

**AWS Solutions Architect Certification Training**

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**DevOps-Module7-Kubernetes-Assignment-1 COMPLETED by Nagesha KS**

**Please check the following screenshots for each question.**

**Tasks To Be Performed:**

1. Deploy a Kubernetes cluster for 3 nodes
2. Create a NGINX deployment of 3 replicas

Instances | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3;\$case=tags:true%5C,client:false;\$regex=tags:false%5C,client:false

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha

EC2 Dashboard

EC2 Global View

Events

Console-to-Code

Preview

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity

Reservations

New

Images

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AMI Catalog

Instances (1/3) Info

Last updated 2 minutes ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input checked="" type="checkbox"/>	Nagesha-Kubernetes-Master	i-04207cbd1842bc541	Running	t2.micro	Initializing	View alarms
<input type="checkbox"/>	Nagesha-Kubernetes-Slave1	i-06df51ec93bef334f	Running	t2.micro	Initializing	View alarms
<input type="checkbox"/>	Nagesha-Kubernetes-Slave2	i-032e30711978ce691	Running	t2.micro	Initializing	View alarms

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

Instance summary Info

Instance ID

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

Public IPv4 address

54.209.150.253 | open address

Private IPv4 addresses

172.31.90.191

CloudShell

Feedback

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15:56

12-09-2024

Connect to instance | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ConnectToInstance:instanceId=i-04207cbd1842bc541

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

EC2 > Instances > i-04207cbd1842bc541 > Connect to instance

## Connect to instance Info


Connect to your instance i-04207cbd1842bc541 (Nagesha-Kubernetes-Master) using any of these options:

EC2 Instance Connect

Session Manager


SSH client

EC2 serial console

**All ports are open to all IPv4 addresses in your security group**

All ports are currently open to all IPv4 addresses, indicated by **All** and **0.0.0.0/0** in the inbound rule in [your security group](#). For increased security, consider restricting access to only the EC2 Instance Connect service IP addresses for your Region: 18.206.107.24/29. [Learn more](#).

Instance ID

 i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

Connection Type

☒ **Connect using EC2 Instance Connect**

Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.

☐ **Connect using EC2 Instance Connect Endpoint**

Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address

54.206.107.24

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15:57 12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-04207cbd1842bc541&osUser=ubuntu&region=us-east-1&sshPort=22#/

aws Services Search [Alt+S]

N. Virginia Nagesha

```
ubuntu@ip-172-31-90-191:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [351 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [77.3 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [4416 B]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [267 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [501 kB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [111 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [123 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [8232 B]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [353 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [145 kB]
89% [5 Packages store 0 B] [22 Translation-en 105 kB/145 kB 73%] [18 Translation-en 61.7 kB/111 kB 55%]
```

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

PublicIPs: 54.209.150.253 PrivateIPs: 172.31.90.191

Activate Windows  
Go to Settings to activate Windows.

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15:58  
12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-04207cbd1842bc541&osUser=ubuntu&region=us-east-1&sshPort=22#

aws Services Search [Alt+S]

N. Virginia Nagesha

```
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /usr/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (24.0.7-0ubuntu4.1) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group 'docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
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-172-31-90-191:~$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu4.1
ubuntu@ip-172-31-90-191:~$
```

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

PublicIPs: 54.209.150.253 PrivateIPs: 172.31.90.191

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15:59  
12-09-2024



Instances | EC2 | us-east-1

EC2 Instance Connect

EC2 Instance Connect

EC2 Instance Connect

+

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-06df51ec93bef334f&osUser=ubuntu&sshPort=22#/

awsServicesSearch[Alt+S]

N. VirginiaNagesha

See <https://ubuntu.com/esm> or run: `sudo pro status`

The list of available updates is more than a week old.  
To check for new updates run: `sudo apt update`

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-172-31-86-63:~\$ sudo apt update

Hit:1 <http://us-east-1.ec2.archive.ubuntu.com/ubuntu> noble InRelease

Get:2 <http://us-east-1.ec2.archive.ubuntu.com/ubuntu> noble-updates InRelease [126 kB]

Get:3 <http://us-east-1.ec2.archive.ubuntu.com/ubuntu> noble-backports InRelease [126 kB]

Get:4 <http://security.ubuntu.com/ubuntu> noble-security InRelease [126 kB]

Get:5 <http://us-east-1.ec2.archive.ubuntu.com/ubuntu> noble/universe amd64 Packages [15.0 MB]

0% [5 Packages 4859 kB/15.0 MB 32%]

i-06df51ec93bef334f (Nagesha-Kubernetes-Slave1)

PublicIPs: 35.171.160.110 PrivateIPs: 172.31.86.63

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Windows taskbar icons: File Explorer, Edge, Firefox, VS Code, etc.

System tray: 16:00, 12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-06df51ec93bef334f&osUser=ubuntu&sshPort=22#

aws Services Search [Alt+5]

N. Virginia Nagesha

```
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /usr/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (24.0.7-0ubuntu4.1) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group `docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
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-172-31-86-63:~$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu4.1
ubuntu@ip-172-31-86-63:~$
```

i-06df51ec93bef334f (Nagesha-Kubernetes-Slave1)

PublicIPs: 35.171.160.110 PrivateIPs: 172.31.86.63

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16:01  
12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

EC2 Instance Connect

EC2 Instance Connect

+

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-032e30711978ce691&osUser=ubuntu&sshPort=22#/

aws Services Search [Alt+S]

N. Virginia Nagesha

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-172-31-83-112:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [351 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [77.3 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [4416 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [267 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [111 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [10.1 kB]
58% [9 Packages store 0 B] [5 Packages 15.0 MB/15.0 MB 100%] [12 Commands-amd64 10.1 kB/10.1 kB 100%]
```

i-032e30711978ce691 (Nagesha-Kubernetes-Slave2)

PublicIPs: 35.170.248.24 PrivateIPs: 172.31.83.112

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16:01  
12-09-2024



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

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-032e30711978ce691&osUser=ubuntu&sshPort=22#

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

```
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /usr/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (24.0.7-0ubuntu4.1) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group 'docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
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-172-31-83-112:~$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu4.1
ubuntu@ip-172-31-83-112:~$
```

i-032e30711978ce691 (Nagesha-Kubernetes-Slave2)

PublicIPs: 35.170.248.24 PrivateIPs: 172.31.83.112

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16:02 12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-04207cbd1842bc541&osUser=ubuntu&region=us-east-1&sshPort=22#/

aws Services Search [Alt+S]

N. Virginia Nagesha

```
ubuntu@ip-172-31-90-191:~$ sudo cat install.sh
sudo apt update
sudo apt upgrade -y
sudo apt install -y curl apt-transport-https ca-certificates software-properties-common
curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key add -
sudo add-apt-repository "deb http://apt.kubernetes.io/ kubernetes-xenial main"
sudo swapoff -a
sudo apt update
sudo apt install -y kubelet kubeadm kubectl
ubuntu@ip-172-31-90-191:~$
```

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

PublicIPs: 54.209.150.253 PrivateIPs: 172.31.90.191

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16:03 12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

EC2 Instance Connect

EC2 Instance Connect

+

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-04207cbd1842bc541&osUser=ubuntu&region=us-east-1&sshPort=22#/

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha

```
python3-distupgrade ubuntu-pro-client ubuntu-pro-client-l10n ubuntu-release-upgrader-core
The following packages will be upgraded:
  apport apport-core-dump-handler base-files badextrautils badutils busybox-initramfs busybox-static cloud-init cloud-initramfs-copymode
  cloud-initramfs-dyn-netconf cryptsetup cryptsetup-bin cryptsetup-initramfs curl dbus dbus-bin dbus-daemon dbus-session-bus-common
  dbus-system-bus-common dbus-user-session dmeventd dmaetup dpkg e2fsprogs e2fsprogs-l10n eject fdisk fwupd initramfs-tools
  initramfs-tools-bin initramfs-tools-core intel-microcode krb5-locales libblkid1 libbz2-1.0 libc-bin libc6 libcom-err2 libcryptsetup12
  libcurl3t64-gnutls libcurl4t64 libdbus-1-3 libdevmapper-event1.02.1 libdevmapper1.02.1 libexpat1 libext2fs2t64 libfdisk1 libfwupd2
  libgnutls30t64 libgssapi-krb5-2 libhogweed6t64 libicu74 libk5crypto3 libkrb5-3 libkrb5support0 liblvm2cmd2.03 liblz4-1 liblzma5 libmount1
  libnetplan1 libnettle8t64 libnss-systemd libp11-kit0 libpam-systemd libpython3-stdlib libpython3.12-minimal libpython3.12-stdlib
  libpython3.12t64 libssl12-2 libssl2-modules libssl2-modules-db libseccomp2 libsmartcols1 libss2 libssl3t64 libsystemd-shared libsystemd0
  libudev1 libuuid1 libzstd1 linux-aws linux-headers-aws linux-image-aws linux-tools-common locales logsave lvm2 motd-news-config mount
  netplan-generator netplan.io openssh-client openssh-server openssh-sftp-server openssh-overlayroot python3-apt-common python3 python3-apport
  python3-apt python3-minimal python3-netplan python3-pkg-resources python3-problem-report python3-setuptools python3-twisted python3.12
  python3.12-minimal snapd systemd systemd-dev systemd-resolved systemd-sysv tmux ubuntu-kernel-accessories ubuntu-minimal ubuntu-server
  ubuntu-standard udev util-linux uuid-runtime vim vim-common vim-runtime vim-tiny xxd xz-utils zlib1g zstd
129 upgraded, 6 newly installed, 0 to remove and 4 not upgraded.
32 standard LTS security updates.
Need to get 182 MB of archives.
After this operation, 182 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 motd-news-config all 13ubuntu10.1 [3986 B]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libc6 amd64 2.39-0ubuntu8.3 [3265 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/main amd64 python3-setuptools all 68.1.2-2ubuntu1.1 [396 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 base-files amd64 13ubuntu10.1 [73.2 kB]
2% [3 python3-setuptools 104 kB/396 kB 26%]
```

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

PublicIPs: 54.209.150.253 PrivateIPs: 172.31.90.191

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16:04 12-09-2024

Instances | EC2 | us-east-1

EC2 Instance Connect

EC2 Instance Connect

EC2 Instance Connect

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us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-04207cbd1842bc541&osUser=ubuntu&region=us-east-1&sshPort=22#/

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha

Adding disabled deb-src entry to /etc/apt/sources.list.d/archive\_uri-http\_apt\_kubernetes\_io\_noble.list

Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease

Ign:4 https://packages.cloud.google.com/apt kubernetes-xenial InRelease

Err:6 https://packages.cloud.google.com/apt kubernetes-xenial Release

404 Not Found [IP: 172.253.62.138 443]

Reading package lists... Done

E: The repository 'http://apt.kubernetes.io kubernetes-xenial Release' does not have a Release file.

N: Updating from such a repository can't be done securely, and is therefore disabled by default.

N: See apt-secure(8) manpage for repository creation and user configuration details.

Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Ign:5 https://packages.cloud.google.com/apt kubernetes-xenial InRelease

Err:6 https://packages.cloud.google.com/apt kubernetes-xenial Release

404 Not Found [IP: 172.253.62.101 443]

Reading package lists... Done

E: The repository 'http://apt.kubernetes.io kubernetes-xenial Release' does not have a Release file.

N: Updating from such a repository can't be done securely, and is therefore disabled by default.

N: See apt-secure(8) manpage for repository creation and user configuration details.

Reading package lists... Done

i-04207cbd1842bc541 (Nagesha-Kubernetes-Master)

PublicIPs: 54.209.150.253 PrivateIPs: 172.31.90.191

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16:07

12-09-2024



Instances | EC2 | us-east-1

EC2 Instance Connect

EC2 Instance Connect

EC2 Instance Connect

+

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-06df51ec93bef334f&osUser=ubuntu&sshPort=22#/

aws

Services

Search

[Alt+S]

N. Virginia

Nagesha

No containers need to be restarted.

User sessions running outdated binaries:  
ubuntu @ session #2: sshd[989,1441]  
ubuntu @ user manager service: systemd[1336]

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

Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).  
OK  
Repository: 'deb http://apt.kubernetes.io/ kubernetes-xenial main'  
Description:  
Archive for codename: kubernetes-xenial components: main  
More info: http://apt.kubernetes.io/  
Adding repository.  
Press [ENTER] to continue or Ctrl-c to cancel.  
Adding deb entry to /etc/apt/sources.list.d/archive\_uri-http\_apt\_kubernetes\_io\_noble.list  
Adding disabled deb-src entry to /etc/apt/sources.list.d/archive\_uri-http\_apt\_kubernetes\_io\_noble.list  
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease  
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease  
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease  
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease  
Ign:5 https://packages.cloud.google.com/apt kubernetes-xenial InRelease  
Err:6 https://packages.cloud.google.com/apt kubernetes-xenial Release

i-06df51ec93bef334f (Nagesha-Kubernetes-Slave1)

PublicIPs: 35.171.160.110 PrivateIPs: 172.31.86.63

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16:09  
12-09-2024



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

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-032e30711978ce691&osUser=ubuntu&sshPort=22#/?

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

```
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
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-172-31-83-112:~$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu4.1
ubuntu@ip-172-31-83-112:~$ sudo nano install.sh
ubuntu@ip-172-31-83-112:~$ sudo bash install.sh
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
```

i-032e30711978ce691 (Nagesha-Kubernetes-Slave2)

PublicIPs: 35.170.248.24 PrivateIPs: 172.31.83.112

Activate Windows  
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16:08 12-09-2024

Instances | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-032e30711978ce691&osUser=ubuntu&sshPort=22#/

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.

Restarting services...

Service restarts being deferred:

```
/etc/needrestart/restart.d/dbus.service
systemctl restart docker.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@ttyS0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service
```

No containers need to be restarted.

User sessions running outdated binaries:

```
ubuntu @ session #2: sashd[986,1438]
ubuntu @ user manager service: systemd[1333]
```

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

Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).

OK

Repository: 'deb http://apt.kubernetes.io/ kubernetes-xenial main'

Description:

i-032e30711978ce691 (Nagesha-Kubernetes-Slave2)

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16:10  
12-09-2024

## Kubernetes Commands

AWS Console

launch instance EC2 number of instances 3

Ubuntu

20.04 LTS

t2.medium is needed for K8S as t2.micro is not sufficient

security group: Add all traffic in Security group

rename instances as

**Nagesha-Kubernetes-Master**

**Nagesha-Kubernetes-Slave1**

**Nagesha-Kubernetes-Slave2**

connect through EC2 dashboard connection, all the instances one by one

Update and Install Docker on all Machines (Master, Slave1, Slave2)

sudo apt update -- master

sudo apt update -- slave1

sudo apt update -- slave2

**sudo apt install docker.io -y**      **-- do in all machines of master, slave1 and slave2**

docker --version

Create a script file in all machines

goto master

**sudo nano install.sh**

sudo apt update

sudo apt upgrade -y

sudo apt install -y curl apt-transport-https ca-certificates software-properties-common

curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key add -

sudo add-apt-repository "deb http://apt.kubernetes.io/ kubernetes-xenial main"

sudo swapoff -a

sudo apt update

**sudo apt install -y kubelet kubeadm kubectl**

Run the install.sh file in all machine (master, slave1 and slave2)

**sudo bash install.sh**

Verify if Kubeadm, Kubectl, Kubelet installed

which Kubeadm && which Kubectl && which Kubelet

In Master machine -- to initialize k8s

sudo kubeadm init

In Slave machines paste the token in a root user

In Master machines paste below command being a normal 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/>

kubectl apply -f <https://github.com/weaverworks/releases/download/v2.8.1/weave-daemonset-k8s.yaml>

goto slave1 and slave2

sudo kubeadm join 172.31.27.5.6443 --token xix122.z.....

goto master

kubectl get no

it shows master and slave1 and slave2....

control.planne is master under ROLES

-- <none> are slave1 and slave2 respectively

Create a NGINX deployment of 3 replicas will be done as follows

go to official document

**goto google deployment k8s**

the first search Deployments has to be clicked

apiVersion: apps/v1

**kind: Deployment**

metadata:

name: nginx-deployment

labels:

**app: nginx**

spec:

**replicas: 3**

selector:

matchLabels:

app: nginx

template:

metadata:

labels:

app: nginx

spec:

containers:

- name: nginx

**image: nginx:**

ports:

- **containerPort: 30008**

go to master

sudo nano assign1.yaml

paste here

edit this file

check for replica 3 are there

next check for nginx and remove the version and retain only nginx

replicas: 3



image: nginx

goto master

check if pods are present

**kubectl get po**

you will see no resources found in default namespace.

**kubectl get deploy**

you will see no resources found in default namespace.

**kubectl apply -f assign1.yaml**

deployment.apps/nginx-deployment created.

kubectl get deploy

nginx-deployment ....

kubectl get po

you will see pods now.

kubectl get po -o wide

you will see pods with IP and NODE etc.