Kubernetes Extended Cases

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GitHub: https://github.com/nonamecoder2002/GLBaseCamp2021

[Base]:

Task1: “Deploy go-demo-app & do troubleshoot”

At first let's grab go-demo-app from GitHub:

```
alex@DESKTOP-LBU2UOH:~/hw_5$ git clone https://github.com/den-vasyliev/go-demo-app.git
Cloning into 'go-demo-app'...
remote: Enumerating objects: 2740, done.
remote: Counting objects: 100% (210/210), done.
remote: Compressing objects: 100% (159/159), done.
remote: Total 2740 (delta 121), reused 117 (delta 48), pack-reused 2530
Receiving objects: 100% (2740/2740), 127.29 MiB | 2.15 MiB/s, done.
Resolving deltas: 100% (1483/1483), done.
alex@DESKTOP-LBU2UOH:~/hw_5$ ls -l
```

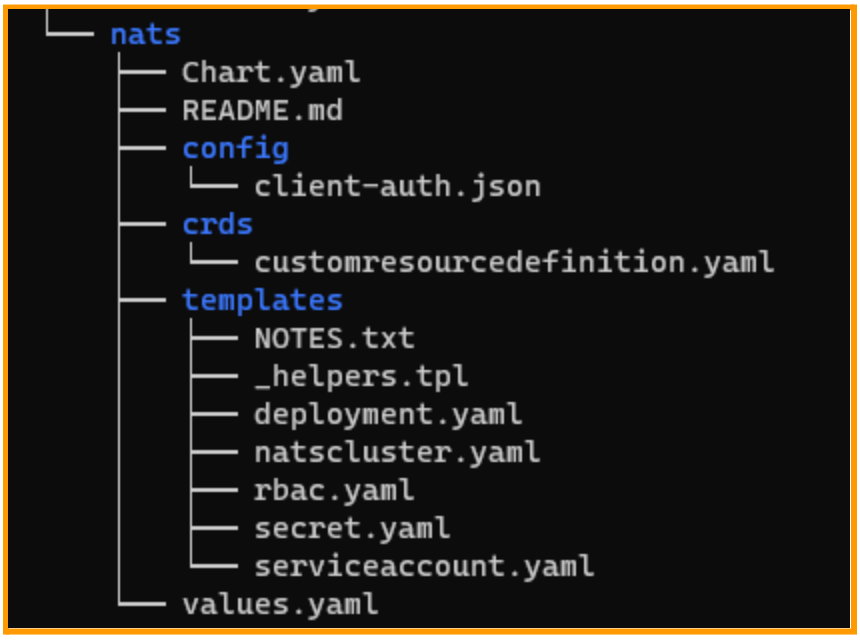
Before installing the app using HELM, we need to create namespace “demo” for that app manually:

```
alex@DESKTOP-LBU2UOH:~/go-demo-app$ kubectl get ns
NAME              STATUS   AGE
default           Active   55m
demo              Active   52m
kube-node-lease   Active   55m
kube-public       Active   55m
kube-system       Active   55m
```

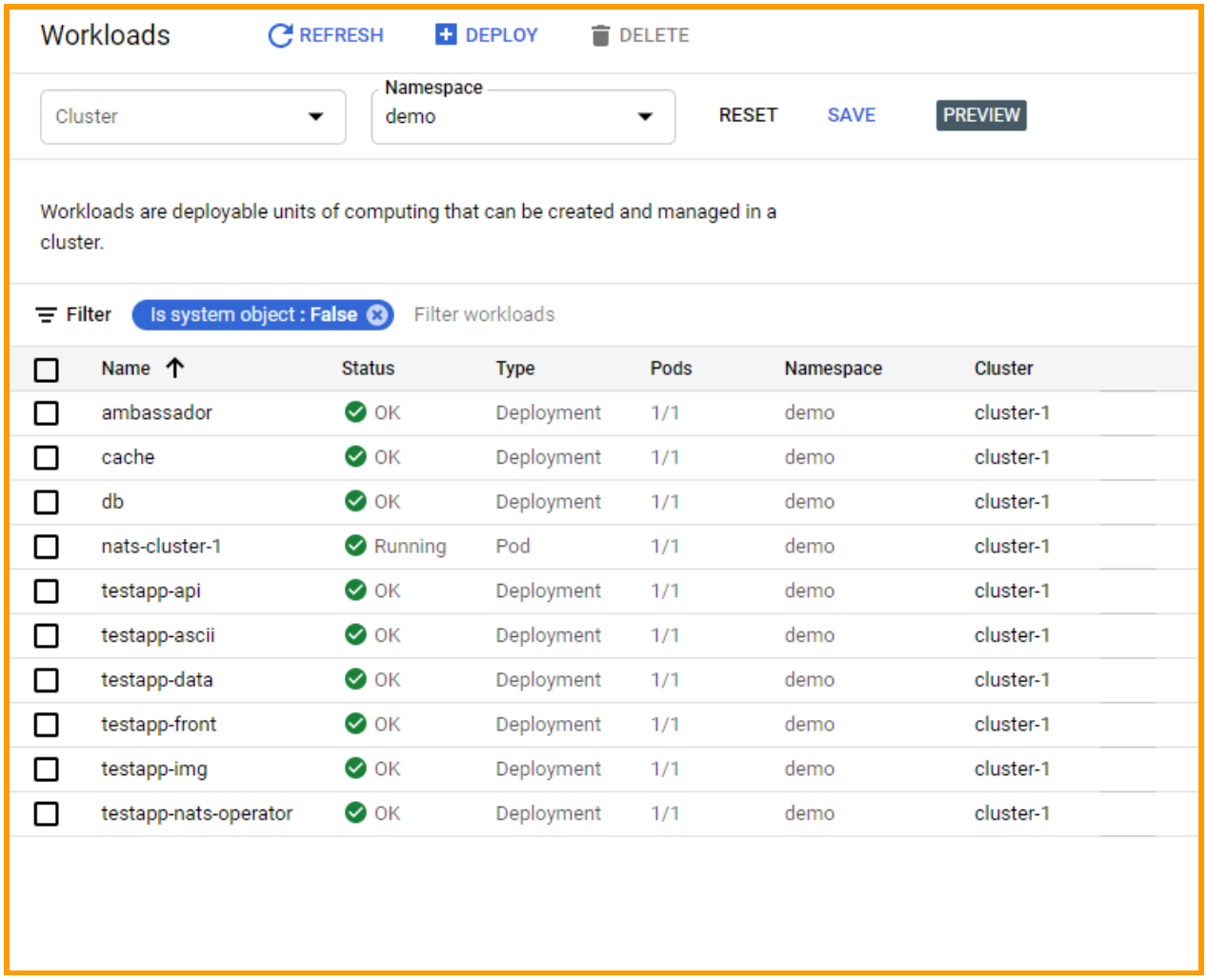
Now try to install the app to the “demo” namespace:

```
alex@DESKTOP-LBU2UOH:~/go-demo-app$ helm install --namespace demo testapp ./helm/
manifest_sorter.go:192: info: skipping unknown hook: "crd-install"
manifest_sorter.go:192: info: skipping unknown hook: "crd-install"
Error: unable to build kubernetes objects from release manifest: unable to recognize "": no match
es for kind "NatsCluster" in version "nats.io/v1alpha2"
alex@DESKTOP-LBU2UOH:~/go-demo-app$
```

After doing some research I managed to fix this error. The solution is to mkdir “crds” in app/helm/charts/nats & move “customresourcedefinition.yaml” from /helm/charts/nats/templates to “crds” dir created earlier

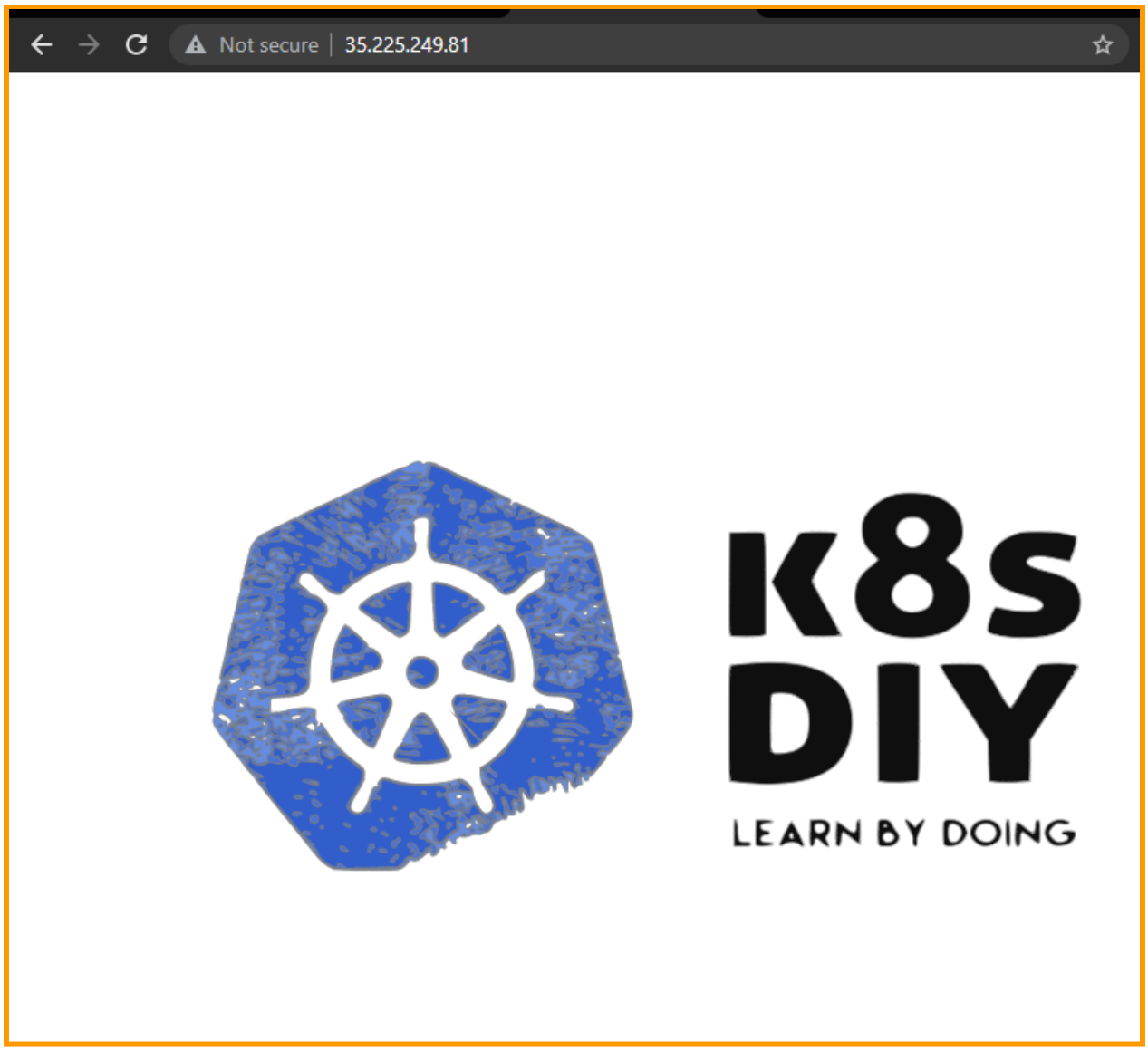


After this, the installation goes successful the app is deployed




```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ kubectl get svc -o wide -n demo
NAME                TYPE           CLUSTER-IP     EXTERNAL-IP     PORT(S)
ambassador          LoadBalancer   10.8.15.124    35.225.249.81   80:32330/TCP
ambassador-admin    ClusterIP      10.8.11.17     <none>          8877/TCP
cache               ClusterIP      10.8.15.193    <none>          6379/TCP
db                  ClusterIP      10.8.7.20      <none>          3306/TCP
nats-cluster        ClusterIP      10.8.11.58     <none>          4222/TCP
nats-cluster-mgmt   ClusterIP      None           <none>          6222/TCP,8222/TCP,7777/TCP
testapp-api         ClusterIP      10.8.12.234    <none>          80/TCP
testapp-ascii       ClusterIP      10.8.3.48      <none>          80/TCP
testapp-data        ClusterIP      10.8.2.132     <none>          80/TCP
testapp-front       ClusterIP      10.8.15.139    <none>          80/TCP
testapp-img         ClusterIP      10.8.0.180     <none>          80/TCP
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$
```

Now open-up browser and go to ambassador EXTERNAL IP:



To verify that the app works correctly let`s run the following commands from the terminal:

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ wget -O /tmp/g.png https://www.google.com/images/brandin
g/googlelogo/1x/googlelogo_color_272x92dp.png
```

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ curl -F 'image=@/tmp/g.png'   curl -F 'image=@/tmp/g.png
'   35.225.249.81/img/
curl: (6) Could not resolve host: curl
  .;1tttt1i.                              ;:
 if1:....:i.                             .1;
iL;            ,;;;:    .;ii;,    :ii;:;, 1;  ,;;:,
ff.   .1tt11:. 11:::11, if1::if1 .tf;:;tL1 1; i1:;t1.
;Li       .tL.it     t1,Li    ;L,,L.    fi 1: t;;;;:,.
 ;fti:,,,;tf: :ti,.,;t:.tf;,,:ff..ft:,,iLi 1; 1t;,.::
   :i1111i:    .;iii;,   :1111;.  .;11i;L1 ;, .:;iii:
                            .11,,,1L:
                             ,i111i.
```

As we can see, the app works correctly

Task 2: “Install Elastic on kuber cluster”

Let's create elastic-operator & its crds:

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ kubectl apply -f https://download.elastic.co/downloads/eck/1.6.0/all-in-one.yaml
namespace/elastic-system created
serviceaccount/elastic-operator created
secret/elastic-webhook-server-cert created
configmap/elastic-operator created
Warning: apiextensions.k8s.io/v1beta1 CustomResourceDefinition is deprecated in v1.16+, unavailable in v1.22+; use apiext
customresourcedefinition.apiextensions.k8s.io/agents.agent.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/apmservers.apm.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/beats.beat.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/elasticmapsservers.maps.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/elasticsearches.elasticsearch.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/enterprisesearches.enterprisesearch.k8s.elastic.co created
customresourcedefinition.apiextensions.k8s.io/kibanas.kibana.k8s.elastic.co created
clusterrole.rbac.authorization.k8s.io/elastic-operator created
clusterrole.rbac.authorization.k8s.io/elastic-operator-view created
clusterrole.rbac.authorization.k8s.io/elastic-operator-edit created
clusterrolebinding.rbac.authorization.k8s.io/elastic-operator created
service/elastic-webhook-server created
statefulset.apps/elastic-operator created
```

Then let`s deploy ElasticSearch:

```
cat <<EOF | kubectl apply -f -
apiVersion: elasticsearch.k8s.elastic.co/v1
kind: Elasticsearch
metadata:
  name: quickstart
spec:
  version: 7.13.1
  nodeSets:
  - name: default
    count: 1
    config:
      node.store.allow_mmap: false
EOF
```

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ kubectl  get elasticsearch -A
NAMESPACE   NAME         HEALTH    NODES   VERSION   PHASE             AGE
default     quickstart   unknown           7.13.1    ApplyingChanges   4s
```

Then deploy Kibana:

```
cat <<EOF | kubectl apply -f -
apiVersion: kibana.k8s.elastic.co/v1
kind: Kibana
metadata:
  name: quickstart
spec:
  version: 7.13.1
  count: 1
  elasticsearchRef:
    name: quickstart
EOF
```

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ kubectl get svc
NAME                      TYPE        CLUSTER-IP    EXTERNAL-IP   PORT(S)    AGE
kubernetes                ClusterIP   10.8.0.1      <none>        443/TCP    74m
quickstart-es-default     ClusterIP   None          <none>        9200/TCP   50m
quickstart-es-http        ClusterIP   10.8.9.226    <none>        9200/TCP   50m
quickstart-es-transport   ClusterIP   None          <none>        9300/TCP   50m
quickstart-kb-http        ClusterIP   10.8.6.46     <none>        5601/TCP   5s
```

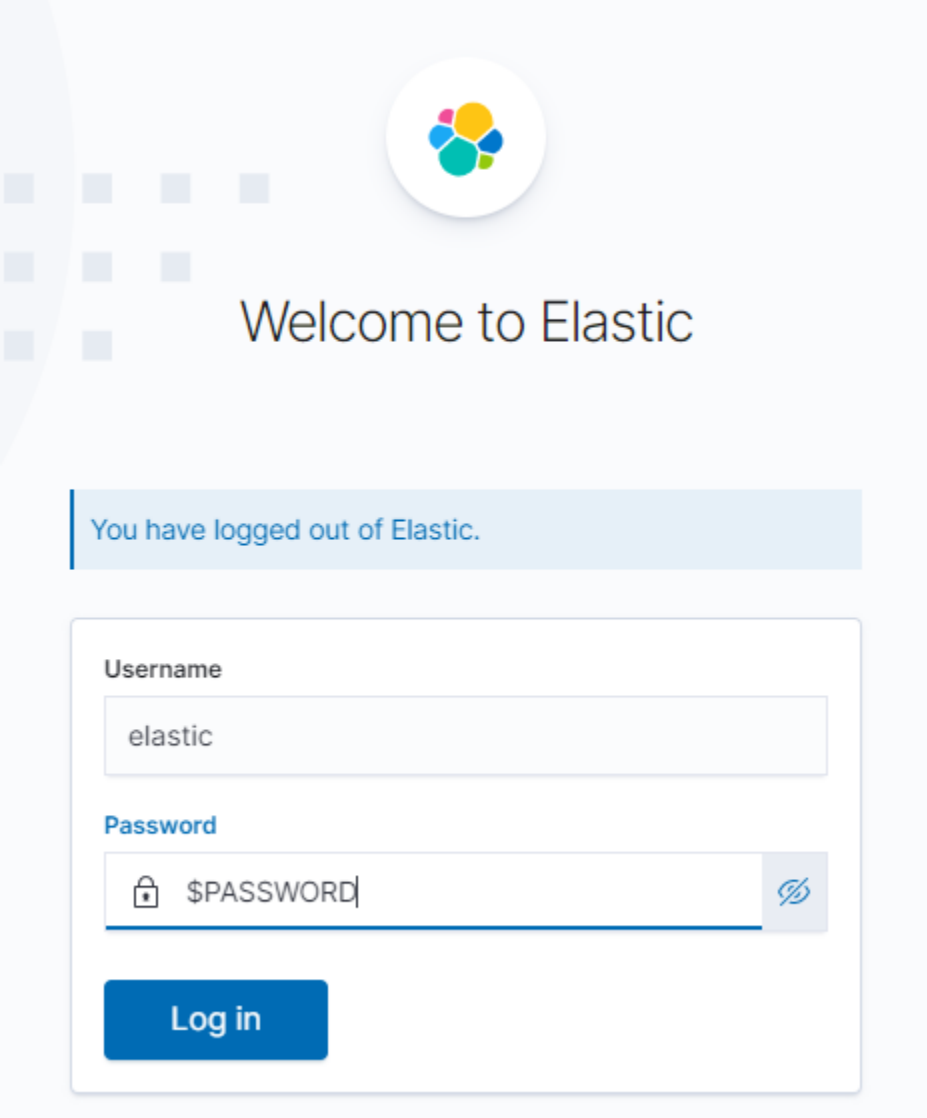
Then retrieve the credentials:

```
PASSWORD=$(kubectl get secret quickstart-es-elastic-user\
 -o go-template='{{.data.elastic | base64decode}}')
```

Then port-forward kibana svc:

```
alex@DESKTOP-LBU2UOH:~/hw_5/go-demo-app$ kubectl port-forward svc/quickstart-kb-http 5601
Forwarding from 127.0.0.1:5601 -> 5601
Forwarding from [::1]:5601 -> 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
Handling connection for 5601
```

Open-up browser & go to localhost:5601 port:



Login using the retrieved credentials: