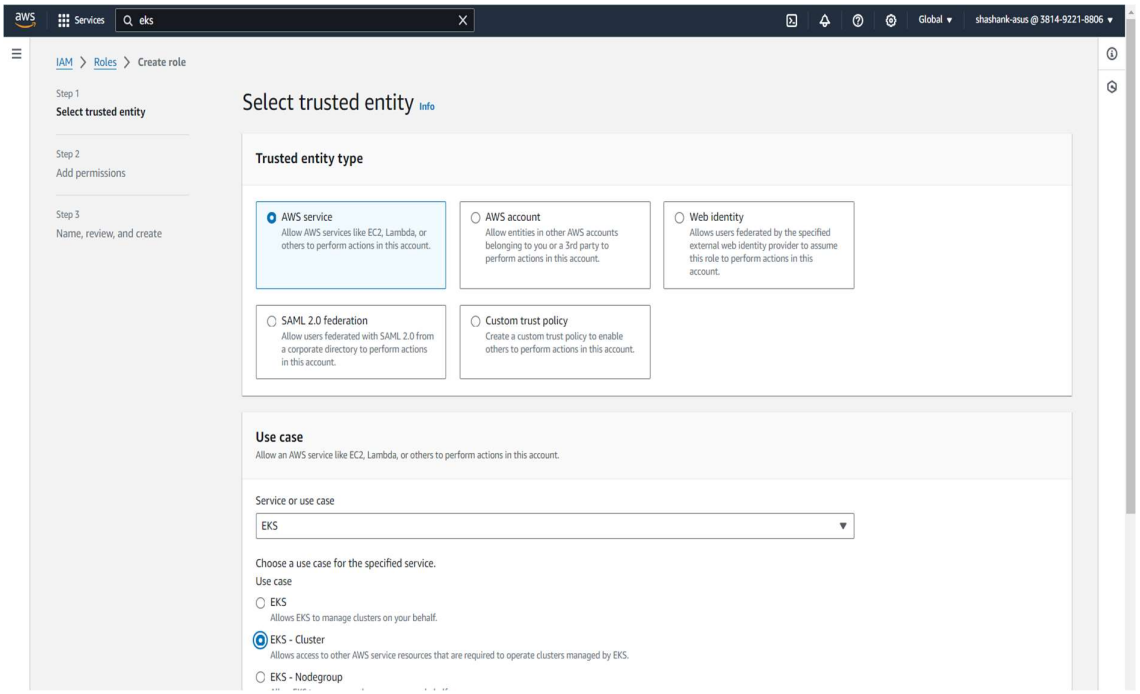
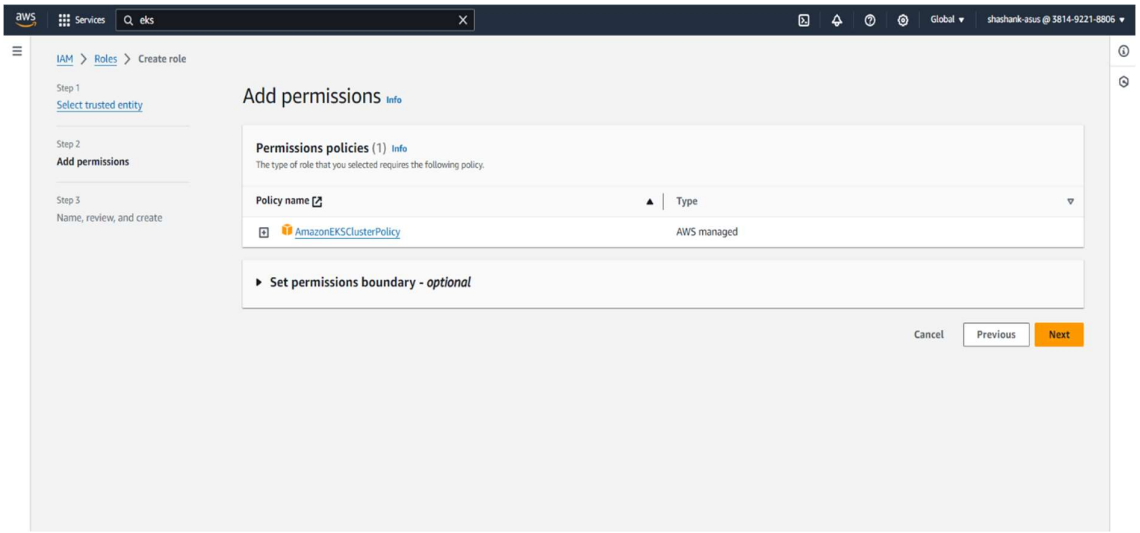
Task

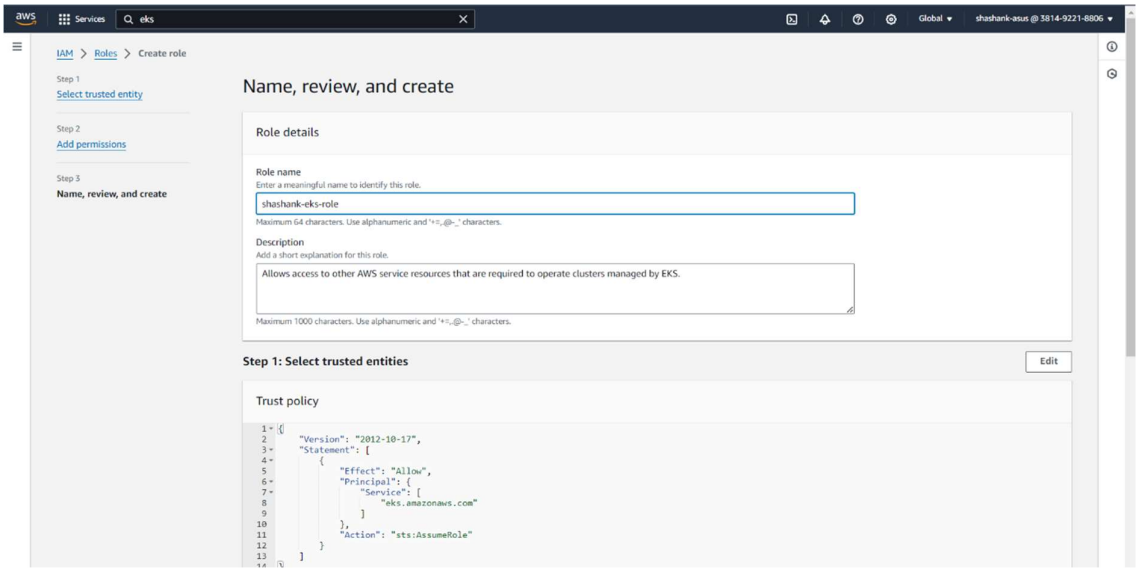
Creating an Amazon EKS (Elastic Kubernetes Service) cluster

Name- Shashank Sharma

1. Set up IAM roles for EKS.
    - Go to aws IAM service and create a new role for the EKS






aws
Services
eks
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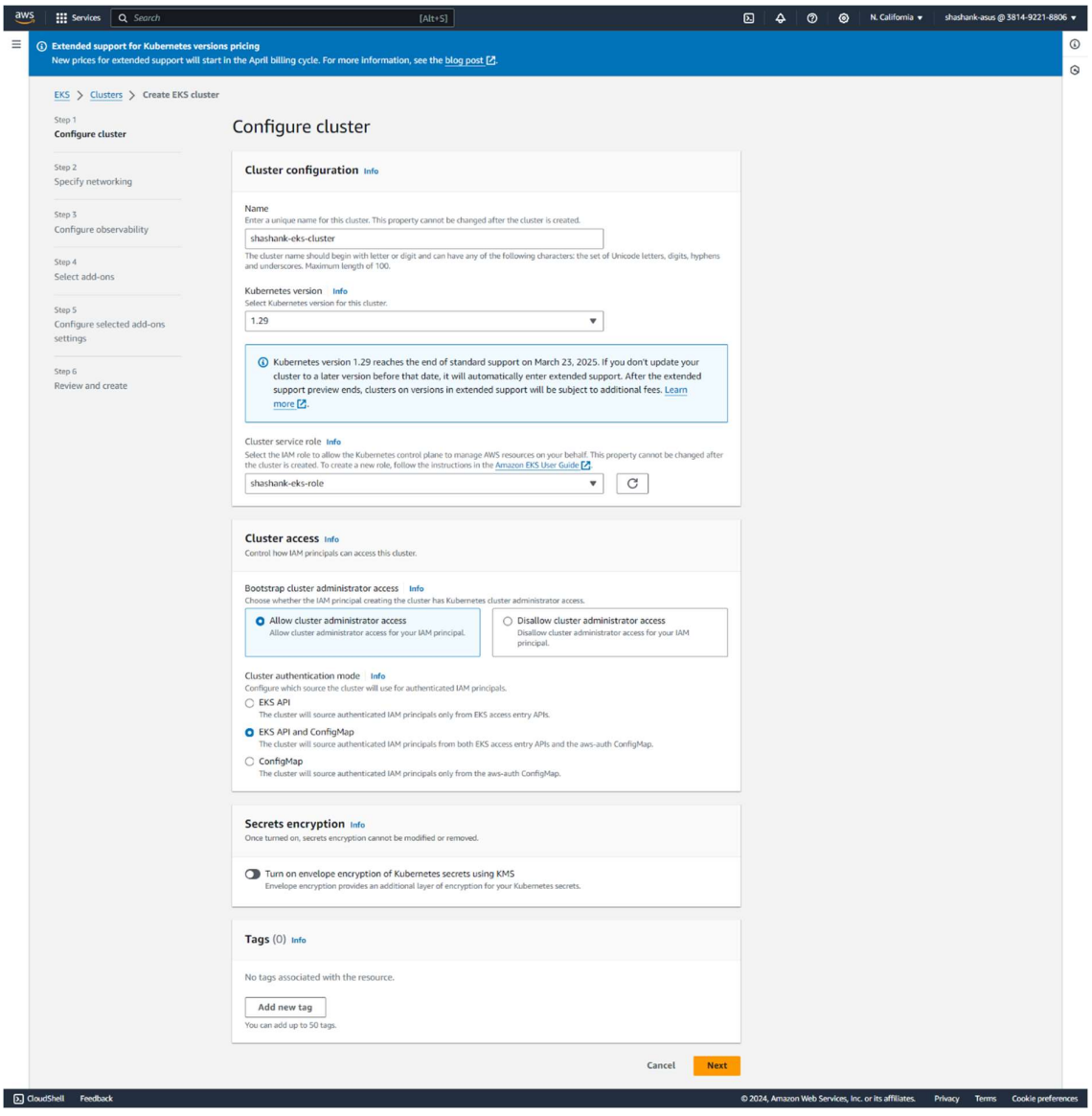
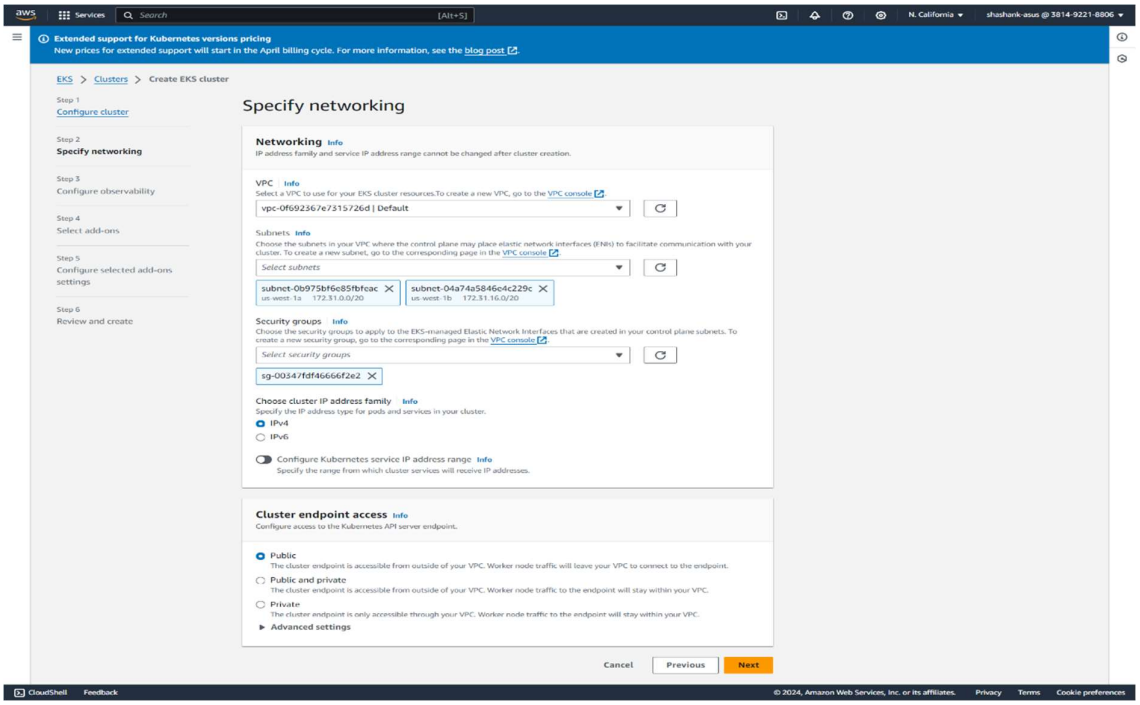
IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Name, review, and create
Role details
Role name
Enter a meaningful name to identify this role.
shashank-eks-role
Maximum 64 characters. Use alphanumeric and '+=,.@-_' characters.
Description
Add a short explanation for this role.
Allows access to other AWS service resources that are required to operate clusters managed by EKS.
Maximum 1000 characters. Use alphanumeric and '+=,.@-_' characters.
Step 1: Select trusted entities
Edit
Trust policy
{
"Version": "2012-10-17",
"Statement": [
{
"Effect": "Allow",
"Principal": {
"Service": [
"eks.amazonaws.com"
]
},
"Action": "sts:AssumeRole"
}
]

2. Create an EKS cluster.
    - Open the Amazon EKS console.
    - Click on “Create Cluster” and choose the “AWS management Console” method.

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Extended support for Kubernetes versions pricing
New prices for extended support will start in the April billing cycle. For more information, see the blog post.
EKS > Clusters > Create EKS cluster
Step 1
Configure cluster
Step 2
Specify networking
Step 3
Configure observability
Step 4
Select add-ons
Step 5
Configure selected add-ons settings
Step 6
Review and create
Specify networking
Networking Info
IP address family and service IP address range cannot be changed after cluster creation.
VPC Info
Select a VPC to use for your EKS cluster resources.To create a new VPC, go to the VPC console
vpc-0f692367e7315726d | Default
Subnets Info
Choose the subnets in your VPC where the control plane may place elastic network interfaces (ENIs) to facilitate communication with your cluster. To create a new subnet, go to the corresponding page in the VPC console
Select subnets
subnet-0b975bf6c85fbfcac
us-west-1a 172.31.0.0/20
subnet-04a74a5846c4c229c
us-west-1b 172.31.16.0/20
Security groups Info
Choose the security groups to apply to the EKS-managed Elastic Network Interfaces that are created in your control plane subnets. To create a new security group, go to the corresponding page in the VPC console
Select security groups
sg-00347fdf46666f2e2
Choose cluster IP address family Info
Specify the IP address type for pods and services in your cluster.
IPv4
IPv6
Configure Kubernetes service IP address range Info
Specify the range from which cluster services will receive IP addresses.
Cluster endpoint access Info
Configure access to the Kubernetes API server endpoint.
Public
The cluster endpoint is accessible from outside of your VPC. Worker node traffic will leave your VPC to connect to the endpoint.
Public and private
The cluster endpoint is accessible from outside of your VPC. Worker node traffic to the endpoint will stay within your VPC.
Private
The cluster endpoint is only accessible through your VPC. Worker node traffic to the endpoint will stay within your VPC.
Advanced settings
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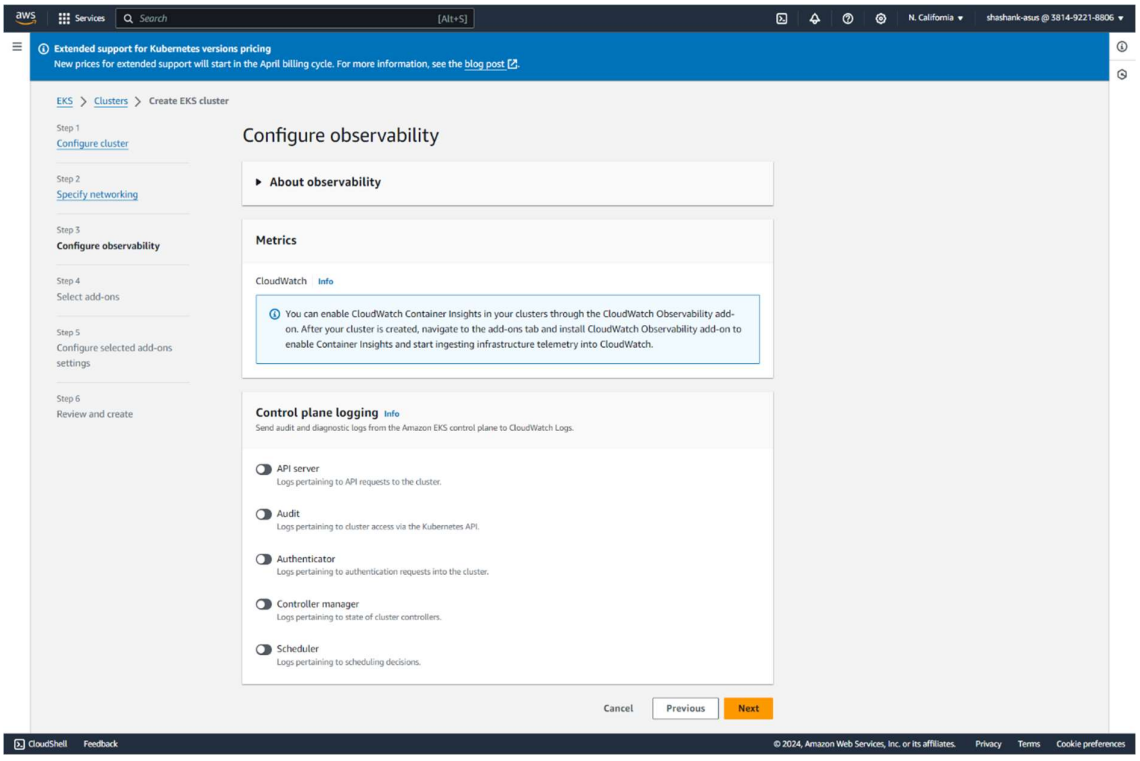
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Review and create
Configure observability
About observability
Metrics
CloudWatch Info
You can enable CloudWatch Container Insights in your clusters through the CloudWatch Observability add-on. After your cluster is created, navigate to the add-ons tab and install CloudWatch Observability add-on to enable Container Insights and start ingesting infrastructure telemetry into CloudWatch.
Control plane logging Info
Send audit and diagnostic logs from the Amazon EKS control plane to CloudWatch Logs.
API server
Logs pertaining to API requests to the cluster.
Audit
Logs pertaining to cluster access via the Kubernetes API.
Authenticator
Logs pertaining to authentication requests into the cluster.
Controller manager
Logs pertaining to state of cluster controllers.
Scheduler
Logs pertaining to scheduling decisions.
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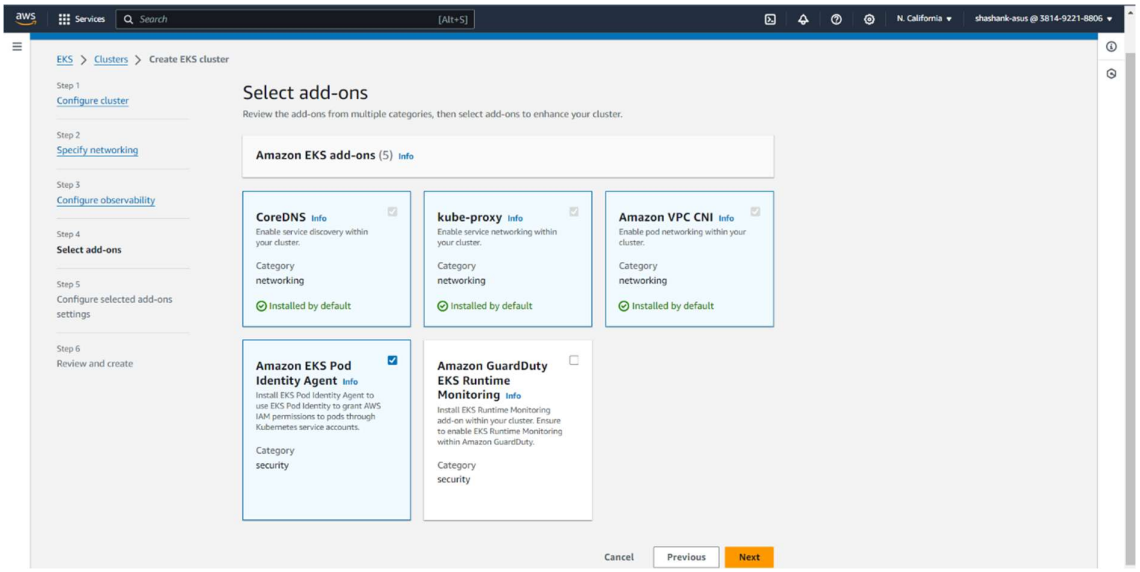
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EKS > Clusters > Create EKS cluster
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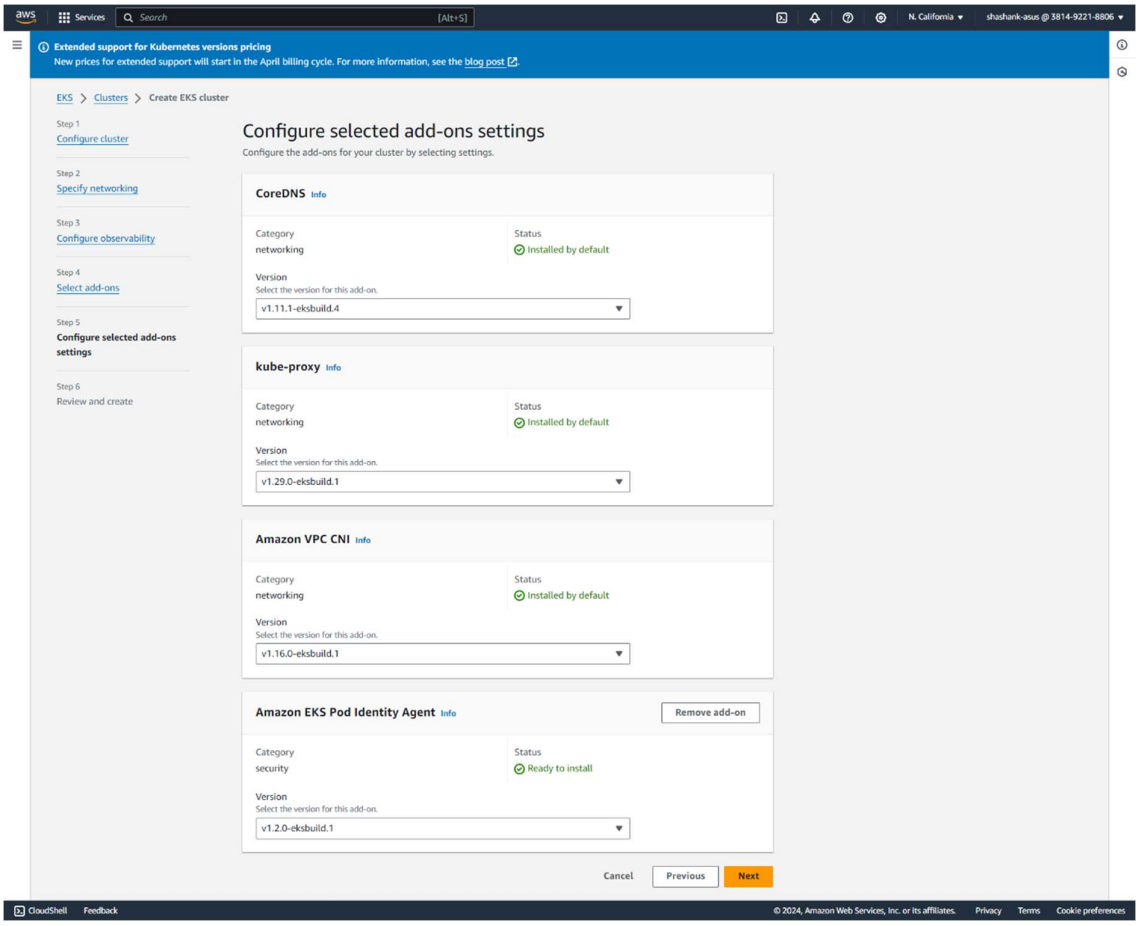
Configure selected add-ons settings
Step 6
Review and create
Select add-ons
Review the add-ons from multiple categories, then select add-ons to enhance your cluster.
Amazon EKS add-ons (5) Info
CoreDNS Info
Enable service discovery within your cluster.
Category
networking
Installed by default
kube-proxy Info
Enable service networking within your cluster.
Category
networking
Installed by default
Amazon VPC CNI Info
Enable pod networking within your cluster.
Category
networking
Installed by default
Amazon EKS Pod Identity Agent Info
Install EKS Pod Identity Agent to use EKS Pod Identity to grant AWS IAM permissions to pods through Kubernetes service accounts.
Category
security
Amazon GuardDuty EKS Runtime Monitoring Info
Install EKS Runtime Monitoring add-on within your cluster. Ensure to enable EKS Runtime Monitoring within Amazon GuardDuty.
Category
security
Cancel
Previous
Next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Configure selected add-ons settings
Step 6
Review and create
Configure selected add-ons settings
Configure the add-ons for your cluster by selecting settings.
CoreDNS Info
Category
networking
Status
Installed by default
Version
Select the version for this add-on.
v1.11.1-eksbuild.4
kube-proxy Info
Category
networking
Status
Installed by default
Version
Select the version for this add-on.
v1.29.0-eksbuild.1
Amazon VPC CNI Info
Category
networking
Status
Installed by default
Version
Select the version for this add-on.
v1.16.0-eksbuild.1
Amazon EKS Pod Identity Agent Info
Remove add-on
Category
security
Status
Ready to install
Version
Select the version for this add-on.
v1.2.0-eksbuild.1
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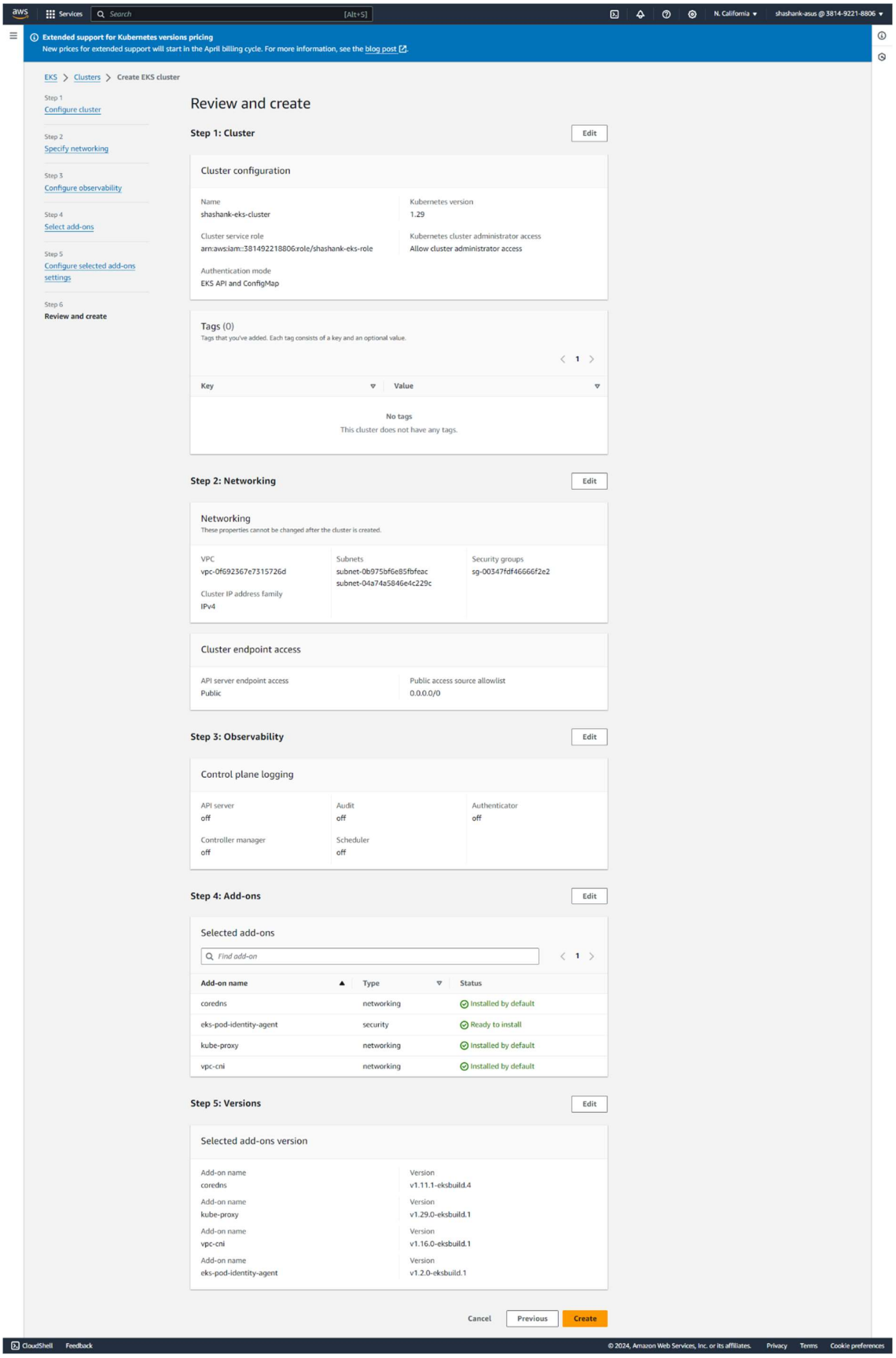
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Step 6
Review and create
Review and create
Step 1: Cluster
Edit
Cluster configuration
Name
shashank-eks-cluster
Kubernetes version
1.29
Cluster service role
arn:aws:iam::381492218806:role/shashank-eks-role
Kubernetes cluster administrator access
Allow cluster administrator access
Authentication mode
EKS API and ConfigMap
Tags (0)
Tags that you've added. Each tag consists of a key and an optional value.
Key
Value
No tags
This cluster does not have any tags.
Step 2: Networking
Edit
Networking
These properties cannot be changed after the cluster is created.
VPC
vpc-0f692367e7315726d
Subnets
subnet-0b975bf6e85fbfeac
subnet-04a74a5846e4c229c
Security groups
sg-00347fdf46666f2e2
Cluster IP address family
IPv4
Cluster endpoint access
API server endpoint access
Public
Public access source allowlist
0.0.0.0/0
Step 3: Observability
Edit
Control plane logging
API server
off
Audit
off
Authenticator
off
Controller manager
off
Scheduler
off
Step 4: Add-ons
Edit
Selected add-ons
Find add-on
Add-on name
Type
Status
coredns
networking
Installed by default
eks-pod-identity-agent
security
Ready to install
kube-proxy
networking
Installed by default
vpc-cni
networking
Installed by default
Step 5: Versions
Edit
Selected add-ons version
Add-on name
coredns
Version
v1.11.1-eksbuild.4
Add-on name
kube-proxy
Version
v1.29.0-eksbuild.1
Add-on name
vpc-cni
Version
v1.16.0-eksbuild.1
Add-on name
eks-pod-identity-agent
Version
v1.2.0-eksbuild.1
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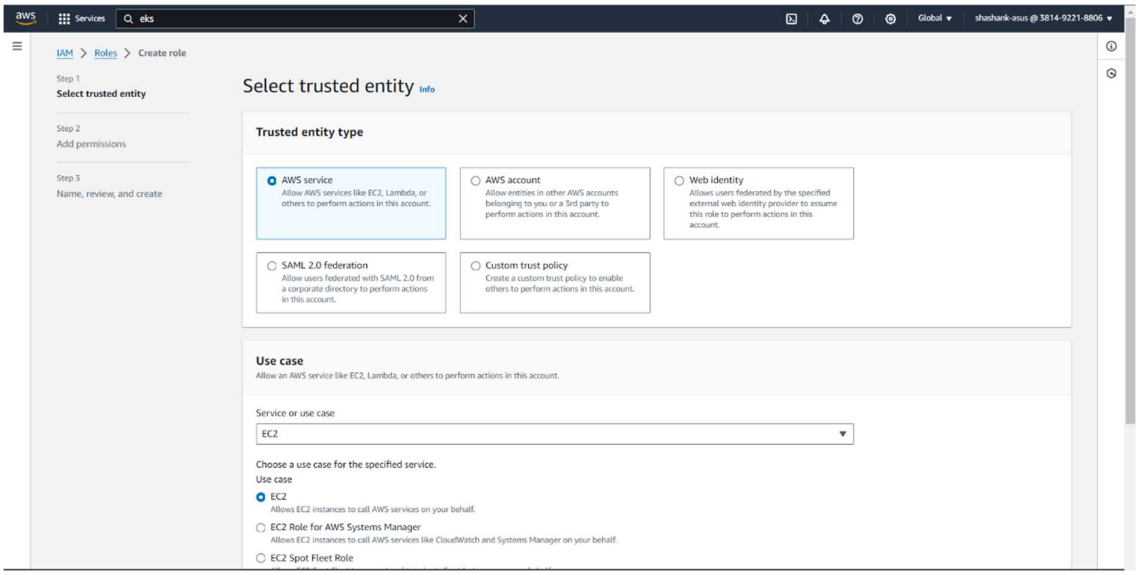
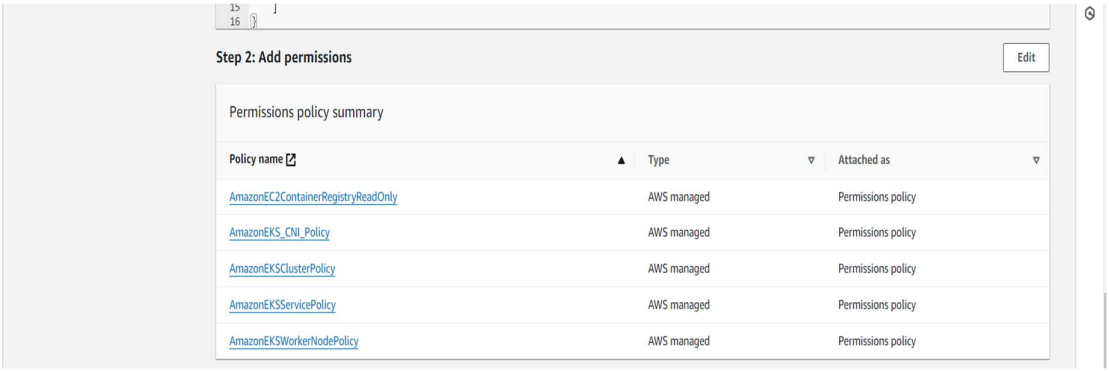
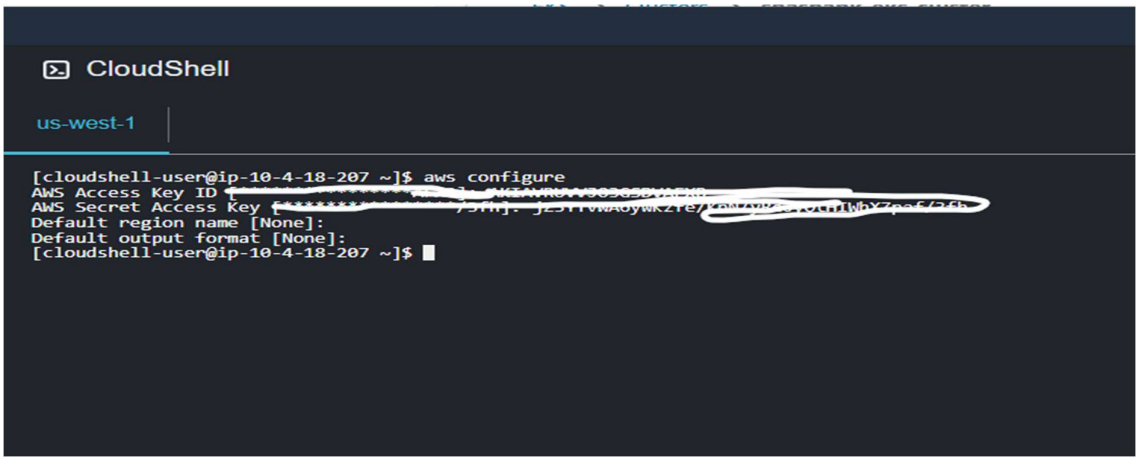
3. Set up IAM roles for EC2.

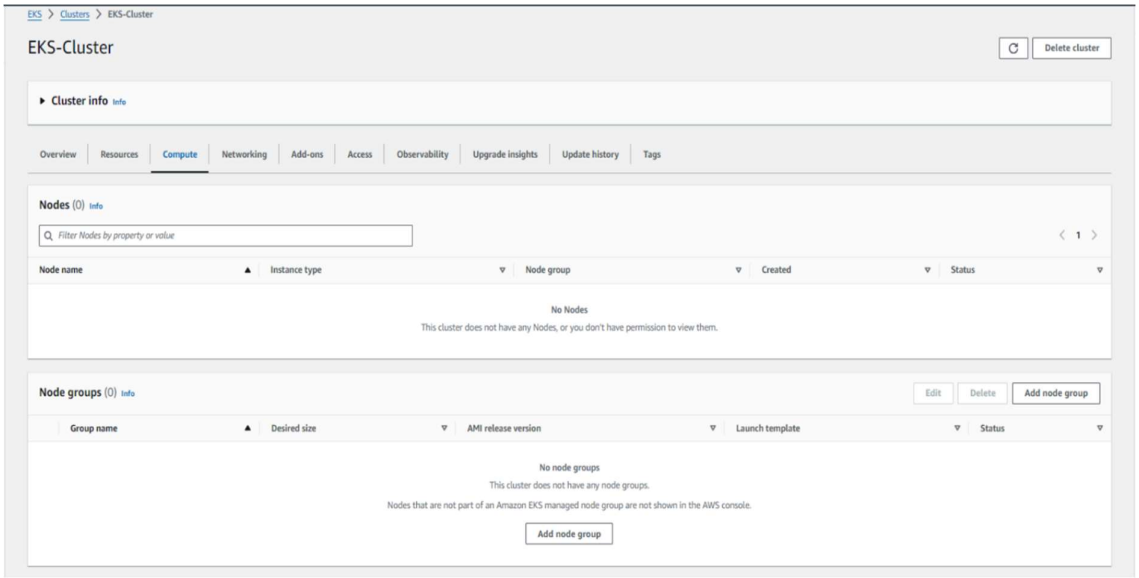




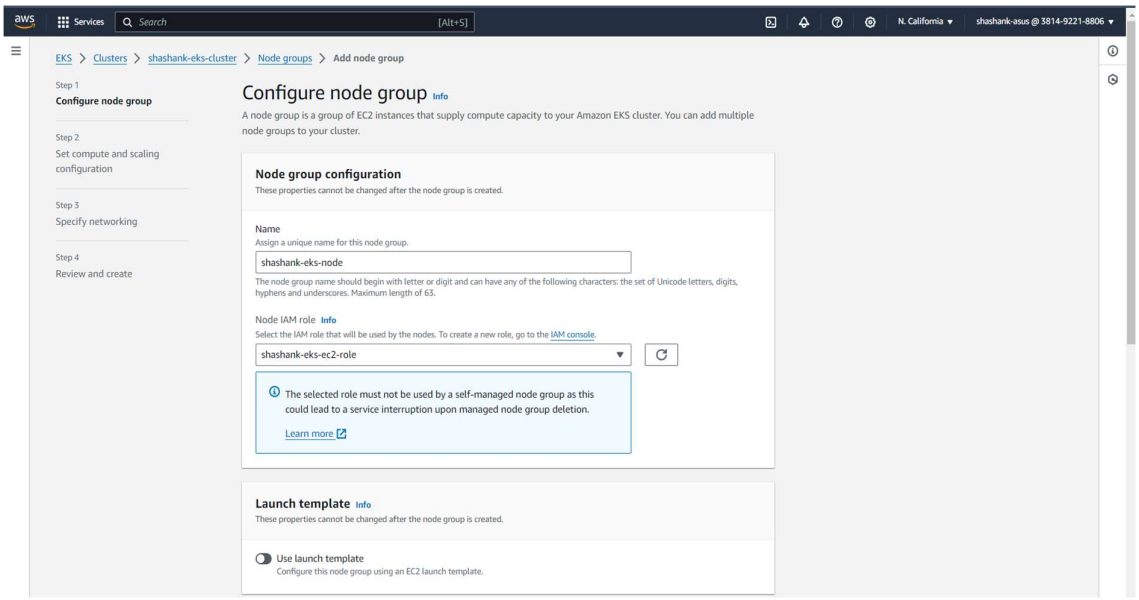
4. Configure the AWS Cloudshell.
    - Open aws cloudshell & configure aws.



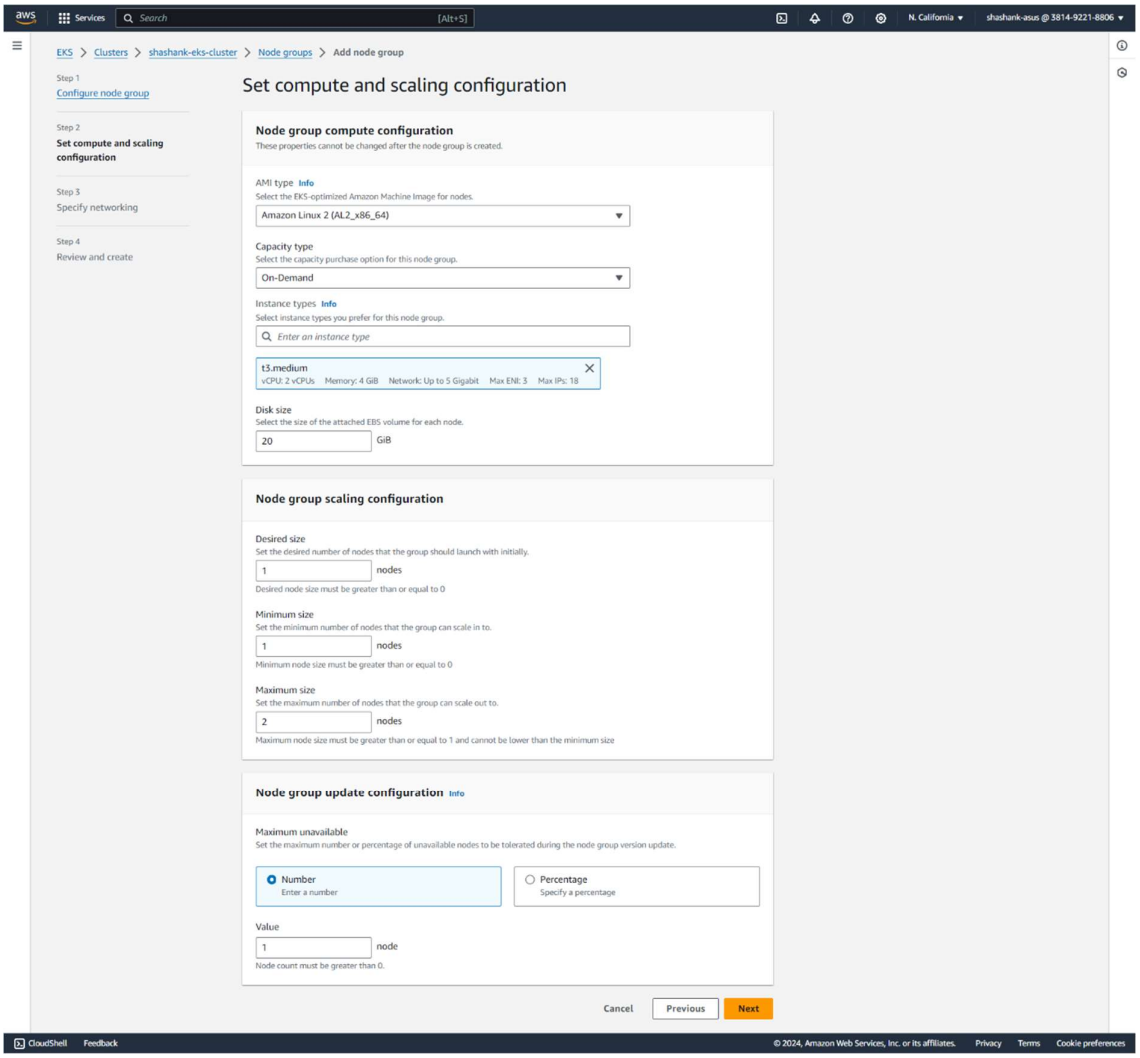
5. Add worker nodes.
    - In the AWS EKS console select your cluster.
    - In cluster go to compute service.



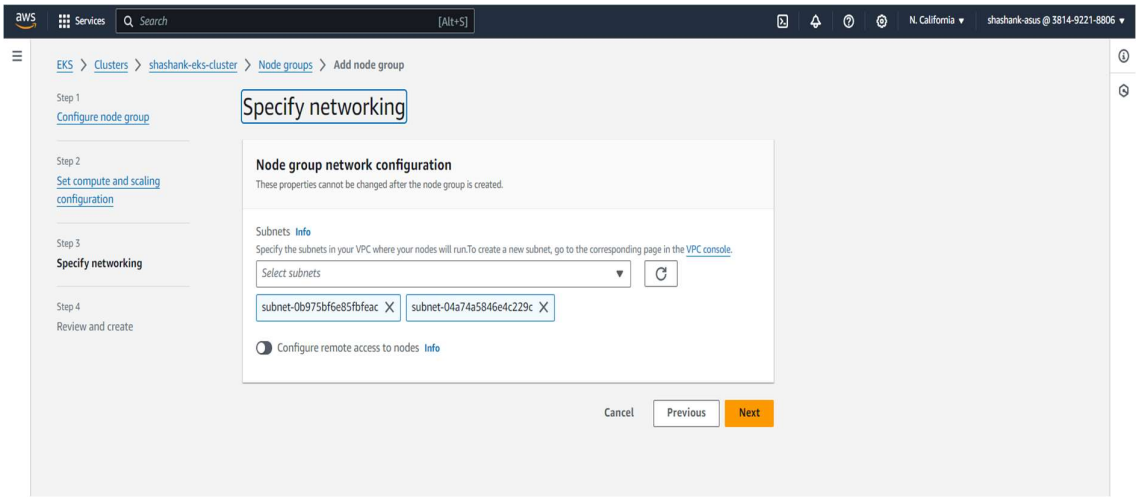
- Click on “Ad Node Group”.
- Select the “Name” & “IAM ROLE”.



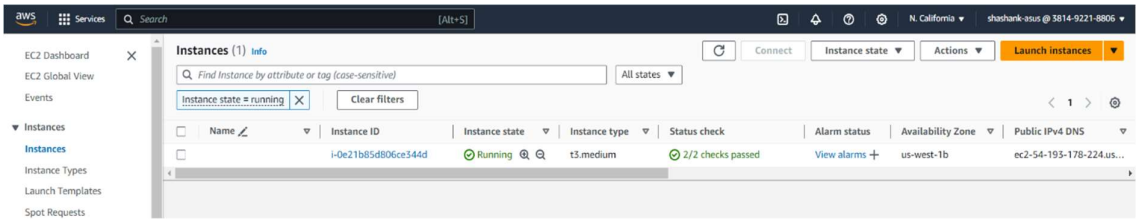
- Click on next.
- Select the values for the node configuration a below.



- Click on next.
- Select the subnets.



- Click on “next” and then ‘’Create’’
- Go to the EC2 AWS console & Check whether your node is running or not.



6. Verify the cluster.
    - Open cloudshell and execute the following commands.
      # aws eks update-kubeconfig --region <region> --name <cluster-name>
      # kubectl cluster-info