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

Instances Info

Last updated less than a minute ago

Connect | Instance state ▾ | Actions ▾ | **Launch instances** ▾

🔍 Find Instance by attribute or tag (case-sensitive)

All states ▾

Instance state = running ✕ | Clear filters

‹ 1 › ⚙

☐ | Name ✎ ▾ | Instance ID | Instance state ▾ | Instance type ▾ | Status check | Alarm status

No matching instances found

Select an instance ⚙ ✕

☰

EC2 > Instances > Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name

`master` | Add additional tags

▼ Application and OS Images (Amazon Machine Image) Info

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

▼ Summary

Number of instances Info

`1`

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...read more

ami-0ebfd941bbafe70c6

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Cancel | **Launch instance**

Review commands

Verified provider

▼ Instance type Info | Get advice

Instance type

t2.medium
Family: t2   2 vCPU   4 GiB Memory   Current generation: true
On-Demand Linux base pricing: 0.0464 USD per Hour
On-Demand RHEL base pricing: 0.0752 USD per Hour
On-Demand Windows base pricing: 0.0644 USD per Hour
On-Demand SUSE base pricing: 0.1464 USD per Hour

⚪ All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key

▼ Summary

Number of instances | Info

2

When launching more than 1 instance, consider EC2 Auto Scaling

Software Image (AMI)
Amazon Linux 2023 AMI 2023.5.2...read more
ami-0ebfd941bbafe70c6

Virtual server type (instance type)
t2.medium

Firewall (security group)
New security group

Cancel | **Launch instance**

Review commands

Create key pair   ✕

Key pair name
Key pairs allow you to connect to your instance securely.

arnav

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

🔘 **RSA**
RSA encrypted private and public key pair

⚪ **ED25519**
ED25519 encrypted private and public key pair

Private key file format

🔘 .pem
For use with OpenSSH

⚪ .ppk
For use with PuTTY

Cancel | **Create key pair**

For master-

EC2 > Instances > i-09df9bbef12b21b98 > Connect to instance

Connect to instance Info

Connect to your instance i-09df9bbef12b21b98 (master) using any of these options

| EC2 Instance Connect | Session Manager | **SSH client** | EC2 serial console |

Instance ID
🗗 i-09df9bbef12b21b98 (master)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is arnav.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
   🗗 chmod 400 "arnav.pem"
4. Connect to your instance using its Public DNS:
   🗗 ec2-18-206-145-218.compute-1.amazonaws.com

Example:
🗗 ssh -i "arnav.pem" ubuntu@ec2-18-206-145-218.compute-1.amazonaws.com

For worker-

EC2 > Instances > i-0516a71d6e0f53f1b > Connect to instance

Connect to instance Info

Connect to your instance i-0516a71d6e0f53f1b (worker) using any of these options

| EC2 Instance Connect | Session Manager | **SSH client** | EC2 serial console |

Instance ID
🗗 i-0516a71d6e0f53f1b (worker)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is arnav.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
   🗗 chmod 400 "arnav.pem"
4. Connect to your instance using its Public DNS:
   🗗 ec2-54-204-200-20.compute-1.amazonaws.com

Example:
🗗 ssh -i "arnav.pem" ubuntu@ec2-54-204-200-20.compute-1.amazonaws.com

```
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Santosh Sawant\Downloads> ssh -i "arnav.pem" ubuntu@ec2-18-206-145-218.compute-1.amazonaws.com
The authenticity of host 'ec2-18-206-145-218.compute-1.amazonaws.com (64:ff9b::12ce:91da)' can't be established.
ED25519 key fingerprint is SHA256:7k8vuqO+Egk/trykDNbPv3je0AGjp/wt+hCDivv9Gyg.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-18-206-145-218.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Tue Sep 24 05:23:29 UTC 2024

  System load:  0.09              Processes:             118
  Usage of /:   22.8% of 6.71GB   Users logged in:       0
  Memory usage: 5%                IPv4 address for enX0: 172.31.86.195
  Swap usage:   0%

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

```
PS C:\Users\Santosh Sawant> cd Downloads
PS C:\Users\Santosh Sawant\Downloads> ssh -i "arnav.pem" ubuntu@ec2-54-204-200-20.compute-1.amazonaws.com
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Tue Sep 24 05:31:07 UTC 2024

  System load:  0.0                Processes:             112
  Usage of /:   22.8% of 6.71GB    Users logged in:       0
  Memory usage: 5%                 IPv4 address for enX0: 172.31.90.68
  Swap usage:   0%

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 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
```

For master the command executed -

```
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://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
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 Translation-en [5982 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [530 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [128 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [8548 B]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [374 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [154 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [14.6 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [353 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [68.1 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [424 B]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.4 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.6 kB]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1104 B]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
```

For Worker the command is executed -

```
Hit:6 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:7 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  Packages [14.0 kB]
Fetched 15.1 kB in 0s (37.0 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Selected version '1.29.0-1.1' (isv:kubernetes:core:stable:v1.29:pkgs.k8s.io [amd64]) for 'kubelet'
Selected version '1.29.0-1.1' (isv:kubernetes:core:stable:v1.29:pkgs.k8s.io [amd64]) for 'kubectl'
Selected version '1.29.0-1.1' (isv:kubernetes:core:stable:v1.29:pkgs.k8s.io [amd64]) for 'kubeadm'
The following additional packages will be installed:
  conntrack cri-tools ebtables kubernetes-cni socat
The following NEW packages will be installed:
  conntrack cri-tools ebtables kubeadm kubectl kubelet kubernetes-cni socat
0 upgraded, 8 newly installed, 0 to remove and 136 not upgraded.
Need to get 92.4 MB of archives.
After this operation, 346 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 conntrack amd64 1:1.4.8-1ubuntu1 [37.9 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 ebtables amd64 2.0.11-6build1 [88.4 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 socat amd64 1.8.0.0-4build3 [374 kB]
Get:4 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  cri-tools 1.29.0-1.1 [20.1 MB]
Get:5 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  kubernetes-cni 1.3.0-1.1 [31.4 MB]
Get:6 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  kubelet 1.29.0-1.1 [19.8 MB]
Get:7 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  kubectl 1.29.0-1.1 [10.5 MB]
Get:8 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.29/deb  kubeadm 1.29.0-1.1 [10.1 MB]
Fetched 92.4 MB in 2s (43.7 MB/s)
Selecting previously unselected package conntrack.
(Reading database ... 67779 files and directories currently installed.)
Preparing to unpack .../0-conntrack_1%3a1.4.8-1ubuntu1_amd64.deb ...
Unpacking conntrack (1:1.4.8-1ubuntu1) ...
Selecting previously unselected package cri-tools.
Preparing to unpack .../1-cri-tools_1.29.0-1.1_amd64.deb ...
```

Command executed only for master -

```
0 upgraded, 0 newly installed, 0 to remove and 199 not upgraded.
ubuntu@ip-172-31-86-195:~$ sudo kubeadm config images pull

sudo kubeadm init

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


# Network Plugin = calico
kubectl apply -f https://raw.githubusercontent.com/projectcalico/calico/v3.26.0/manifests/calico.yaml

kubeadm token create --print-join-command
I0924 05:34:53.351705    3594 version.go:256] remote version is much newer: v1.31.0; falling back to: stable-1.29
[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
I0924 05:35:09.092885    3936 version.go:256] remote version is much newer: v1.31.0; falling back to: stable-1.29
[init] Using Kubernetes version: v1.29.9
[preflight] Running pre-flight checks
[preflight] Pulling images required for setting up a Kubernetes cluster
[preflight] This might take a minute or two, depending on the speed of your internet connection
[preflight] You can also perform this action in beforehand using 'kubeadm config images pull'
W0924 05:35:09.422029    3936 checks.go:835] detected that the sandbox image "registry.k8s.io/pause:3.10" of the container runtime is
 inconsistent with that used by kubeadm. It is recommended that using "registry.k8s.io/pause:3.9" as the CRI sandbox image.
[certs] Using certificateDir folder "/etc/kubernetes/pki"
[certs] Generating "ca" certificate and key
```

Now a token is being generated which is being highlighted in grey color below

```
customresourcedefinition.apiextensions.k8s.io/bgpconfigurations.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/bgpfilters.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/bgppeers.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/blockaffinities.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/caliconodestatuses.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/clusterinformations.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/felixconfigurations.crd.projectcalico.org created
customresourcedefinition.apiextensions.k8s.io/globalnetworkpolicies.crd.projectcalico.org created
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 created
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
kubeadm join 172.31.86.195:6443 --token bavlhp.rq8pf32j8p5tfs5s --discovery-token-ca-cert-hash sha256:316a62c4dc5ef33737973a856e1cbd8
fffc2da45fe8e934c9a6390cd98d9a441
ubuntu@ip-172-31-86-195:~$
```

Kubeadm token - kubeadm join 172.31.86.195:6443 --token bavlhp.rq8pf32j8p5tfs5s
--discovery-token-ca-cert-hash
sha256:316a62c4dc5ef33737973a856e1cbd8fffc2da45fe8e934c9a6390cd98d9a441

For worker - some of the commands are to be executed and those are being executed below

```
ubuntu@ip-172-31-90-68:~$ sudo kubeadm reset pre-flight checks
W0924 05:40:53.324032    3849 preflight.go:56] [reset] WARNING: Changes made to this host by 'kubeadm init' or 'kubeadm join' will be
 reverted.
[reset] Are you sure you want to proceed? [y/N]: y
[preflight] Running pre-flight checks
W0924 05:40:55.787373    3849 removeetcdmember.go:106] [reset] No kubeadm config, using etcd pod spec to get data directory
[reset] Deleted contents of the etcd data directory: /var/lib/etcd
[reset] Stopping the kubelet service
[reset] Unmounting mounted directories in "/var/lib/kubelet"
[reset] Deleting contents of directories: [/etc/kubernetes/manifests /var/lib/kubelet /etc/kubernetes/pki]
[reset] Deleting files: [/etc/kubernetes/admin.conf /etc/kubernetes/super-admin.conf /etc/kubernetes/kubelet.conf /etc/kubernetes/boo
tstrap-kubelet.conf /etc/kubernetes/controller-manager.conf /etc/kubernetes/scheduler.conf]

The reset process does not clean CNI configuration. To do so, you must remove /etc/cni/net.d

The reset process does not reset or clean up iptables rules or IPVS tables.
If you wish to reset iptables, you must do so manually by using the "iptables" command.

If your cluster was setup to utilize IPVS, run ipvsadm --clear (or similar)
to reset your system's IPVS tables.

The reset process does not clean your kubeconfig files and you must remove them manually.
Please, check the contents of the $HOME/.kube/config file.
```

```
ubuntu@ip-172-31-90-68:~$ sudo kubeadm join 172.31.86.195:6443 --token bavlhp.rq8pf32j8p5tfs5s --discovery-token-ca-cert-hash sha256:
316a62c4dc5ef33737973a856e1cbd8fffc2da45fe8e934c9a6390cd98d9a441 --v=5
I0924 05:47:57.025842    3901 join.go:413] [preflight] found NodeName empty; using OS hostname as NodeName
I0924 05:47:57.025974    3901 initconfiguration.go:122] detected and using CRI socket: unix:///var/run/crio/crio.sock
[preflight] Running pre-flight checks
I0924 05:47:57.026025    3901 preflight.go:93] [preflight] Running general checks
I0924 05:47:57.026051    3901 checks.go:280] validating the existence of file /etc/kubernetes/kubelet.conf
I0924 05:47:57.026058    3901 checks.go:280] validating the existence of file /etc/kubernetes/bootstrap-kubelet.conf
I0924 05:47:57.026065    3901 checks.go:104] validating the container runtime
I0924 05:47:57.046934    3901 checks.go:639] validating whether swap is enabled or not
I0924 05:47:57.047021    3901 checks.go:370] validating the presence of executable crictl
I0924 05:47:57.047042    3901 checks.go:370] validating the presence of executable conntrack
I0924 05:47:57.047053    3901 checks.go:370] validating the presence of executable ip
I0924 05:47:57.047066    3901 checks.go:370] validating the presence of executable iptables
I0924 05:47:57.047078    3901 checks.go:370] validating the presence of executable mount
I0924 05:47:57.047090    3901 checks.go:370] validating the presence of executable nsenter
I0924 05:47:57.047101    3901 checks.go:370] validating the presence of executable ebtables
I0924 05:47:57.047113    3901 checks.go:370] validating the presence of executable ethtool
I0924 05:47:57.047123    3901 checks.go:370] validating the presence of executable socat
I0924 05:47:57.047134    3901 checks.go:370] validating the presence of executable tc
I0924 05:47:57.047143    3901 checks.go:370] validating the presence of executable touch
I0924 05:47:57.047156    3901 checks.go:516] running all checks
I0924 05:47:57.059706    3901 checks.go:401] checking whether the given node name is valid and reachable using net.LookupHost
I0924 05:47:57.061924    3901 checks.go:605] validating kubelet version
I0924 05:47:57.114542    3901 checks.go:130] validating if the "kubelet" service is enabled and active
I0924 05:47:57.130049    3901 checks.go:203] validating availability of port 10250
I0924 05:47:57.130196    3901 checks.go:280] validating the existence of file /etc/kubernetes/pki/ca.crt
I0924 05:47:57.130218    3901 checks.go:430] validating if the connectivity type is via proxy or direct
I0924 05:47:57.130241    3901 checks.go:329] validating the contents of file /proc/sys/net/bridge/bridge-nf-call-iptables
I0924 05:47:57.130264    3901 checks.go:329] validating the contents of file /proc/sys/net/ipv4/ip_forward
I0924 05:47:57.130278    3901 join.go:532] [preflight] Discovering cluster-info
```

Now for master executing this command -

```
ubuntu@ip-172-31-86-195:~$ kubectl get nodes
NAME               STATUS   ROLES           AGE   VERSION
ip-172-31-86-195   Ready    control-plane   13m   v1.29.0
ip-172-31-90-68    Ready    <none>          42s   v1.29.0
```