

OpenShift Origin(v3.11) on AWS

(Dipaditya Das)

Objective:

To Setup a Single Node Cluster of OpenShift v3.11 on AWS for **D0180 Practical**(Especially for those who have **less RAM** like 4 – 8GiB in their system).

[Note: For D0180 the required version of OpenShift to learn is v3.9, v3.11 and v4.x.]

Execute the following steps:

Step 1: Launch an EC2 instance with the following requirement:

- Amazon Linux 2 AMI(HVM) 64Bit x86, SSD Volume Type.
- Instance Type – “t2.large or t2.xlarge”.
- Default VPC and Any Subnet.
- Auto-Assign Public IP.
- Add a Name Tag.
- Create a separate Security Group “OpenShift” with all Traffic enabled in Inbound/Outbound Rules.
- Create a Separate Key(The Key initially will be in .pem file format)

We can convert the .pem file to .ppk file if we want to use putty other than OpenSSH. ([Connect to your Linux instance from Windows using PuTTY - Amazon Elastic Compute Cloud](#))

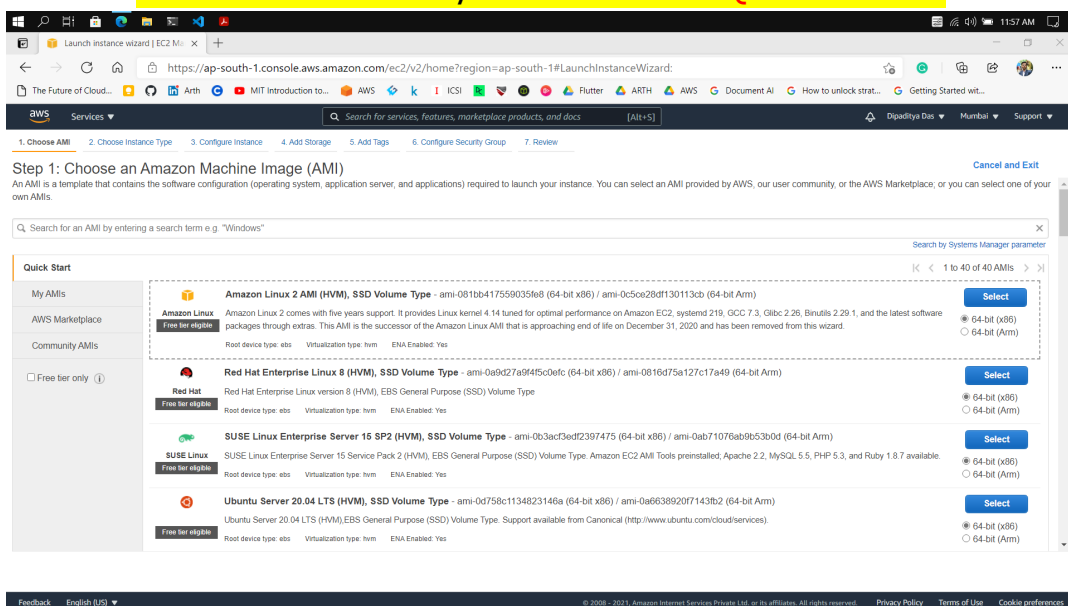
After reviewing all the above requirements, launch the EC2 instance.

Then, we will SSH to our instance, by typing the following command in PowerShell:

```
ssh -i <Private Key File> -l ec2-user <Public IP>
```

Or

```
ssh -i <Private Key File> ec2-user@<Public IP>
```



Launch instance wizard | EC2 M...

https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:

Services

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Support

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by:

All Instance families

Current generation

Show/Hide Columns

Currently selected: t2.large (4 ECUs, 2 vCPUs, 2.3 GHz, ~ 8 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.micro	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.small	2	2	EBS only	Yes	Up to 5 Gigabit	Yes

Cancel

Previous

Review and Launch

Next: Configure Instance Details

Feedback

English (US)

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Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances

1

Launch into Auto Scaling Group

Purchasing option

☐ Request Spot instances

Network

vpc-2ae11c42 (default)

Create new VPC

Subnet

subnet-fc1b70b0 | Default in ap-south-1b

Create new subnet

Auto-assign Public IP

Use subnet setting (Enable)

Placement group

☐ Add instance to placement group

Capacity Reservation

Open

Domain join directory

No directory

Create new directory

IAM role

None

Create new IAM role

CPU options

☐ Specify CPU options

Shutdown behavior

Stop

Stop - Hibernate behavior

☐ Enable hibernation as an additional stop behavior

Enable termination protection

☐ Protect against accidental termination

Monitoring

☐ Enable CloudWatch detailed monitoring

Cancel

Previous

Review and Launch

Next: Add Storage

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Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value	Instances	Volumes	Network Interfaces
Name	oid_v3.11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag

(Up to 50 tags maximum)

Cancel

Previous

Review and Launch

Next: Configure Security Group

Feedback

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https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☐ Create a new security group ☒ Select an existing security group

Security Group ID	Name	Description	Actions
<input type="checkbox"/> sg-0c380b68092305d5	Arth-Hadoop	launch-wizard-2 created 2020-10-02T13:53:05.653+05:30	Copy to new
<input type="checkbox"/> sg-69700d0b	default	default VPC security group	Copy to new
<input checked="" type="checkbox"/> sg-0e4bc0358eba3eba1	OpenShift	launch-wizard-1 created 2021-03-17T13:32:41.025+05:30	Copy to new

Inbound rules for sg-0e4bc0358eba3eba1 (Selected security groups: sg-0e4bc0358eba3eba1)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
All traffic	All	All	:::0	
SSH	TCP	22	0.0.0.0/0	
All ICMP - IPv4	All	N/A	103.75.162.5/32	

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Launch instance wizard | EC2 M... x

https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.large	-	2	8	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name
sg-0e4bc0358eba3eba1	OpenShift

All selected security groups inbound rules

Type	Protocol
All traffic	All
All traffic	All
SSH	TCP
All ICMP - IPv4	All

Instance Details

Storage

Tags

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Instances | EC2 Management Co... x

https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:instanceState=running

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Instances (1/1) Info

Filter instances

Instance state: running Clear filters

Name	Instance ID	Instance state	Status check	Availability Zone	Public IPv4 ...	Security group name	Key name	Architecture
okd_v3.11	i-0e4118143efc8e09c	Running	2/2 checks pass	ap-south-1b	65.0.127.79	OpenShift	OpenShift	x86_64

Instance: i-0e4118143efc8e09c (okd_v3.11)

Details Security Networking Storage Status checks Monitoring Tags

Instance summary Info

Instance ID i-0e4118143efc8e09c (okd_v3.11)	Public IPv4 address 65.0.127.79 open address	Private IPv4 addresses 172.31.0.239
Instance state Running	Public IPv4 DNS ec2-65-0-127-79.ap-south-1.compute.amazonaws.com open address	Private IPv4 DNS ip-172-31-0-239.ap-south-1.compute.internal
Instance type t2.large	Elastic IP addresses -	VPC ID vpc-2ae1fc42
AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more	IAM Role -	Subnet ID subnet-fc1b70b0

Instance details Info

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```
DipadityaDas@DIPADITYA-PC ~ Desktop
> ssh -i OpenShift.pem ec2-user@65.0.127.79
The authenticity of host '65.0.127.79 (65.0.127.79)' can't be established.
ECDSA key fingerprint is SHA256:grItRVH8tX0mCW+0/CTz6sKelCah4RVin+1tuicChUM.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '65.0.127.79' (ECDSA) to the list of known hosts.

 _ | _ | _ )
 _ | ( / Amazon Linux 2 AMI
 ---| \ ---| ---|

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-0-239 ~]$ sudo su - root
[root@ip-172-31-0-239 ~]# export PS1="\e[1;32m[\u@\h \W]\$ \e[0m"
[root@ip-172-31-0-239 ~]$
```

`sudo su - root`

Switch to root user

:Bonus:

As we can see after login the bash prompt and the commands that we are providing is of same color. So we will change the bash prompt color by typing the following command

`export PS1="\e[1;32m[\u@\h \W]\$ \e[0m"`

This will change the bash prompt color to light green. For more info about bash prompt, go to [How To Change or Customize Bash Prompt In Linux {25 Options}](https://phoenixnap.com/kb/how-to-change-or-customize-bash-prompt-in-linux-25-options/) (phoenixnap.com)

Step 2: Now we will download and install docker, wget and vim by providing the following command.

`yum install docker wget vim -y`

```
[root@ip-172-31-0-239 ~]# yum install docker wget vim -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
Package wget-1.14-18.amzn2.1.x86_64 already installed and latest version
Package 2:vim-enhanced-8.1.1602-1.amzn2.x86_64 already installed and latest version
Resolving Dependencies
--> Running transaction check
----> Package docker.x86_64 0:19.03.13ce-1.amzn2 will be installed
--> Processing Dependency: runc >= 1.0.0 for package: docker-19.03.13ce-1.amzn2.x86_64
--> Processing Dependency: containerd >= 1.3.2 for package: docker-19.03.13ce-1.amzn2.x86_64
--> Processing Dependency: pigz for package: docker-19.03.13ce-1.amzn2.x86_64
--> Processing Dependency: libcgrouper for package: docker-19.03.13ce-1.amzn2.x86_64
--> Running transaction check
----> Package containerd.x86_64 0:1.4.1-2.amzn2 will be installed
----> Package libcgrouper.x86_64 0:0.41-21.amzn2 will be installed
----> Package pigz.x86_64 0:2.3.4-1.amzn2.0.1 will be installed
----> Package runc.x86_64 0:1.0.0-1.20200826.gitff819c7.amzn2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
docker x86_64 19.03.13ce-1.amzn2 amzn2extra-docker 37 M
Installing for dependencies:
containerd x86_64 1.4.1-2.amzn2 amzn2extra-docker 24 M
libcgrouper x86_64 0.41-21.amzn2 amzn2-core 66 k
pigz x86_64 2.3.4-1.amzn2.0.1 amzn2-core 81 k
runc x86_64 1.0.0-1.20200826.gitff819c7.amzn2 amzn2extra-docker 3.7 M
=====

Transaction Summary
=====
Install 1 Package (+4 Dependent packages)

Total download size: 65 M
Installed size: 270 M
Downloading packages:
```

Step 3: Now we will enable the Docker.service using systemctl command.

```
systemctl enable docker --now
```

After that we need to create the docker daemon.json file with "insecure-registries" option in it.

```
cat <<EOF | tee /etc/docker/daemon.json
{
    "insecure-registries": ["172.30.0.0/16"]
}
EOF
```

Then, we will reload the Daemon and the Docker Service.

```
systemctl daemon-reload
```

```
systemctl restart docker
```

```
[root@ip-172-31-0-239 ~]$ systemctl enable docker --now
Created symlink from /etc/systemd/system/multi-user.target.wants/docker.service to /usr/lib/systemd/system/docker.service.
[root@ip-172-31-0-239 ~]$ cat <<EOF | tee /etc/docker/daemon.json
> {
>     "insecure-registries":["172.30.0.0/16"]
> }
> EOF
{
    "insecure-registries":["172.30.0.0/16"]
}
[root@ip-172-31-0-239 ~]$
```

```
[root@ip-172-31-0-239 ~]$ systemctl daemon-reload
[root@ip-172-31-0-239 ~]$ systemctl restart docker
[root@ip-172-31-0-239 ~]$ systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
   Active: active (running) since Fri 2021-03-19 07:06:07 UTC; 11s ago
     Docs: https://docs.docker.com
   Process: 4391 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
   Process: 4372 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
   Main PID: 4398 (dockerd)
    Tasks: 10
   Memory: 36.0M
   CGroup: /system.slice/docker.service
           └─4398 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=1024:4096

Mar 19 07:06:06 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:06.991633441Z" level=info msg="ccResolv ... grpc
Mar 19 07:06:06 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:06.991643791Z" level=info msg="ClientCo ... grpc
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.013176280Z" level=info msg="[graphdr ... ay2"
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.016492707Z" level=info msg="Loading ... rt."
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.114319499Z" level=info msg="Default ... ess"
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.258558731Z" level=info msg="Loading ... ne."
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.291072185Z" level=info msg="Docker d ... 3-ce
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.291144062Z" level=info msg="Daemon h ... ion"
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal systemd[1]: Started Docker Application Container Engine.
Mar 19 07:06:07 ip-172-31-0-239.ap-south-1.compute.internal dockerd[4398]: time="2021-03-19T07:06:07.304871897Z" level=info msg="API list ... ock"
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-0-239 ~]$ systemctl is-active docker
active
[root@ip-172-31-0-239 ~]$
```

Step 4: Now we will download the OpenShift v3.11 CLI for Linux.

wget \ <https://github.com/openshift/origin/releases/download/v3.11.0/openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz>

```
[root@ip-172-31-0-239 ~]$ wget \
> https://github.com/openshift/origin/releases/download/v3.11.0/openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz
--2021-03-19 07:28:59-- https://github.com/openshift/origin/releases/download/v3.11.0/openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit
.tar.gz
Resolving github.com (github.com)... 13.234.210.38
Connecting to github.com (github.com)|13.234.210.38|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://github-releases.githubusercontent.com/22442668/bc49e200-cd4b-11e8-867b-80841e1e238f?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Cre
dential=AKIAIWNJYAX4CSVEH53A%2F20210319%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20210319T072900Z&X-Amz-Expires=300&X-Amz-Signature=ac254dfa6b
eda87e078cd3a45512dff36fb834dd186db9757828955e3f3ce7d8&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=22442668&response-content-dispositio
n=attachment%3B%20filename%3Dopenshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz&response-content-type=application%2Foctet-stream [
following]
--2021-03-19 07:29:00-- https://github-releases.githubusercontent.com/22442668/bc49e200-cd4b-11e8-867b-80841e1e238f?X-Amz-Algorithm=AWS4-HMAC-S
HA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20210319%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20210319T072900Z&X-Amz-Expires=300&X-Amz-Signa
ture=ac254dfa6bda87e078cd3a45512dff36fb834dd186db9757828955e3f3ce7d8&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=22442668&response-con
tent-disposition=attachment%3B%20filename%3Dopenshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz&response-content-type=application%2
Foctet-stream
Resolving github-releases.githubusercontent.com (github-releases.githubusercontent.com)... 185.199.111.154, 185.199.108.154, 185.199.109.154, ..
Connecting to github-releases.githubusercontent.com (github-releases.githubusercontent.com)|185.199.111.154|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 56507103 (54M) [application/octet-stream]
Saving to: 'openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz'

100%[=====] 56,507,103 16.9MB/s in 3.3s

2021-03-19 07:29:03 (16.5 MB/s) - 'openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz' saved [56507103/56507103]

[root@ip-172-31-0-239 ~]$
```

Step 5: Extract and make oc and kubectl command available globally.

```
[root@ip-172-31-0-239 ~]$ ls
openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz
[root@ip-172-31-0-239 ~]$ tar -xvzf openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.security.selinux'
openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit/oc
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.security.selinux'
openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit/kubectl
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.security.selinux'
openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit/README.md
tar: Ignoring unknown extended header keyword 'LIBARCHIVE.xattr.security.selinux'
openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit/LICENSE
[root@ip-172-31-0-239 ~]$ tree
.
|-- openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit
|   |-- kubectl
|   |-- LICENSE
|   |-- oc
|   |-- README.md
|-- openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit.tar.gz

1 directory, 5 files
[root@ip-172-31-0-239 ~]$
```

cp oc /usr/local/bin

cp kubectl /usr/local/bin


```
Windows taskbar icons: File Explorer, Edge, VS Code, etc.
Terminal window title: AWS
[root@ip-172-31-0-239 ~]$ cd openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit/
[root@ip-172-31-0-239 openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit]$ cp oc /usr/local/bin/
[root@ip-172-31-0-239 openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit]$ cp kubectl /usr/local/bin/
[root@ip-172-31-0-239 openshift-origin-client-tools-v3.11.0-0cbc58b-linux-64bit]$ cd
[root@ip-172-31-0-239 ~]$
```

Step 6: Disable SELinux

```
Windows taskbar icons: File Explorer, Edge, VS Code, etc.
Terminal window title: AWS
[root@ip-172-31-0-239 ~]$ getenforce
Disabled
[root@ip-172-31-0-239 ~]$ setenforce 0
setenforce: SELinux is disabled
[root@ip-172-31-0-239 ~]$ getenforce
Disabled
[root@ip-172-31-0-239 ~]$
```

Step 7: Create the OpenShift Cluster using the oc command.

oc cluster up --routing-suffix <Public IP>.nip.io --public-hostname <Public DNS>

```
Windows taskbar icons: File Explorer, Edge, VS Code, etc.
Terminal window title: AWS
[root@ip-172-31-0-239 ~]$ oc cluster up \
> --routing-suffix=65.0.127.79.nip.io --public-hostname=ec2-65-0-127-79.ap-south-1.compute.amazonaws.com
Getting a Docker client ...
Checking if image openshift/origin-control-plane:v3.11 is available ...
Pulling image openshift/origin-control-plane:v3.11
E0319 07:37:24.427116      2105 helper.go:179] Reading docker config from /root/.docker/config.json failed: open /root/.docker/config.json: no such
file or directory, will attempt to pull image docker.io/openshift/origin-control-plane:v3.11 anonymously
Pulled 1/5 layers, 29% complete
Pulled 2/5 layers, 47% complete
Pulled 3/5 layers, 67% complete
Pulled 4/5 layers, 81% complete
Pulled 5/5 layers, 100% complete
Extracting
Image pull complete
Pulling image openshift/origin-cli:v3.11
E0319 07:37:38.120686      2105 helper.go:179] Reading docker config from /root/.docker/config.json failed: open /root/.docker/config.json: no such
file or directory, will attempt to pull image docker.io/openshift/origin-cli:v3.11 anonymously
Image pull complete
Pulling image openshift/origin-node:v3.11
E0319 07:37:41.208780      2105 helper.go:179] Reading docker config from /root/.docker/config.json failed: open /root/.docker/config.json: no such
file or directory, will attempt to pull image docker.io/openshift/origin-node:v3.11 anonymously
Pulled 6/6 layers, 100% complete
Extracting
Image pull complete
Creating shared mount directory on the remote host ...
Determining server IP ...
Checking if OpenShift is already running ...
Checking for supported Docker version (>=1.22) ...
Checking if insecure registry is configured properly in Docker ...
Checking if required ports are available ...
Checking if OpenShift client is configured properly ...
Checking if image openshift/origin-control-plane:v3.11 is available ...
Starting OpenShift using openshift/origin-control-plane:v3.11 ...
I0319 07:37:55.012446      2105 config.go:40] Running "create-master-config"
I0319 07:37:58.224976      2105 config.go:46] Running "create-node-config"
```

```
I0319 07:40:36.857728 2105 apply_list.go:67] Installing "sample-templates/cakephp quickstart"
I0319 07:40:36.857841 2105 apply_list.go:67] Installing "sample-templates/dancer quickstart"
I0319 07:40:36.857949 2105 apply_list.go:67] Installing "sample-templates/django quickstart"
I0319 07:40:36.858062 2105 apply_list.go:67] Installing "sample-templates/nodejs quickstart"
I0319 07:40:36.858172 2105 apply_list.go:67] Installing "sample-templates/mariadb"
I0319 07:40:52.942694 2105 interface.go:41] Finished installing "sample-templates/rails quickstart" "sample-templates/jenkins pipeline ephemeral" "sample-templates/sample pipeline" "sample-templates/mongodb" "sample-templates/mysql" "sample-templates/cakephp quickstart" "sample-templates/dancer quickstart" "sample-templates/django quickstart" "sample-templates/nodejs quickstart" "sample-templates/mariadb" "sample-templates/postgresql"
I0319 07:41:31.769934 2105 interface.go:41] Finished installing "centos-imagestreams" "openshift-router" "sample-templates" "persistent-volumes" "openshift-web-console-operator" "openshift-image-registry"
Login to server ...
Creating initial project "myproject" ...
Server Information ...
OpenShift server started.

The server is accessible via web console at:
https://ec2-65-0-127-79.ap-south-1.compute.amazonaws.com:8443

You are logged in as:
User: developer
Password: <any value>

To login as administrator:
oc login -u system:admin

[root@ip-172-31-0-239 ~]$ oc cluster status
Web console URL: https://ec2-65-0-127-79.ap-south-1.compute.amazonaws.com:8443/console/

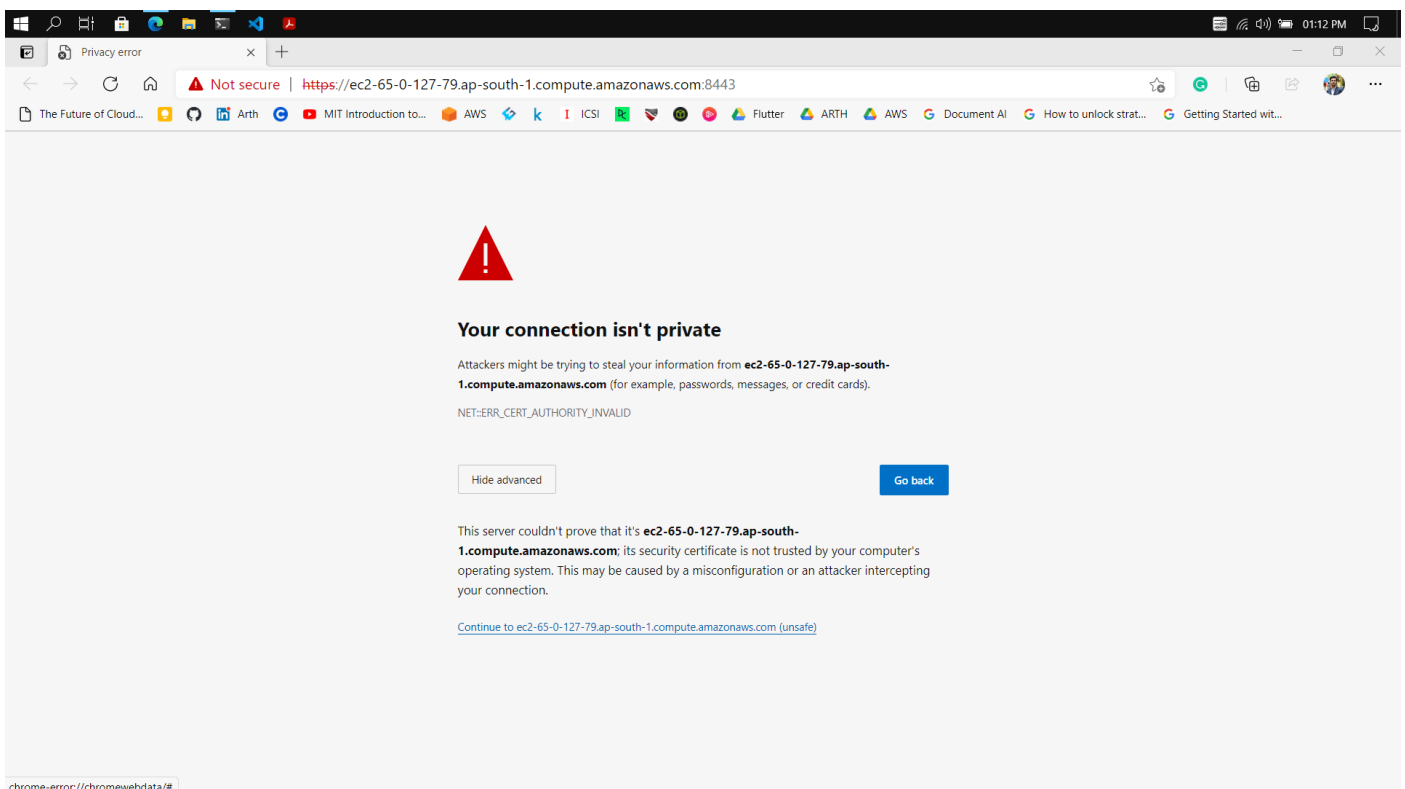
Config is at host directory
Volumes are at host directory
Persistent volumes are at host directory /root/openshift.local.clusterup/openshift.local.pv
Data will be discarded when cluster is destroyed

[root@ip-172-31-0-239 ~]$
```

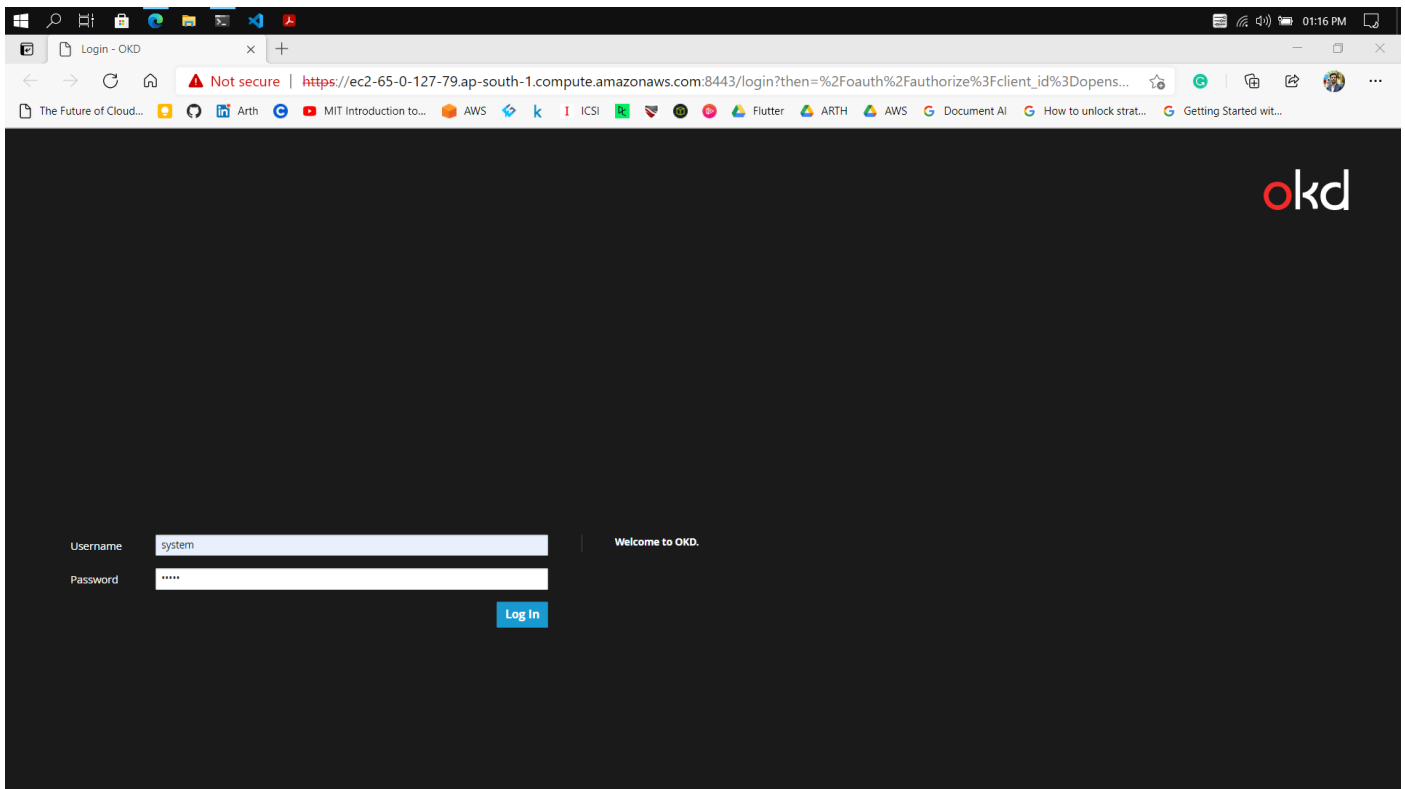
oc cluster status

This will show the status of the cluster running in background.

Step 8: Open the Console URL in any browser.

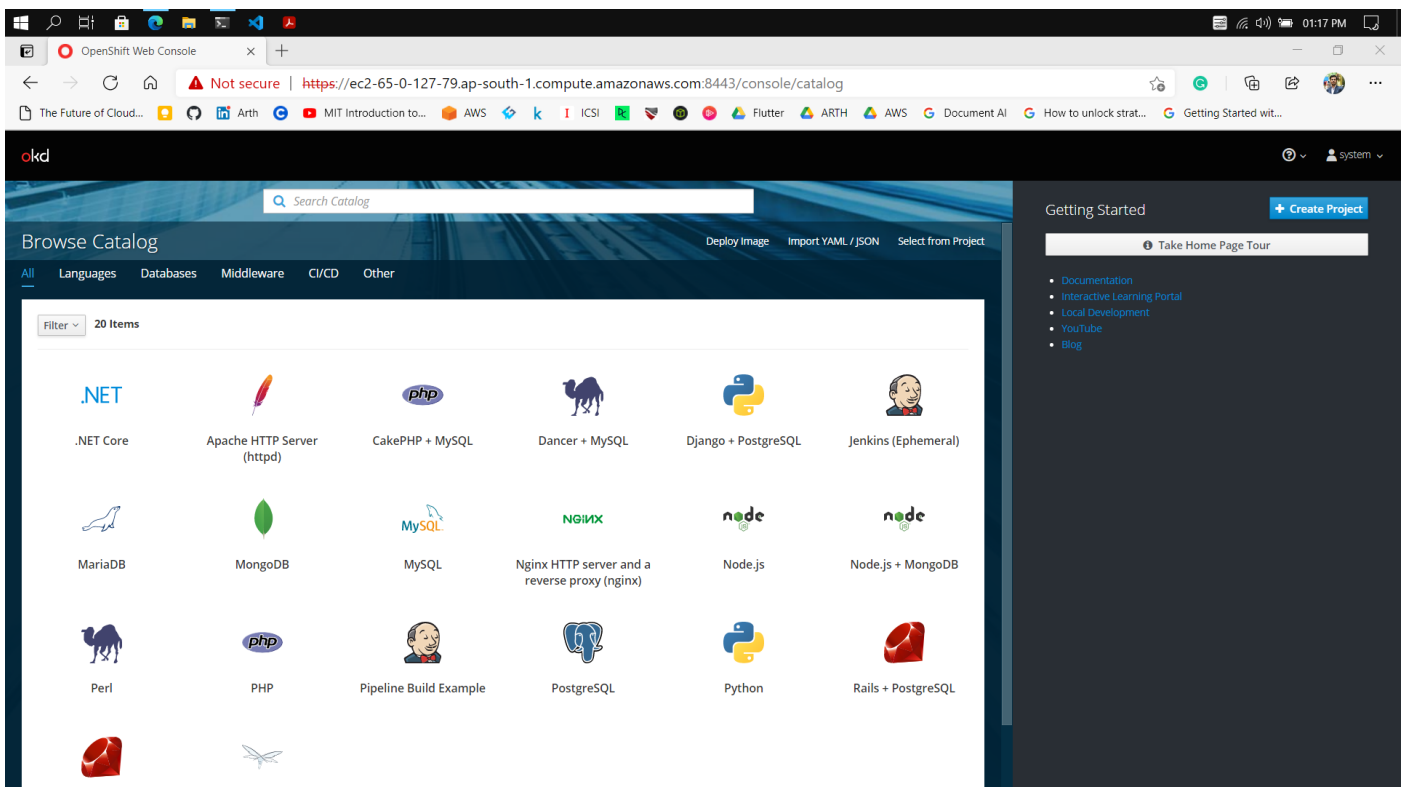


Click on Show Advanced > Continue and the Login Page will be available to us.



If we provide `system:admin`, then we will login as OpenShift Administrator.

If we provide `developer:<any value>`, then we will login as OpenShift Developer.



In order to shut down the cluster, the following oc command to be used:

oc cluster down

- Hope You Guys Liked It.
- Keep Learning and Keep Growing !!!