

Final work

summary

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Task 3.1 B - 10pts

Task 4 - 5pts

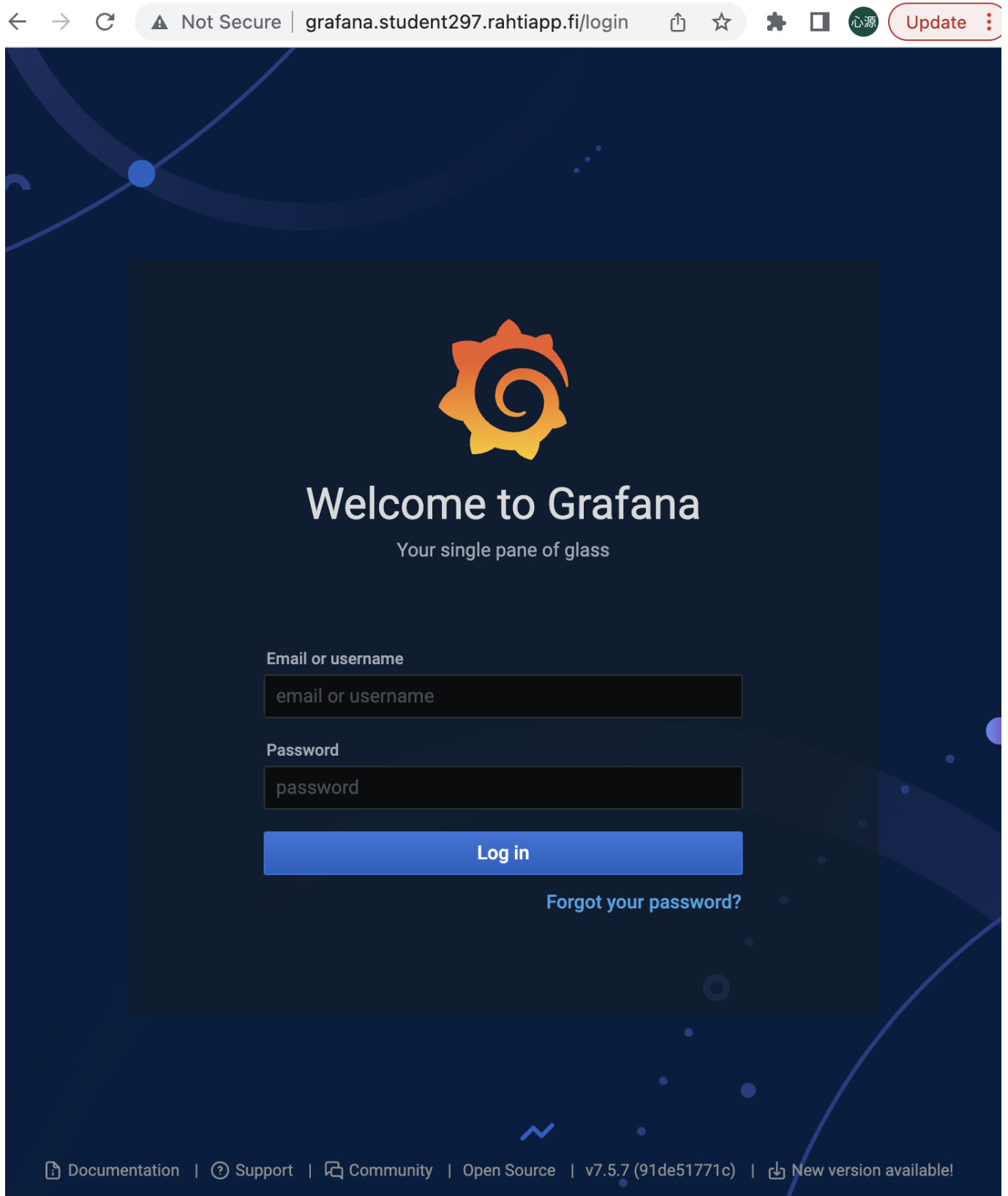
Task 6 - 3pts

Task 7 - 3pts

Task 3.1 B

1. create persistent volumes for Prometheus
2. create Prometheus yaml file
3. create persistent volumes for Grafana
4. create Grafana yaml file

screenshot:



Task 4

Persist MQTT data to a volume

step:

1. create persistent volumes for MQTT
2. update MQTT yaml file and MQTT config file

screenshot:

```
● (base) ericma@EricdeMacBook-Pro Task4 % oc replace --force -f task4.yaml

configmap "mosquitto-config" deleted
configmap "mosquitto-certs" deleted
deployment.extensions "mosquito-deployment" deleted
service "mosquitto-service" deleted
route.route.openshift.io "mosquitto" deleted
configmap/mosquitto-config replaced
configmap/mosquitto-certs replaced
deployment.extensions/mosquito-deployment replaced
service/mosquitto-service replaced
route.route.openshift.io/mosquitto replaced
● (base) ericma@EricdeMacBook-Pro Task4 % oc get pods
NAME                                READY   STATUS    RESTARTS   AGE
mosquito-deployment-86dd489777-gjnj5 1/1     Running   0           45s
node-red-deployment-74f8cfc9bb-c8vwb 1/1     Running   0           2h
○ (base) ericma@EricdeMacBook-Pro Task4 % oc exec mosquito-deployment-86dd489777-gjnj5 -i -t -- sh
/ $ ls mosquitto/data/
hello.txt      mosquitto.db
/ $ cat mosquitto/data/hello.txt
hello
/ $
```

Task 6

Instead of configMap use secrets to for ca.crt, server.crt and server.key

1. create secret yaml file
2. update the MQTT yaml file

screenshot:

```

● (base) ericma@EricdeMacBook-Pro Task6 % oc replace --force -f secret.yaml
secret "mosquitto-secret-file" deleted
secret/mosquitto-secret-file replaced
● (base) ericma@EricdeMacBook-Pro Task6 % oc replace --force -f mosquitto.yaml
configmap "mosquitto-config" deleted
deployment.extensions "mosquito-deployment" deleted
service "mosquitto-service" deleted
route.route.openshift.io "mosquitto" deleted
configmap/mosquitto-config replaced
deployment.extensions/mosquito-deployment replaced
service/mosquitto-service replaced
route.route.openshift.io/mosquitto replaced
● (base) ericma@EricdeMacBook-Pro Task6 % oc get pods
NAME                                READY    STATUS    RESTARTS   AGE
mosquito-deployment-59cd65b5cf-pj2kh 1/1      Running   0           31s
node-red-deployment-74f8cfc9bb-c8vwb 1/1      Running   0           2h
● (base) ericma@EricdeMacBook-Pro Task6 % oc get pvc
NAME                                STATUS    VOLUME                                     CAPACITY   ACCESS MODES   STORAGECLASS   AGE
grafana-pvc                         Bound     pvc-e99238c2-8844-11ed-b60d-fa163e0d8841 1Gi        RWX             glusterfs-storage 9h
mosquitto-pvc                       Bound     pvc-6c48869c-8893-11ed-b60d-fa163e0d8841 10Gi       RWX             glusterfs-storage 21m
node-red-pvc                        Bound     pvc-0c041cf1-8880-11ed-b60d-fa163e0d8841 1Gi        RWX             glusterfs-storage 2h
prometheus-pvc                     Bound     pvc-f2a8b651-8844-11ed-b60d-fa163e0d8841 1Gi        RWX             glusterfs-storage 9h
● (base) ericma@EricdeMacBook-Pro Task6 % oc get secret
NAME                                TYPE      DATA   AGE
builder-dockercfg-nxpm              kubernetes.io/dockercfg 1         7h
builder-token-lg5cf                 kubernetes.io/service-account-token 4         7h
builder-token-spg8b                 kubernetes.io/service-account-token 4         7h
default-dockercfg-c847b             kubernetes.io/dockercfg 1         7h
default-token-hq4hq                 kubernetes.io/service-account-token 4         7h
default-token-wlbzx                 kubernetes.io/service-account-token 4         7h
deployer-dockercfg-kpxlt            kubernetes.io/dockercfg 1         7h
deployer-token-85xgh                kubernetes.io/service-account-token 4         7h
deployer-token-tttdz                kubernetes.io/service-account-token 4         7h
mosquitto-secret-file                Opaque    3        1m
prometheus-server-dockercfg-jgxdx   kubernetes.io/dockercfg 1         7h
prometheus-server-token-455hm       kubernetes.io/service-account-token 4         7h
prometheus-server-token-wlw9x       kubernetes.io/service-account-token 4         7h
○ (base) ericma@EricdeMacBook-Pro Task6 %

```

Task 7

Include liveness probe, readiness probe and initial delay for all deployments/deploymentConfigs

screenshot:

1. start MQTT, everything is fine

```

● (base) ericma@EricdeMacBook-Pro Task7 % oc replace --force -f mosquitto.yaml
configmap "mosquitto-config" deleted
deployment.extensions "mosquito-deployment" deleted
service "mosquitto-service" deleted
route.route.openshift.io "mosquitto" deleted
configmap/mosquitto-config replaced
deployment.extensions/mosquito-deployment replaced
service/mosquitto-service replaced
route.route.openshift.io/mosquitto replaced
● (base) ericma@EricdeMacBook-Pro Task7 % oc get pods
NAME                                READY    STATUS    RESTARTS   AGE
mosquito-deployment-645d84dcf9-lg8bq 1/1      Running   0           20s
node-red-deployment-74f8cfc9bb-c8vwb 1/1      Running   0           2h
○ (base) ericma@EricdeMacBook-Pro Task7 %

```

2. modify an error path for livenessProbe

```
livenessProbe:
  exec:
    command:
      - cat
      - /nowhere
  initialDelaySeconds: 5
  periodSeconds: 5
```

3. check the pod status

Events:	Type	Reason	Age	From	Message
	Normal	Scheduled	29s	default-scheduler	Successfully assigned xinyuan-ma/mosquito-deployment-7d89bc86dc-lxmlg to rahti-comp-io-s7-1
	Normal	Pulling	4s (x2 over 26s)	kubelet	pulling image "eclipse-mosquito:latest"
	Warning	Unhealthy	4s (x3 over 14s)	kubelet	Liveness probe failed: cat: can't open '/nowhere': No such file or directory
	Normal	Killing	4s	kubelet	Killing container with id docker://mosquito:Container failed liveness probe.. Container will be killed and recreated.
	Normal	Pulled	2s (x2 over 23s)	kubelet	Successfully pulled image "eclipse-mosquito:latest"
	Normal	Created	1s (x2 over 22s)	kubelet	Created container
	Normal	Started	1s (x2 over 22s)	kubelet	Started container

4. modify an error path for readinessProbe

```
readinessProbe:
  exec:
    command:
      - cat
      - /nowhere
  initialDelaySeconds: 5
  periodSeconds: 5
```

5. check the pod status

Events:	Type	Reason	Age	From	Message
	Normal	Scheduled	50s	default-scheduler	Successfully assigned xinyuan-ma/mosquito-deployment-b7ff8794c-8ntlp to rahti-comp-io-s7-1
	Normal	Pulling	48s	kubelet	pulling image "eclipse-mosquito:latest"
	Normal	Pulled	46s	kubelet	Successfully pulled image "eclipse-mosquito:latest"
	Normal	Created	45s	kubelet	Created container
	Normal	Started	44s	kubelet	Started container
	Warning	Unhealthy	2s (x8 over 37s)	kubelet	Readiness probe failed: cat: can't open '/nowhere': No such file or directory