■ NetApp

Scaling: Adding more projects

NetApp Solutions

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Table of Contents

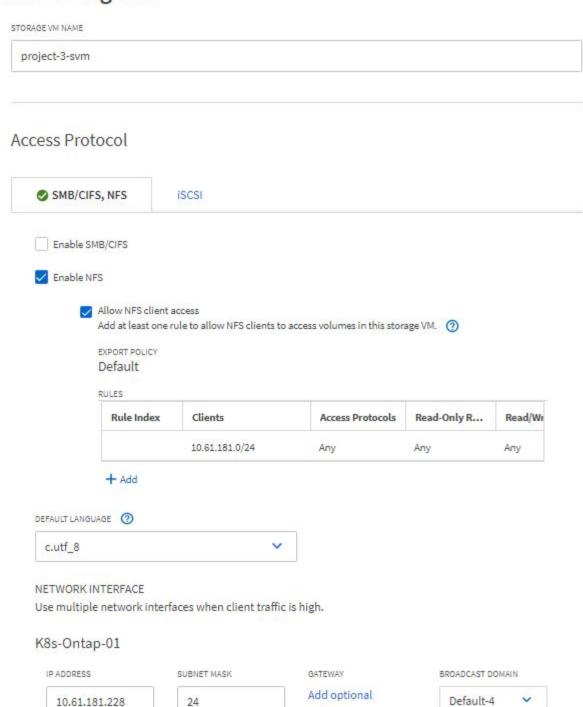
Scaling: Adding more projects	

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In a multitenant configuration, adding new projects with storage resources requires additional configuration to make sure that multitenancy is not violated. For adding more projects in a multitenant cluster, complete the following steps:

- 1. Log into the NetApp ONTAP cluster as a storage admin.
- 2. Navigate to Storage → Storage VMs and click Add. Create a new SVM dedicated to project-3. Also create a vsadmin account to manage the SVM and its resources.

Add Storage VM



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- 3. Log into the Red Hat OpenShift cluster as cluster admin.
- 4. Create a new project.

```
oc create ns project-3
```

gateway

5. Make sure that the user group for project-3 is created on IdP and sync'd with the OpenShift cluster.

oc get groups

6. Create the developer role for project-3.

```
cat << EOF | oc create -f -
apiVersion: rbac.authorization.k8s.io/v1
kind: Role
metadata:
 namespace: project-3
  name: developer-project-3
rules:
  - verbs:
     _ ' * '
    apiGroups:
      - apps
      - batch
      - autoscaling
      - extensions
      - networking.k8s.io
      - policy
      - apps.openshift.io
      - build.openshift.io
      - image.openshift.io
      - ingress.operator.openshift.io
      - route.openshift.io
      - snapshot.storage.k8s.io
      - template.openshift.io
    resources:
      _ **
  - verbs:
      _ ' * '
    apiGroups:
      _ ' '
    resources:
      - bindings
      - configmaps
      - endpoints
      - events
      - persistentvolumeclaims
      - pods
      - pods/log
      - pods/attach
      - podtemplates
      - replicationcontrollers
      - services
```

```
- limitranges
- namespaces
- componentstatuses
- nodes
- verbs:
- '*'
apiGroups:
- trident.netapp.io
resources:
- tridentsnapshots

EOF
```



The role definition provided in this section is just an example. The developer role must be defined based on the end-user requirements.

7. Create RoleBinding for developers in project-3 binding the developer-project-3 role to the corresponding group (ocp-project-3) in project-3.

```
cat << EOF | oc create -f -
kind: RoleBinding
apiVersion: rbac.authorization.k8s.io/v1
metadata:
  name: project-3-developer
  namespace: project-3
subjects:
  - kind: Group
    apiGroup: rbac.authorization.k8s.io
    name: ocp-project-3
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: Role
  name: developer-project-3</pre>
EOF
```

- 8. Login to the Red Hat OpenShift cluster as storage admin
- Create a Trident backend and map it to the SVM dedicated to project-3. NetApp recommends using the SVM's vsadmin account to connect the backend to the SVM instead of using the ONTAP cluster administrator.

```
cat << EOF | tridentctl -n trident create backend -f
{
   "version": 1,
   "storageDriverName": "ontap-nas",
   "backendName": "nfs_project_3",
   "managementLIF": "172.21.224.210",
   "dataLIF": "10.61.181.228",
   "svm": "project-3-svm",
   "username": "vsadmin",
   "password": "NetApp!23"
}
EOF</pre>
```

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- We are using the ontap-nas driver for this example. Use the appropriate driver for creating the backend based on the use-case.
- We assume that Trident is installed in the trident project.
- 10. Create the storage class for project-3 and configure it to use the storage pools from backend dedicated to project-3.

```
cat << EOF | oc create -f -
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
   name: project-3-sc
provisioner: csi.trident.netapp.io
parameters:
   backendType: ontap-nas
   storagePools: "nfs_project_3:.*"
EOF</pre>
```

11. Create a ResourceQuota to restrict resources in project-3 requesting storage from storageclasses dedicated to other projects.

```
cat << EOF | oc create -f -
kind: ResourceQuota
apiVersion: v1
metadata:
  name: project-3-sc-rq
  namespace: project-3
spec:
  hard:
    project-1-sc.storageclass.storage.k8s.io/persistentvolumeclaims: 0
    project-2-sc.storageclass.storage.k8s.io/persistentvolumeclaims: 0
EOF</pre>
```

12. Patch the ResourceQuotas in other projects to restrict resources in those projects from accessing storage from the storageclass dedicated to project-3.

```
oc patch resourcequotas project-1-sc-rq -n project-1 --patch '{"spec":{"hard":{ "project-3-sc.storageclass.storage.k8s.io/persistentvolumeclaims": 0}}}' oc patch resourcequotas project-2-sc-rq -n project-2 --patch '{"spec":{"hard":{ "project-3-sc.storageclass.storage.k8s.io/persistentvolumeclaims": 0}}'
```

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