**Oracle Express Edition on Open Source Kubernetes Cluster (k8s)**

**Installing Oracle Express 18.4.0.0 on K8s cluster**

**Install nfs-client storage class**

**=========================**

**Set nfs server**

**------------------**

nfs host = lab1.example.com

nfs path = /nfs/oracle

**nfs server**

**-------------**

# vi /etc/exports

# /nfs/oracle \*(rw,sync,no\_root\_squash,insecure)

# systemctl restart nfs-server.service

**nfs client - on all Kube Nodes**

**---------------------------------------**

# mkdir -p /nfs/oracle

# vi /etc/fstab

lab1.example.com:/nfs/oracle /nfs/oracle nfs defaults 0 0

showmount -e lab1.example.com

# mount -a

**Install Storage Class using helm charts**

# helm repo add stable https://charts.helm.sh/stable

# helm repo update

# helm install my-nfs-client stable/nfs-client-provisioner --namespace nfs-client --set nfs.server=lab1.example.com --set nfs.path=/nfs/oracle

# kubectl get storageclass

NAME PROVISIONER RECLAIMPOLICY VOLUMEBINDINGMODE ALLOWVOLUMEEXPANSION AGE

nfs-client cluster.local/nfs-client-provisioner-1626944060 Delete Immediate true 2m13s

**Make Storage Class Default**

**--------------------------------------**

# kubectl patch storageclass nfs-client -p '{"metadata": {"annotations":{"storageclass.kubernetes.io/is-default-class":"true"}}}'

# kubectl get sc

NAME PROVISIONER RECLAIMPOLICY VOLUMEBINDINGMODE ALLOWVOLUMEEXPANSION AGE

nfs-client (default) cluster.local/my-nfs-client-nfs-client-provisioner Delete Immediate true 5d7h

**In case you want to remove nfs-client storage class**

**--------------------------------------------------------------------**

# helm uninstall my-nfs-client

**Installing Oracle On Kubernetes**

**==========================**

# mkdir -p ~/oracle

# cd ~/oracle

# git clone https://github.com/azaadshatru/oracle\_on\_k8s.git

# kubectl create namespace oracle-namespace --save-config

# kubectl config set-context --current --namespace=oracle-namespace

# sudo docker login container-registry.oracle.com

# kubectl -n oracle-namespace create secret generic regcred \

--from-file=.dockerconfigjson=$HOME/.docker/config.json \

--type=kubernetes.io/dockerconfigjson

# kubectl get secret -n oracle-namespace

secret/regcred created

# kubectl get secret -n oracle-namespace

NAME TYPE DATA AGE

default-token-qxvkn kubernetes.io/service-account-token 3 20h

regcred kubernetes.io/dockerconfigjson 1 10s

# kubectl create configmap oradb --from-env-file=oracle.properties -n oracle-namespace

configmap/oradb created

# kubectl apply -f 18xe\_deployment\_nfs-client.yaml -n oracle-namespace

deployment.apps/oracle18xe created

persistentvolumeclaim/ora-data184-claim created

persistentvolumeclaim/ora-setup184-claim created

persistentvolumeclaim/ora-startup184-claim created

service/oracle18xe created

# kubectl get pvc -n oracle-namespace

NAME STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS AGE

ora-data184-claim Bound pvc-0decaa1f-8d37-43c5-b906-7988e1567bb9 10Gi RWO nfs-client 11m

ora-setup184-claim Bound pvc-7447bd71-22fd-466b-96d4-7695619e56fd 1Gi RWO nfs-client 11m

ora-startup184-claim Bound pvc-fcbe3d8c-8d98-4bf6-8443-61ef473aaa3e 1Gi RWO nfs-client 11m

# kubectl get svc -n oracle-namespace

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

oracle18xe NodePort 10.105.239.154 <none> 1521:19419/TCP,5500:30944/TCP 11m

By using the command above, we can see that our Oracle listener (1521) is available externally on Port 19419 and Enterprise Manager (5500) is available on 30944.

# kubectl get pods -n oracle-namespace

NAME READY STATUS RESTARTS AGE

oracle18xe-c89b5d998-7lcmg 1/1 Running 0 5m44s

# kubectl -n oracle-namespace logs -f oracle18xe-c89b5d998-7lcmg

ORACLE PASSWORD FOR SYS AND SYSTEM: OracDB#2168

Specify a password to be used for database accounts. Oracle recommends that the password entered should be at least 8 characters in length, contain at least 1 uppercase character, 1 lower case character and 1 digit [0-9]. Note that the same password will be used for SYS, SYSTEM and PDBADMIN accounts:

Confirm the password:

Configuring Oracle Listener.

Listener configuration succeeded.

Configuring Oracle Database XE.

Enter SYS user password:

\*\*\*\*\*\*\*\*\*

Enter SYSTEM user password:

\*\*\*\*\*\*\*\*\*

Enter PDBADMIN User Password:

\*\*\*\*\*\*\*\*\*

Prepare for db operation

7% complete

Copying database files

29% complete

Creating and starting Oracle instance

30% complete

31% complete

34% complete

38% complete

41% complete

43% complete

Completing Database Creation

47% complete

50% complete

Creating Pluggable Databases

54% complete

71% complete

Executing Post Configuration Actions

93% complete

Running Custom Scripts

100% complete

Database creation complete. For details check the logfiles at:

/opt/oracle/cfgtoollogs/dbca/XE.

Database Information:

Global Database Name:XE

System Identifier(SID):XE

Look at the log file "/opt/oracle/cfgtoollogs/dbca/XE/XE.log" for further details.

Connect to Oracle Database using one of the connect strings:

Pluggable database: oracle18xe-c89b5d998-7lcmg/XEPDB1

Multitenant container database: oracle18xe-c89b5d998-7lcmg

Use https://localhost:5500/em to access Oracle Enterprise Manager for Oracle Database XE

The Oracle base remains unchanged with value /opt/oracle

#########################

DATABASE IS READY TO USE!

#########################

The following output is now a tail of the alert.log:

Pluggable database XEPDB1 opened read write

Completed: alter pluggable database XEPDB1 open

2021-08-17T07:55:10.221620+00:00

XEPDB1(3):CREATE SMALLFILE TABLESPACE "USERS" LOGGING DATAFILE '/opt/oracle/oradata/XE/XEPDB1/users01.dbf' SIZE 5M REUSE AUTOEXTEND ON NEXT 1280K MAXSIZE UNLIMITED EXTENT MANAGEMENT LOCAL SEGMENT SPACE MANAGEMENT AUTO

XEPDB1(3):Completed: CREATE SMALLFILE TABLESPACE "USERS" LOGGING DATAFILE '/opt/oracle/oradata/XE/XEPDB1/users01.dbf' SIZE 5M REUSE AUTOEXTEND ON NEXT 1280K MAXSIZE UNLIMITED EXTENT MANAGEMENT LOCAL SEGMENT SPACE MANAGEMENT AUTO

XEPDB1(3):ALTER DATABASE DEFAULT TABLESPACE "USERS"

XEPDB1(3):Completed: ALTER DATABASE DEFAULT TABLESPACE "USERS"

2021-08-17T07:55:13.197092+00:00

ALTER PLUGGABLE DATABASE XEPDB1 SAVE STATE

Completed: ALTER PLUGGABLE DATABASE XEPDB1 SAVE STATE

2021-08-17T08:04:36.147161+00:00

XEPDB1(3):Resize operation completed for file# 10, old size 358400K, new size 3 78880K

# select instance\_name, host\_name, to\_char(startup\_time,'dd/mm/yy hh24:mi:ss') as Startup, status from v$instance;