

Name - Altaf Ali
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Running Application:

```
The default interactive shell is now zsh.  
To update your account to use zsh, please run `chsh -s /bin/zsh`.  
For more details, please visit https://support.apple.com/kb/HT208050.  
[Altafs-MacBook-Pro:~ altafafs]$ minikube start  
😄 minikube v1.32.0 on Darwin 13.6.1  
💡 Using the docker driver based on existing profile  
👍 Starting control plane node minikube in cluster minikube  
🌐 Pulling base image ...  
🔄 Restarting existing docker container for "minikube" ...  
💾 Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...  
🔗 Configuring bridge CNI (Container Networking Interface) ...  
🌐 Verifying Kubernetes components...  
  └─ Using image gcr.io/k8s-minikube/storage-provisioner:v5  
🌟 Enabled addons: default-storageclass, storage-provisioner  
🌟 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default  
[Altafs-MacBook-Pro:~ altafafs]$
```

```
Altsfs-MacBook-Pro:devops alfafails$ cd lab4
Altsfs-MacBook-Pro:lab4 alfafails$ cd lab4
Altsfs-MacBook-Pro:lab4 alfafails$ git clone https://github.com/schadokar/docker-etherum.git
Cloning into 'docker-etherum'...
remote: Enumerating objects: 10, done.
remote: Counting objects: 100%, 10(7/7), done.
remote: Compressing objects: 100% (64/64), done.
remote: Total 197 (delta 42), reused 14 (delta 4), pack-reused 127
remote:   1.00 MiB/s, done.
Resolving deltas: 100% (91/91), done.
Resolving deltas: 100% (198/198), 653.73 KiB | 1.51 MiB/s, done.
Resolving deltas: 100% (198/198), done.
Altsfs-MacBook-Pro:lab4 alfafails$ ls
docker-etherum
Altsfs-MacBook-Pro:lab4 alfafails$ cd docker-etherum/
Altsfs-MacBook-Pro:docker-etherum alfafails$ curl -L https://github.com/kubernetes/kompose/releases/download/v1.32.0/kompose-darwin-amd64 -o kompose
  % Total    % Received =Xferd  Average Speed   Time   Time  Current
                                 Dload Upload   Total Spent  Left Speed
0   0     0     0     0     0     0:00:02 0:00:02 0:00:00 0      0
100 22.2M 100 22.2M 0     0:00:02 0:00:02 0:00:00 12.3M
Altsfs-MacBook-Pro:docker-etherum alfafails$ ls
Dockerfile           LICENSE        README.md      docker-compose.yml  kompose        package.json
Dockerfile_ganache  LICENSE.md    Dockerfile     ethereum       package-lock.json  server
Altsfs-MacBook-Pro:docker-etherum alfafails$ kompose convert -f docker-compose.yml
-bash: kompose: command not found
Altsfs-MacBook-Pro:docker-etherum alfafails$ chmod +x kompose
Altsfs-MacBook-Pro:docker-etherum alfafails$ sudo ./kompose /usr/local/bin/kompose
Password:
Altsfs-MacBook-Pro:docker-etherum alfafails$ kompose convert -f docker-compose.yml
INFO Kubernetes file "dapp-service.yaml" created
INFO Kubernetes file "dapp-deployment.yaml" created
INFO Kubernetes file "ganache-service.yaml" created
INFO Kubernetes file "react-service.yaml" created
INFO Kubernetes file "dapp-deployment.yaml" created
INFO Kubernetes file "ganache-deployment.yaml" created
INFO Kubernetes file "react-deployment.yaml" created
Altsfs-MacBook-Pro:docker-etherum alfafails$ ls
Dockerfile           LICENSE        README.md      dapp-deployment.yaml  docker-compose.yml  ganache-deployment.yaml  package-lock.json  react-deployment.yaml  server
Dockerfile_ganache  LICENSE.md    Dockerfile     dapp-service.yaml  ethereum       ganache-service.yaml  package.json    react-service.yaml
Altsfs-MacBook-Pro:docker-etherum alfafails$ kubectl apply -f .
error validating "dapp-deployment.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "ganache-deployment.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "react-deployment.yaml": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "dapp-service.yaml": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "ganache-service.yaml": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "react-service.yaml": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "package-lock.json": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "server": error validating data: [apiVersion not set, kind not set]; if you choose to ignore these errors, turn validation off with --validate=false
error validating "dapp-deployment.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "ganache-deployment.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "react-deployment.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "dapp-service.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "ganache-service.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
error validating "react-service.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
Altsfs-MacBook-Pro:docker-etherum alfafails$ kubectl apply -f dapp-service.yaml
error: validation error validating "dapp-service.yaml": error validating data: failed to download openapi: Get "https://127.0.0.1:50808/openapi/v2?timeout=32s": dial tcp 127.0.0.1:50808: connect: connection refused; if you choose to ignore these errors, turn validation off with --validate=false
Altsfs-MacBook-Pro:docker-etherum alfafails$ kubectl apply -f .
deployment.apps/dapp created
service/dapp created
deployment.apps/ganache created
service/ganache created
deployment.apps/react created
service/react created
```

```
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get po
NAME                    READY   STATUS    RESTARTS   AGE
dapp-7848d59bb7-fcpmh   1/1     Running   0          11m
ganache-76dfbb5d45-jlm4t 1/1     Running   0          11m
mongodb-stateful-set-0   1/1     Running   1 (5d21h ago) 5d23h
mongodb-stateful-set-1   1/1     Running   1 (5d21h ago) 5d23h
nginx-deployment-5f4f55f467-5gx7z 1/1     Running   1 (5d21h ago) 5d23h
nginx-deployment-5f4f55f467-fxmct   1/1     Running   1 (5d21h ago) 5d23h
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   1 (5d21h ago) 5d23h
nginx-rdwcz             1/1     Running   1 (5d21h ago) 5d23h
note-deployment-74cc946cd8-vqjgf   1/1     Running   2 (11m ago) 5d23h
note-deployment-74cc946cd8-ztlv7   1/1     Running   2 (11m ago) 5d23h
note-server-deployment-6fb5fcb67f-6vjzg 1/1     Running   1 (12m ago) 5d23h
note-server-deployment-6fb5fcb67f-9lhqg 1/1     Running   1 (12m ago) 5d23h
react-5d44c95bdd-lj5bn           1/1     Running   0          11m
web-0                     0/1     Pending   0          5d23h
Altafs-MacBook-Pro:docker-ethereum altafali$
```

```
[Altafs-MacBook-Pro:~ altafali$ kubectl get services
NAME            TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
dapp            ClusterIP 10.110.125.30 <none>        4000/TCP   21m
ganache         ClusterIP 10.108.78.131 <none>        8545/TCP   21m
kubernetes       ClusterIP 10.96.0.1    <none>        443/TCP    6d23h
mongodb-service ClusterIP 10.99.204.142 <none>        27017/TCP  5d23h
nginx           ClusterIP None         <none>        80/TCP     6d
note-server-service ClusterIP 10.96.82.185 <none>        5000/TCP   5d23h
note-service     LoadBalancer 10.99.250.114 <pending>   3000:30804/TCP 5d23h
react            ClusterIP 10.110.153.236 <none>        3000/TCP   21m
[Altafs-MacBook-Pro:~ altafali$ minikube service dapp
|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|
| default   | dapp | No node port | |
|-----|
⚠️ service default/dapp has no node port
🏃 Starting tunnel for service dapp.
|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|
| default   | dapp | http://127.0.0.1:50208 |
|-----|
⚠️ Opening service default/dapp in default browser...
❗ Because you are using a Docker driver on darwin, the terminal needs to be open to run it.
^C⚠ Stopping tunnel for service dapp.
[Altafs-MacBook-Pro:~ altafali$ kubectl port-forward service/react 50208:4000
error: Service react does not have a service port 4000
[Altafs-MacBook-Pro:~ altafali$ kubectl port-forward service/react 50193:4000
error: Service react does not have a service port 4000
[Altafs-MacBook-Pro:~ altafali$ kubectl port-forward service/react 4000:4000
error: Service react does not have a service port 4000
[Altafs-MacBook-Pro:~ altafali$ kubectl port-forward service/react 3000:4000
error: Service react does not have a service port 4000
[Altafs-MacBook-Pro:~ altafali$ 
[Altafs-MacBook-Pro:~ altafali$ 
[Altafs-MacBook-Pro:~ altafali$ 
[Altafs-MacBook-Pro:~ altafali$ 
[Altafs-MacBook-Pro:~ altafali$ 
[Altafs-MacBook-Pro:~ altafali$ kubectl port-forward service/dapp 4000:4000
Forwarding from 127.0.0.1:4000 -> 4000
Forwarding from [::1]:4000 -> 4000
[Altafs-MacBook-Pro:~ altafali$
```

Minikube dapp

127.0.0.1:54336

Homepage - Geor...

set message

| |
|------------------|
| Set Message |
| Get Message |
| Compile Contract |
| Deploy Contract |

Contract compiled successfully!

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| Name | Status | Type | Initiator | Size | Time | Waterfall |
|---------|--------|------|-----------|-------|--------|-----------|
| compile | 200 | xhr | xhr://184 | 268 B | 6.61 s | |

127.0.0.1:54336

Homepage - Geor...

set message

| |
|------------------|
| Set Message |
| Get Message |
| Compile Contract |
| Deploy Contract |

0x978A57E2850e8289aed3E99Fc64C2eFA8F26562a

Elements Console Sources Network Performance Memory Application >

Filter: All Doc JS Fetch/XHR CSS Font Img Media Manifest WS Wasm Other Blocked response cookies

| Name | Status | Type | Initiator | Size | Time | Waterfall |
|---------|--------|------|-----------|-------|--------|-----------|
| compile | 200 | xhr | xhr://184 | 268 B | 6.61 s | |
| deploy | 200 | xhr | xhr://184 | 279 B | 759 ms | |

Set Message

The screenshot shows a web browser window with the URL `127.0.0.1:54336`. The main content area displays the message "Hello How are you ?". Below it is a navigation menu with four items: "Set Message", "Get Message", "Compile Contract", and "Deploy Contract". The "Set Message" item is highlighted with a blue border.

The Network tab of the developer tools is open, showing a list of requests. The requests are:

| Name | Status | Type | Initiator | Size | Time | Waterfall |
|-----------|--------|------|------------|-------|--------|-----------|
| compile | 200 | xhr | xhr.js:184 | 268 B | 6.61 s | |
| deploy | 200 | xhr | xhr.js:184 | 279 B | 759 ms | |
| localhost | 200 | xhr | xhr.js:184 | 303 B | 468 ms | |

The screenshot shows a web browser window with the URL `127.0.0.1:54336`. The main content area displays the message "Hello How are you ?". Below it is a navigation menu with four items: "Set Message", "Get Message", "Compile Contract", and "Deploy Contract". The "Get Message" item is highlighted with a blue border.

The Network tab of the developer tools is open, showing a list of requests. The requests are:

| Name | Status | Type | Initiator | Size | Time | Waterfall |
|-----------|--------|------|------------|-------|--------|-----------|
| compile | 200 | xhr | xhr.js:184 | 268 B | 6.61 s | |
| deploy | 200 | xhr | xhr.js:184 | 279 B | 759 ms | |
| localhost | 200 | xhr | xhr.js:184 | 303 B | 468 ms | |
| localhost | 200 | xhr | xhr.js:184 | 256 B | 112 ms | |

Replica sets

```
[Altafs-MacBook-Pro:~ altafali$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
dapp-7848d59bb7-fcpmh      1/1     Running   1 (12m ago)  63m
ganache-76dfbb5d45-jlm4t   1/1     Running   1 (12m ago)  63m
mongodb-stateful-set-0     1/1     Running   2 (12m ago)  6d
mongodb-stateful-set-1     1/1     Running   2 (12m ago)  6d
nginx-deployment-5f4f55f467-5gx7z  1/1     Running   2 (12m ago)  6d
nginx-deployment-5f4f55f467-fxmct   1/1     Running   2 (12m ago)  6d
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   2 (12m ago)  6d
nginx-rdwcz                1/1     Running   2 (12m ago)  6d
note-deployment-74cc946cd8-vqjgf   1/1     Running   4 (11m ago)  6d
note-deployment-74cc946cd8-ztlv7   1/1     Running   4
note-server-deployment-6fb5fc67f-6vjzg  1/1     Running   2 (12m ago)  6d
note-server-deployment-6fb5fc67f-9lhqg  1/1     Running   2 (12m ago)  6d
react-5d44c95bdd-lj5bn        1/1     Running   1 (12m ago)  63m
web-0                      0/1     Pending   0
[Altafs-MacBook-Pro:~ altafali$ kubectl delete dapp-7848d59bb7-fcpmh
error: the server doesn't have a resource type "dapp-7848d59bb7-fcpmh"
[Altafs-MacBook-Pro:~ altafali$ kubectl delete pod dapp-7848d59bb7-fcpmh
pod "dapp-7848d59bb7-fcpmh" deleted
[Altafs-MacBook-Pro:~ altafali$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
dapp-7848d59bb7-p78ml      1/1     Running   0
ganache-76dfbb5d45-jlm4t   1/1     Running   1 (13m ago)  63m
mongodb-stateful-set-0     1/1     Running   2 (13m ago)  6d
mongodb-stateful-set-1     1/1     Running   2 (13m ago)  6d
nginx-deployment-5f4f55f467-5gx7z  1/1     Running   2 (13m ago)  6d
nginx-deployment-5f4f55f467-fxmct   1/1     Running   2 (13m ago)  6d
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   2 (13m ago)  6d
nginx-rdwcz                1/1     Running   2 (13m ago)  6d
note-deployment-74cc946cd8-vqjgf   1/1     Running   4 (11m ago)  6d
note-deployment-74cc946cd8-ztlv7   1/1     Running   4
note-server-deployment-6fb5fc67f-6vjzg  1/1     Running   2 (13m ago)  6d
note-server-deployment-6fb5fc67f-9lhqg  1/1     Running   2 (13m ago)  6d
react-5d44c95bdd-lj5bn        1/1     Running   1 (13m ago)  63m
web-0                      0/1     Pending   0
Altafs-MacBook-Pro:~ altafali$ ]
```

Env variables

```
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
dapp-57fb7cd8c7-dc4fz   0/1     Pending   0          4m59s
dapp-7848d59bb7-p78ml   1/1     Running   0          18m
ganache-76dfbb5d45-jlm4t 1/1     Running   1 (31m ago)  81m
mongodb-stateful-set-0   1/1     Running   2 (31m ago)  6d
mongodb-stateful-set-1   1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-5gx7z 1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-fxmct   1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   2 (31m ago)  6d
nginx-rdwcz              1/1     Running   2 (31m ago)  6d1h
note-deployment-74cc946cd8-vqjgf   1/1     Running   4 (30m ago)  6d
note-deployment-74cc946cd8-ztlv7   1/1     Running   4          6d
note-server-deployment-6fb5fc67f-6vjzg 1/1     Running   2 (31m ago)  6d
note-server-deployment-6fb5fc67f-9lhqg 1/1     Running   2 (31m ago)  6d
react-5d44c95bdd-lj5bn            1/1     Running   1 (31m ago)  81m
web-0                      0/1     Pending   0          6d1h
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl delete pod dapp-7848d59bb7-p78ml
pod "dapp-7848d59bb7-p78ml" deleted
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
dapp-57fb7cd8c7-dc4fz   0/1     ContainerCreating   0          5m21s
dapp-7848d59bb7-v6mrz   0/1     Pending   0          5s
ganache-76dfbb5d45-jlm4t 1/1     Running   1 (31m ago)  82m
mongodb-stateful-set-0   1/1     Running   2 (31m ago)  6d
mongodb-stateful-set-1   1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-5gx7z 1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-fxmct   1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   2 (31m ago)  6d1h
nginx-rdwcz              1/1     Running   2 (31m ago)  6d1h
note-deployment-74cc946cd8-vqjgf   1/1     Running   4 (30m ago)  6d
note-deployment-74cc946cd8-ztlv7   1/1     Running   4          6d
note-server-deployment-6fb5fc67f-6vjzg 1/1     Running   2 (31m ago)  6d
note-server-deployment-6fb5fc67f-9lhqg 1/1     Running   2 (31m ago)  6d
react-5d44c95bdd-lj5bn            1/1     Running   1 (31m ago)  82m
web-0                      0/1     Pending   0          6d1h
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
dapp-57fb7cd8c7-dc4fz   1/1     Running   0          5m30s
ganache-76dfbb5d45-jlm4t 1/1     Running   1 (32m ago)  82m
mongodb-stateful-set-0   1/1     Running   2 (31m ago)  6d
mongodb-stateful-set-1   1/1     Running   2 (31m ago)  6d
nginx-deployment-5f4f55f467-5gx7z 1/1     Running   2 (32m ago)  6d
nginx-deployment-5f4f55f467-fxmct   1/1     Running   2 (32m ago)  6d
nginx-deployment-5f4f55f467-wc9zf   1/1     Running   2 (32m ago)  6d1h
nginx-rdwcz              1/1     Running   2 (32m ago)  6d1h
note-deployment-74cc946cd8-vqjgf   1/1     Running   4 (30m ago)  6d
note-deployment-74cc946cd8-ztlv7   1/1     Running   4          6d
note-server-deployment-6fb5fc67f-6vjzg 1/1     Running   2 (31m ago)  6d
note-server-deployment-6fb5fc67f-9lhqg 1/1     Running   2 (31m ago)  6d
react-5d44c95bdd-lj5bn            1/1     Running   1 (32m ago)  82m
web-0                      0/1     Pending   0          6d1h
[Altafs-MacBook-Pro:docker-ethereum altafali$
```

```
[Altafs-MacBook-Pro:docker-ethereum altafali$  
[Altafs-MacBook-Pro:docker-ethereum altafali$  
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl exec dapp-57fb7cd8c7-dc4fz -- env  
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin  
HOSTNAME=dapp-57fb7cd8c7-dc4fz  
NODE_PORT=8080  
NOTE_SERVICE_PORT_3000_TCP_PROTO=tcp  
DAPP_PORT=tcp://10.110.125.30:4000  
GANACHE_SERVICE_PORT_8545=8545  
NOTE_SERVICE_PORT_3000_TCP_PORT=3000  
KUBERNETES_PORT=tcp://10.96.0.1:443  
KUBERNETES_PORT_443_TCP_PORT=443  
REACT_PORT_3000_TCP_PROTO=tcp  
REACT_PORT_3000_TCP_PORT=3000  
REACT_PORT=tcp://10.110.153.236:3000  
MONGODB_SERVICE_SERVICE_PORT=27017  
DAPP_PORT_4000_TCP=tcp://10.110.125.30:4000  
DAPP_PORT_4000_TCP_PROTO=tcp  
DAPP_PORT_4000_TCP_ADDR=10.110.125.30  
NOTE_SERVICE_SERVICE_HOST=10.99.250.114  
NOTE_SERVER_SERVICE_PORT=tcp://10.96.82.185:5000  
NOTE_SERVER_SERVICE_PORT_5000_TCP_PORT=5000  
KUBERNETES_SERVICE_PORT=443  
MONGODB_SERVICE_PORT_27017_TCP=tcp://10.99.204.142:27017  
DAPP_SERVICE_PORT=4000  
NOTE_SERVER_SERVICE_SERVICE_PORT=5000  
GANACHE_SERVICE_PORT=8545  
GANACHE_PORT_8545_TCP=tcp://10.108.78.131:8545  
KUBERNETES_PORT_443_TCP_PROTO=tcp  
NOTE_SERVICE_PORT=tcp://10.99.250.114:3000  
REACT_SERVICE_PORT=3000  
KUBERNETES_SERVICE_PORT_HTTPS=443  
NOTE_SERVICE_PORT_3000_TCP=tcp://10.99.250.114:3000  
MONGODB_SERVICE_PORT_27017_TCP_ADDR=10.99.204.142  
DAPP_SERVICE_PORT_4000=4000  
MONGODB_SERVICE_SERVICE_HOST=10.99.204.142  
REACT_SERVICE_HOST=10.110.153.236  
NOTE_SERVER_SERVICE_PORT_5000_TCP_PROTO=tcp  
KUBERNETES_PORT_443_TCP=tcp://10.96.0.1:443  
DAPP_SERVICE_HOST=10.110.125.30  
DAPP_PORT_4000_TCP_PORT=4000  
REACT_PORT_3000_TCP_ADDR=10.110.153.236  
GANACHE_PORT_8545_TCP_PROTO=tcp  
MONGODB_SERVICE_PORT_27017_TCP_PROTO=tcp  
MONGODB_SERVICE_PORT_27017_TCP_PORT=27017  
GANACHE_SERVICE_HOST=10.108.78.131  
GANACHE_PORT_8545_TCP_PORT=8545  
GANACHE_PORT_8545_TCP_ADDR=10.108.78.131  
MONGODB_SERVICE_PORT=tcp://10.99.204.142:27017  
NOTE_SERVER_SERVICE_PORT_5000_TCP=tcp://10.96.82.185:5000  
NOTE_SERVER_SERVICE_PORT_5000_TCP_ADDR=10.96.82.185  
KUBERNETES_PORT_443_TCP_ADDR=10.96.0.1  
NOTE_SERVICE_SERVICE_PORT=3000  
REACT_SERVICE_PORT_3000=3000  
REACT_PORT_3000_TCP=tcp://10.110.153.236:3000  
NOTE_SERVER_SERVICE_SERVICE_HOST=10.96.82.185  
NOTE_SERVICE_PORT_3000_TCP_ADDR=10.99.250.114  
GANACHE_PORT=tcp://10.108.78.131:8545  
KUBERNETES_SERVICE_HOST=10.96.0.1  
NODE_VERSION=8.12.0  
YARN_VERSION=1.9.4  
HOME=/root  
Altafs-MacBook-Pro:docker-ethereum altafali$ ]
```

```
    hostPort: 4000
    protocol: TCP
  env:
    - name: NODE_PORT
      valueFrom:
        configMapKeyRef:
          name: node-app-config
          key: NODE_PORT
  restartPolicy: Always
```

Load Balancer

```
  type: LoadBalancer
  ports:
    - name: "http"
      port: 3001
      targetPort: 80
  selector:
    io.kompose.service: react
```

```
[Altafs-MacBook-Pro:docker-ethereum altafali$ 
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl apply -f react-service.yaml
service/react configured
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get services
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP  PORT(S)      AGE
dapp          ClusterIP  10.110.125.30 <none>       4000/TCP    2d21h
ganache       ClusterIP  10.108.78.131 <none>       8545/TCP    2d21h
kubernetes    ClusterIP  10.96.0.1    <none>       443/TCP     9d
mongodb-service ClusterIP  10.99.204.142 <none>       27017/TCP   8d
nginx         ClusterIP  None         <none>       80/TCP      8d
note-server-service ClusterIP  10.96.82.185 <none>       5000/TCP    8d
note-service   LoadBalancer 10.99.250.114 <pending>   3000:30804/TCP 8d
react          LoadBalancer 10.110.153.236 <pending>   3001:31804/TCP 2d21h
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get services
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP  PORT(S)      AGE
dapp          ClusterIP  10.110.125.30 <none>       4000/TCP    2d21h
ganache       ClusterIP  10.108.78.131 <none>       8545/TCP    2d21h
kubernetes    ClusterIP  10.96.0.1    <none>       443/TCP     9d
mongodb-service ClusterIP  10.99.204.142 <none>       27017/TCP   8d
nginx         ClusterIP  None         <none>       80/TCP      8d
note-server-service ClusterIP  10.96.82.185 <none>       5000/TCP    8d
note-service   LoadBalancer 10.99.250.114 <pending>   3000:30804/TCP 8d
react          LoadBalancer 10.110.153.236 <pending>   3001:31804/TCP 2d21h
[Altafs-MacBook-Pro:docker-ethereum altafali$ minikube service react
|-----|-----|-----|-----|
|  NAMESPACE |  NAME |  TARGET PORT |  URL |
|-----|-----|-----|-----|
|  default  |  react |  http/3001  |  http://192.168.49.2:31804 |
|-----|-----|-----|-----|
🏃 Starting tunnel for service react.
|-----|-----|-----|-----|
|  NAMESPACE |  NAME |  TARGET PORT |  URL |
|-----|-----|-----|-----|
|  default  |  react |                |  http://127.0.0.1:49551 |
|-----|-----|-----|-----|
⚠️ Opening service default/react in default browser...
⚠️ Because you are using a Docker driver on darwin, the terminal needs to be open to run it.
```



set message

| |
|------------------|
| Set Message |
| Get Message |
| Compile Contract |
| Deploy Contract |

User Role Creation

Horizontal Scaling

```
! dapp-hpa.yaml
1 apiVersion: autoscaling/v1
2 kind: HorizontalPodAutoscaler
3 metadata:
4   name: dapp-hpa
5 spec:
6   scaleTargetRef:
7     apiVersion: apps/v1
8     kind: Deployment
9     name: dapp
10    minReplicas: 1
11    maxReplicas: 5
12    targetCPUUtilizationPercentage: 50
13
```

```
! frontend-hpa.yaml
1  apiVersion: autoscaling/v1
2  kind: HorizontalPodAutoscaler
3  metadata:
4    name: frontend-hpa
5  spec:
6    scaleTargetRef:
7      apiVersion: apps/v1
8      kind: Deployment
9      name: react
10     minReplicas: 1
11     maxReplicas: 5
12     targetCPUUtilizationPercentage: 50
13
```

```
[Altafs-MacBook-Pro:docker-ethereum altafali$ minikube addons enable metrics-server
💡 metrics-server is an addon maintained by Kubernetes. For any concerns contact minikube on GitHub.
You can view the list of minikube maintainers at: https://github.com/kubernetes/minikube/blob/master/OWNERS
  ■ Using image registry.k8s.io/metrics-server/metrics-server:v0.6.4
★ The 'metrics-server' addon is enabled
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl apply -f dapp-hpa.yaml
horizontalpodautoscaler.autoscaling/dapp-hpa created
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl apply -f frontend-hpa.yaml
horizontalpodautoscaler.autoscaling/frontend-hpa created
[Altafs-MacBook-Pro:docker-ethereum altafali$ kubectl get hpa
NAME      REFERENCE   TARGETS   MINPODS   MAXPODS   REPLICAS   AGE
dapp-hpa   Deployment/dapp   <unknown>/50%   1         5         1         16s
frontend-hpa   Deployment/react   <unknown>/50%   1         5         0         9s
Altafs-MacBook-Pro:docker-ethereum altafali$ ]
```