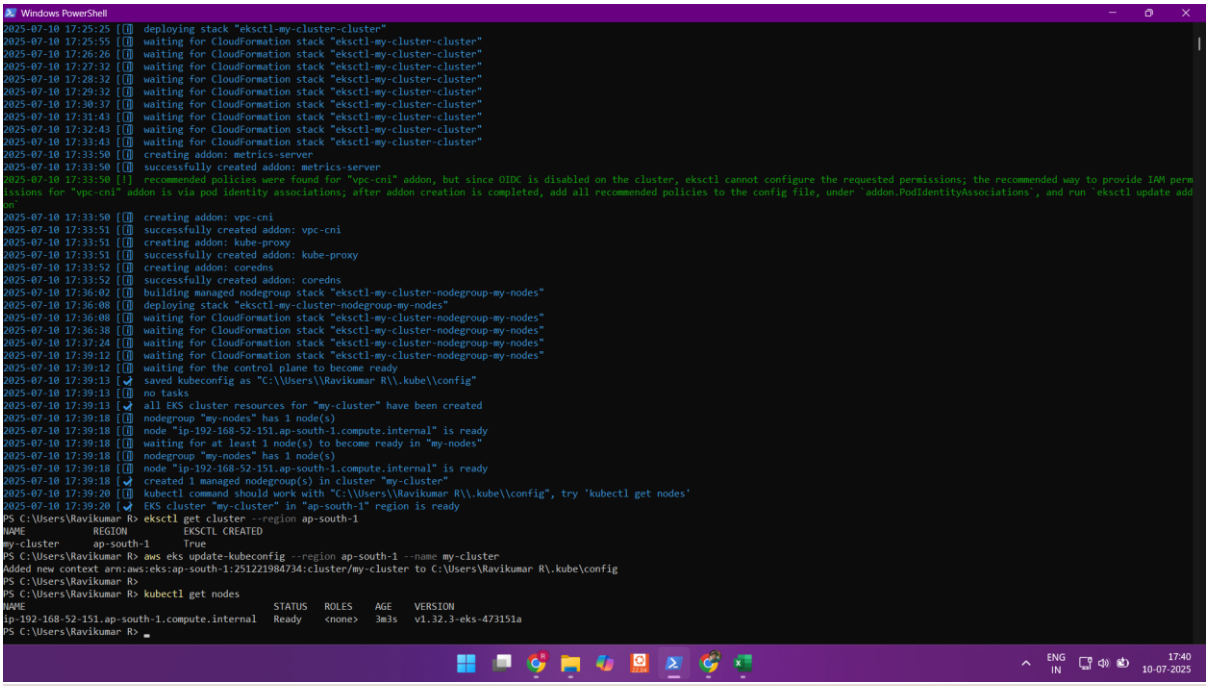
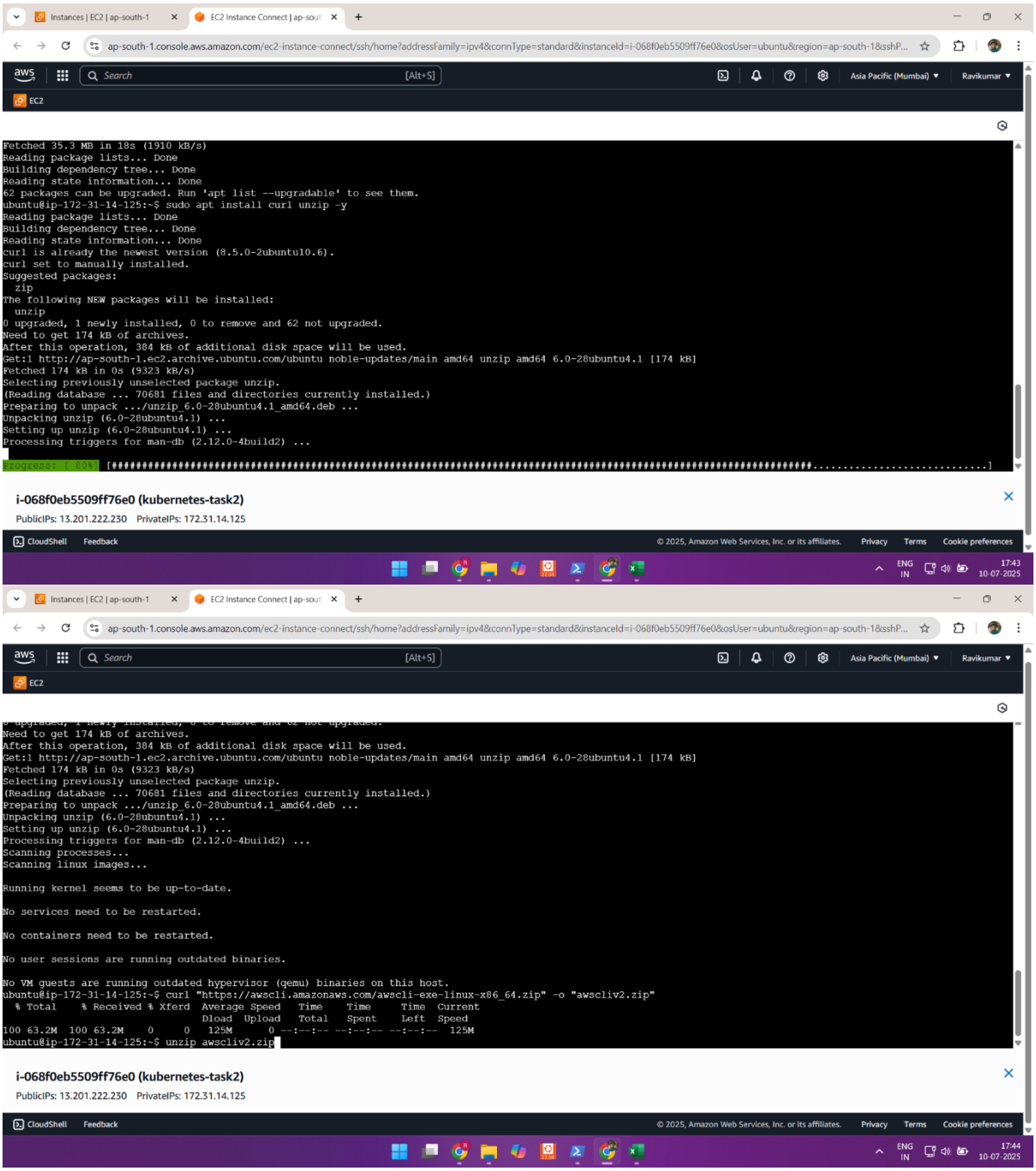
Create the K8s EKS,further you have to do the deployment of the Nginx application and access the application outside the cluster.

1. First in powershell need a Prerequisites to install AWS CLI, eksctl, kubectl, AWS IAM Authenticator using commends.
2. Create a EKS Cluster Using eksctl in powershell use commends and it takes 10 to 15 mins and verify. After created. We need to create separate EC2 instance in Aws console. Inside that connect instance use commends verify the cluster, Update Kubeconfig, Validate Cluster Connection using commends.
3. Create a kubectl deployment with nginx image using commends, and expose this using load balancer, port no. verify the kubectl. Then last delete the cluster using commends.
4. All Should used by commends only.




Instances | EC2 | ap-south-1
EC2 Instance Connect | ap-sout
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
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Fetched 35.3 MB in 18s (1910 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
62 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-14-125:~$ sudo apt install curl unzip -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
curl is already the newest version (8.5.0-2ubuntu10.6).
curl set to manually installed.
Suggested packages:
zip
The following NEW packages will be installed:
unzip
0 upgraded, 1 newly installed, 0 to remove and 62 not upgraded.
Need to get 174 kB of archives.
After this operation, 384 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 unzip amd64 6.0-28ubuntu4.1 [174 kB]
Fetched 174 kB in 0s (9323 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 70681 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-28ubuntu4.1_amd64.deb ...
Unpacking unzip (6.0-28ubuntu4.1) ...
Setting up unzip (6.0-28ubuntu4.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
i-068f0eb5509ff76e0 (kubernetes-task2)
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Instances | EC2 | ap-south-1
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ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
Search
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EC2
Need to get 174 kB of archives.
After this operation, 384 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 unzip amd64 6.0-28ubuntu4.1 [174 kB]
Fetched 174 kB in 0s (9323 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 70681 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-28ubuntu4.1_amd64.deb ...
Unpacking unzip (6.0-28ubuntu4.1) ...
Setting up unzip (6.0-28ubuntu4.1) ...
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-172-31-14-125:~$ curl "https://awscli.amazonaws.com/awscli-exe-linux-x86_64.zip" -o "awscliv2.zip"
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 63.2M 100 63.2M 0 0 125M 0 --:--:-- --:--:-- --:--:-- 125M
ubuntu@ip-172-31-14-125:~$ unzip awscliv2.zip
i-068f0eb5509ff76e0 (kubernetes-task2)
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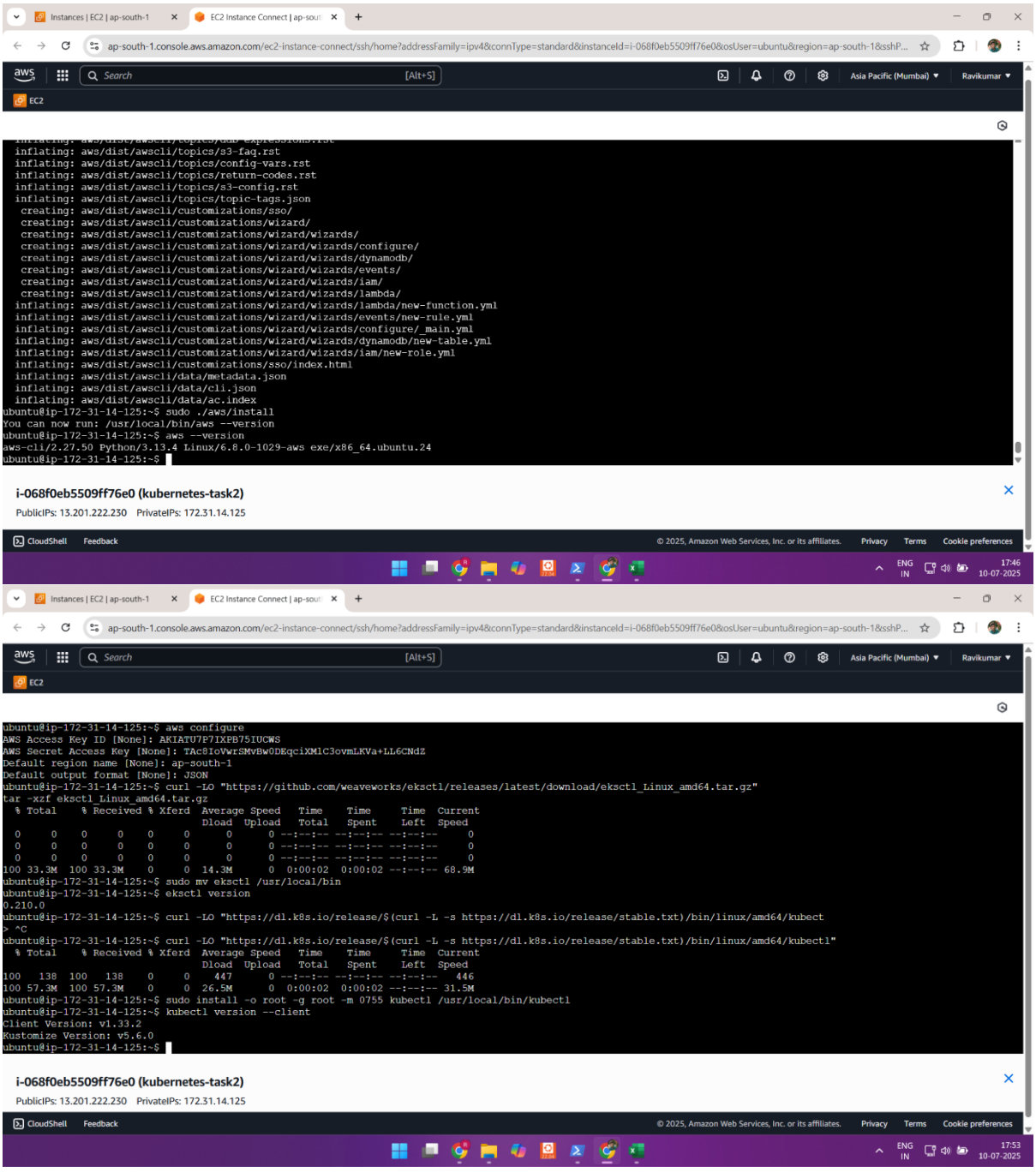
Instances | EC2 | ap-south-1
EC2 Instance Connect | ap-sout
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
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inflating: aws/dist/awscli/topics/s3-faq.rst
inflating: aws/dist/awscli/topics/config-vars.rst
inflating: aws/dist/awscli/topics/return-codes.rst
inflating: aws/dist/awscli/topics/s3-config.rst
inflating: aws/dist/awscli/topics/topic-tags.json
creating: aws/dist/awscli/customizations/sso/
creating: aws/dist/awscli/customizations/wizard/
creating: aws/dist/awscli/customizations/wizard/wizards/
creating: aws/dist/awscli/customizations/wizard/wizards/configure/
creating: aws/dist/awscli/customizations/wizard/wizards/dynamodb/
creating: aws/dist/awscli/customizations/wizard/wizards/events/
creating: aws/dist/awscli/customizations/wizard/wizards/iam/
creating: aws/dist/awscli/customizations/wizard/wizards/lambda/
inflating: aws/dist/awscli/customizations/wizard/wizards/lambda/new-function.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/events/new-rule.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/configure/_main.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/dynamodb/new-table.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/iam/new-role.yml
inflating: aws/dist/awscli/customizations/sso/index.html
inflating: aws/dist/awscli/data/metadata.json
inflating: aws/dist/awscli/data/cli.json
inflating: aws/dist/awscli/data/ac.index
ubuntu@ip-172-31-14-125:~$ sudo ./aws/install
You can now run: /usr/local/bin/aws --version
ubuntu@ip-172-31-14-125:~$ aws --version
aws-cli/2.27.50 Python/3.13.4 Linux/6.8.0-1029-aws exe/x86_64.ubuntu.24
ubuntu@ip-172-31-14-125:~$
i-068f0eb5509ff76e0 (kubernetes-task2)
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Instances | EC2 | ap-south-1
EC2 Instance Connect | ap-sout
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
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ubuntu@ip-172-31-14-125:~$ aws configure
AWS Access Key ID [None]: AKIATU7P7IXPB75IUCWS
AWS Secret Access Key [None]: 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
Default region name [None]: ap-south-1
Default output format [None]: JSON
ubuntu@ip-172-31-14-125:~$ curl -LO "https://github.com/weaveworks/eksctl/releases/latest/download/eksctl_Linux_amd64.tar.gz"
tar -xzf eksctl_Linux_amd64.tar.gz
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0
0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0
0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0
100 33.3M 100 33.3M 0 0 14.3M 0 0:00:02 0:00:02 --:--:-- 68.9M
ubuntu@ip-172-31-14-125:~$ sudo mv eksctl /usr/local/bin
ubuntu@ip-172-31-14-125:~$ eksctl version
0.210.0
ubuntu@ip-172-31-14-125:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubect
> ^C
ubuntu@ip-172-31-14-125:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 138 100 138 0 0 447 0 --:--:-- --:--:-- --:--:-- 446
100 57.3M 100 57.3M 0 0 26.5M 0 0:00:02 0:00:02 --:--:-- 31.5M
ubuntu@ip-172-31-14-125:~$ sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
ubuntu@ip-172-31-14-125:~$ kubectl version --client
Client Version: v1.33.2
Kustomize Version: v5.6.0
ubuntu@ip-172-31-14-125:~$
i-068f0eb5509ff76e0 (kubernetes-task2)
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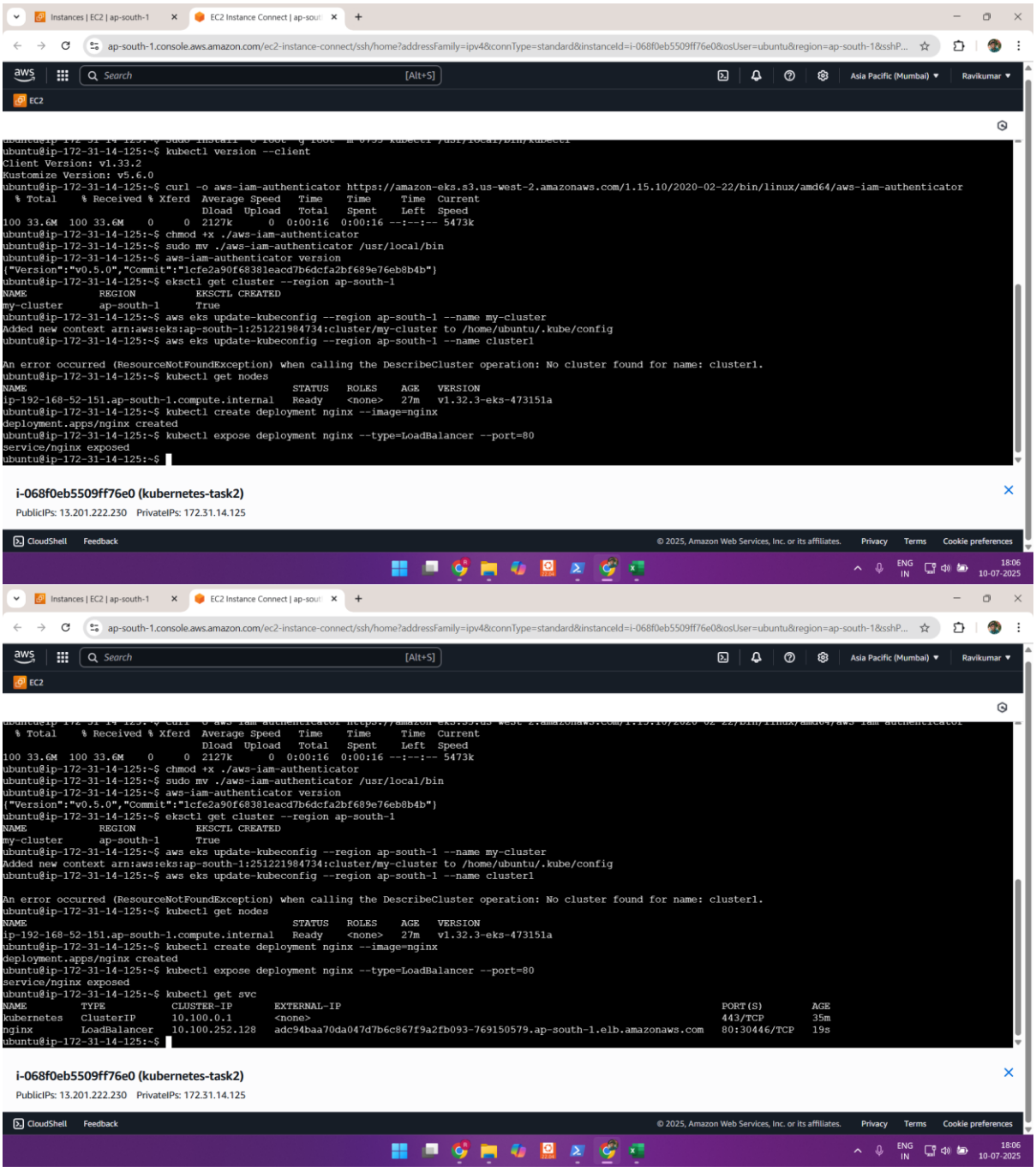
Instances | EC2 | ap-south-1
EC2 Instance Connect | ap-sout
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
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ubuntu@ip-172-31-14-125:~$ kubectl version --client
Client Version: v1.33.2
Kustomize Version: v5.6.0
ubuntu@ip-172-31-14-125:~$ curl -o aws-iam-authenticator https://amazon-eks.s3.us-west-2.amazonaws.com/1.15.10/2020-02-22/bin/linux/amd64/aws-iam-authenticator
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 33.6M 100 33.6M 0 0 2127k 0 0:00:16 0:00:16 --:--:-- 5473k
ubuntu@ip-172-31-14-125:~$ chmod +x ./aws-iam-authenticator
ubuntu@ip-172-31-14-125:~$ sudo mv ./aws-iam-authenticator /usr/local/bin
ubuntu@ip-172-31-14-125:~$ aws-iam-authenticator version
{"Version":"v0.5.0","Commit":"1cfe2a90f68381eacd7b6dcfa2bf689e76eb8b4b"}
ubuntu@ip-172-31-14-125:~$ eksctl get cluster --region ap-south-1
NAME REGION EKSCTL CREATED
my-cluster ap-south-1 True
ubuntu@ip-172-31-14-125:~$ aws eks update-kubeconfig --region ap-south-1 --name my-cluster
Added new context arn:aws:eks:ap-south-1:251221984734:cluster/my-cluster to /home/ubuntu/.kube/config
ubuntu@ip-172-31-14-125:~$ aws eks update-kubeconfig --region ap-south-1 --name cluster1
An error occurred (ResourceNotFoundException) when calling the DescribeCluster operation: No cluster found for name: cluster1.
ubuntu@ip-172-31-14-125:~$ kubectl get nodes
NAME STATUS ROLES AGE VERSION
ip-192-168-52-151.ap-south-1.compute.internal Ready <none> 27m v1.32.3-eks-473151a
ubuntu@ip-172-31-14-125:~$ kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
ubuntu@ip-172-31-14-125:~$ kubectl expose deployment nginx --type=LoadBalancer --port=80
service/nginx exposed
ubuntu@ip-172-31-14-125:~$
i-068f0eb5509ff76e0 (kubernetes-task2)
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Instances | EC2 | ap-south-1
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ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-068f0eb5509ff76e0&osUser=ubuntu&region=ap-south-1&sshP...
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EC2
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 33.6M 100 33.6M 0 0 2127k 0 0:00:16 0:00:16 --:--:-- 5473k
ubuntu@ip-172-31-14-125:~$ chmod +x ./aws-iam-authenticator
ubuntu@ip-172-31-14-125:~$ sudo mv ./aws-iam-authenticator /usr/local/bin
ubuntu@ip-172-31-14-125:~$ aws-iam-authenticator version
{"Version":"v0.5.0","Commit":"1cfe2a90f68381eacd7b6dcfa2bf689e76eb8b4b"}
ubuntu@ip-172-31-14-125:~$ eksctl get cluster --region ap-south-1
NAME REGION EKSCTL CREATED
my-cluster ap-south-1 True
ubuntu@ip-172-31-14-125:~$ aws eks update-kubeconfig --region ap-south-1 --name my-cluster
Added new context arn:aws:eks:ap-south-1:251221984734:cluster/my-cluster to /home/ubuntu/.kube/config
ubuntu@ip-172-31-14-125:~$ aws eks update-kubeconfig --region ap-south-1 --name cluster1
An error occurred (ResourceNotFoundException) when calling the DescribeCluster operation: No cluster found for name: cluster1.
ubuntu@ip-172-31-14-125:~$ kubectl get nodes
NAME STATUS ROLES AGE VERSION
ip-192-168-52-151.ap-south-1.compute.internal Ready <none> 27m v1.32.3-eks-473151a
ubuntu@ip-172-31-14-125:~$ kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
ubuntu@ip-172-31-14-125:~$ kubectl expose deployment nginx --type=LoadBalancer --port=80
service/nginx exposed
ubuntu@ip-172-31-14-125:~$ kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.100.0.1 <none> 443/TCP 35m
nginx LoadBalancer 10.100.252.128 adc94baa70da047d7b6c867f9a2fb093-769150579.ap-south-1.elb.amazonaws.com 80:30446/TCP 19s
ubuntu@ip-172-31-14-125:~$
i-068f0eb5509ff76e0 (kubernetes-task2)
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