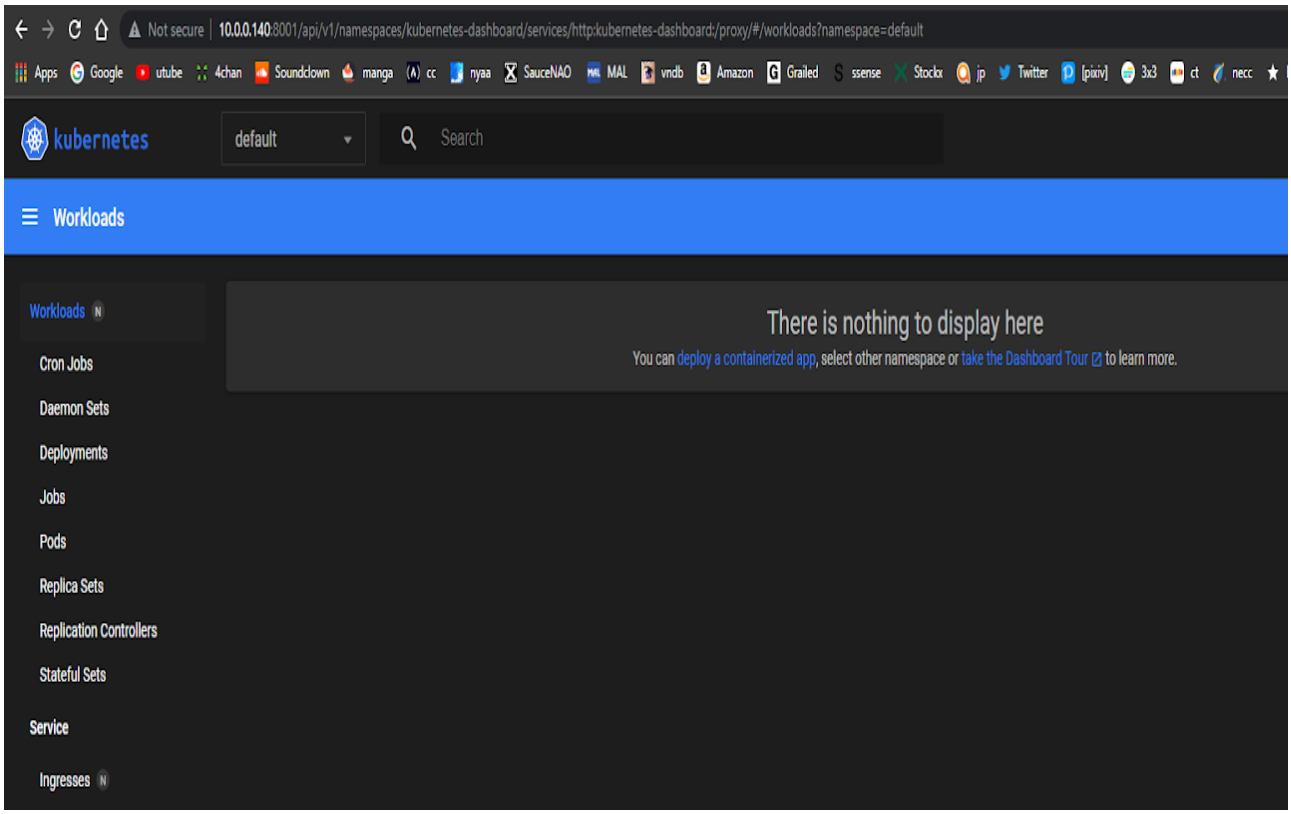
Command to go to the das
board

```
miles@ubuntuserver:~$ minikube dashboard
* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
* Opening http://127.0.0.1:41535/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-das
hboard:/proxy/ in your default browser...
  http://127.0.0.1:41535/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/
proxy/
_
```

To get my dashboard working I had use these commands

- kubectl proxy --address='0.0.0.0' --disable-filter=true
- sudo firewall-cmd --zone=public --add-port=8001/tcp --permanent
- sudo firewall-cmd --reload

Then I changed my ip in the search bar to my vms which was 10.0.0.140 and then added :8001 at the end




3. Get a basic web server working using Docker OR kubernetes on ONE of your servers. You can grab the docker image from https://hub.docker.com/_/httpd

```
miles@ubuntuserver:~/kubernetes/smart-home$ kubectl apply -f namespace.yaml
namespace/smart-home created
miles@ubuntuserver:~/kubernetes/smart-home$ kubectl get namespaces
NAME                   STATUS   AGE
default                Active   156m
kube-node-lease        Active   156m
kube-public            Active   156m
kube-system            Active   156m
kubernetes-dashboard   Active   130m
smart-home             Active   19s
miles@ubuntuserver:~/kubernetes/smart-home$ _
```

The External ip is the web server

```
miles@ubuntuserver:~/kubernetes/smart-home$ kubectl get services -n smart-home
NAME           TYPE           CLUSTER-IP     EXTERNAL-IP    PORT(S)        AGE
samplerecipe   LoadBalancer   10.99.68.162   10.99.68.162   80:30753/TCP   40m
miles@ubuntuserver:~/kubernetes/smart-home$ kubectl get services -n smart-home
NAME           TYPE           CLUSTER-IP     EXTERNAL-IP    PORT(S)        AGE
samplerecipe   LoadBalancer   10.99.68.162   10.99.68.162   80:30753/TCP   44m
miles@ubuntuserver:~/kubernetes/smart-home$ _
```

References:


https://www.youtube.com/watch?v=iYRgJcOUMps&ab_channel=SMACAcademy

https://docs.docker.com/engine/install/ubuntu/

https://kubernetes.io/docs/tutorials/hello-minikube/

https://docs.aws.amazon.com/eks/latest/userguide/install-kubectl.html