Lheidar

Task 6 – Installing Kubernetes

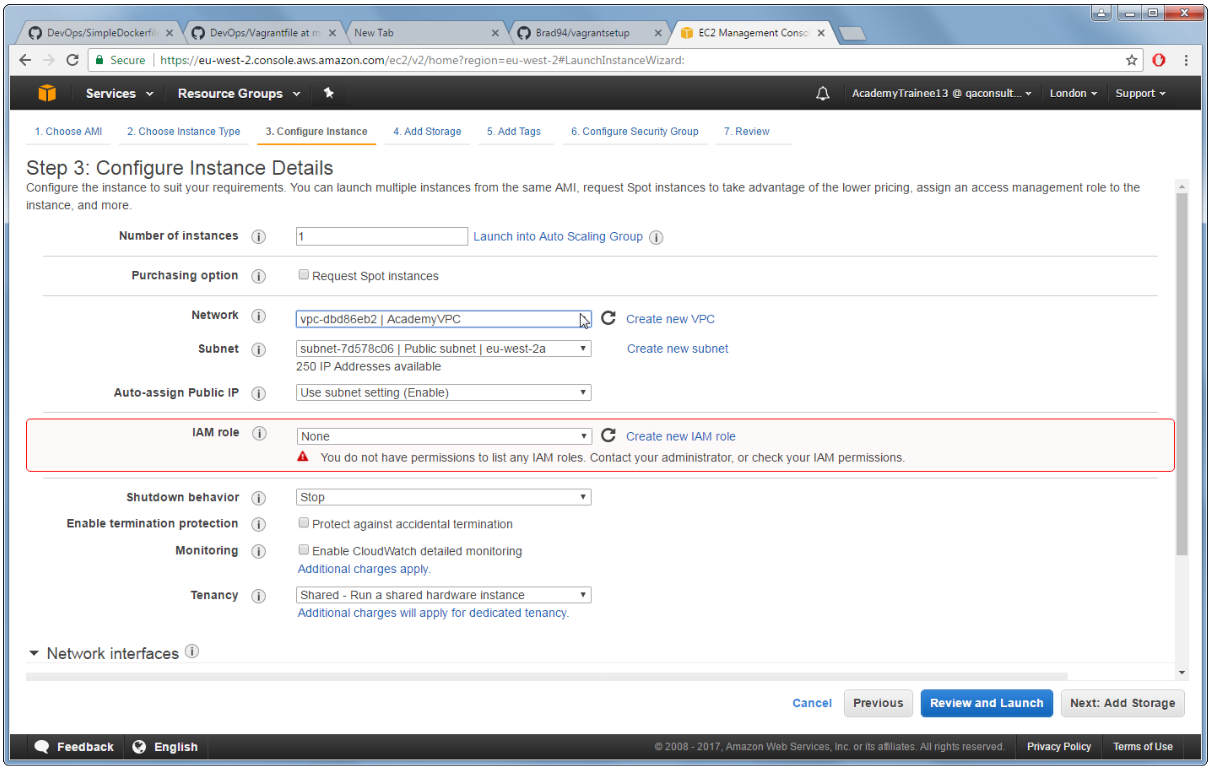
Definition: cluster consists of set connected computers that work together. Computer clusters have each node set to perform the same task, controlled and scheduled by software.

New Instance Settings:

1) Launch New instance> Select Ubuntu> Launch

Creating new instance with a defined storage size 15 GB

Instancename:
Academy:Ish:Kubernetes:3105



https://eu-west-2.console.aws.amazon.com/ec2/v2/home?region=eu-west-2#LaunchInstanceWizard:

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

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-dbd86eb2 | AcademyVPC Create new VPC

Subnet: subnet-7d578c06 | Public subnet | eu-west-2a Create new subnet
250 IP Addresses available

Auto-assign Public IP: Use subnet setting (Enable)

IAM role: None Create new IAM role
You do not have permissions to list any IAM roles. Contact your administrator, or check your IAM permissions.

Shutdown behavior: Stop

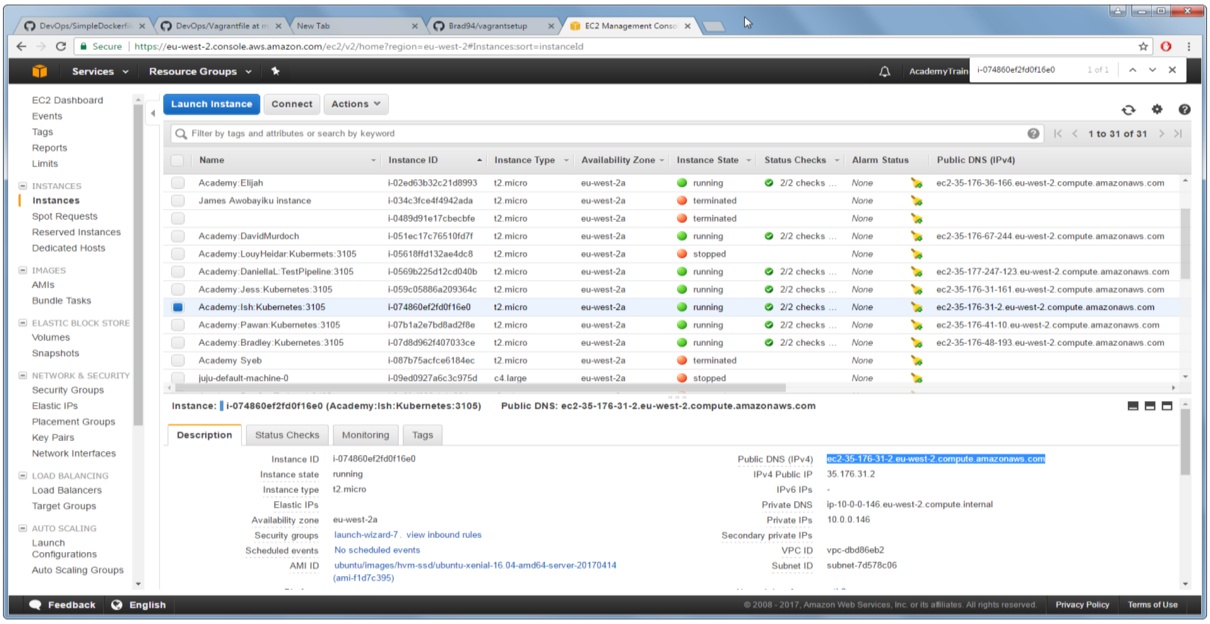
Enable termination protection: □ Protect against accidental termination

Monitoring: □ Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy: Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy.

Network interfaces

2) New instance created below



https://eu-west-2.console.aws.amazon.com/ec2/v2/home?region=eu-west-2#Instances:sort=instanceId

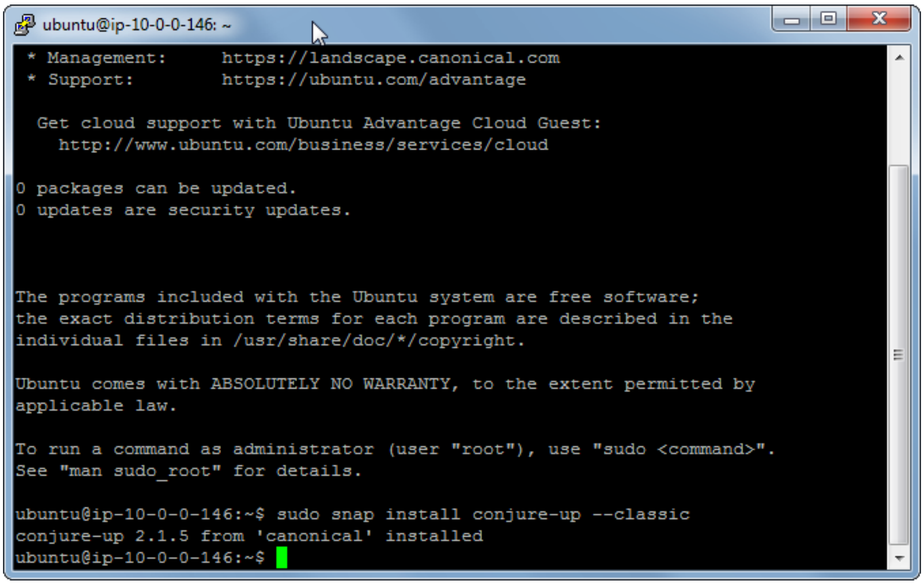
Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
Academy:Elijah	i-02ed63b32c21d8993	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-36-166.eu-west-2.compute.amazonaws.com
James Awobayiku instance	i-034c3fce4f4942ada	t2.micro	eu-west-2a	terminated		None	
	i-0489d91e17cbecbfe	t2.micro	eu-west-2a	terminated		None	
Academy:DavidMurdoch	i-051ec17c76510fd7f	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-67-244.eu-west-2.compute.amazonaws.com
Academy:LouyHeidar:Kubermets:3105	i-05618ffd132ae4dc8	t2.micro	eu-west-2a	stopped		None	
Academy:DaniellaL:TestPipeline:3105	i-0569b225d12cd040b	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-177-247-123.eu-west-2.compute.amazonaws.com
Academy:Jess:Kubernetes:3105	i-059c05886a209364c	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-31-161.eu-west-2.compute.amazonaws.com
Academy:Ish:Kubernetes:3105	i-074860ef2fd0f16e0	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-31-2.eu-west-2.compute.amazonaws.com
Academy:Pawan:Kubernetes:3105	i-07b1a2e7bd8ad2f8e	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-41-10.eu-west-2.compute.amazonaws.com
Academy:Bradley:Kubernetes:3105	i-07d8d962f407033ce	t2.micro	eu-west-2a	running	2/2 checks ...	None	ec2-35-176-48-193.eu-west-2.compute.amazonaws.com
Academy Syeb	i-087b75acfce6184ec	t2.micro	eu-west-2a	terminated		None	
juju-default-machine-0	i-09ed0927a6c3c975d	c4.large	eu-west-2a	stopped		None	

Instance: i-074860ef2fd0f16e0 (Academy:Ish:Kubernetes:3105) Public DNS: ec2-35-176-31-2.eu-west-2.compute.amazonaws.com

Description

Instance ID	i-074860ef2fd0f16e0	Public DNS (IPv4)	ec2-35-176-31-2.eu-west-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	35.176.31.2
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-10-0-0-146.eu-west-2.compute.internal
Availability zone	eu-west-2a	Private IPs	10.0.0.146
Security groups	launch-wizard-7. view inbound rules	Secondary private IPs	
Scheduled events	No scheduled events	VPC ID	vpc-dbd86eb2
AMI ID	ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20170414 (ami-f1d7c395)	Subnet ID	subnet-7d578c06

3) Successfulconnection to putty using QAC Academy Private key



```
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  Get cloud support with Ubuntu Advantage Cloud Guest:
    http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-0-146:~$ sudo snap install conjure-up --classic
conjure-up 2.1.5 from 'canonical' installed
ubuntu@ip-10-0-0-146:~$
```

Approach 1 Installation in progress

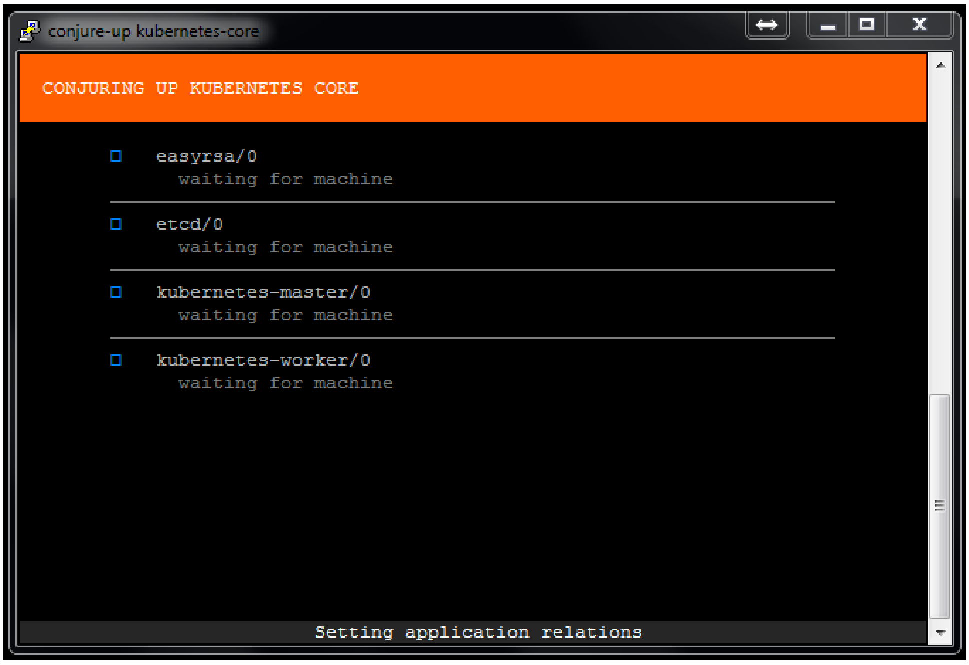
(Via Graphical User interface) – Issue encountered

4)Sign up and create Ubuntu Juju Account
https://jujucharms.com/

Addingcorrect credential during the setup wizard

Access key ID: AKIAJ2RR5GDQ57WO5XUQ

Secret access key: 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



```
CONJURING UP KUBERNETES CORE

    □  easyrsa/0
         waiting for machine
    □  etcd/0
         waiting for machine
    □  kubernetes-master/0
         waiting for machine
    □  kubernetes-worker/0
         waiting for machine

              Setting application relations
```

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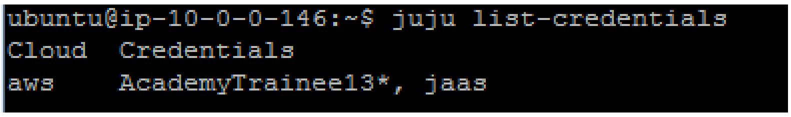
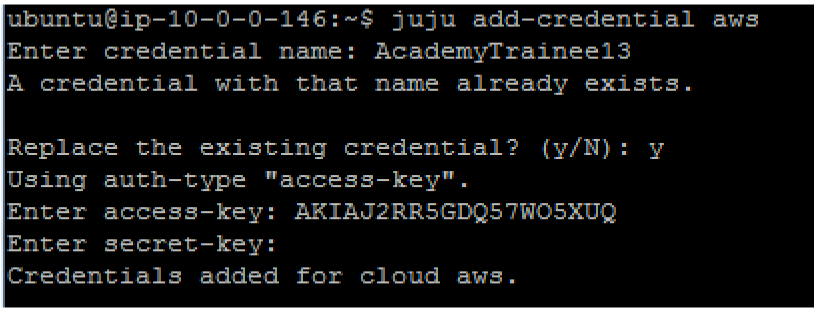
1) List current usernames



```
ubuntu@ip-10-0-0-146:~$ juju list-credentials
Cloud  Credentials
aws    AcademyTrainee13*, jaas
```

2) Setting the required credentials - ‘Access key ID’ & ‘Secret access key’
successfully added credentials

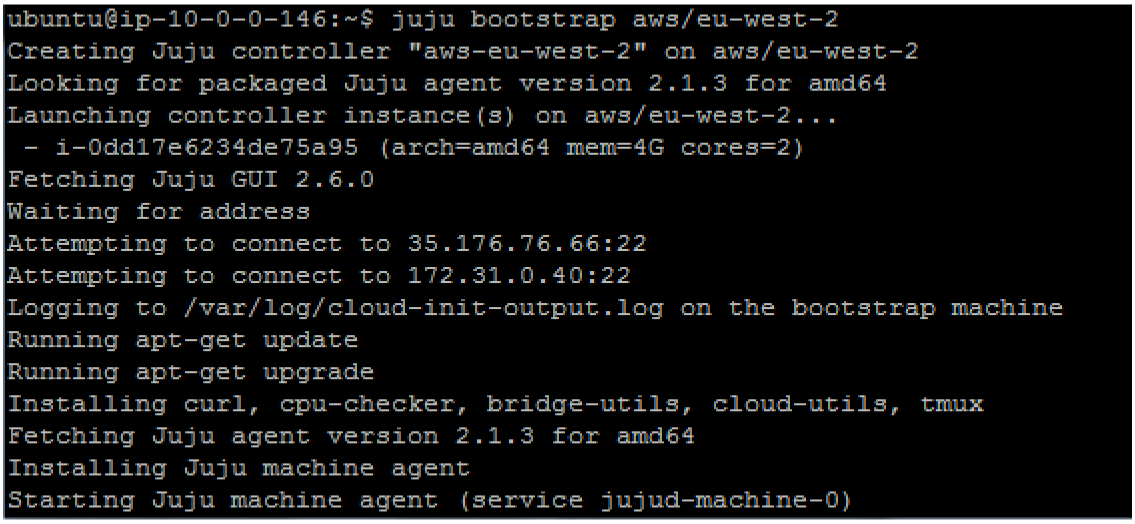


```
ubuntu@ip-10-0-0-146:~$ juju add-credential aws
Enter credential name: AcademyTrainee13
A credential with that name already exists.

Replace the existing credential? (y/N): y
Using auth-type "access-key".
Enter access-key: AKIAJ2RR5GDQ57WO5XUQ
Enter secret-key:
Credentials added for cloud aws.
```

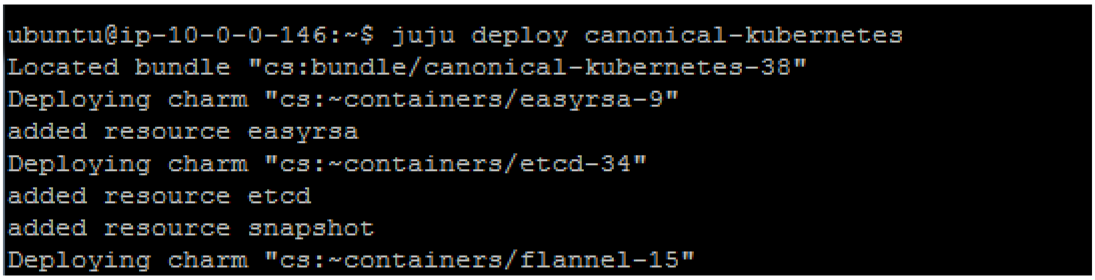
3) Defining the region, and then any name for your controller node:

Juju bootstrap aws/eu-west-2



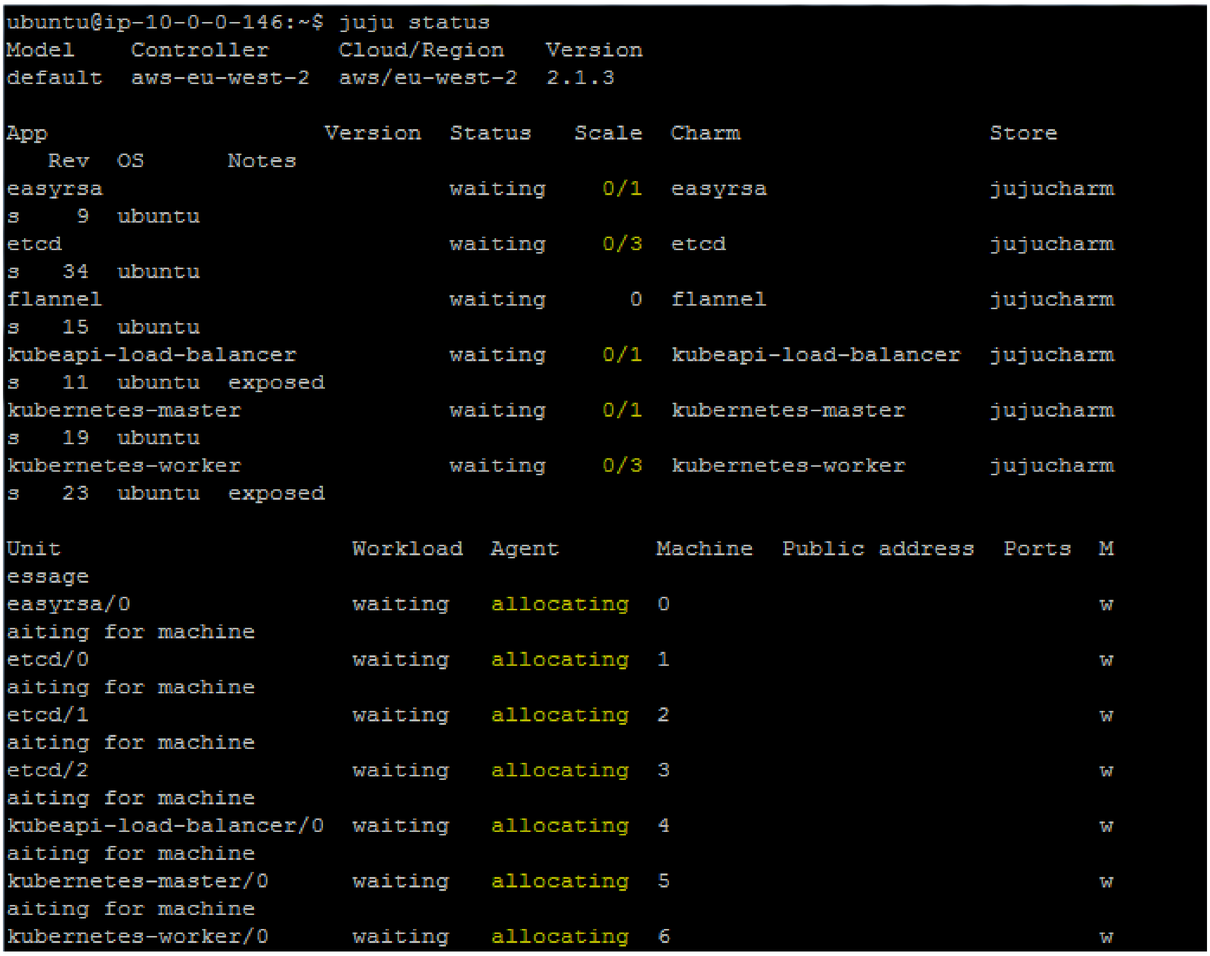
```
ubuntu@ip-10-0-0-146:~$ juju bootstrap aws/eu-west-2
Creating Juju controller "aws-eu-west-2" on aws/eu-west-2
Looking for packaged Juju agent version 2.1.3 for amd64
Launching controller instance(s) on aws/eu-west-2...
 - i-0dd17e6234de75a95 (arch=amd64 mem=4G cores=2)
Fetching Juju GUI 2.6.0
Waiting for address
Attempting to connect to 35.176.76.66:22
Attempting to connect to 172.31.0.40:22
Logging to /var/log/cloud-init-output.log on the bootstrap machine
Running apt-get update
Running apt-get upgrade
Installing curl, cpu-checker, bridge-utils, cloud-utils, tmux
Fetching Juju agent version 2.1.3 for amd64
Installing Juju machine agent
Starting Juju machine agent (service jujud-machine-0)
```

4)Deploy the node starter cluster
Launch instances and begin the deployment process
juju deploy canonical-kubernetes



```
ubuntu@ip-10-0-0-146:~$ juju deploy canonical-kubernetes
Located bundle "cs:bundle/canonical-kubernetes-38"
Deploying charm "cs:~containers/easyrsa-9"
added resource easyrsa
Deploying charm "cs:~containers/etcd-34"
added resource etcd
added resource snapshot
Deploying charm "cs:~containers/flannel-15"
```

Provides information each unit in the cluster

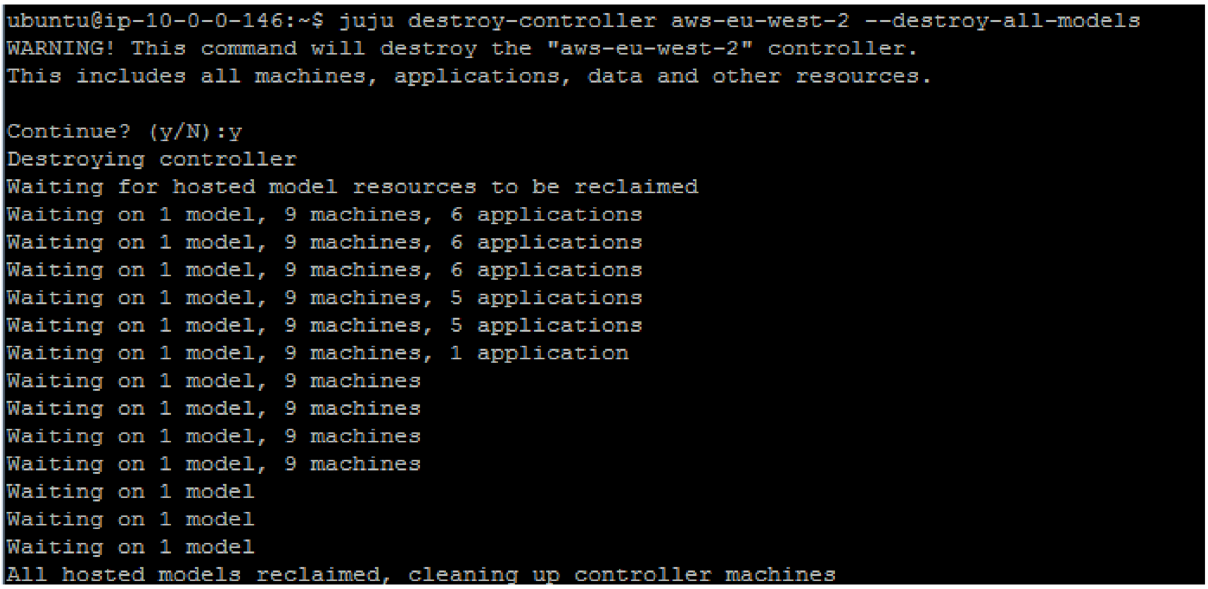


```
ubuntu@ip-10-0-0-146:~$ juju status
Model    Controller     Cloud/Region   Version
default  aws-eu-west-2  aws/eu-west-2  2.1.3

App                    Version  Status   Scale  Charm                  Store
   Rev  OS       Notes
easyrsa                         waiting    0/1  easyrsa                jujucharm
s     9  ubuntu
etcd                            waiting    0/3  etcd                   jujucharm
s    34  ubuntu
flannel                         waiting      0  flannel                jujucharm
s    15  ubuntu
kubeapi-load-balancer           waiting    0/1  kubeapi-load-balancer  jujucharm
s    11  ubuntu  exposed
kubernetes-master               waiting    0/1  kubernetes-master      jujucharm
s    19  ubuntu
kubernetes-worker               waiting    0/3  kubernetes-worker      jujucharm
s    23  ubuntu  exposed

Unit                     Workload  Agent       Machine  Public address  Ports  M
essage
easyrsa/0                waiting   allocating  0                               w
aiting for machine
etcd/0                   waiting   allocating  1                               w
aiting for machine
etcd/1                   waiting   allocating  2                               w
aiting for machine
etcd/2                   waiting   allocating  3                               w
aiting for machine
kubeapi-load-balancer/0  waiting   allocating  4                               w
aiting for machine
kubernetes-master/0      waiting   allocating  5                               w
aiting for machine
kubernetes-worker/0      waiting   allocating  6                               w
```

5) Destroy Controller to reduce bandwidth and cost consumption



```
ubuntu@ip-10-0-0-146:~$ juju destroy-controller aws-eu-west-2 --destroy-all-models
WARNING! This command will destroy the "aws-eu-west-2" controller.
This includes all machines, applications, data and other resources.

Continue? (y/N):y
Destroying controller
Waiting for hosted model resources to be reclaimed
Waiting on 1 model, 9 machines, 6 applications
Waiting on 1 model, 9 machines, 6 applications
Waiting on 1 model, 9 machines, 6 applications
Waiting on 1 model, 9 machines, 5 applications
Waiting on 1 model, 9 machines, 5 applications
Waiting on 1 model, 9 machines, 1 application
Waiting on 1 model, 9 machines
Waiting on 1 model, 9 machines
Waiting on 1 model, 9 machines
Waiting on 1 model, 9 machines
Waiting on 1 model
Waiting on 1 model
Waiting on 1 model
All hosted models reclaimed, cleaning up controller machines
```

Task 7 – Installing Kubernetes

http://containertutorials.com/get_started_kubernetes/k8s_example.html

Definition:
kubectl is a command line interface for running commands against Kubernetes clusters.

# Linux
1) Download latest release command:

```
curl -LO https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com
```

2) Make the kubectl binary executable.

```
chmod +x ./kubectl
```

3) Move the binary in to your PATH

```
sudomv ./kubectl /usr/local/bin/kubectl
```