Customizing the Blockchain Explorer in BoV

Since there is a limitation in Blockchain Explorer (BE) that it can only monitor one channel at a time, users who want to monitor other channels can follow instructions in this document.

Prerequisites:

- You need to create the channel manually and join the peers for the channel.

In this guide we will demonstrate how to set up a customized Blockchain Explore instance for a channel named "mychannel". It has two peers : peer0.org1-f-1:7051 and peer0.org2-f-1:7051 .

Peer0.org1-f-1 belongs to organization 1 and peer0.org2-f-1 belongs to organization 2.

Steps:

1. Enter /opt/share/resources folder and copy explorer-artifacts to explorer-artifacts-mychannel.

   $> cd /opt/share/resources

   $> cp explorer-artifacts explorer-artifacts-mychannel -rf

2. Enter explorer-artifacts-mychannel directory.

   $> cd explorer-artifacts-mychannel

3. Edit config.json file.
   a. Change the channel name to "mychannel"

```
{
    "GOPATH": "/opt/gopath",
    "channel": "mychannel",
    "enableTls": false,
    "eventWaitTime": "30000",
    "host": "explorer",
    "keyValueStore": "/tmp/fabric-client-kvs",
    "mysql": {
        "database": "fabricexplorer",
        "host": "localhost",
        "passwd": "root",
        "port": "3306",
        "username": "root"
    },
    "network-config": {
```

Figure 1

b. Modify organizations, in this example the peers belong to two organizations so we will list this two organizations' name here.

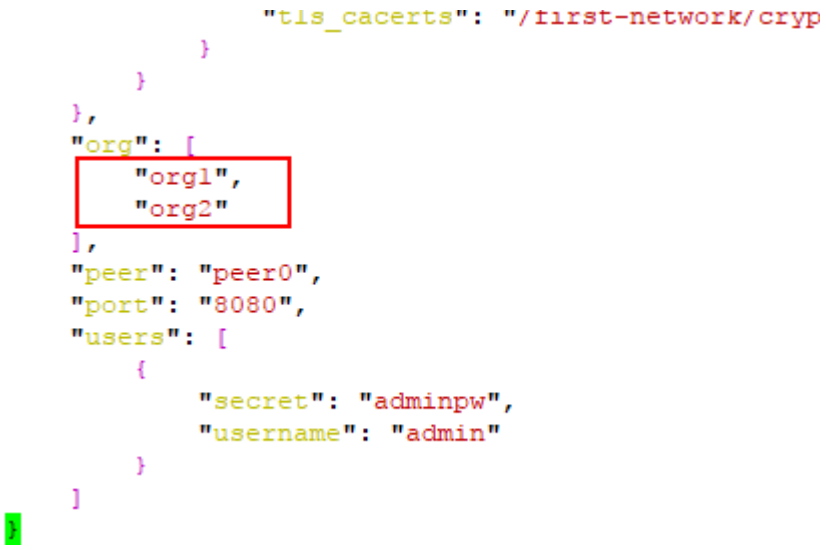

Figure 2

c. Modify peers within these two organizations, each organization should only contain peers that belong to the channel. Here we only include peer0 for org1 and peer0 for org2.

Figure 3

4. Edit fabric_1_0_explorer.yaml .
    a. Rename PersistentVolume name to explorer-mychannel-pv as Figure 4 shows.

```
---
apiVersion: v1
kind: PersistentVolume
metadata:
    name: explorer-mychannel-pv
spec:
    capacity:
       storage: 500Mi
    accessModes:
       - ReadWriteMany
    nfs:
      path: /opt/share/resources/
      server: 10.160.40.95 # change to your nfs server ip here.
---
```

Figure 4

b. Rename PersistentVolumeClaim name to explorer-mychannel-pv as Figure 5 shows.

```
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
#    namespace: explorer
    name: explorer-mychannel-pv
spec:
    accessModes:
      - ReadWriteMany
    resources:
       requests:
         storage: 10Mi
```

Figure 5

c. Rename pod name to fabric-mychannel-explorer as Figure 6 shows.

```
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
#   namespace: explorer
  name: fabric-mychannel-explorer
spec:
  replicas: 1
  strategy: {}
  template:
    metadata:
      labels:
        app: explorer
    spec:
      containers:
        - name: mysql
          image: mysql:5.7
          ports:
            - containerPort: 3306
          env:
```

Figure 6

d. Replace config file mount path and modify volume configuration as Figure 7 shows.

```
    app: explorer
spec:
  containers:
    - name: mysql
      image: mysql:5.7
      ports:
        - containerPort: 3306
      env:
      - name: MYSQL_ROOT_PASSWORD
        value: root
      - name: MYSQL_DATABASE
        value: fabricexplorer
      volumeMounts:
       - mountPath: /docker-entrypoint-initdb.d/fabricexplorer.sql
         name: explorer-resources
         subPath: explorer-artifacts-mychannel/fabricexplorer.sql

    - name: fabric-explorer
      imagePullPolicy: IfNotPresent
      image: vmware/fabric-explorer:1.0
      command: [ "/bin/bash", "-c", "--" ]
      args: ["sleep 10;node main.js 2>&1"]
      ports:
        - containerPort: 8080
      volumeMounts:
       - mountPath: /blockchain-explorer/config.json
         name: explorer-resources
         subPath: explorer-artifacts-mychannel/config.json
       - mountPath: /blockchain-explorer/first-network/crypto-config
         name: explorer-resources
         subPath: crypto-config
  volumes:
    - name: explorer-resources
      persistentVolumeClaim:
         claimName: explorer-mychannel-pv
```

Figure 7

e. Rename service name and port number.

```
apiVersion: v1
kind: Service
metadata:
 #  namespace: explorer
   name: fabric-mychannel-explorer
spec:
   selector:
       app: explorer
   type: NodePort
   ports:
     - name: explorer-mychannel-server
       protocol: TCP
       port: 8080
       targetPort: 8080
       nodePort: 32766
```

Figure 8

Note: by default, explorer for default channel uses port 32767 as the endpoint, you need to choose other port.

5. Run the following command to start up the services

   $> kubectl create -f fabric_1_0_explorer.yaml

6. View the status of the new BE pod

   $> kubectl get pods --all-namespaces

```
root@nfs:/opt/share/resources/explorer-artifacts-mychannel# kubectl get pod --all-namespaces
NAMESPACE          NAME                                          READY     STATUS    RESTARTS   AGE
default            fabric-explorer-3871271660-sr5n7              2/2       Running   0          16m
default            fabric-mychannel-explorer-3925669552-0xglw    2/2       Running   0          12m
kube-system        etcd-server-master                            1/1       Running   0          22h
kube-system        heapster-v1.2.0-867844254-sx641               2/2       Running   2          22h
kube-system        kube-apiserver-master                         1/1       Running   0          22h
kube-system        kube-controller-manager-master                1/1       Running   0          22h
kube-system        kube-dns-v19-9qfq4                            3/3       Running   0          19h
kube-system        kube-dns-v19-9sjf8                            3/3       Running   0          19h
kube-system        kube-proxy-dr5j4                              1/1       Running   1          22h
kube-system        kube-proxy-vpj9w                              1/1       Running   0          22h
kube-system        kube-proxy-xzszf                              1/1       Running   1          22h
kube-system        kube-scheduler-master                         1/1       Running   0          22h
kube-system        kubernetes-dashboard-1019458639-rchwc         1/1       Running   0          20h
ordererorg-f-1     orderer0-ordererorg-f-1-3682888393-n9kbv      1/1       Running   0          17m
org1-f-1           ca-1141794258-7ptp8                           1/1       Running   0          16m
org1-f-1           cli-1456865810-gqh4q                          1/1       Running   0          16m
org1-f-1           peer0-org1-f-1-699182850-x6dxr                2/2       Running   0          16m
org1-f-1           peer1-org1-f-1-2366549771-tn13b               2/2       Running   0          16m
org2-f-1           ca-4100941246-zrgbx                           1/1       Running   0          17m
org2-f-1           cli-2786066968-q3cvl                          1/1       Running   0          17m
org2-f-1           peer0-org2-f-1-2990452493-mpr4t               2/2       Running   0          16m
org2-f-1           peer1-org2-f-1-363835158-2tk8v                2/2       Running   0          16m
```

Figure 9

7. You can get the BE's IP address and port with the following steps:
   a. Get Node IP address

   $> kubectl describe pod fabric-mychannel-explorer --namespace=default | grep Node | sed -n 1p | awk -F '/' '{print $2}'

```
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster# kubectl describe pod fabric-mychannel-explorer --namespace=default | grep Node | sed -n 1p | awk  -F '/'  '{print $2}'
10.192.210.119
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster#
```

Figure 10

   b. Get explorer port

   $> kubectl describe service fabric-mychannel-explorer --namespace=default| grep -i NodePort |sed -n 2p | awk -F ' ' '{print $3}' | awk -F '/' '{print $1}'

```
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster# kubectl describe service fabric-mychannel-explorer --namespace=default| grep -i NodePort |sed -n 2p | awk  -F ' '  '{print $3}' | awk
  -F '/'  '{print $1}'
32766
root@nfs:~/work/baas/setupCluster#
root@nfs:~/work/baas/setupCluster#
```

Figure 11

Now, You can view BE with address http://10.192.210.119:32766 .

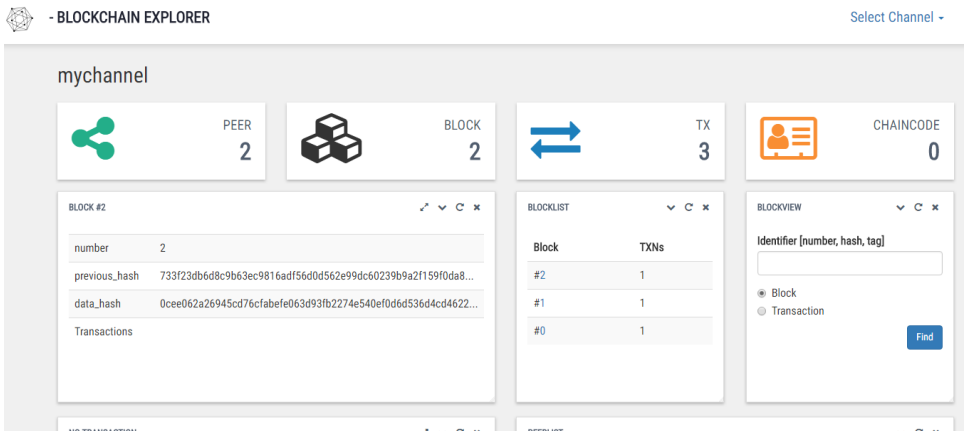

Figure 12