Deploying custom image on EKS

Creating a Cluster

- First creating a new ec2 instance and giving it an IAM role that has permissions to access eks
- Create a new role with the `AmazonEKSClusterPolicy` and `AmazonEKSVPCResourceController` policies
- Once that's done, the ec2 instance has access to the EKS and it can create a cluster now

```
eksctl create cluster --name=eksydg --region=us-east-1 --zones=us-east-1a,us-east-1b --without-nodegroup
```

eksydg

<button>⟳</button> <button>Delete cluster</button> <button>Upgrade version</button> <button>Monitor cluster</button>

ⓘ End of standard support for Kubernetes version 1.32 is March 21, 2026. On that date, your cluster will enter the extended support period with additional fees. For more information, see the pricing page ↗. If you do not want to use extended support, we recommend you update the cluster to version 1.33 or opt-out of extended support by managing your Kubernetes version policy. To learn more about our version policy, see our documentation ↗.

<button>Upgrade</button>

▼ Cluster info Info

Status
✓ Active

Kubernetes version Info
1.32

Support period
ⓘ Standard support until March 21, 2026

Provider
EKS

Cluster health
⊘ **0**

Upgrade insights
⊘ **0**

Node health issues
⊘ **0**

Overview | Resources | Compute | Networking | Add-ons 1 | Access | Observability | Update history | Tags

Details

API server endpoint
⧉ https://A56F15D3BAC5F8EE44D0ED77BA2D4CDA.gr7.us-east-1.eks.amazonaws.com

Certificate authority
⧉ LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSUR
CVENDQWUyZ0F3SUJBZ0lJYVZZnN0JjTmNOVXd3d3d3RFF
ZSktvWklodmNOOQVFFTEJRQXdGVEVVVTUJFR0ExVUU

OpenID Connect provider URL
⧉ https://oidc.eks.us-east-1.amazonaws.com/id/A56F15D3
BAC5F8EE44D0ED77BA2D4CDA

Cluster IAM role ARN
⧉ arn:aws:iam::267092042432:role/eksctl-eksydg-cluster-S
erviceRole-th0tKRxqkDna
View in IAM ↗

Created
⧉ 8 minutes ago

Cluster ARN
⧉ arn:aws:eks:us-east-1:267092042432:cluster/eksydg

Platform version Info
eks.16

EKS Auto Mode Info

<button>Manage</button>

EKS automates routine cluster tasks for compute, storage, and networking to meet application compute needs.

EKS Auto Mode
Disabled

Overview | Resources | Compute | Networking | Add-ons 1 | Access | Observability | Update history | Tags

ⓘ New versions are available for 1 add-on. ✕

Add-ons (3) Info

<button>View details</button> <button>Edit</button> <button>Remove</button> <button>Get more add-ons</button>

🔍 Find add-on   Any categ... ▼   Any status ▼   3 matches   ‹ 1 ›

kube-proxy
Enable service networking within your cluster.

Category
networking

Status
✓ Active

Version
v1.32.0-eksbuild.2

EKS Pod Identity
-

IAM role for service account (IRSA)
Not set

<button>Update version</button>

Metrics Server
Install metrics-server to collect cluster-wide resource usage data for autoscaling and monitoring.

Category
observability

Status
⚠ Degraded

Version
v0.8.0-eksbuild.1

EKS Pod Identity
-

IAM role for service account (IRSA)
Not set

CoreDNS
Enable service discovery within your cluster.

Category
networking

Status
⚠ Degraded

Version
v1.11.4-eksbuild.2

EKS Pod Identity
-

IAM role for service account (IRSA)
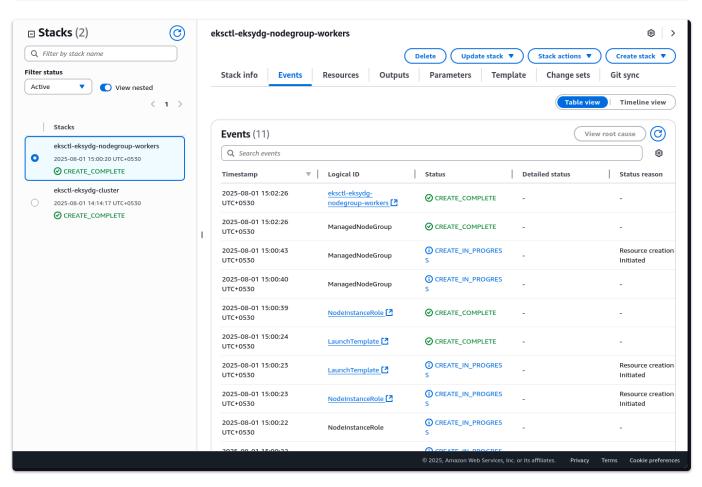Not set

Creating Node Groups
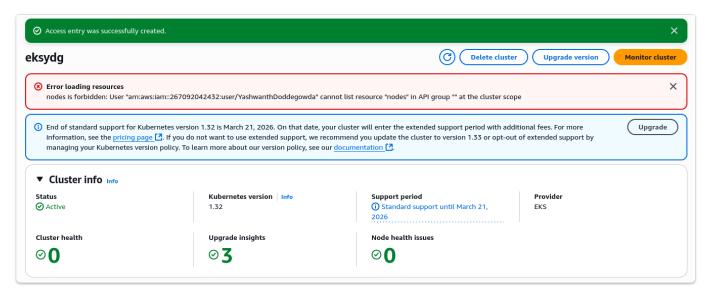
```
eksctl create nodegroup \
    --cluster eksydg \
    --region us-east-1 \
    --name workers \
    --node-type t3.micro \
    --nodes 2 \
    --nodes-min 1 \
    --nodes-max 3 \
    --managed
```

```
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# eksctl create nodegroup  --cluster eksydg  --region us-east-1  --name workers  --node-type t3.micro  --nodes 2  --nodes-min 1  --nodes-max 3  --managed
2025-08-01 09:30:18 [i]  will use version 1.32 for new nodegroup(s) based on control plane version
2025-08-01 09:30:19 [i]  nodegroup "workers" will use "" [AmazonLinux2023/1.32]
2025-08-01 09:30:19 [i]  1 nodegroup (workers) was included (based on the include/exclude rules)
2025-08-01 09:30:19 [i]  will create a CloudFormation stack for each of 1 managed nodegroups in cluster "eksydg"
2025-08-01 09:30:19 [i]
2 sequential tasks: { fix cluster compatibility, 1 task: { 1 task: { create managed nodegroup "workers" } }
}
2025-08-01 09:30:19 [i]  checking cluster stack for missing resources
2025-08-01 09:30:20 [i]  cluster stack has all required resources
2025-08-01 09:30:20 [i]  building managed nodegroup stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:30:20 [i]  deploying stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:30:20 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:30:50 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:31:46 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:33:03 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 09:33:03 [i]  no tasks
2025-08-01 09:33:03 [✔]  created 0 nodegroup(s) in cluster "eksydg"
2025-08-01 09:33:03 [i]  nodegroup "workers" has 2 node(s)
2025-08-01 09:33:03 [i]  node "ip-192-168-30-77.ec2.internal" is ready
2025-08-01 09:33:03 [i]  node "ip-192-168-49-63.ec2.internal" is ready
2025-08-01 09:33:03 [i]  waiting for at least 1 node(s) to become ready in "workers"
2025-08-01 09:33:03 [i]  nodegroup "workers" has 2 node(s)
2025-08-01 09:33:03 [i]  node "ip-192-168-30-77.ec2.internal" is ready
2025-08-01 09:33:03 [i]  node "ip-192-168-49-63.ec2.internal" is ready
2025-08-01 09:33:03 [✔]  created 1 managed nodegroup(s) in cluster "eksydg"
2025-08-01 09:33:03 [i]  checking security group configuration for all nodegroups
2025-08-01 09:33:03 [i]  all nodegroups have up-to-date cloudformation templates
root@ip-172-31-35-74:/home/ubuntu/eks-deploy#
```

⊟ Stacks (2)

Filter by stack name

Filter status

Active ▾   ⬤ View nested

◁   1   ▷

	Stacks
⬤	**eksctl-eksydg-nodegroup-workers** 2025-08-01 15:00:20 UTC+0530 ⊘ CREATE_COMPLETE
○	**eksctl-eksydg-cluster** 2025-08-01 14:14:17 UTC+0530 ⊘ CREATE_COMPLETE

eksctl-eksydg-nodegroup-workers

⚙ ›

Delete   Update stack ▾   Stack actions ▾   Create stack ▾

Stack info   **Events**   Resources   Outputs   Parameters   Template   Change sets   Git sync

Table view | Timeline view

Events (11)

View root cause   ↻

🔍 Search events   ⚙

Timestamp ▽	Logical ID	Status	Detailed status	Status reason
2025-08-01 15:02:26 UTC+0530	eksctl-eksydg-nodegroup-workers 🔗	⊘ CREATE_COMPLETE	-	-
2025-08-01 15:02:26 UTC+0530	ManagedNodeGroup	⊘ CREATE_COMPLETE	-	-
2025-08-01 15:00:43 UTC+0530	ManagedNodeGroup	ⓘ CREATE_IN_PROGRESS	-	Resource creation Initiated
2025-08-01 15:00:40 UTC+0530	ManagedNodeGroup	ⓘ CREATE_IN_PROGRESS	-	-
2025-08-01 15:00:39 UTC+0530	NodeInstanceRole 🔗	⊘ CREATE_COMPLETE	-	-
2025-08-01 15:00:24 UTC+0530	LaunchTemplate 🔗	⊘ CREATE_COMPLETE	-	-
2025-08-01 15:00:23 UTC+0530	LaunchTemplate 🔗	ⓘ CREATE_IN_PROGRESS	-	Resource creation Initiated
2025-08-01 15:00:23 UTC+0530	NodeInstanceRole 🔗	ⓘ CREATE_IN_PROGRESS	-	Resource creation Initiated
2025-08-01 15:00:22 UTC+0530	NodeInstanceRole	ⓘ CREATE_IN_PROGRESS	-	-
2025-08-01 15:00:22	CREATE_IN_PROGRESS			

```
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# kubectl get nodes
NAME                              STATUS   ROLES    AGE      VERSION
ip-192-168-30-77.ec2.internal     Ready    <none>   4m47s    v1.32.3-eks-473151a
ip-192-168-49-63.ec2.internal     Ready    <none>   4m46s    v1.32.3-eks-473151a
root@ip-172-31-35-74:/home/ubuntu/eks-deploy#
```

- Scaling nodegroups

```
eksctl create nodegroup \
  --cluster eksydg \
  --region us-east-1 \
  --name workers \
  --node-type t3.micro \
  --nodes 2 \
  --nodes-min 1 \
  --nodes-max 3 \
  --managed
```

```
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# eksctl scale nodegroup   --cluster eksydg   --name workers   --nodes 3   --nodes-min 1   --nodes-max 4 --region us-east-1
2025-08-01 09:42:48 [i]  scaling nodegroup "workers" in cluster eksydg
2025-08-01 09:42:49 [i]  initiated scaling of nodegroup
2025-08-01 09:42:49 [i]  to see the status of the scaling run `eksctl get nodegroup --cluster eksydg --region us-east-1 --name workers`
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# eksctl get nodegroup --cluster eksydg --region us-east-1 --name workers
CLUSTER NODEGROUP       STATUS   CREATED              MIN SIZE    MAX SIZE    DESIRED CAPACITY    INSTANCE TYPE   IMAGE ID            ASG NAME                                              TYP
E
eksydg  workers         ACTIVE   2025-08-01T09:30:42Z    1           4           3               t3.micro        AL2023_x86_64_STANDARD  eks-workers-76cc327c-1393-6104-108a-c55f79269184      man
aged
```
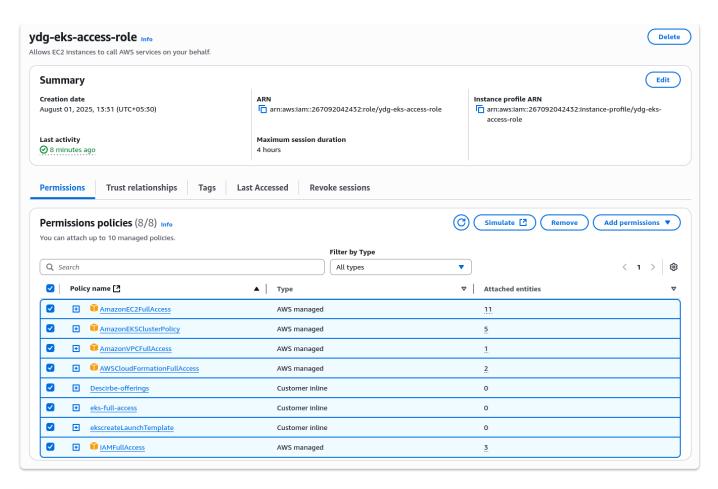
Deleting a nodegroup

```
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# eksctl delete nodegroup \
>   --cluster eksydg \
>   --name workers \
>   --region us-east-1
2025-08-01 09:45:19 [i]  1 nodegroup (workers) was included (based on the include/exclude rules)
2025-08-01 09:45:19 [i]  will drain 1 nodegroup(s) in cluster "eksydg"
2025-08-01 09:45:19 [i]  starting parallel draining, max in-flight of 1
2025-08-01 09:45:19 [i]  cordon node "ip-192-168-30-77.ec2.internal"
2025-08-01 09:45:19 [i]  cordon node "ip-192-168-49-63.ec2.internal"
2025-08-01 09:45:19 [i]  cordon node "ip-192-168-63-127.ec2.internal"
2025-08-01 09:46:42 [!]  2 pods are unevictable from node ip-192-168-49-63.ec2.internal
2025-08-01 09:47:43 [!]  2 pods are unevictable from node ip-192-168-49-63.ec2.internal

2025-08-01 09:48:43 [!]  2 pods are unevictable from node ip-192-168-49-63.ec2.internal
2025-08-01 09:49:43 [!]  2 pods are unevictable from node ip-192-168-49-63.ec2.internal
^C
```
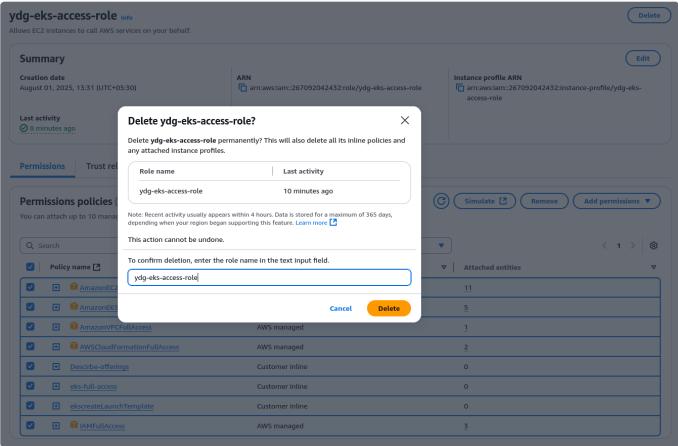
Deleting Cluster

eksydg

Delete cluster | Upgrade version | Monitor cluster

Error loading resources
nodes is forbidden: User "arn:aws:iam::267092042432:user/YashwanthDoddegowda" cannot list resource "nodes" in API group "" at the cluster scope

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Upgrade

▼ Cluster info Info

Status
✓ Active

Kubernetes version Info
1.32

Support period
ⓘ Standard support until March 21, 2026

Provider
EKS

Cluster health
⊘ 0

Upgrade insights
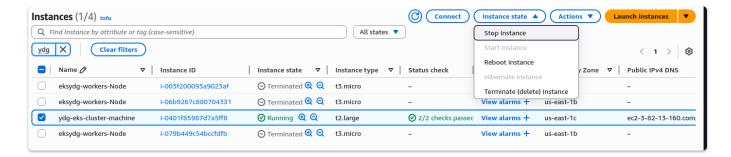⊘ 3

Node health issues
⊘ 0

```
root@ip-172-31-35-74:/home/ubuntu/eks-deploy# eksctl delete cluster --name eksydg --region us-east-1 --disable-nodegroup-eviction
2025-08-01 10:01:48 [i]  deleting EKS cluster "eksydg"
2025-08-01 10:01:49 [i]  will drain 0 unmanaged nodegroup(s) in cluster "eksydg"
2025-08-01 10:01:49 [i]  starting parallel draining, max in-flight of 1
2025-08-01 10:01:49 [i]  deleted 0 Fargate profile(s)
2025-08-01 10:01:49 [✔]  kubeconfig has been updated
2025-08-01 10:01:49 [i]  cleaning up AWS load balancers created by Kubernetes objects of Kind Service or Ingress
2025-08-01 10:01:50 [i]
2 sequential tasks: { delete nodegroup "workers", delete cluster control plane "eksydg" [async]
}
2025-08-01 10:01:50 [i]  will delete stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:01:50 [i]  waiting for stack "eksctl-eksydg-nodegroup-workers" to get deleted
2025-08-01 10:01:50 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:02:20 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:03:13 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:04:46 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:05:54 [i]  waiting for CloudFormation stack "eksctl-eksydg-nodegroup-workers"
2025-08-01 10:05:54 [i]  will delete stack "eksctl-eksydg-cluster"
2025-08-01 10:05:54 [✔]  all cluster resources were deleted
root@ip-172-31-35-74:/home/ubuntu/eks-deploy#
```

Permissions given to the IAM role

ydg-eks-access-role Info

Allows EC2 instances to call AWS services on your behalf.

Delete

Summary

Edit

Creation date
August 01, 2025, 13:31 (UTC+05:30)

ARN
⧉ arn:aws:iam::267092042432:role/ydg-eks-access-role

Instance profile ARN
⧉ arn:aws:iam::267092042432:instance-profile/ydg-eks-access-role

Last activity
✓ 8 minutes ago

Maximum session duration
4 hours

| **Permissions** | Trust relationships | Tags | Last Accessed | Revoke sessions |

Permissions policies (8/8) Info

You can attach up to 10 managed policies.

↻ | Simulate ⤢ | Remove | Add permissions ▼

Search

Filter by Type
All types ▼

< 1 > ⚙

☑	Policy name ⤢ ▲	Type ▼	Attached entities ▼
☑ ⊞	📦 AmazonEC2FullAccess	AWS managed	11
☑ ⊞	📦 AmazonEKSClusterPolicy	AWS managed	5
☑ ⊞	📦 AmazonVPCFullAccess	AWS managed	1
☑ ⊞	📦 AWSCloudFormationFullAccess	AWS managed	2
☑ ⊞	Descirbe-offerings	Customer inline	0
☑ ⊞	eks-full-access	Customer inline	0
☑ ⊞	ekscreateLaunchTemplate	Customer inline	0
☑ ⊞	📦 IAMFullAccess	AWS managed	3

---

ydg-eks-access-role Info

Allows EC2 instances to call AWS services on your behalf.

Delete

Summary

Edit

Creation date
August 01, 2025, 13:31 (UTC+05:30)

ARN
⧉ arn:aws:iam::267092042432:role/ydg-eks-access-role

Instance profile ARN
⧉ arn:aws:iam::267092042432:instance-profile/ydg-eks-access-role

Last activity
✓ 8 minutes ago

Delete ydg-eks-access-role?   ✕

Delete **ydg-eks-access-role** permanently? This will also delete all its inline policies and any attached instance profiles.

Role name	Last activity
ydg-eks-access-role	10 minutes ago

Note: Recent activity usually appears within 4 hours. Data is stored for a maximum of 365 days, depending when your region began supporting this feature. Learn more ⧉

This action cannot be undone.

To confirm deletion, enter the role name in the text input field.

ydg-eks-access-role

Cancel | **Delete**

| Permissions | Trust rel... |

Permissions policies (

You can attach up to 10 manag...

↻ | Simulate ⤢ | Remove | Add permissions ▼

Search

▼

< 1 > ⚙

☑	Policy name ⤢	▼	Attached entities ▼
☑ ⊞	📦 AmazonEC2...		11
☑ ⊞	📦 AmazonEKS...		5
☑ ⊞	📦 AmazonVPCFullAccess	AWS managed	1
☑ ⊞	📦 AWSCloudFormationFullAccess	AWS managed	2
☑ ⊞	Descirbe-offerings	Customer inline	0
☑ ⊞	eks-full-access	Customer inline	0
☑ ⊞	ekscreateLaunchTemplate	Customer inline	0
☑ ⊞	📦 IAMFullAccess	AWS managed	3

Stopping the Instance

Issues I faced

- The IAM role I created didn't have permission to create VPC and store errors in CloudFormation
    - fixed it by giving those permissions
- The create cluster failed again cause the max number of vpcs in nv region already reached, which was 5, so I deleted my vpc
- The create cluster failed again cause IAM role access was not in the role
    - resloved it by giving IAM Access to the role
- Used eksctl to add the context of the cluster to kubectl config

```
eksctl utils write-kubeconfig --cluster=eksydg --region=us-east-1
```