

Screenshot of the AWS EC2 Instances page showing three running instances: docker for pro..., nfs, and kubernetes.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
docker for pro...	i-0f108efbe333ae7f6	Stopped	t2.small	-	No alarms
nfs	i-0625fe8e037739f03	Running	t2.micro	Initializing	No alarms
kubernetes	i-03d5a71bf0df22cbe	Running	t2.large	Initializing	No alarms

The nfs instance is selected. The Details tab is active, showing the Public IPv4 address (3.110.31.50) and Instance state (Running).

Screenshot of the AWS EC2 Instance Connect terminal session for the kubernetes instance (i-03d5a71bf0df22cbe).

```
* Preparing Kubernetes v1.25.3 on Docker 20.10.20 ...
* Verifying Kubernetes components...
- Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
[ec2-user@ip-172-31-12-246 ~]$ minikube ssh
Last login: Tue Dec 13 13:40:50 2022 from 192.168.49.1
docker@minikube:~$ ping 3.110.31.50
PING 3.110.31.50 (3.110.31.50) 56(84) bytes of data.
64 bytes from 3.110.31.50: icmp_seq=1 ttl=253 time=0.828 ms
64 bytes from 3.110.31.50: icmp_seq=2 ttl=253 time=0.933 ms
64 bytes from 3.110.31.50: icmp_seq=3 ttl=253 time=0.877 ms
64 bytes from 3.110.31.50: icmp_seq=4 ttl=253 time=0.855 ms
64 bytes from 3.110.31.50: icmp_seq=5 ttl=253 time=0.843 ms
64 bytes from 3.110.31.50: icmp_seq=6 ttl=253 time=0.979 ms
^C
--- 3.110.31.50 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5120ms
rtt min/avg/max/mdev = 0.828/0.885/0.979/0.053 ms
docker@minikube:~$
```

The terminal shows the preparation of a Kubernetes cluster on the instance. It includes a ping command to the public IP (3.110.31.50) and displays the resulting statistics.

```

* Preparing Kubernetes v1.25.3 on Docker 20.10.20 ...
* Verifying Kubernetes components...
- Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
[ec2-user@ip-172-31-12-246 ~]$ minikube ssh
Last login: Tue Dec 13 13:40:50 2022 from 192.168.49.1
docker@minikube:~$ ping 3.110.31.50
PING 3.110.31.50 (3.110.31.50) 56(84) bytes of data.
64 bytes from 3.110.31.50: icmp_seq=1 ttl=253 time=0.828 ms
64 bytes from 3.110.31.50: icmp_seq=2 ttl=253 time=0.933 ms
64 bytes from 3.110.31.50: icmp_seq=3 ttl=253 time=0.877 ms
64 bytes from 3.110.31.50: icmp_seq=4 ttl=253 time=0.855 ms
64 bytes from 3.110.31.50: icmp_seq=5 ttl=253 time=0.843 ms
64 bytes from 3.110.31.50: icmp_seq=6 ttl=253 time=0.979 ms
^C
--- 3.110.31.50 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5120ms
rtt min/avg/max/mdev = 0.828/0.885/0.979/0.053 ms
docker@minikube:~$ 

```

i-03d5a71bf0df22cbe (kubernetes)

PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246

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available to the cluster. Disk zones can be further constrained using `allowedTopologies`.

Note: `zone` and `zones` parameters are deprecated and replaced with `allowedTopologies`

NFS

```

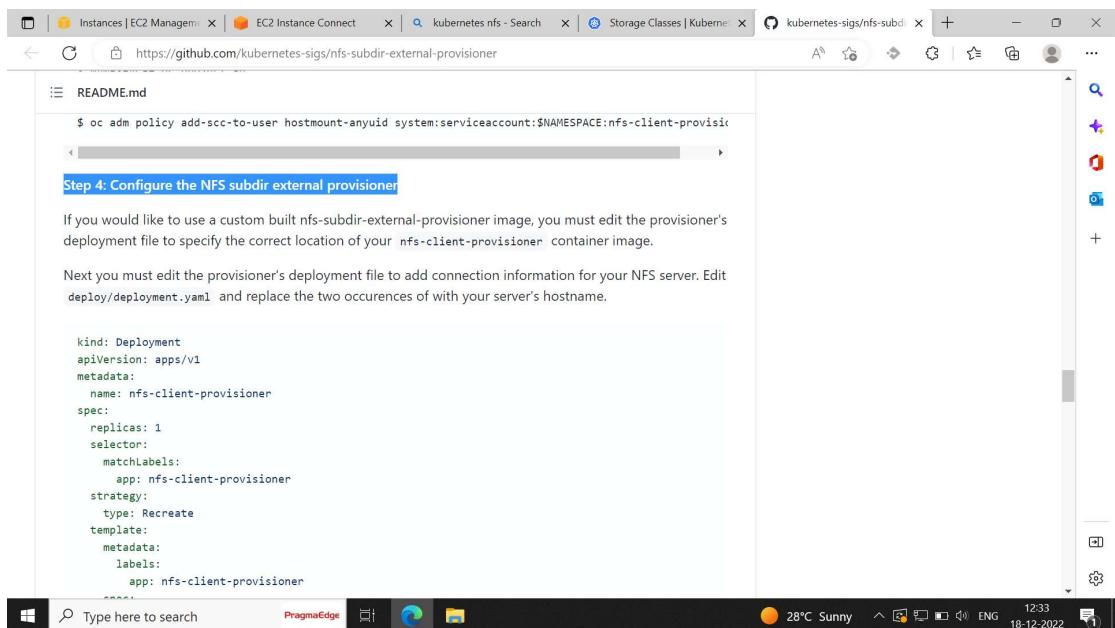
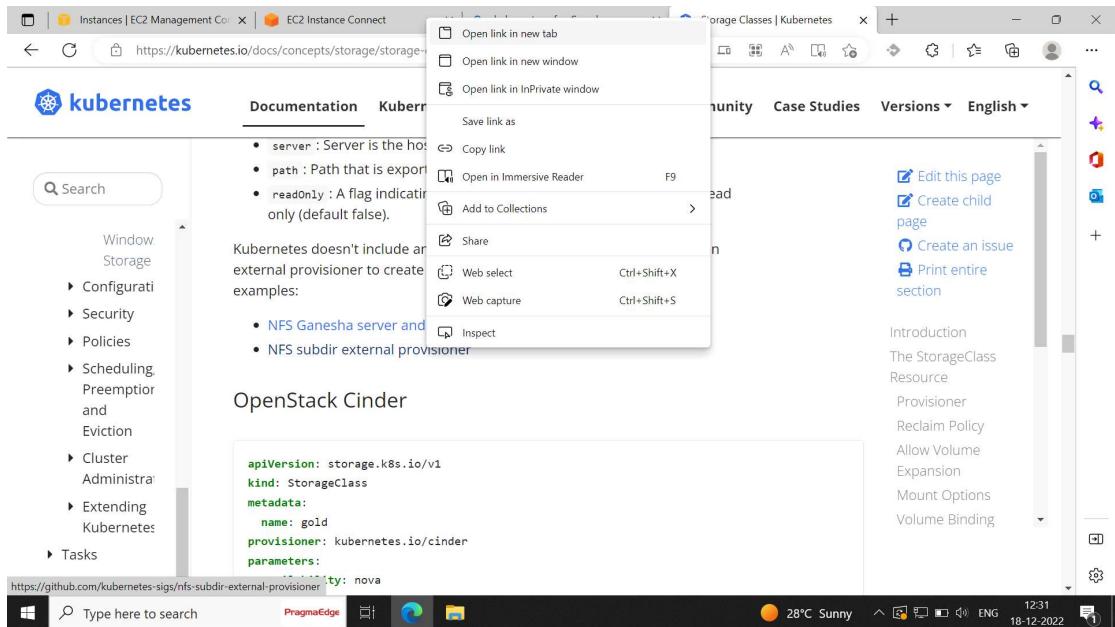
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: example-nfs
provisioner: example.com/external-nfs
parameters:
  server: nfs-server.example.com
  path: /share
  readOnly: "false"

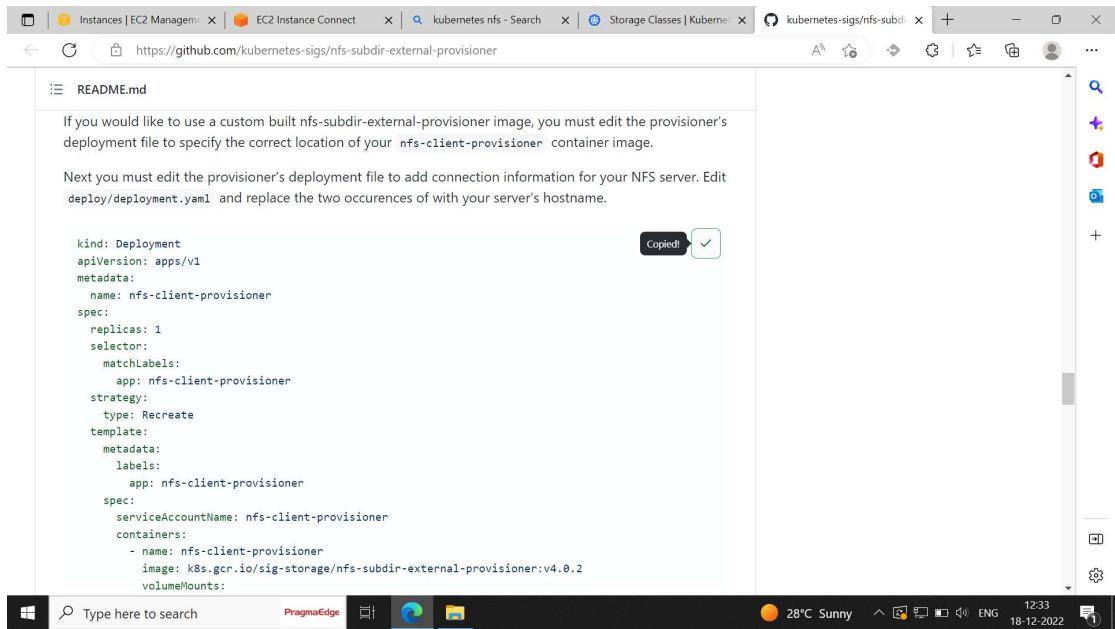
```

- server : Server is the hostname or IP address of the NFS server.

Edit this page Create child page Create an issue Print entire section

Introduction The StorageClass Resource Provisioner Reclaim Policy Allow Volume Expansion Mount Options Volume Binding

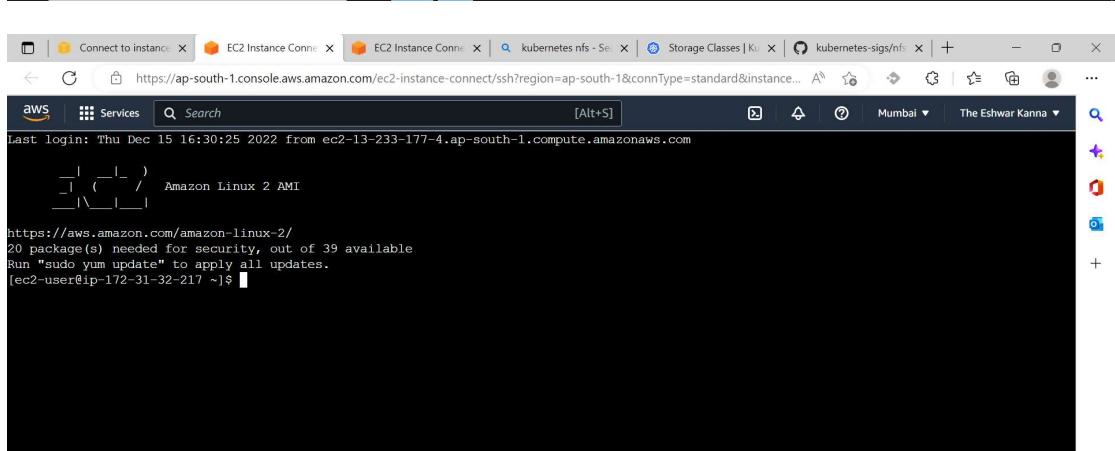




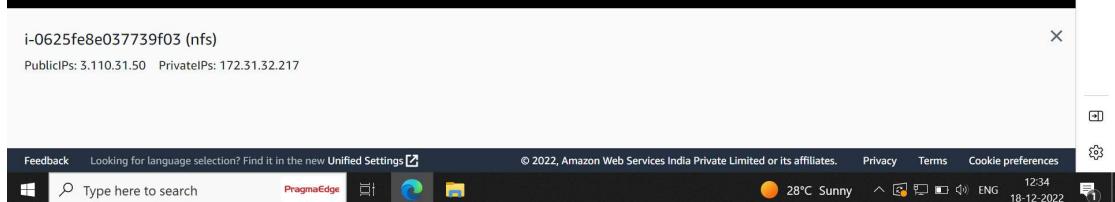
If you would like to use a custom built nfs-subdir-external-provisioner image, you must edit the provisioner's deployment file to specify the correct location of your `nfs-client-provisioner` container image.

Next you must edit the provisioner's deployment file to add connection information for your NFS server. Edit `deploy/deployment.yaml` and replace the two occurrences of your server's hostname.

```
kind: Deployment
apiVersion: apps/v1
metadata:
  name: nfs-client-provisioner
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nfs-client-provisioner
  strategy:
    type: Recreate
  template:
    metadata:
      labels:
        app: nfs-client-provisioner
    spec:
      serviceAccountName: nfs-client-provisioner
      containers:
        - name: nfs-client-provisioner
          image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
      volumeMounts:
```



```
Last login: Thu Dec 15 16:30:25 2022 from ec2-13-233-177-4.ap-south-1.compute.amazonaws.com
[ec2-user@ip-172-31-32-217 ~]$
```



The screenshot shows a terminal session within the AWS CloudWatch interface. The command entered is:

```
/mynfs * [rw,no_root_squash]
```

Below the terminal window, the instance details are displayed:

i-0625fe8e037739f03 (nfs)
Public IPs: 3.110.31.50 Private IPs: 172.31.32.217

At the bottom, the Windows taskbar shows the search bar, PragmaEdge browser icon, and system status.

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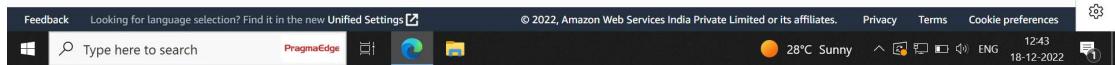
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```
[root@ip-172-31-32-217 ~]# systemctl restart nfs-server.service
[root@ip-172-31-32-217 ~]# systemctl enable nfs-server.service
[root@ip-172-31-32-217 ~]# systemctl status nfs-server.service
● nfs-server.service - NFS server and services
   Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; vendor preset: disabled)
   Drop-In: /run/systemd/generator/nfs-server.service.d
             └─order-with-mounts.conf
     Active: active (exited) since Sun 2022-12-18 07:12:52 UTC; 24s ago
       Main PID: 3825 (code-exited, status=0/SUCCESS)
         CGroup: /system.slice/nfs-server.service

Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal systemd[1]: Starting NFS server and services...
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: No options for '/my nfs *: suggest *(sync) to avoid racing with other processes
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: No host name given with '/my nfs (rw,no_root_squash,no_subtree_check,sec=sys,secure,no_all_squash)'
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: incompatible duplicated export entries:
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs:          *:/my nfs (0x420) [IGNORED]
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs:          *:/my nfs (0x425)
Dec 18 07:12:52 ip-172-31-32-217.ap-south-1.compute.internal systemd[1]: Started NFS server and services.
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-32-217 ~]#
```

i-0625fe8e037739f03 (nfs)

PublicIPs: 3.110.31.50 PrivateIPs: 172.31.32.217

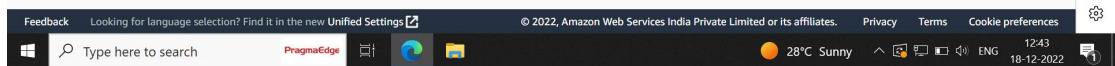


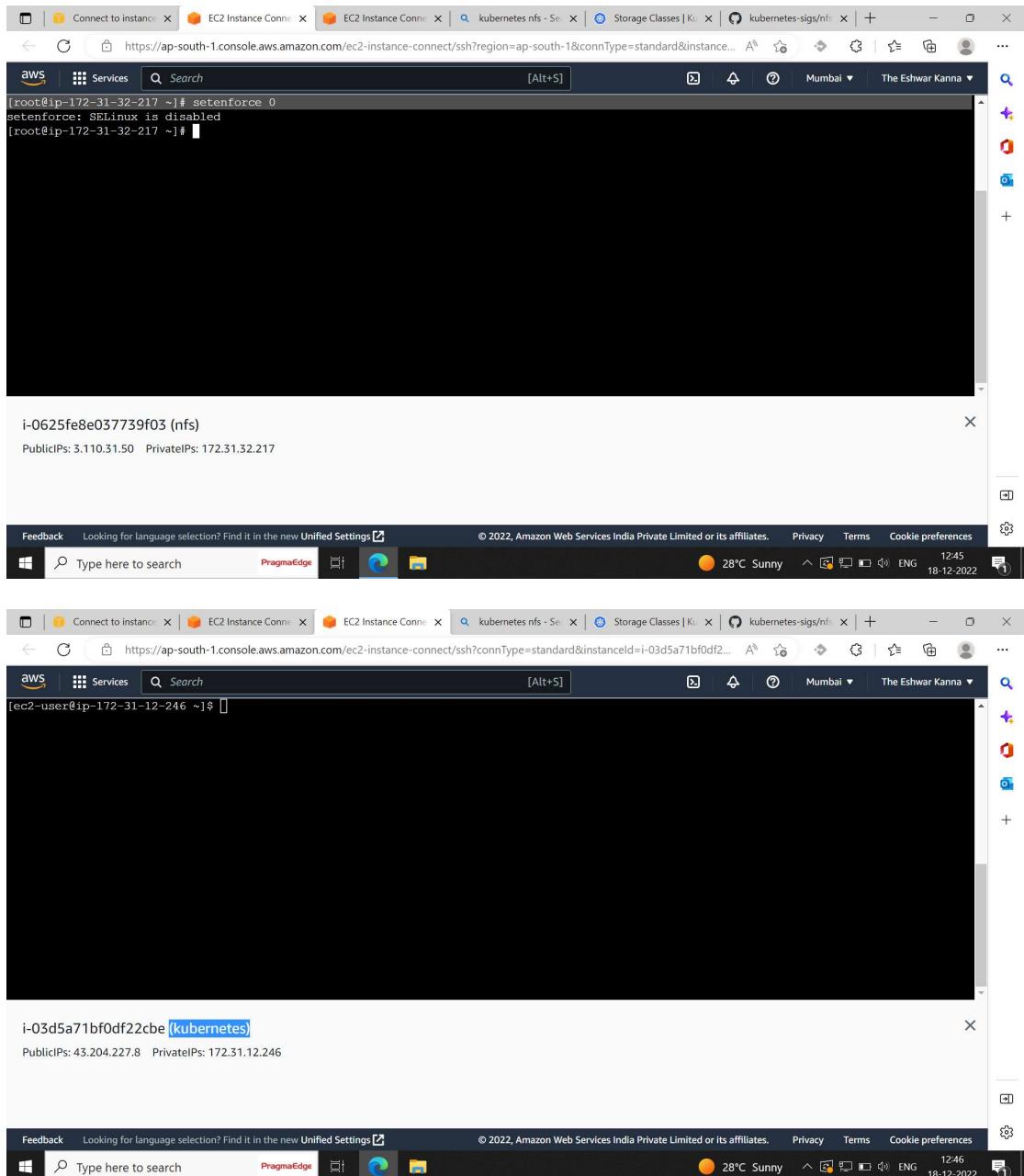
```
[root@ip-172-31-32-217 ~]# systemctl enable nfs-server.service
[root@ip-172-31-32-217 ~]# systemctl status nfs-server.service
● nfs-server.service - NFS server and services
   Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; vendor preset: disabled)
   Drop-In: /run/systemd/generator/nfs-server.service.d
             └─order-with-mounts.conf
     Active: active (exited) since Sun 2022-12-18 07:12:52 UTC; 24s ago
       Main PID: 3825 (code-exited, status=0/SUCCESS)
         CGroup: /system.slice/nfs-server.service

Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal systemd[1]: Starting NFS server and services...
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: No options for '/my nfs *: suggest *(sync) to avoid racing with other processes
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: No host name given with '/my nfs (rw,no_root_squash,no_subtree_check,sec=sys,secure,no_all_squash)'
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs: incompatible duplicated export entries:
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs:          *:/my nfs (0x420) [IGNORED]
Dec 18 07:12:51 ip-172-31-32-217.ap-south-1.compute.internal exportfs[3819]: exportfs:          *:/my nfs (0x425)
Dec 18 07:12:52 ip-172-31-32-217.ap-south-1.compute.internal systemd[1]: Started NFS server and services.
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-32-217 ~]# exportfs -v
/mynfs <world>(ro,sync,wdelay,hide,no_subtree_check,sec=sys,secure,root_squash,no_all_squash)
[root@ip-172-31-32-217 ~]#
```

i-0625fe8e037739f03 (nfs)

PublicIPs: 3.110.31.50 PrivateIPs: 172.31.32.217





The image shows a Windows desktop environment with a taskbar at the bottom. The taskbar has several icons: a file icon, a 'Connect to instance' icon, an 'EC2 Instance Connect' icon, a 'kubernetes nfs - Se...' icon, a 'Storage Classes | Ki...' icon, a 'kubernetes-sigs/nfs...' icon, and a '+' icon. To the right of the taskbar are system icons for battery, signal, volume, and user status. The system tray shows the date and time as '18-12-2022 12:46'. The desktop background is white.

Three screenshots of a web-based terminal session are displayed vertically. Each screenshot shows a terminal window with a black background and white text. The top screenshot shows a root shell on an AWS Lambda instance (IP 172.31.32.217) with the command 'setenforce 0' run, resulting in the message 'setenforce: SELinux is disabled'. The middle screenshot shows a user shell on a Kubernetes node (IP 172.31.12.246) with the command 'setenforce 0' run, resulting in the message 'setenforce: SELinux is disabled'. The bottom screenshot shows a user shell on a Kubernetes node (IP 43.204.227.8) with the command 'setenforce 0' run, resulting in the message 'setenforce: SELinux is disabled'. Each terminal window also displays its respective public and private IP addresses at the bottom.

The screenshot shows a Microsoft Edge browser window with multiple tabs open. The active tab displays the GitHub page for the Kubernetes nfs-subdir-external-provisioner deployment file. The code is as follows:

```
kind: Deployment
apiVersion: apps/v1
metadata:
  name: nfs-client-provisioner
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nfs-client-provisioner
  strategy:
    type: Recreate
  template:
    metadata:
      labels:
        app: nfs-client-provisioner
    spec:
      serviceAccountName: nfs-client-provisioner
      containers:
        - name: nfs-client-provisioner
          image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
          volumeMounts:
            - name: nfs-client-root
              mountPath: /persistentvolumes
      env:
```

A "Copied!" button with a checkmark is visible in the top right corner of the code block.

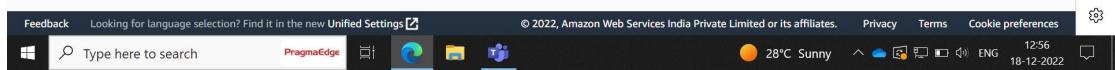
The screenshot shows an AWS CloudShell session. The terminal output shows the root user running the 'ifconfig' command to view network interfaces and the 'lsblk' command to list disk blocks. The output is as follows:

```
[root@ip-172-31-32-217 ~]# cd ~
[root@ip-172-31-32-217 ~]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST  mtu 9001
      inet 172.31.32.217  netmask 255.255.240.0  broadcast 172.31.47.255
        inet6 fe80::bd:8bff:fe26:e17a  prefixlen 64  scopeid 0x20<link>
          ether 02:bd:8b:26:e1:7a  txqueuelen 1000  (Ethernet)
            RX packets 4142  bytes 570888 (557.5 Kib)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 3496  bytes 349820 (341.6 Kib)
            TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING  mtu 65536
      inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
          loop  txqueuelen 1000  (Local Loopback)
            RX packets 2  bytes 140 (140.0 B)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 2  bytes 140 (140.0 B)
            TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

[root@ip-172-31-32-217 ~]# lsblk
i-0625fe8e037739f03 (nfs)
```

Below the terminal, it says "Public IPs: 3.110.31.50 Private IPs: 172.31.32.217".



```
aws | Services | Search | [Alt+S] | Mumbai | The Eshwar Kanna | ... | + | - | X |
```

https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-03d5a71bf0df2...

```
labels:
  app: nfs-client-provisioner
spec:
  serviceAccountName: nfs-client-provisioner
  containers:
    - name: nfs-client-provisioner
      image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
      volumeMounts:
        - name: nfs-client-root
          mountPath: /persistentvolumes
      env:
        - name: PROVISIONER_NAME
          value: k8s-sigs.io/nfs-subdir-external-provisioner
        - name: NFS SERVER
          value: 172.31.32.217
        - name: NFS PATH
          value: /var/nfs
    volumes:
      - name: nfs-client-root
        nfs:
-- INSERT --
```

i-03d5a71bf0df22cbe (kubernetes)

PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246


```
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```

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```
aws | Services | Search | [Alt+S] | Mumbai | The Eshwar Kanna | ... | + | - | X |
```

https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-03d5a71bf0df2...

```
spec:
  serviceAccountName: nfs-client-provisioner
  containers:
    - name: nfs-client-provisioner
      image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
      volumeMounts:
        - name: nfs-client-root
          mountPath: /persistentvolumes
      env:
        - name: PROVISIONER_NAME
          value: k8s-sigs.io/nfs-subdir-external-provisioner
        - name: NFS SERVER
          value: 172.31.32.217
        - name: NFS PATH
          value: /my nfs
    volumes:
      - name: nfs-client-root
        nfs:
          server: <YOUR NFS SERVER HOSTNAME>
          path: /var/nfs
-- INSERT --
```

i-03d5a71bf0df22cbe (kubernetes)

PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246

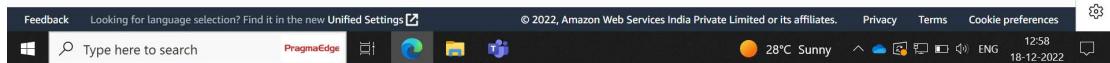

```
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```

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```
aws Services Search [Alt+S] Mumbai The Eshwar Kanna
spec:
  serviceAccountName: nfs-client-provisioner
  containers:
    - name: nfs-client-provisioner
      image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
      volumeMounts:
        - name: nfs-client-root
          mountPath: /persistentvolumes
      env:
        - name: PROVISIONER_NAME
          value: k8s-sigs.io/nfs-subdir-external-provisioner
        - name: NFS_SERVER
          value: 172.31.32.217
        - name: NFS_PATH
          value: /mynfs
  volumes:
    - name: nfs-client-root
      nfs:
        server: 172.31.32.217
        path: /mynfs
-- INSERT --
```

i-03d5a71bf0df22cbe (kubernetes)

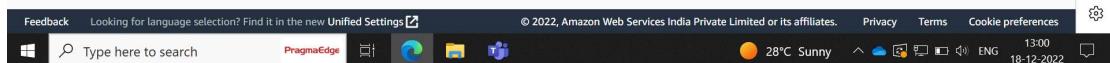
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
aws Services Search [Alt+S] Mumbai The Eshwar Kanna
spec:
  serviceAccountName: nfs-client-provisioner
  containers:
    - name: nfs-client-provisioner
      image: k8s.gcr.io/sig-storage/nfs-subdir-external-provisioner:v4.0.2
      volumeMounts:
        - name: nfs-client-root
          mountPath: /mekube
      env:
        - name: PROVISIONER_NAME
          value: k8s-sigs.io/nfs-subdir-external-provisioner
        - name: NFS_SERVER
          value: 172.31.32.217
        - name: NFS_PATH
          value: /my nfs
      volumes:
        - name: nfs-client-root
          nfs:
            server: 172.31.32.217
            path: /my nfs
-- INSERT --
```

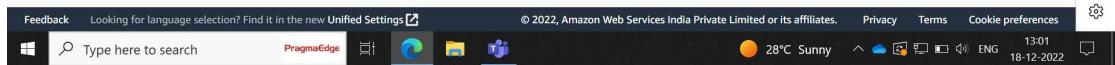
i-03d5a71bf0df22cbe (kubernetes)

Public IPs: 43.204.227.8 Private IPs: 172.31.12.246

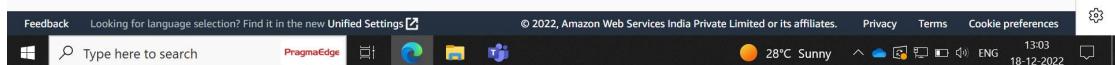


```
[ec2-user@ip-172-31-12-246 ~]$ notepad nfs.yaml  
bash: notepad: command not found  
[ec2-user@ip-172-31-12-246 ~]$ vim nfs.yaml  
Last login: Sun Dec 18 06:54:38 2022 from 192.168.49.1  
docker@minikube:$ sudo su - root  
root@minikube:~# mkdir /mekube  
root@minikube:~#
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get deploy
No resources found in default namespace.
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246

```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get deploy
No resources found in default namespace.
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f nfs.yml
deployment.apps/nfs-client-provisioner created
[ec2-user@ip-172-31-12-246 ~]$ kubectl get deploy
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
nfs-client-provisioner  1/1     1           1          6s
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246

```
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Type here to search PragmaEdge 28°C Sunny 13:04 18-12-2022
```

Connect to inst | EC2 Instance | EC2 Instance | kubernetes nfs | Storage Classes | kubernetes-sig | how to know t | +

https://github.com/kubernetes-sigs/nfs-subdir-external-provisioner

README.md

pathPattern	To specify metadata use <code>\$.PVC.<metadata></code> . Example: If folder should be named like <code><pvc-namespace>-<pvc-name></code> , use <code>\$.PVC.namespace-\$!.PVC.name</code> as pathPattern.	n/a
-------------	---	-----

This is `deploy/class.yaml` which defines the NFS subdir external provisioner's Kubernetes Storage Class:

```
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: nfs-client
provisioner: k8s-sigs.io/nfs-subdir-external-provisioner # or choose another name, must match deployment's env PROVISIONER_NAME
parameters:
  pathPattern: "${.PVC.namespace}/${.PVC.annotations.nfs.io/storage-path}" # waits for nfs.io/storage-path annotation, if not specified will accept as empty string.
  onDelete: delete
```

Step 6: Finally, test your environment!

Now we'll test your NFS subdir external provisioner.

Deploy:

```
$ kubectl create -f deploy/test-claim.yaml -f deploy/test-pod.yaml
```

Windows Taskbar:

- Type here to search
- PragmaEdge
- File Explorer
- Edge
- File Manager
- PowerShell
- System
- 28°C Sunny
- 13:07
- 18-12-2022

Connect to inst | EC2 Instance | EC2 Instance | kubernetes nfs | Storage Classes | kubernetes-sig | how to know t | +

https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-03d5a71bf0df2...

aws Services Search [Alt+S]

```
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: nfs-client
provisioner: k8s-sigs.io/nfs-subdir-external-provisioner # or choose another name, must match deployment's env PROVISIONER_NAME
parameters:
  pathPattern: "${.PVC.namespace}/${.PVC.annotations.nfs.io/storage-path}" # waits for nfs.io/storage-path annotation, if not specified will accept as empty string.
  onDelete: delete
```

-- INSERT --

i-03d5a71bf0df22cbe (kubernetes)

Public IPs: 43.204.227.8 Private IPs: 172.31.12.246

Feedback Looking for language selection? Find it in the new Unified Settings

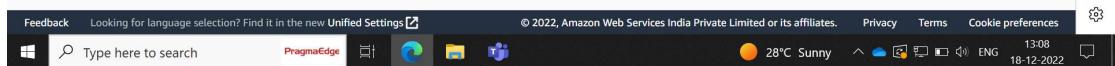
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Windows Taskbar:

- Type here to search
- PragmaEdge
- File Explorer
- Edge
- File Manager
- PowerShell
- System
- 28°C Sunny
- 13:08
- 18-12-2022

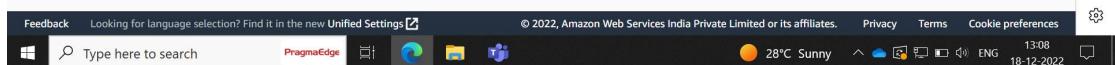
```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP      44h
pvcpod     NodePort    10.102.148.157  <none>        80:32082/TCP  20h
[ec2-user@ip-172-31-12-246 ~]$ vim sc_nfs.yml
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f sc_nfs.yml
storageclass.storage.k8s.io/nfs-client created
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



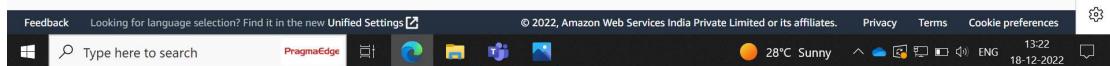
```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP      44h
pvcpod     NodePort    10.102.148.157  <none>        80:32082/TCP  20h
[ec2-user@ip-172-31-12-246 ~]$ vim sc_nfs.yml
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f sc_nfs.yml
storageclass.storage.k8s.io/nfs-client created
[ec2-user@ip-172-31-12-246 ~]$ kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP      44h
pvcpod     NodePort    10.102.148.157  <none>        80:32082/TCP  20h
[ec2-user@ip-172-31-12-246 ~]$ kubectl get sc
NAME      PROVISIONER      RECLAIMPOLICY      VOLUMEBINDINGMODE      ALLOWVOLUMEEXPANSION      AGE
nfs-client  k8s-sigs.io/nfs-subdir-external-provisioner  Delete      Immediate      false      17s
standard (default)  k8s.io/minikube-hostpath      Delete      Immediate      false      20h
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



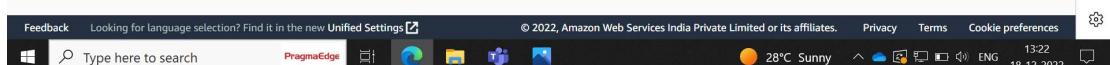
```
# Please edit the object below. Lines beginning with a '#' will be ignored,
# and an empty file will abort the edit. If an error occurs while saving this file will be
# reopened with the relevant failures.
#
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"storage.k8s.io/v1","kind":"StorageClass","metadata":{"annotations":{"storageclass.kubernetes.io/is-default-class":"true"}}, "labels":{"addonmanager.kubernetes.io/mode": "EnsureExists"}, "name": "standard", "provisioner": "k8s.io/minikube-hostpath"}
    storageclass.kubernetes.io/is-default-class: "false"
  creationTimestamp: "2022-12-17T10:41:29Z"
  labels:
    addonmanager.kubernetes.io/mode: EnsureExists
  name: standard
  resourceVersion: "75284"
  uid: e5224be2-89e0-4bb2-843e-9e4f1ba44bbb
  provisioner: k8s.io/minikube-hostpath
  reclaimPolicy: Delete
-- INSERT --
```

i-03d5a71bf0df22cbe (kubernetes)
PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246



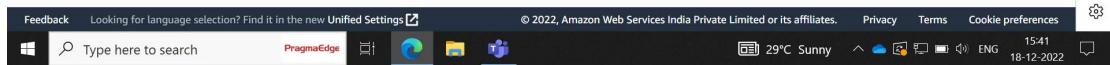
```
[ec2-user@ip-172-31-12-246 ~]$ sudo vim pvc_pod.yml
[ec2-user@ip-172-31-12-246 ~]$ ls
clustersvc.yaml  get_helm.sh  minikube-linux-amd64  nfs.yaml       project      pv.yaml     rs.yaml     sqldb_pod.yaml
envpod.yaml      kubectl      mount                nodesvc.yaml  pvc_pod.yaml  rc.yaml    sc_nfs.yaml  test
first_pod.yaml   kubectl.sha256  mysc.yaml        pod_label.yaml  pvc.yaml     README.md  sc_pvc.yaml
[ec2-user@ip-172-31-12-246 ~]$ kubectl get sc
NAME          PROVISIONER           RECLAIMPOLICY  VOLUMEBINDINGMODE ALLOWVOLUMEEXPANSION AGE
nfs-client    k8s-sigs.io/nfs-subdir-external-provisioner Delete          Immediate      false            12m
standard (default)  k8s.io/minikube-hostpath Delete          Immediate      false            21h
[ec2-user@ip-172-31-12-246 ~]$ kubectl edit sc standard
storageclasses.storage.k8s.io/standard edited
[ec2-user@ip-172-31-12-246 ~]$ kubectl get sc
NAME          PROVISIONER           RECLAIMPOLICY  VOLUMEBINDINGMODE ALLOWVOLUMEEXPANSION AGE
nfs-client    k8s-sigs.io/nfs-subdir-external-provisioner Delete          Immediate      false            13m
standard     k8s.io/minikube-hostpath   Delete          Immediate      false            21h
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246



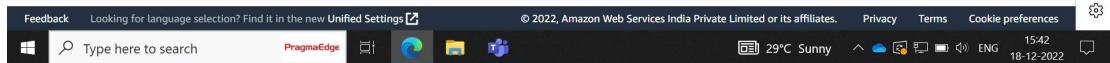
```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po
NAME                      READY   STATUS    RESTARTS   AGE
nfs-client-provisioner-57c6f46b94-p22ls   1/1     Running   0          156m
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pv
No resources found
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pvc
No resources found in default namespace.
[ec2-user@ip-172-31-12-246 ~]$ kubectl get sc
NAME           PROVISIONER      RECLAIMPOLICY  VOLUMEBINDINGMODE  ALLOWVOLUMEEXPANSION   AGE
nfs-client     k8s-sigs.io/nfs-subdir-external-provisioner   Delete          Immediate        false                153m
standard       k8s.io/minikube-hostpath             Delete          Immediate        false                23h
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



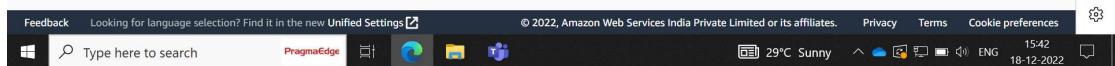
```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: "mypvc"
spec:
  storageClassName: nfs-client
  accessModes:
  - ReadWriteOnce
  resources:
    requests:
      storage: 1G
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



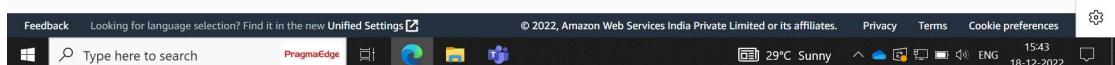
```
[ec2-user@ip-172-31-12-246 ~]$ sudo vim pvc.yml
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f pvc.yml
persistentvolumeclaim/myPVC created
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pvc
NAME      STATUS    VOLUME   CAPACITY   ACCESS MODES   STORAGECLASS   AGE
myPVC     Pending          nfs-client   8s
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
kind: Pod
metadata:
  name: "pvcpod"
  labels:
    region: IN
    team: teaml
    env: prod
spec:
  volumes:
  - name: v1
    persistentVolumeClaim:
      claimName: myPVC
  containers:
  - name: "pvcos"
    image: "vimal113/apache-webserver-php"
    volumeMounts:
    - mountPath: /var/www/kanna
      name: v1
```

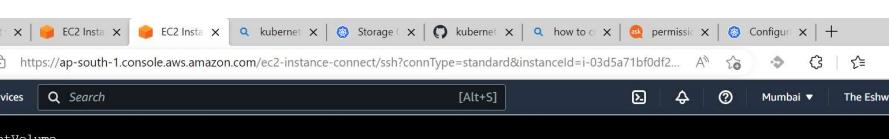
i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
[ec2-user@ip-172-31-12-246 ~]$ sudo vim pvc.yml
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f pvc.yml
persistentvolumeclaim/mypvc created
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pvc
NAME      STATUS    VOLUME   CAPACITY   ACCESS MODES  STORAGECLASS   AGE
mypvc    Pending          nfs-client   8s
[ec2-user@ip-172-31-12-246 ~]$ sudo vim pvc_pod.yml
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f pvc_pod.yml
pod/pvcpod created
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po
NAME           READY   STATUS    RESTARTS   AGE
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          159m
pvcpod         0/1     Pending   0          6s
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)

PublicIPs: 43.204.227.8 PrivateIPs: 172.31.12.246



The screenshot shows a Microsoft Edge browser window with the following details:

- Address Bar:** https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-03d5a71bf0df2...
- Header:** Looking for language selection? Find it in the new Unified Settings
- Header:** © 2022, Amazon Web Services India Private Limited or its affiliates.
- Header:** Privacy Terms Cookie preferences
- Icons:** PragmaEdge, File, Microsoft Edge, Microsoft Store, Microsoft Teams
- System Icons:** Date (29°C Sunny), Time (1543), Language (ENG), Date (18-12-2022)

The main content area displays an AWS CloudFormation YAML template for creating a PersistentVolume:

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: mypvtopvc
spec:
  storageClassName: "nfs-client"
  accessModes:
  - ReadWriteOnce
  capacity:
    storage: 1Gi
  hostPath:
    path: /mnt/nfs
  
```

At the bottom left, there is a file icon labeled "pv.yml" with a size of 12L, 195B. The bottom right corner shows navigation links: 10, 15, All.

i-03d5a71bf0df22cbe (kubernetes)

Public IPs: 43.204.227.8 Private IPs: 172.31.12.246

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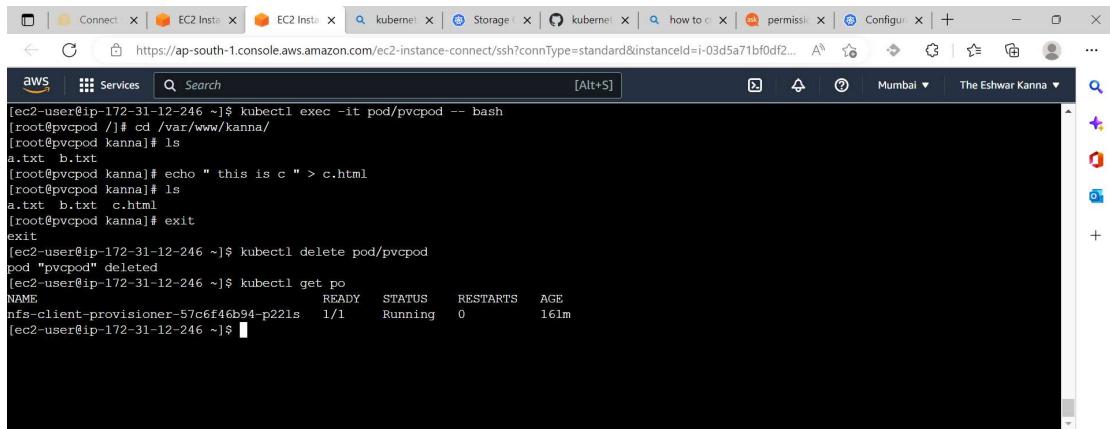
```
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pv
NAME      CAPACITY   ACCESS MODES  RECLAIM POLICY  STATUS   CLAIM           STORAGECLASS  REASON  AGE
mypvc     1Gi        RWO          Retain         Bound    default/mypvc   nfs-client   10s
[ec2-user@ip-172-31-12-246 ~]$ kubectl get pvc
NAME    STATUS  VOLUME   CAPACITY  ACCESS MODES  STORAGECLASS  AGE
mypvc  Bound   mypvc-pvc  1Gi       RWO          nfs-client   2ml6s
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246

```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash
[root@pvcpod ~]# cd /var/www/kanna/
[root@pvcpod kanna]# ls
a.txt b.txt
[root@pvcpod kanna]# echo " this is c " > c.html
[root@pvcpod kanna]# ls
a.txt b.txt c.html
[root@pvcpod kanna]#
```

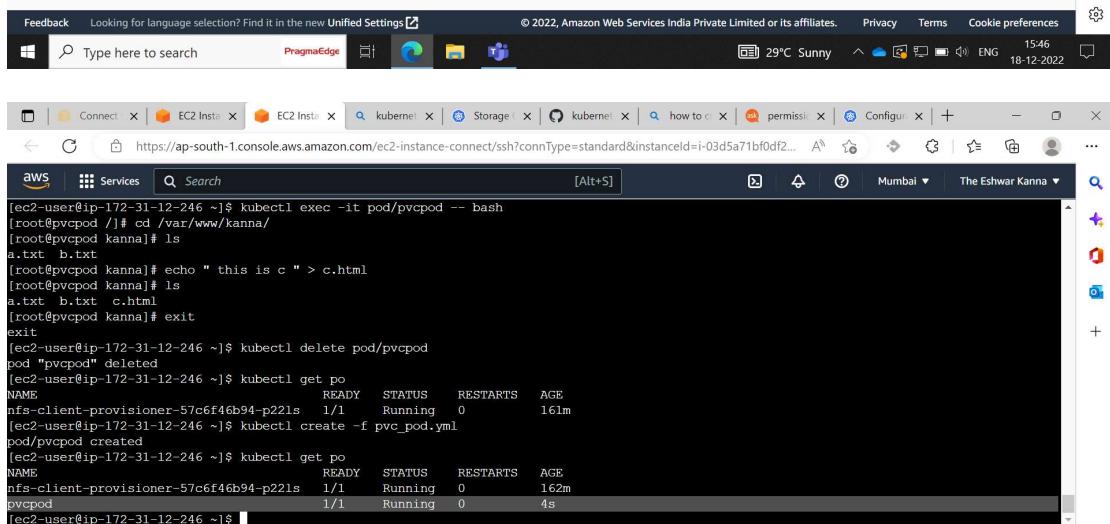
i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246

```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash
[root@pvcpod ~]# cd /var/www/kanna/
[root@pvcpod kanna]# ls
a.txt b.txt
[root@pvcpod kanna]# echo " this is c " > c.html
[root@pvcpod kanna]# ls
a.txt b.txt c.html
[root@pvcpod kanna]#
```



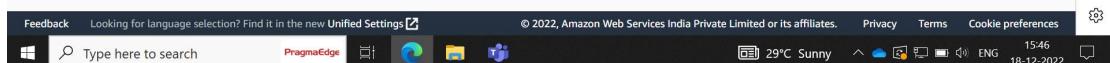
```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash  
[root@pvcpod ~]# cd /var/www/kanna/  
[root@pvcpod kanna]# ls  
a.txt b.txt c.html  
[root@pvcpod kanna]# exit  
exit  
[ec2-user@ip-172-31-12-246 ~]$ kubectl delete pod/pvcpod  
pod "pvcpod" deleted  
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po  
NAME                 READY   STATUS    RESTARTS   AGE  
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          161m  
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash  
[root@pvcpod ~]# cd /var/www/kanna/  
[root@pvcpod kanna]# ls  
a.txt b.txt c.html  
[root@pvcpod kanna]# exit  
exit  
[ec2-user@ip-172-31-12-246 ~]$ kubectl delete pod/pvcpod  
pod "pvcpod" deleted  
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po  
NAME                 READY   STATUS    RESTARTS   AGE  
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          161m  
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f pvc_pod.yaml  
pod/pvcpod created  
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po  
NAME                 READY   STATUS    RESTARTS   AGE  
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          162m  
pvcpod               1/1     Running   0          4s  
[ec2-user@ip-172-31-12-246 ~]$
```

i-03d5a71bf0df22cbe (kubernetes)
Public IPs: 43.204.227.8 Private IPs: 172.31.12.246



```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash  
[root@pvcpod ~]# cd /var/www/kanna/  
[root@pvcpod kanna]# ls  
a.txt b.txt c.html  
[root@pvcpod kanna]# exit  
exit  
[ec2-user@ip-172-31-12-246 ~]$ kubectl delete pod/pvcpod  
pod "pvcpod" deleted  
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po  
NAME                 READY   STATUS    RESTARTS   AGE  
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          161m  
[ec2-user@ip-172-31-12-246 ~]$ kubectl create -f pvc_pod.yaml  
pod/pvcpod created  
[ec2-user@ip-172-31-12-246 ~]$ kubectl get po  
NAME                 READY   STATUS    RESTARTS   AGE  
nfs-client-provisioner-57c6f46b94-p22ls  1/1     Running   0          162m  
pvcpod               1/1     Running   0          4s  
[ec2-user@ip-172-31-12-246 ~]$
```

A screenshot of a Windows desktop environment. At the top, there is a taskbar with several open windows: 'Connect' (yellow), 'EC2 Insta' (orange), 'EC2 Insta' (orange), 'kubernetes' (blue), 'Storage' (blue), 'kubernetes' (blue), 'how to c' (green), 'permissions' (red), 'Configur' (blue), and a blank browser tab. The main window is a terminal session titled 'aws Services' with the URL 'https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-03d5a71bf0df2...'. The terminal output shows:

```
[ec2-user@ip-172-31-12-246 ~]$ kubectl exec -it pod/pvcpod -- bash  
[root@pvcpod ~]# cd /var/www/kanna/  
bash: cs: command not found  
[root@pvcpod ~]# cd /var/www/kanna/  
[root@pvcpod kanna]# ls  
a.txt b.txt c.html  
[root@pvcpod kanna]#
```

Below the terminal window, the taskbar displays the system tray, weather (29°C Sunny), date (18-12-2022), and time (15:47). The search bar contains 'Type here to search'.