一、拉取项目代码

项目代码地址：https://github.com/prometheus-operator/kube-prometheus

使用git或者下载zip包方式，将代码下载到服务器上，根据k8s版本不同，拉取不同版本的代码资源，详细请参考该文档的README部分

二、修改项目代码

1、修改prometheus、grafana、alertmanager的访问类型为NodePort，方便浏览器访问

```
cd kube-prometheus/manifests
分别打开三者对应的service文件
vim prometheus-service.yaml
vim grafana-service.yaml
vim alertmanager-service.yaml
在spec下加上：type: NodePort，如果想固定访问端口，可以在ports下面添加：nodePort: xxx(端口号在30000-32767之间)
```

```yaml
apiVersion: v1
kind: Service
metadata:
  labels:
    app.kubernetes.io/component: prometheus
    app.kubernetes.io/instance: k8s
    app.kubernetes.io/name: prometheus
    app.kubernetes.io/part-of: kube-prometheus
    app.kubernetes.io/version: 2.49.1
  name: prometheus-k8s
  namespace: monitoring
spec:
  type: NodePort
  ports:
  - name: web
    port: 9090
    targetPort: web
  - name: reloader-web
    port: 8080
    targetPort: reloader-web
  selector:
    app.kubernetes.io/component: prometheus
    app.kubernetes.io/instance: k8s
    app.kubernetes.io/name: prometheus
    app.kubernetes.io/part-of: kube-prometheus
  sessionAffinity: ClientIP
~
```

```yaml
apiVersion: v1
kind: Service
metadata:
  labels:
    app.kubernetes.io/component: grafana
    app.kubernetes.io/name: grafana
    app.kubernetes.io/part-of: kube-prometheus
    app.kubernetes.io/version: 10.3.3
  name: grafana
  namespace: monitoring
spec:
  type: NodePort
  ports:
  - name: http
    port: 3000
    targetPort: http
  selector:
    app.kubernetes.io/component: grafana
    app.kubernetes.io/name: grafana
    app.kubernetes.io/part-of: kube-prometheus
~
~
~
```

```yaml
apiVersion: v1
kind: Service
metadata:
  labels:
    app.kubernetes.io/component: alert-router
    app.kubernetes.io/instance: main
    app.kubernetes.io/name: alertmanager
    app.kubernetes.io/part-of: kube-prometheus
    app.kubernetes.io/version: 0.26.0
  name: alertmanager-main
  namespace: monitoring
spec:
  type: NodePort
  ports:
  - name: web
    port: 9093
    targetPort: web
  - name: reloader-web
    port: 8080
    targetPort: reloader-web
  selector:
    app.kubernetes.io/component: alert-router
    app.kubernetes.io/instance: main
    app.kubernetes.io/name: alertmanager
    app.kubernetes.io/part-of: kube-prometheus
  sessionAffinity: ClientIP
~
```

2、修改镜像地址，默认的地址国内服务器可能无法打开，需要修改为国内的地址，**强烈建议此处将地址修改为自己仓库的地址，方便后续部署**

查看镜像地址

```
cd kube-prometheus-main/manifests
grep -riE "quay.io|k8s.gcr|grafana/|image:" *

显示
alertmanager-alertmanager.yaml:  image: quay.io/prometheus/alertmanager:v0.26.0
blackboxExporter-deployment.yaml:        image: quay.io/prometheus/blackbox-exporter:v0.24.0
blackboxExporter-deployment.yaml:        image: jimmidyson/configmap-reload:v0.5.0
```

```
blackboxExporter-deployment.yaml:        image: quay.io/brancz/kube-rbac-proxy:v0.16.0
grafana-deployment.yaml:        image: grafana/grafana:10.3.3
grafana-deployment.yaml:        - mountPath: /etc/grafana/provisioning/datasources
grafana-deployment.yaml:        - mountPath: /etc/grafana/provisioning/dashboards
grafana-prometheusRule.yaml:        runbook_url: https://runbooks.prometheus-operator.dev/runbooks/grafana/grafanarequestsfailing
kubeStateMetrics-deployment.yaml:        image: registry.k8s.io/kube-state-metrics/kube-state-metrics:v2.10.1
kubeStateMetrics-deployment.yaml:        image: quay.io/brancz/kube-rbac-proxy:v0.16.0
kubeStateMetrics-deployment.yaml:        image: quay.io/brancz/kube-rbac-proxy:v0.16.0
nodeExporter-daemonset.yaml:        image: quay.io/prometheus/node-exporter:v1.7.0
nodeExporter-daemonset.yaml:        image: quay.io/brancz/kube-rbac-proxy:v0.16.0
prometheusAdapter-deployment.yaml:        image: registry.k8s.io/prometheus-adapter/prometheus-adapter:v0.11.2
prometheusOperator-deployment.yaml:        - --prometheus-config-reloader=quay.io/prometheus-operator/prometheus-config-reloader:v0.71.2
prometheusOperator-deployment.yaml:        image: quay.io/prometheus-operator/prometheus-operator:v0.71.2
prometheusOperator-deployment.yaml:        image: quay.io/brancz/kube-rbac-proxy:v0.16.0
prometheus-prometheus.yaml:  image: quay.io/prometheus/prometheus:v2.49.1
setup/0prometheusCustomResourceDefinition.yaml:              baseImage:
setup/0prometheusCustomResourceDefinition.yaml:                    image:
setup/0prometheusCustomResourceDefinition.yaml:              image:
setup/0prometheusCustomResourceDefinition.yaml:                    image:
setup/0prometheusCustomResourceDefinition.yaml:                  baseImage:
setup/0prometheusCustomResourceDefinition.yaml:                  image:
setup/0prometheusCustomResourceDefinition.yaml:                        image:
setup/0prometheusagentCustomResourceDefinition.yaml:                    image:
setup/0prometheusagentCustomResourceDefinition.yaml:               image:
setup/0prometheusagentCustomResourceDefinition.yaml:                    image:
setup/0prometheusagentCustomResourceDefinition.yaml:                        image:
setup/0thanosrulerCustomResourceDefinition.yaml:                    image:
setup/0thanosrulerCustomResourceDefinition.yaml:               image:
setup/0thanosrulerCustomResourceDefinition.yaml:                    image:
setup/0thanosrulerCustomResourceDefinition.yaml:                        image:
setup/0alertmanagerCustomResourceDefinition.yaml:              baseImage:
setup/0alertmanagerCustomResourceDefinition.yaml:                    image:
setup/0alertmanagerCustomResourceDefinition.yaml:              image:
setup/0alertmanagerCustomResourceDefinition.yaml:                    image:
setup/0alertmanagerCustomResourceDefinition.yaml:                        image:
```

修改镜像地址

```
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' alertmanager-alertmanager.yam
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' blackboxExporter-deployment.yaml
sed -i 's/registry.k8s.io/k8s.dockerproxy.com/g' kubeStateMetrics-deployment.yaml
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' kubeStateMetrics-deployment.yaml
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' nodeExporter-daemonset.yaml
sed -i 's/registry.k8s.io/k8s.dockerproxy.com/g' prometheusAdapter-deployment.yaml
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' prometheusOperator-deployment.yaml
sed -i 's/quay.io/quay.mirrors.ustc.edu.cn/g' prometheus-prometheus.yaml
```

三、部署项目

```
cd kube-prometheus-main
kubectl create -f manifests/setup

kubectl create -f manifests/
```

查看pods，等待一会，直到显示为running状态即为成功

四、访问grafana控制面板，并导入监控模板

由于kube-prometheus项目默认会配置NetworkPolicy，需要删除该限制，浏览器才能正常访问

```
kubectl delete -f manifests/prometheus-networkPolicy.yaml
kubectl delete -f manifests/grafana-networkPolicy.yaml
kubectl delete -f manifests/alertmanager-networkPolicy.yaml
```

查看grafana的NodePort端口

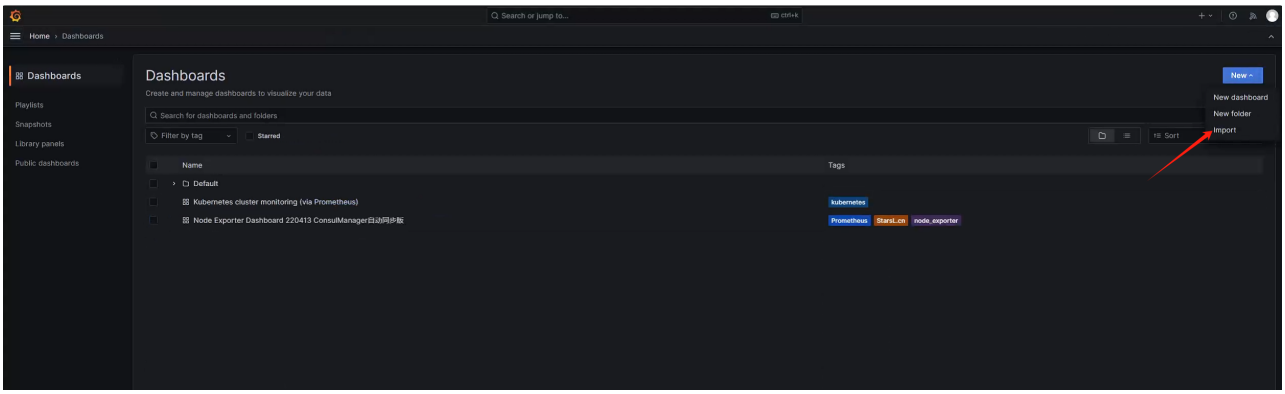
```
kubectl get svc -n monitoring | grep grafana
```

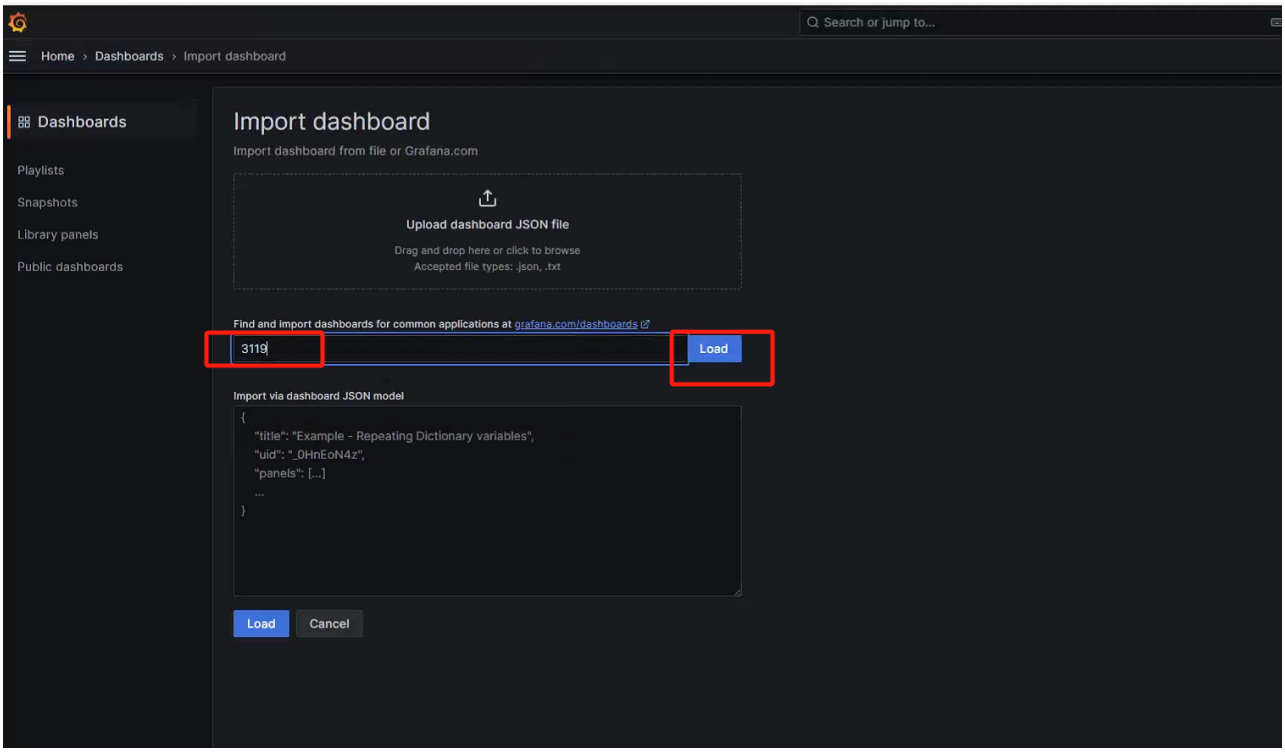
浏览器访问，使用任意服务器的IP地址加上grafana的NodePort端口，即可成功访问grafan控制面板，登录账号和密码默认均为admin，首次登录需要修改

监控k8s集群中的pod

导入grafana模板，pod资源监控：3119

左侧导航栏-->Dashboard-->右上角New-->import--3119-->Load-->import



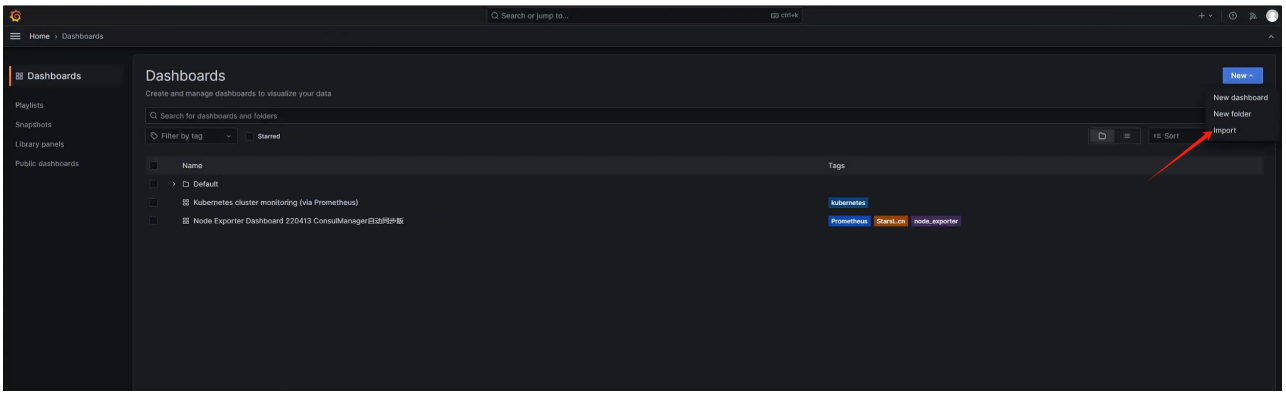


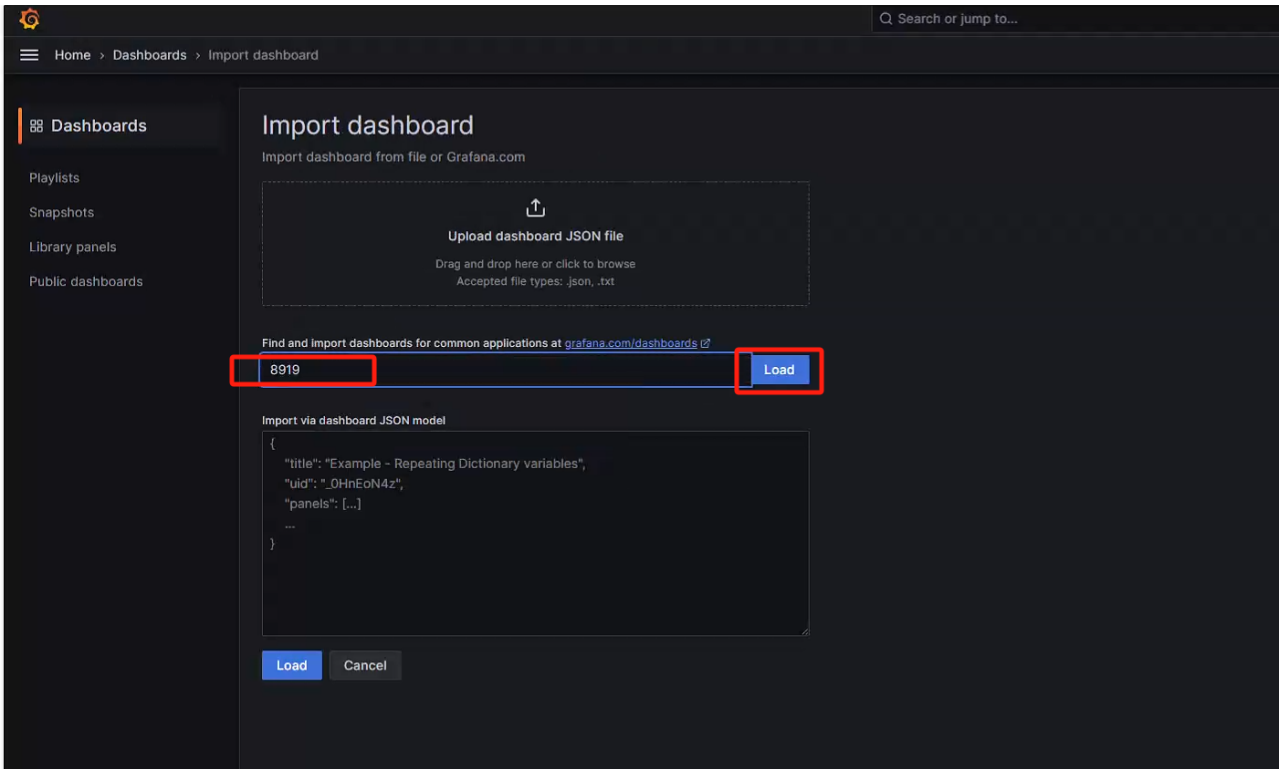
导入后的效果

监控集群主机资源

导入grafana模板，集群资源监控：8919

左侧导航栏-->Dashboard-->右上角New-->import--8919-->Load-->import





导入后的效果


Home › Dashboards › Node Exporter Dashboard 220413 ConsulManager自动同步版
Add
Last 1 hour
Update
GitHub
资源总览：当前选中主机：None，实例：None
服务器资源总览【分组：All，主机总数：2】
IP 启动(健康B 内存 CPU 负载 CPU使用率 内存使用率 IOutil使用率 分区使用率* 磁盘读取* 磁盘写入* 连接数 TCP_tw 下载带宽* 上传带宽*
contain... 38.8 91.5 8 GiB 4 0.89 25.1% 86.6% 4.1% 50.0% 507.1 B/s 114.7 Ki... 258 31 2.50 Mi... 2.50 Mib/s
workno... 6.99 98.2 8 GiB 4 0.60 16.6% 39.4% 1.1% 69.6% 39.0 B/s 81.2 KiB/s 22 65 25.9 Mi... 25.9 Mib/s
最近7天P99资源使用率
IP
containe...
workinod...
整体总负载与整体平均CPU使用率
整体总内存与整体平均内存使用率
整体总磁盘与整体平均磁盘使用率
资源明细：【None】【None】【None】
No data
【None】：各分区可用空间(EXT.*/XFS)
总空间
剩余空间
使用率
No data
No data
文件描述符/每秒上下文切换
No data
CPU使用率
内存信息
每秒网络带宽使用All