

Exp 4

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Class: D15B/14

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An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Recents


Quick Start



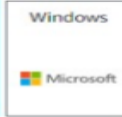
Amazon Linux




macOS




Ubuntu




Windows



Red Hat







SUSE L




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Including AMIs from AWS, Marketplace and the Community

 Services [Alt+S]    N. Virginia

Instances (1/1) [Info](#)


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




Connect

Instance state ▼

Actions ▼

Launch instances ▼

All states ▼ < 1 > 

<input checked="" type="checkbox"/>	Name 	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DN
<input checked="" type="checkbox"/>	Exp_4th	i-0be1c53e29447b89b	 Running  	t2.medium	 2/2 checks passed View alarms +		us-east-1a	ec2-34-238-82-

Connect to instance [Info](#)

Connect to your instance i-0e266e69ef8419a19 (kubernetes) using any of these options


EC2 Instance Connect



Session Manager

SSH client


EC2 serial console


Instance ID

 i-0e266e69ef8419a19 (kubernetes)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is vockey.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
 `chmod 400 "vockey.pem"`
4. Connect to your instance using its Public DNS:
 `ec2-54-198-213-208.compute-1.amazonaws.com`

Example:

 `ssh -i "vockey.pem" ubuntu@ec2-54-198-213-208.compute-1.amazonaws.com`

 **Note:** In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

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 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-172-31-42-97:~$ ssh -i "vockey.pem" ubuntu@ec2-54-198-213-208.compute-1.amazonaws.com
Warning: Identity file vockey.pem not accessible: No such file or directory.
The authenticity of host 'ec2-54-198-213-208.compute-1.amazonaws.com (172.31.42.97)' can't be established.
ED25519 key fingerprint is SHA256:kwtytvKv15HzWQo8Z9z+kf1Wg4gKfu2ufJcVPitCzsQ.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-198-213-208.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
ubuntu@ec2-54-198-213-208.compute-1.amazonaws.com: Permission denied (publickey).
ubuntu@ip-172-31-42-97:~$
```

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```
ubuntu@ip-172-31-42-97:~$ ssh -i "vockey.pem" ubuntu@ec2-54-198-213-208.compute-1.amazonaws.com
Warning: Identity file vockey.pem not accessible: No such file or directory.
The authenticity of host 'ec2-54-198-213-208.compute-1.amazonaws.com (172.31.42.97)' can't be established.
ED25519 key fingerprint is SHA256:kwtytvKv15HzWQo8Z9z+kf1Wg4gKfu2ufJcVPitCzsQ.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-198-213-208.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
ubuntu@ec2-54-198-213-208.compute-1.amazonaws.com: Permission denied (publickey).
ubuntu@ip-172-31-42-97:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
ubuntu@ip-172-31-42-97:~$
```

OK

```
ubuntu@ip-172-31-42-97:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo tee
/etc/apt/trusted.gpg.d/docker.gpg > /dev/null
-----BEGIN PGP PUBLIC KEY BLOCK-----
```

```
mQINBFit2ioBEADhWpZ8/wvZ6hUTiXOWQHXMALaFHCpH9hAtr4Fly2+OYdbtMuth
lqqwp028AqyY+PRfVmtSYMbjuQuu5byyKR01BbqYhuS3jtgQmljZ/bJvXqnmVXh
38UuLa+z077PxyxQhu5BbqntTPQMfiyqEiU+BKbq2WmANUKQf+1AmZY/IruOKbnq
L4Cl+gJ8vfmXQt99npCaxEjaNRVYfOS8QcixNzHUYnb6emjLANyEV1Zzeqo7XKl7
UrwW5inawTSzWnvtjEjj4nJL8NaIwscplPOUhtQ+7BbQXAwAmeHCUTQIvvWXqw0N
cmhh4HgeQscQHYgOJjjDVfoY5MucvglbIgCqfzAHW9jxmRL4qbmZj+b1XoeFetht
```

```

$(lsb_release -cs) stable"sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu
Repository: 'deb [arch=amd64] https://download.docker.com/linux/ubuntu noble stable'
Description:
Archive for codename: noble components: stable
More info: https://download.docker.com/linux/ubuntu
Adding repository.
Press [ENTER] to continue or Ctrl-c to cancel.
Adding deb entry to /etc/apt/sources.list.d/archive uri=https_download_docker_com_linux_ubuntu-noble.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/archive uri=https_download_docker_com_linux_ubuntu-noble.list
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 https://download.docker.com/linux/ubuntu noble InRelease [48.8 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]

```

```

Reading package lists... Done
W: https://download.docker.com/linux/ubuntu/dists/noble/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section
in apt-key(8) for details.
ubuntu@ip-172-31-42-97:~$ sudo apt-get update
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 https://download.docker.com/linux/ubuntu noble InRelease
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
W: https://download.docker.com/linux/ubuntu/dists/noble/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section
in apt-key(8) for details.

```

```

W: https://download.docker.com/linux/ubuntu/dists/noble/InRelease: Key is stored in legacy trusted.gpg
in apt-key(8) for details.
ubuntu@ip-172-31-42-97:~$ sudo apt-get install -y docker-ce
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  containerd.io docker-buildx-plugin docker-ce-cli
  docker-ce-rootless-extras docker-compose-plugin libltdl7 libslirp0 pigz
  slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-buildx-plugin docker-ce docker-ce-cli
  docker-ce-rootless-extras docker-compose-plugin libltdl7 libslirp0 pigz
  slirp4netns
0 upgraded, 10 newly installed, 0 to remove and 12 not upgraded.

```

```

"exec-opts": ["native.cgroupdriver=systemd"]
}
EOF
{
"exec-opts": ["native.cgroupdriver=systemd"]
}
ubuntu@ip-172-31-42-97:~$ sudo systemctl enable docker
Synchronizing state of docker.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable docker
ubuntu@ip-172-31-42-97:~$

```

```

in apt-key(8) for details.
ubuntu@ip-172-31-42-97:~$ sudo apt-get install -y kubelet kubeadm kubectl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  conntrack cri-tools kubernetes-cni
The following NEW packages will be installed:
  conntrack cri-tools kubeadm kubectl kubelet kubernetes-cni

```

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-42-97:~$ sudo apt-mark hold kubelet kubeadm kubect1
kubelet set on hold.
kubeadm set on hold.
kubect1 set on hold.
ubuntu@ip-172-31-42-97:~$ sudo systemctl enable --now kubelet
ubuntu@ip-172-31-42-97:~$ sudo kubeadm init --pod-network-cidr=10.244.0.0/16
[init] Using Kubernetes version: v1.31.1
[preflight] Running pre-flight checks
W1013 09:56:31.149881 4493 checks.go:1080] [preflight] WARNING: Couldn't create the inte
RI runtime service: validate service connection: validate CRI v1 runtime API for endpoint "
ented desc = unknown service runtime.v1.RuntimeService
[WARNING FileExisting-socat]: socat not found in system path
error execution phase preflight: [preflight] Some fatal errors occurred:
[ERROR NumCPU]: the number of available CPUs 1 is less than the required 2
[ERROR Mem]: the system RAM (957 MB) is less than the minimum 1700 MB
[preflight] If you know what you are doing, you can make a check non-fatal with '--ignore-p
To see the stack trace of this error execute with --v=5 or higher
ubuntu@ip-172-31-42-97:~$ sudo apt-get install -y containerd
```

```
ubuntu@ip-172-31-42-97:~$ sudo mkdir -p /etc/containerd
ubuntu@ip-172-31-42-97:~$ sudo containerd config default | sudo tee /etc/containerd/config.toml
disabled_plugins = []
imports = []
oom_score = 0
plugin_dir = ""
required_plugins = []
root = "/var/lib/containerd"
state = "/run/containerd"
temp = ""
version = 2

[cgroup]
  path = ""

[debug]
  address = ""
  format = ""
  gid = 0
  level = ""
  uid = 0
```



```

ubuntu@ip-172-31-42-97:~$ sudo apt-get install -y socat
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  docker-buildx-plugin docker-ce-cli docker-ce-rootless-extras
  docker-compose-plugin libltdl7 libslirp0 pigz slirp4netns
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  socat
0 upgraded, 1 newly installed, 0 to remove and 12 not upgraded.
Need to get 374 kB of archives.
After this operation, 1649 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 socat amd64 1.8.0.0-4build3 [374 kB]
Fetched 374 kB in 0s (23.4 MB/s)

```

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 172.31.42.97:6443 --token ycidn6.e82o7p36zdkxcmmg \
--discovery-token-ca-cert-hash sha256:851f3154aeb68f24bd2dd8040197e5ac99e3cd9a54182e54284b15a7b33d41e5
ubuntu@ip-172-31-42-97:~$ mkdir -p $HOME/.kube
ubuntu@ip-172-31-42-97:~$ sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
ubuntu@ip-172-31-42-97:~$ sudo chown $(id -u):$(id -g) $HOME/.kube/config

```

```

ubuntu@ip-172-31-42-97:~$ kubectl taint nodes --all node-role.kubernetes.io/control-plane-
node/ip-172-31-42-97 untainted
ubuntu@ip-172-31-42-97:~$ kubectl get nodes

```

NAME	STATUS	ROLES	AGE	VERSION
ip-172-31-42-97	Ready	control-plane	7m27s	v1.31.1

```

ubuntu@ip-172-31-42-97:~$ kubectl get pods

```

NAME	READY	STATUS	RESTARTS	AGE
nginx-deployment-d556bf558-7hlqp	1/1	Running	0	4m27s
nginx-deployment-d556bf558-f5q6l	1/1	Running	0	4m27s

```

ubuntu@ip-172-31-42-97:~$ POD_NAME=$(kubectl get pods -l app=nginx -o jsonpath="{.items[0].metadata.name}")
ubuntu@ip-172-31-42-97:~$ kubectl port-forward $POD_NAME 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80

```

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

```

Last login: Sun Oct 13 09:41:02 2024 from 18.206.107.29
ubuntu@ip-172-31-42-97:~$ curl --head http://127.0.0.1:8081
HTTP/1.1 200 OK
Server: nginx/1.14.2
Date: Sun, 13 Oct 2024 10:27:22 GMT
Content-Type: text/html
Content-Length: 612
Last-Modified: Tue, 04 Dec 2018 14:44:49 GMT
Connection: keep-alive
ETag: "5c0692e1-264"
Accept-Ranges: bytes

```

```

ubuntu@ip-172-31-42-97:~$ kubectl port-forward $POD_NAME 8081:80
Forwarding from 127.0.0.1:8081 -> 80
Forwarding from [::1]:8081 -> 80
Handling connection for 8081

```