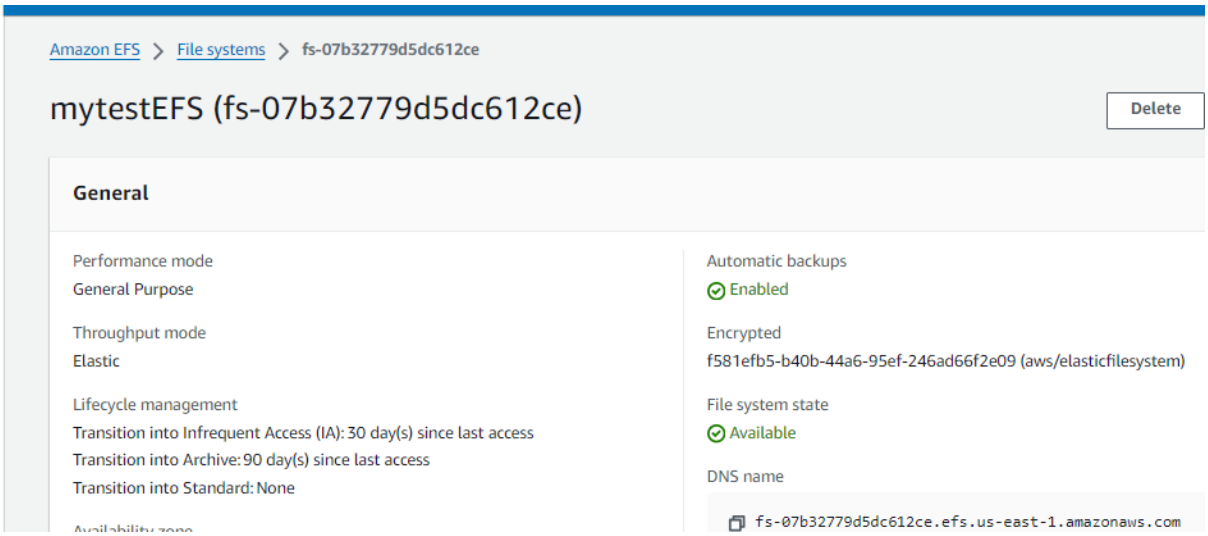
```
root@FARDIN:/usr/local/bin# curl --silent --location "https://github.com/weaveworks/eksctl/releases/latest/download/eksctl_$(uname -s
)_amd64.tar.gz" | tar xz -C /tmp
root@FARDIN:/usr/local/bin# cd /tmp/
root@FARDIN:/tmp# ll
total 139156
drwxrwxrwt  6 root root        4096 Feb 27 13:20 ./
drwxr-xr-x 19 root root        4096 Feb 27 10:14 ../
drwxrwxrwx  2 root root          60 Feb 27 10:14 .X11-unix/
-rw-------  1 root root           0 Feb 27 13:18 62291b61.eksctl.lock
-rwxr-xr-x  1 1001 docker 142475264 Feb 23 03:13 eksctl*
```

```
root@FARDIN:~# curl -o kubectl https://amazon-eks.s3.us-west-2.amazonaws.com/1.21.2/2021-07-05/bin/linux/amd64/kubectl
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 44.2M  100 44.2M    0     0  2181k      0  0:00:20  0:00:20 --:--:-- 6824k
root@FARDIN:~# chmod +x ./kubectl
root@FARDIN:~# mkdir -p $HOME/bin && cp ./kubectl $HOME/bin/kubectl && export PATH=$PATH:$HOME/bin
root@FARDIN:~# echo 'export PATH=$PATH:$HOME/bin' >> ~/.bashrc
root@FARDIN:~# kubectl version --client
Client Version: version.Info{Major:"1", Minor:"21+", GitVersion:"v1.21.2-13+d2965f0db10712", GitCommit:"d2965f0db1071203c6f5bc662c282
7c71fc8b20d", GitTreeState:"clean", BuildDate:"2021-06-26T01:02:11Z", GoVersion:"go1.16.5", Compiler:"gc", Platform:"linux/amd64"}
root@FARDIN:~#
```

```
root@FARDIN:/mnt/f/DevOps/k8s# . eks-get.sh
Updated context arn:aws:eks:us-east-1:905418468133:cluster/eks-cube-fardin in /root/.kube/config
root@FARDIN:/mnt/f/DevOps/k8s# k get nodes
NAME                             STATUS   ROLES    AGE   VERSION
ip-192-168-29-83.ec2.internal    Ready    <none>   19m   v1.27.9-eks-5e0fdde
ip-192-168-37-50.ec2.internal    Ready    <none>   19m   v1.27.9-eks-5e0fdde
ip-192-168-49-145.ec2.internal   Ready    <none>   19m   v1.27.9-eks-5e0fdde
ip-192-168-6-164.ec2.internal    Ready    <none>   19m   v1.27.9-eks-5e0fdde
root@FARDIN:/mnt/f/DevOps/k8s#
```

```
root@FARDIN:/mnt/f/DevOps/k8s# eksctl utils associate-iam-oidc-provider --cluster eks-cube-fardin --approve
2024-02-27 13:39:57 [ℹ]  will create IAM Open ID Connect provider for cluster "eks-cube-fardin" in "us-east-1"
2024-02-27 13:39:58 [✔]  created IAM Open ID Connect provider for cluster "eks-cube-fardin" in "us-east-1"
root@FARDIN:/mnt/f/DevOps/k8s# aws iam list-open-id-connect-providers | grep $oidc_id | cut -d "/" -f4
3C19A9EA60F031C41903F43BBD250B9E"
```



To create iam policy

```
root@FARDIN:/mnt/f/EFS_task# curl -o iam_policy.json https://raw.githubusercontent.com/kubernetes-sigs/aws-load-balancer-controller/v2.4.4/docs/inst
all/iam_policy.json
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  7617  100  7617    0     0  15823      0 --:--:-- --:--:-- --:--:-- 15802
```

```
root@FARDIN:/mnt/f/EFS_task# cat iam_policy.json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "iam:CreateServiceLinkedRole"
            ],
            "Resource": "*",
            "Condition": {
                "StringEquals": {
                    "iam:AWSServiceName": "elasticloadbalancing.amazonaws.com"
                }
            }
        },
        {
            "Effect": "Allow",
            "Action": [
                "ec2:DescribeAccountAttributes",
                "ec2:DescribeAddresses",
                "ec2:DescribeAvailabilityZones",
                "ec2:DescribeInternetGateways",
                "ec2:DescribeVpcs",
                "ec2:DescribeVpcPeeringConnections",
                "ec2:DescribeSubnets",
                "ec2:DescribeSecurityGroups",
                "ec2:DescribeInstances",
                "ec2:DescribeNetworkInterfaces",
                "ec2:DescribeTags",
                "ec2:GetCoipPoolUsage",
                "ec2:DescribeCoipPools",
                "elasticloadbalancing:DescribeLoadBalancers",
                "elasticloadbalancing:DescribeLoadBalancerAttributes",
                "elasticloadbalancing:DescribeListeners",
```

```
root@FARDIN:/mnt/f/EFS_task# aws iam create-policy  --policy-name EFSCSIControllerIAMPolicy  --policy-document file://iam-policy.json
{
    "Policy": {
        "PolicyName": "EFSCSIControllerIAMPolicy",
        "PolicyId": "ANPA5FTZFNMS5ZJPNOPHC",
        "Arn": "arn:aws:iam::905418468133:policy/EFSCSIControllerIAMPolicy",
        "Path": "/",
        "DefaultVersionId": "v1",
        "AttachmentCount": 0,
        "PermissionsBoundaryUsageCount": 0,
        "IsAttachable": true,
        "CreateDate": "2024-02-27T10:20:06Z",
        "UpdateDate": "2024-02-27T10:20:06Z"
    }
}
root@FARDIN:/mnt/f/EFS_task#
```

Then create service from iam policy arn

```
root@FARDIN:/mnt/f/EFS_task# eksctl create iamserviceaccount --cluster=eks-cube-fardin --region=us-east-1 --namespace=kube-system --name=efs-csi-con
troller-sa --override-existing-serviceaccounts --attach-policy-arn=arn:aws:iam::905418468133:policy/EFSCSIControllerIAMPolicy --approve
2024-02-27 15:54:51 [ℹ]  1 existing iamserviceaccount(s) (kube-system/aws-load-balancer-controller) will be excluded
2024-02-27 15:54:51 [ℹ]  1 iamserviceaccount (kube-system/efs-csi-controller-sa) was included (based on the include/exclude rules)
2024-02-27 15:54:51 [!]  metadata of serviceaccounts that exist in Kubernetes will be updated, as --override-existing-serviceaccounts was set
2024-02-27 15:54:51 [ℹ]  1 task: {
    2 sequential sub-tasks: {
        create IAM role for serviceaccount "kube-system/efs-csi-controller-sa",
        create serviceaccount "kube-system/efs-csi-controller-sa",
    } }2024-02-27 15:54:51 [ℹ]  building iamserviceaccount stack "eksctl-eks-cube-fardin-addon-iamserviceaccount-kube-system-efs-csi-controller-sa"
2024-02-27 15:54:52 [ℹ]  deploying stack "eksctl-eks-cube-fardin-addon-iamserviceaccount-kube-system-efs-csi-controller-sa"
2024-02-27 15:54:52 [ℹ]  waiting for CloudFormation stack "eksctl-eks-cube-fardin-addon-iamserviceaccount-kube-system-efs-csi-controller-sa"
2024-02-27 15:55:23 [ℹ]  waiting for CloudFormation stack "eksctl-eks-cube-fardin-addon-iamserviceaccount-kube-system-efs-csi-controller-sa"
2024-02-27 15:55:24 [ℹ]  created serviceaccount "kube-system/efs-csi-controller-sa"
root@FARDIN:/mnt/f/EFS_task#
```

```
root@FARDIN:/mnt/f/EFS_task# eksctl get iamserviceaccount --cluster eks-cube-fardin --name efs-csi-controller-sa --namespace kube-system
NAMESPACE       NAME                    ROLE ARN
kube-system     efs-csi-controller-sa   arn:aws:iam::905418468133:role/eksctl-eks-cube-fardin-addon-iamserviceaccoun-Role1-uhLCgBuxoZMC
root@FARDIN:/mnt/f/EFS_task#
```

Installing helm

```
root@FARDIN:/mnt/f/EFS_task# curl https://baltocdn.com/helm/signing.asc | gpg --dearmor | sudo tee /usr/share/keyrings/helm.gpg > /dev/null
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  1699  100  1699    0     0   4239      0 --:--:-- --:--:-- --:--:--  4247
root@FARDIN:/mnt/f/EFS_task#
```

```
root@FARDIN:/mnt/f/EFS_task# sudo apt-get install apt-transport-https --yes
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 8 not upgraded.
Need to get 1510 B of archives.
After this operation, 170 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 apt-transport-https all 2.4.11 [1510 B]
Fetched 1510 B in 1s (1019 B/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 39508 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.4.11_all.deb ...
Unpacking apt-transport-https (2.4.11) ...
Setting up apt-transport-https (2.4.11) ...
```

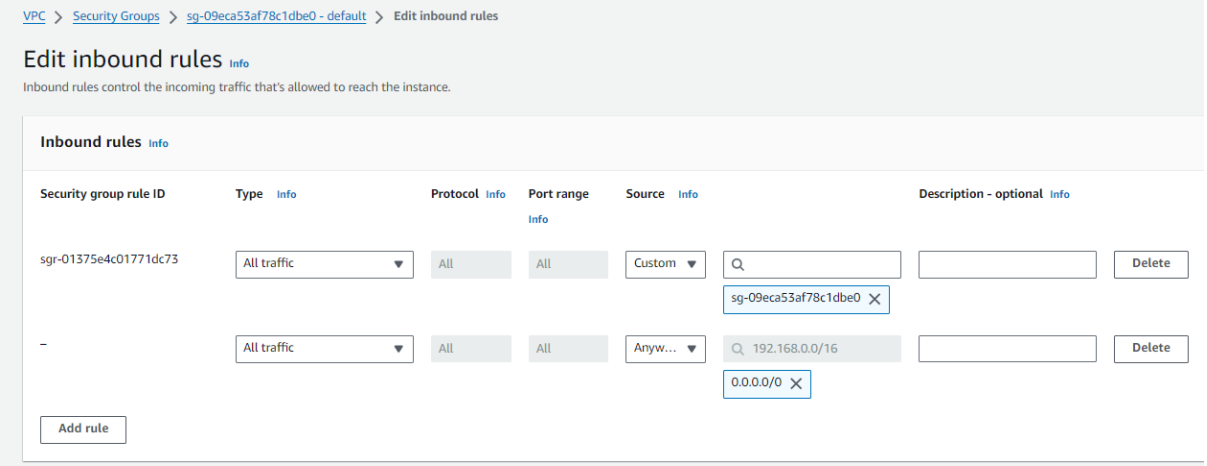
```
root@FARDIN:/mnt/f/EFS_task# echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/helm.gpg] https://baltocdn.com/helm/stable/debian/ all main" | sudo tee /etc/apt/sources.list.d/helm-stable-debian.list
deb [arch=amd64 signed-by=/usr/share/keyrings/helm.gpg] https://baltocdn.com/helm/stable/debian/ all main
root@FARDIN:/mnt/f/EFS_task# sudo apt-get update
Get:1 https://baltocdn.com/helm/stable/debian all InRelease [7652 B]
Get:2 https://apt.releases.hashicorp.com jammy InRelease [12.9 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:4 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:5 https://baltocdn.com/helm/stable/debian all/main amd64 Packages [4044 B]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:7 https://apt.releases.hashicorp.com jammy/main amd64 Packages [120 kB]
Get:8 https://download.docker.com/linux/ubuntu jammy InRelease [48.8 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1194 kB]
Hit:10 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:11 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1412 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1490 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1050 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [237 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [217 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1456 kB]
Get:17 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [239 kB]
Get:18 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [845 kB]
Get:19 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [161 kB]
Fetched 8724 kB in 19s (460 kB/s)
Reading package lists... Done
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task# sudo apt-get install helm
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  helm
0 upgraded, 1 newly installed, 0 to remove and 10 not upgraded.
Need to get 16.1 MB of archives.
After this operation, 50.7 MB of additional disk space will be used.
```

```
root@FARDIN:/mnt/f/EFS_task# curl -fsSL -o get_helm.sh https://raw.githubusercontent.com/helm/helm/main/scripts/get-helm-3
root@FARDIN:/mnt/f/EFS_task# chmod 700 get_helm.sh
root@FARDIN:/mnt/f/EFS_task# ./get_helm.sh
Downloading https://get.helm.sh/helm-v3.14.2-linux-amd64.tar.gz
Verifying checksum... Done.
Preparing to install helm into /usr/local/bin
helm installed into /usr/local/bin/helm
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task# helm version
version.BuildInfo{Version:"v3.14.2", GitCommit:"c309b6f0ff63856811846ce18f3bdc93d2b4d54b", GitTreeState:"clean", GoVersion:"go1.21.7"}
root@FARDIN:/mnt/f/EFS_task#
```

```
root@FARDIN:/mnt/f/nfs_task# helm repo list
NAME                    URL
aws-efs-csi-driver      https://kubernetes-sigs.github.io/aws-efs-csi-driver
eks                     https://aws.github.io/eks-charts
root@FARDIN:/mnt/f/nfs_task#
```

```
root@FARDIN:/mnt/f/nfs_task# helm upgrade -i aws-efs-csi-driver aws-efs-csi-driver/aws-efs-csi-driver \
--namespace kube-system \
--set image.repository=602401143452.dkr.ecr.us-west-2.amazonaws.com/eks/aws-efs-csi-driver \
--set controller.serviceAccount.create=false \
--set controller.serviceAccount.name=efs-csi-controller-sa
Release "aws-efs-csi-driver" does not exist. Installing it now.
NAME: aws-efs-csi-driver
LAST DEPLOYED: Tue Feb 27 18:51:40 2024
NAMESPACE: kube-system
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
To verify that aws-efs-csi-driver has started, run:

    kubectl get pod -n kube-system -l "app.kubernetes.io/name=aws-efs-csi-driver,app.kubernetes.io/instance=aws-efs-csi-driver"
```




```
root@FARDIN:/mnt/f/EFS_task# k get po,pv,pvc
NAME          READY   STATUS    RESTARTS   AGE
pod/efs-app   1/1     Running   0          27s

NAME                      CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS   CLAIM                STORAGECLASS   REASON   AGE
persistentvolume/efs-pv   5Gi        RWO            Retain           Bound    default/efs-claim                           42s

NAME                                STATUS   VOLUME   CAPACITY   ACCESS MODES   STORAGECLASS   AGE
persistentvolumeclaim/efs-claim   Bound    efs-pv   5Gi        RWO                           36s
root@FARDIN:/mnt/f/EFS_task#
```

```
root@FARDIN:/mnt/f/EFS_task# kubectl exec -ti efs-app -- tail -f /data/out.txt
Tue Feb 27 13:43:25 UTC 2024
Tue Feb 27 13:43:27 UTC 2024
Tue Feb 27 13:43:29 UTC 2024
Tue Feb 27 13:43:31 UTC 2024
Tue Feb 27 13:43:33 UTC 2024
Tue Feb 27 13:43:35 UTC 2024
Tue Feb 27 13:43:37 UTC 2024
Tue Feb 27 13:43:39 UTC 2024
Tue Feb 27 13:43:41 UTC 2024
Tue Feb 27 13:43:43 UTC 2024
Tue Feb 27 13:43:45 UTC 2024
Tue Feb 27 13:43:47 UTC 2024
```

```
root@FARDIN:/mnt/f/EFS_task# k delete -f .
pod "efs-app" deleted
persistentvolume "efs-pv" deleted
persistentvolumeclaim "efs-claim" deleted
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task#
root@FARDIN:/mnt/f/EFS_task# ll
total 12
drwxrwxrwx 1 root root   512 Feb 27 17:59 ./
drwxrwxrwx 1 root root   512 Feb 27 18:45 ../
-rwxrwxrwx 1 root root 11679 Feb 27 15:39 get_helm.sh*
-rwxrwxrwx 1 root root   392 Feb 27 17:56 pod.yaml*
-rwxrwxrwx 1 root root   308 Feb 27 19:11 pv.yaml*
-rwxrwxrwx 1 root root   190 Feb 27 17:55 pvc.yaml*
root@FARDIN:/mnt/f/EFS_task# kaf pv.yaml
persistentvolume/efs-pv created
root@FARDIN:/mnt/f/EFS_task# kaf pvc.yaml
persistentvolumeclaim/efs-claim created
root@FARDIN:/mnt/f/EFS_task# kaf pod.yaml
pod/efs-app created
```

```
root@FARDIN:/mnt/f/EFS_task# k get po,pv,pvc
NAME          READY   STATUS    RESTARTS   AGE
pod/efs-app   1/1     Running   0          10s

NAME                      CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS   CLAIM               STORAGECLASS   REASON   AGE
persistentvolume/efs-pv   5Gi        RWO            Retain           Bound    default/efs-claim                           24s

NAME                                STATUS   VOLUME   CAPACITY   ACCESS MODES   STORAGECLASS   AGE
persistentvolumeclaim/efs-claim     Bound    efs-pv   5Gi        RWO                           18s
```

```
root@FARDIN:/mnt/f/EFS_task# kubectl exec -ti efs-app -- cat /data/out.txt
Tue Feb 27 13:41:48 UTC 2024
Tue Feb 27 13:41:50 UTC 2024
Tue Feb 27 13:41:52 UTC 2024
Tue Feb 27 13:41:54 UTC 2024
Tue Feb 27 13:41:56 UTC 2024
Tue Feb 27 13:41:58 UTC 2024
Tue Feb 27 13:42:00 UTC 2024
Tue Feb 27 13:42:02 UTC 2024
Tue Feb 27 13:42:04 UTC 2024
Tue Feb 27 13:42:06 UTC 2024
Tue Feb 27 13:42:08 UTC 2024
Tue Feb 27 13:42:10 UTC 2024
Tue Feb 27 13:42:12 UTC 2024
Tue Feb 27 13:42:14 UTC 2024
Tue Feb 27 13:42:16 UTC 2024
Tue Feb 27 13:42:18 UTC 2024
Tue Feb 27 13:42:20 UTC 2024
Tue Feb 27 13:42:22 UTC 2024
Tue Feb 27 13:42:24 UTC 2024
Tue Feb 27 13:42:26 UTC 2024
Tue Feb 27 13:42:28 UTC 2024
Tue Feb 27 13:42:30 UTC 2024
Tue Feb 27 13:42:32 UTC 2024
Tue Feb 27 13:42:34 UTC 2024
Tue Feb 27 13:42:36 UTC 2024
Tue Feb 27 13:42:38 UTC 2024
Tue Feb 27 13:42:40 UTC 2024
Tue Feb 27 13:42:42 UTC 2024
Tue Feb 27 13:42:44 UTC 2024
Tue Feb 27 13:42:46 UTC 2024
Tue Feb 27 13:42:48 UTC 2024
```

With storage class

Pod .yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: efs-app-1
spec:
  containers:
    - name: app
      image: centos
      command: ["/bin/sh"]
      args: ["-c", "while true; do echo $(date -u) >> /data/out; sleep 5; done"]
      volumeMounts:
        - name: persistent-storage
          mountPath: /data
  volumes:
    - name: persistent-storage
      persistentVolumeClaim:
        claimName: efs-claim-1
pod.yaml (END)
```

Sc.yaml

```
kind: StorageClass
apiVersion: storage.k8s.io/v1
metadata:
  name: efs-sc
provisioner: efs.csi.aws.com
parameters:
  provisioningMode: efs-ap
  fileSystemId: fs-0f2c7712f786ca1c6
  directoryPerms: "700"
sc.yaml (END)
```

Pvc.yaml

```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: efs-claim-1
spec:
  accessModes:
    - ReadWriteMany
  storageClassName: efs-sc
  resources:
    requests:
      storage: 5Gi
pvc.yaml (END)
```

```
root@FARDIN:/mnt/f/EFS_task/sc# kaf sc.yaml
storageclass.storage.k8s.io/efs-sc created
root@FARDIN:/mnt/f/EFS_task/sc# kaf pvc.yaml
persistentvolumeclaim/efs-claim-1 created
root@FARDIN:/mnt/f/EFS_task/sc# kaf pod.yaml
pod/efs-app-1 created
root@FARDIN:/mnt/f/EFS_task/sc# kgp
NAME        READY   STATUS              RESTARTS   AGE
efs-app-1   0/1     ContainerCreating   0          7s
root@FARDIN:/mnt/f/EFS_task/sc# kgp
NAME        READY   STATUS              RESTARTS   AGE
efs-app-1   0/1     ContainerCreating   0          12s
root@FARDIN:/mnt/f/EFS_task/sc# k get pvc
NAME          STATUS   VOLUME                                     CAPACITY   ACCESS MODES   STORAGECLASS   AGE
efs-claim-1   Bound    pvc-f82815b8-066c-4ed7-af8d-f6378c89895f   5Gi        RWX            efs-sc         42s
root@FARDIN:/mnt/f/EFS_task/sc# k get sc
NAME            PROVISIONER             RECLAIMPOLICY   VOLUMEBINDINGMODE      ALLOWVOLUMEEXPANSION   AGE
efs-sc          efs.csi.aws.com         Delete          Immediate              false                  88s
gp2 (default)   kubernetes.io/aws-ebs   Delete          WaitForFirstConsumer   false                  76m
root@FARDIN:/mnt/f/EFS_task/sc# kgp
NAME        READY   STATUS    RESTARTS   AGE
efs-app-1   1/1     Running   0          45s
root@FARDIN:/mnt/f/EFS_task/sc#
root@FARDIN:/mnt/f/EFS_task/sc#
root@FARDIN:/mnt/f/EFS_task/sc#
```

```
root@FARDIN:/mnt/f/EFS_task/sc# kubectl exec -ti efs-app-1 -- tail -f /data/out
Wed Feb 28 06:41:20 UTC 2024
Wed Feb 28 06:41:25 UTC 2024
Wed Feb 28 06:41:30 UTC 2024
Wed Feb 28 06:41:35 UTC 2024
Wed Feb 28 06:41:40 UTC 2024
Wed Feb 28 06:41:45 UTC 2024
Wed Feb 28 06:41:50 UTC 2024
Wed Feb 28 06:41:55 UTC 2024
Wed Feb 28 06:42:00 UTC 2024
Wed Feb 28 06:42:05 UTC 2024
Wed Feb 28 06:42:10 UTC 2024
Wed Feb 28 06:42:15 UTC 2024
Wed Feb 28 06:42:20 UTC 2024
Wed Feb 28 06:42:25 UTC 2024
Wed Feb 28 06:42:30 UTC 2024
```

```
root@FARDIN:/mnt/f/EFS_task/sc# kubectl exec -ti efs-app-1 -- date
Wed Feb 28 06:45:03 UTC 2024
```