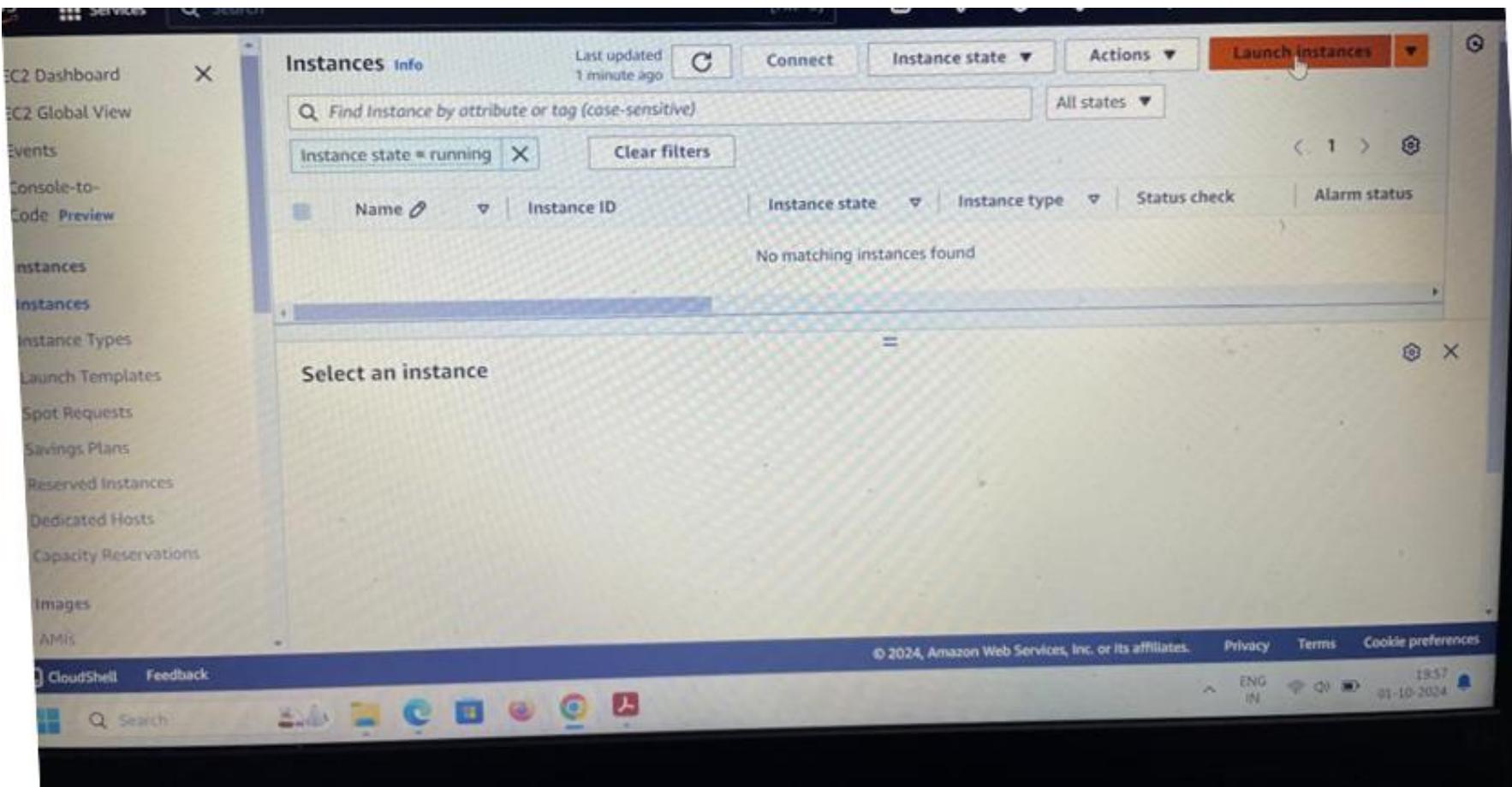


Capstone Project 1





Services

Search

[Alt+S]



N. Virginia ▾

Dashboard



Global View

Instances

Role-to-

Preview

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Pages

MIS

CloudShell

Feedback

Instances (1) InfoLast updated
less than a minute ago

Connect

Instance state ▾

Actions ▾



Find Instance by attribute or tag (case-sensitive)

All states ▾

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check
<input type="checkbox"/>	J-M	i-0711277e71c2ead28	<input checked="" type="checkbox"/> Running	t2.medium	Initializing

Select an instance

Instances | EC2 | us-east-1 EC2 Instance Connect

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0711277e71c2ead

aws Services Search [Alt+S] N. Virginia

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

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-172-31-91-68:~\$

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

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Instances | EC2 | us-east-1 EC2 Instance Connect Install | Terraform | HashiCorp D

← → G us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0711277e71c2ead28 (J-M)

aws Services Search [Alt+S] ?

```
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata
Get:28 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1848 kB]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [299 kB]
Get:30 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [909 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [179 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.4 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [228 B]
Fetched 28.1 MB in 8s (3593 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-91-68:~$ wget -O- https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /u
keyring.gpg
echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashico
do tee /etc/apt/sources.list.d/hashicorp.list
sudo apt update && sudo apt install terraform
```

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

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Services

Search

Selecting previously unselected package `terraform`.
(Reading database ... 65783 files and directories currently installed.)
Preparing to unpack .../terraform_1.9.6-1_amd64.deb ...
Unpacking `terraform` (1.9.6-1) ...
Setting up `terraform` (1.9.6-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries. +

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-91-68:~\$ `terraform --version`

`Terraform v1.9.6`

on `linux_amd64`

ubuntu@ip-172-31-91-68:~\$ █

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

← →

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=st



Services

Search

[Alt+S]

GNU nano 6.2

a.sh *

```
sudo apt update
sudo apt install software-properties-common
sudo add-apt-repository --yes --update ppa:ansible/ansible
sudo apt install ansible -y
```

I

^G Help
^X Exit^O Write Out
^R Read File^W Where Is
^V Replace^K Cut
^U Paste^T Execute
^J Justify^C Copy
^Y Go

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

Instance details | EC2 | us-east-1 x EC2 Instance Connect x Install | Terraform | HashiCorp D x Ins

← → C us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&

aws Services Search [Alt+S] main.tf *

GNU nano 6.2

```
provider "aws" {
    secret_key = "x/X7i8PVHjh4UiJMjLYKo457GyPHPktjLoocC14N"
    access_key = "AKIAQLVQQZIXVQ6DWBJ6"
    region = "us-east-1"
}

resources "aws_instance" "K8-M" {
    ami = "ami-005fc0f236362e99f"
    instance_type = "t2.medium"
    key_name = "jenkins1"
    tags = [
        Name = "k8s-M/J-s"
    ]
}

resources "aws_instance" "K8-S1" {
    ami = "ami-005fc0f236362e99f"
```

Help Write Out Where Is Cut Execute Location
Exit Read File Replace Paste Justify Go To Line

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68



```
ubuntu@ip-172-31-91-68:~$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.69.0...
- Installed hashicorp/aws v5.69.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.
```

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.

```
ubuntu@ip-172-31-91-68:~$
```

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

[←](#) [→](#) [G](#)

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=tty



Services



Search

[Alt+S]

```
- instance_market_options (known after apply)
- maintenance_options (known after apply)
+ metadata_options (known after apply)
+ network_interface (known after apply)
+ private_dns_name_options (known after apply)
+ root_block_device (known after apply)
}
```

I

Plan: 3 to add, 0 to change, 0 to destroy.

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to "terraform apply" now.

ubuntu@ip-172-31-91-68:~\$

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

Install | Terraform | HashiCorp D X | A Installing Ansible on specific op X +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:

Services Search [Alt+S] N. Virginia ▾

Instances (1/4) Info Last updated less than a minute ago C Connect Instance state Actions La

Find Instance by attribute or tag (case-sensitive) All states ▾

Name	Instance ID	Instance state	Instance type	Status check
k8s-S2	i-0f8f1b3f8eaa7872a	Running	t2.micro	Initializing
k8s-M/J-s	i-01d497761ba166308	Running	t2.medium	Initializing
k8s-S1	i-0622690932d88c82e	Running	t2.micro	Initializing
J-M	i-0711277e71c2ead28	Running	t2.medium	2/2 checks passed

i-0711277e71c2ead28 (J-M)

Details Status and alarms Monitoring Security Networking Storage Tags

▼ Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0711277e71c2ead28 (J-M)	18.206.227.45 open address ↗	172.31.91.68
IPv6 address	Instance state	Public IPv4 DNS
-	Running	18.206.227.45

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Search ENG IN



Services

Search

[Alt+S]

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

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-172-31-92-150:~\$

i-01d497761ba166308 (k8s-M/J-s)

Public IPs: 3.89.36.97 Private IPs: 172.31.92.150



CloudShell

Feedback



```
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 deb [10.4 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 deb [10.4 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 deb [10.4 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [10.4 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [10.4 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 deb [10.4 kB]
Get:28 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1848 kB]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [299 kB]
Get:30 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [1]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [1]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [909 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [179 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [1]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [75 kB]
Fetched 28.1 MB in 9s (3242 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-84-252:~$
```

i-0622690932d88c82e (k8s-S1)

PublicIPs: 3.89.232.236 PrivateIPs: 172.31.84.252

Instances | EC2 EC2 Instance EC2 Instance EC2 Instance EC2 Instance EC2 Instance

← → C us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=stand

aws Services Search [Alt+S]

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

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-172-31-80-215:~\$

i-0f8f1b3f8eaa7872a (k8s-S2)
Public IPs: 3.95.218.32 Private IPs: 172.31.80.215



Services

Search

[Alt+S]



```
+---[RSA 3072]---+
 * .o*o |
 o =.=o*.
 * =.+o.
 .o..oo. ...
 S.= ....|
 * . ..+o|
 . + . .oE|
 * ...o*o|
 .. o++@|
+---[SHA256]---+
ubuntu@ip-172-31-91-68:~$ cd .ssh
ubuntu@ip-172-31-91-68:~/ssh$ ls
authorized_keys id_rsa id_rsa.pub
ubuntu@ip-172-31-91-68:~/ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQQC5pVRNt9j8ibkxBQYS51y8pICTqH94T3hQux3eTCW/H2F63EPb7moKKS9npN
eQhuAvpFT1EO5gchef3Z7dR7V7b+M5t25s3rdjq4mC6Leb/AzO/wwa+fZG4+MOHKPeLLV2YU/gRLnwXfa3GYZjk4Xssy7LJIP/
nrkUs1ltcU5uWYJEs+Ar0OBQxpHM+byOJuOwIyuKFm8JVThMC8V+wR0WtVPrUZU7nKCni7qd0B/bolfcRDXZqyorjclg7CA3uWJ
8RlftGP/pP27iVLLsByB+ji7AY95lun0TMYPn50ttnLMD33H3i+TqcR7JXqD5/NYut1lnNkmrowK2HOWON5efOGA/+bpjh7PQv1
1IjoxTs= ubuntu@ip-172-31-91-68
ubuntu@ip-172-31-91-68:~/ssh$
```

i-0711277e71c2ead28 (J-M)

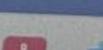
Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

CloudShell

Feedback



Search



Instances | EC2 EC2 Instance EC2 Instance EC2 Instance EC2 Instance Install | Terraform Install

← → ⌂ us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-01d497761ba1663

aws Services Search [Alt+S] N. Virg.

GNU nano 6.2

```
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCx6ytsmoTEqpLiH2mTmiueBNMgAgulmIdBh18G2Sat9aDHK5B81FmHS3Cx8nMdOUDrvagX8/p  
mWUgK5r+EkysW7qRKkz2YgqOcIeAmN41IjoxTs= ubuntu@ip-172-31-91-68]
```

I

^G Help ^O Write Out ^W Where Is ^K Cut
^X Exit ^R Read File ^\ Replace ^U Paste ^T Execute
 ^J Justify ^C Location ^/ Go To Line M-U Undo
 M-E Redo

i-01d497761ba166308 (k8s-M/J-s)

Public IPs: 3.89.36.97 Private IPs: 172.31.92.150

Instances | EC2 | EC2 Instance | EC2 Instance | EC2 Instance | EC2 Instance

← → C ⚙ us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=

aws Services Search

GNU nano 6.2

[k8s-m]
172.31.92.150
[k8s-s1]
172.31.84.252
[k8s-s2]
172.31.80.215

This is the default ansible 'hosts' file.

It should live in /etc/ansible/hosts

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute
^X Exit ^R Read File ^V Replace ^U Paste ^J Justif

Instances | EC2 Instance | EC2 Instance | EC2 Instance | EC2 Instance | EC2 Instance

← → ⌂ us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=

aws Services Search [Alt+S]

```
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.80.215 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.92.150 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
ubuntu@ip-172-31-91-68:/etc/ansible$ I
```

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68



Services

Search

GNU nano 6.2

```
---
```

```
- name: executing script for java and jenkins on master
  hosts: localhost
  become: true
  tasks:
    - script: localhost.sh
- name: executing script for installation of java, docker, k8s- master
  hosts: k8s-m
  become: true
  tasks:
    - script: master.sh
- name: executing script for k8s installation on slave1
  hosts: k8s-s1
  become: true
  tasks:
    - script: slaves.sh
- name: executing script for k8s installation on slaves
```

^{^G} Help
^{^X} Exit

^{^O} Write Out
^{^R} Read File

^{^W} Where Is
^{^V} Replace

^{^K} Cut
^{^U} Paste

^{^T} Execute
^{^J} Justify

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68



Services

Search

GNU nano 6.2

```
- script: localhost.sh
- name: executing script for installation of java, docker, k8s- master
  hosts: k8s-m
  become: true
  tasks:
    - script: master.sh
- name: executing script for k8s installation on slave1
  hosts: k8s-s1
  become: true
  tasks:
    - script: slaves.sh
- name: executing script for k8s installation on slaves
  hosts: k8s-s2
  become: true
  tasks:
    - script: slaves.sh
```

play.yaml *

I

^G Help
^X Exit

^O Write Out
^R Read File

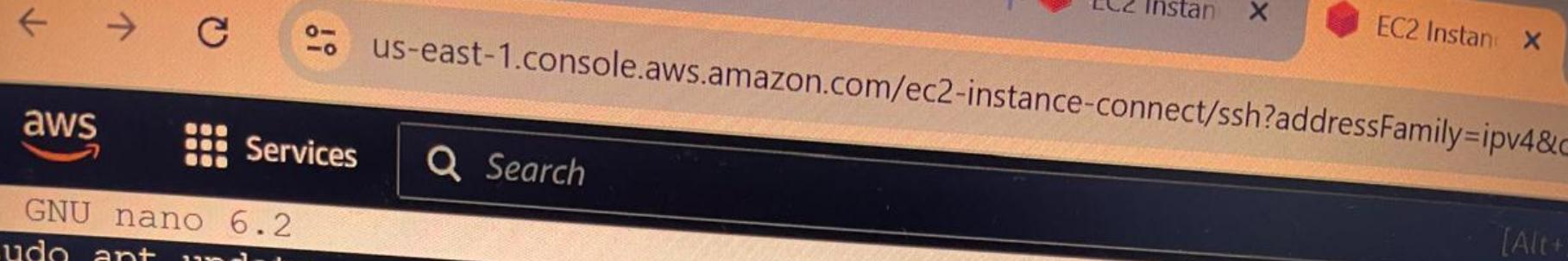
^W Where Is
^V Replace

^K Cut
^U Paste

^T Execute
^J Justify

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68



+

^G Help ^O Write Out ^W Where Is
^X Exit ^R Read File ^V Replace ^K Cut
 ^U Paste ^T Execute
 ^J Justify

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68

Instances | EC2 Instances | us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&dc

aws Services Search [Alt+]

GNU nano 6.2 master.sh

```
sudo apt-get update -y
sudo apt-get install -y kubelet="1.29.0-*" kubectl="1.29.0-*" kubeadm="1.29.0-*"
sudo apt-get update -y
sudo apt-get install -y jq
sudo systemctl enable --now kubelet
sudo systemctl start kubelet
```

I

Help Write Out Where Is Cut Execute
Exit Read File Replace ^U Paste ^T Justify

i-0711277e71c2ead28 (J-M)

PublicIPs: 18.206.227.45 PrivateIPs: 172.31.91.68

Instances | EC2 Instances | EC2 Instances | EC2 Instances | EC2 Instances | Install | Terminate

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0711277e71c2ead28 (J-M)

aws Services Search [Alt+S] [X] [Bell]

GNU nano 6.2 slaves.sh *

```
sudo apt-get update -y
sudo apt-get install -y kubelet="1.29.0-*" kubectl="1.29.0-*" kubeadm="1.29.0-*"
sudo apt-get update -y
sudo apt-get install -y jq

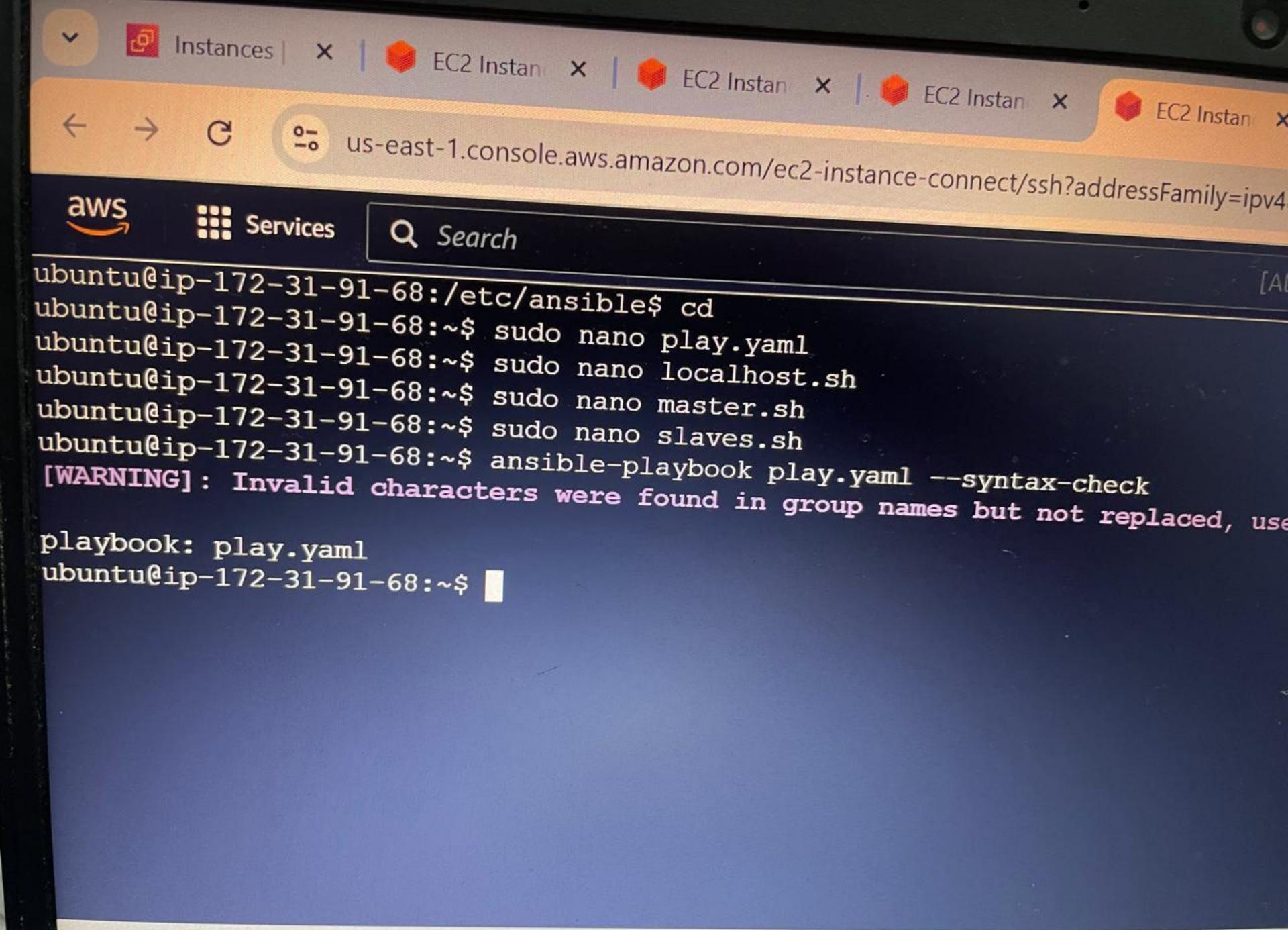
sudo systemctl enable --now kubelet
sudo systemctl start kubelet
```

I

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line

i-0711277e71c2ead28 (J-M)

Public IPs: 18.206.227.45 Private IPs: 172.31.91.68



Instances | EC2 Instances | Install | Terminate | Installing /

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0711277e71c2ead28 (J-M)

aws Services Search [Alt+S]

```
TASK [Gathering Facts] **** ok: [172.31.84.252]
TASK [script] **** skipping: [172.31.84.252]
PLAY [executing script for k8s installation on slaves] ****
TASK [Gathering Facts] **** ok: [172.31.80.215]
TASK [script] **** skipping: [172.31.80.215]
PLAY RECAP ****
172.31.80.215 : ok=1    changed=0   unreachable=0 failed=0    skipped=1   rescued=0    ignored
172.31.84.252 : ok=1    changed=0   unreachable=0 failed=0    skipped=1   rescued=0    ignored
172.31.92.150 : ok=1    changed=0   unreachable=0 failed=0    skipped=1   rescued=0    ignored
localhost      : ok=1    changed=0   unreachable=0 failed=0    skipped=1   rescued=0    ignored
ubuntu@ip-172-31-91-68:~$ i-0711277e71c2ead28 (J-M)
Public IPs: 18.206.227.45 Private IPs: 172.31.91.68
```

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Instances | EC2 Instan | EC2 Instan | EC2 Instan | EC2 Instan | Install | Ter | Installing | Linux

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0711277e71c2ead28&osU

aws Services Search [Alt+S] N. Virginia ▾

```
TASK [Gathering Facts] ****
ok: [172.31.94.252]

TASK [script] ****
changed: [172.31.84.252]

PLAY [executing script for k8s installation on slaves] ****
TASK [Gathering Facts] ****
ok: [172.31.80.215]

TASK [script] ****
changed: [172.31.80.215]

PLAY RECAP ****
172.31.80.215      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.84.252      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.92.150      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
localhost          : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
+                  : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-91-68:~$ i-0711277e71c2ead28 (J-M)
Public IPs: 18.206.227.45 Private IPs: 172.31.91.68
```

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← → C us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=

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```
Get:32 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [179 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.4 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [228 B]
Fetched 28.1 MB in 8s (3571 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-92-150:~$ sudo nano .ssh/authorized_keys
ubuntu@ip-172-31-92-150:~$ sudo kubeadm config images pull
I1001 16:03:53.271138    8313 version.go:256] remote version is much newer: v1.31.0; falling back to
[config/images] Pulled registry.k8s.io/kube-apiserver:v1.29.9
[config/images] Pulled registry.k8s.io/kube-controller-manager:v1.29.9
[config/images] Pulled registry.k8s.io/kube-scheduler:v1.29.9
[config/images] Pulled registry.k8s.io/kube-proxy:v1.29.9
[config/images] Pulled registry.k8s.io/coredns/coredns:v1.11.1
[config/images] Pulled registry.k8s.io/pause:3.9
[config/images] Pulled registry.k8s.io/etcd:3.5.10-0
ubuntu@ip-172-31-92-150:~$ █
```

i-01d497761ba166308 (k8s-M/J-s)

PublicIPs: 3.89.36.97 PrivateIPs: 172.31.92.150

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To start using your cluster, you need to run the following as a regular user:

```
mkdir -p $HOME/.kube  
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config  
sudo chown $(id -u):$(id -g) $HOME/.kube/config
```

Alternatively, if you are the root user, you can run:

```
export KUBECONFIG=/etc/kubernetes/admin.conf
```

You should now deploy a pod network to the cluster.
Run "kubectl apply -f [podnetwork].yaml" with one of the options listed at:
<https://kubernetes.io/docs/concepts/cluster-administration/addons/>

Then you can join any number of worker nodes by running the following on each as root:

```
kubeadm join 172.31.92.150:6443 --token lrko88.cslnbd6lajoh5jcn \  
--discovery-token-ca-cert-hash sha256:3c2150fab96ble7b78d753f656759c728e886c809e4a1878110  
ubuntu@ip-172-31-92-150:~$ mkdir -p $HOME/.kube  
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config  
sudo chown $(id -u):$(id -g) $HOME/.kube/config
```

i-01d497761ba166308 (k8s-M/J-s)

PublicIPs: 3.89.36.97 PrivateIPs: 172.31.92.150

```
customresourcedefinition.apiextensions.k8s.io/felixconfigurations.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/globalnetworkpolicies.crd.projectcalico.org create
customresourcedefinition.apiextensions.k8s.io/globalnetworksets.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/hostendpoints.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/ipamblocks.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/ipamconfigs.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/ipamhandles.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/ippools.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/ipreservations.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/kubecontrollersconfigurations.crd.projectcalico.org
customresourcedefinition.apiextensions.k8s.io/networkpolicies.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/networksets.crd.projectcalico.org created
clusterrole.rbac.authorization.k8s.io/calico-kube-controllers created
clusterrole.rbac.authorization.k8s.io/calico-node created
clusterrole.rbac.authorization.k8s.io/calico-cni-plugin created
clusterrolebinding.rbac.authorization.k8s.io/calico-kube-controllers created
clusterrolebinding.rbac.authorization.k8s.io/calico-node created
clusterrolebinding.rbac.authorization.k8s.io/calico-cni-plugin created
daemonset.apps/calico-node created
deployment.apps/calico-kube-controllers created
ubuntu@ip-172-31-92-150:~$
```

i-01d497761ba166308 (k8s-M/J-s)

Public IPs: 3.89.36.97 Private IPs: 172.31.92.150

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```
.conf
I1001 16:09:34.690404      5122 kubelet.go:136] [kubelet-start] writing CA certificate at /etc/kubernetes/p...
I1001 16:09:34.691266      5122 kubelet.go:157] [kubelet-start] Checking for an existing Node in the cluster
and status "Ready"
I1001 16:09:34.694465      5122 kubelet.go:172] [kubelet-start] Stopping the kubelet
[kubelet-start] Writing kubelet configuration to file "/var/lib/kubelet/config.yaml"
[kubelet-start] Writing kubelet environment file with flags to file "/var/lib/kubelet/kubeadm-flags.env"
[kubelet-start] Starting the kubelet
I1001 16:09:36.008497      5122 kubelet.go:220] [kubelet-start] preserving the crisocket information for the r...
I1001 16:09:36.008949      5122 patchnode.go:31] [patchnode] Uploading the CRI Socket information "unix:///var...
Node API object "ip-172-31-84-252" as an annotation
I1001 16:09:36.008919      5122 cert_rotation.go:137] Starting client certificate rotation controller

This node has joined the cluster:
* Certificate signing request was sent to apiserver and a response was received.
* The Kubelet was informed of the new secure connection details.

Run 'kubectl get nodes' on the control-plane to see this node join the cluster.
root@ip-172-31-84-252:/home/ubuntu# i-0622690932d88c82e (k8s-S1)
Public IPs: 3.89.232.236 Private IPs: 172.31.84.252
```