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08-4. 部署 kube-prometheus 插架

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- 下载和安装
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kube-prometheus 是一整套监控解决方案，它使用 Prometheus 采集集群指标，Grafana 做展示，包含如下组件：

- The Prometheus Operator
- Highly available Prometheus
- Highly available Alertmanager
- Prometheus node-exporter
- Prometheus Adapter for Kubernetes Metrics APIs (k8s-prometheus-adapter)
- kube-state-metrics
- Grafana

其中 k8s-prometheus-adapter 使用 Prometheus 实现了 metrics.k8s.io 和 custom.metrics.k8s.io API，所以不需要再部署 metrics-server。

如果要单独部署 metrics-server，请参考：[C.metrics-server插件.md](#)

如果没有特殊指明，本文档的所有操作均在 **zhangjun-k8s-01** 节点上执行；

下载和安装

```
cd /opt/k8s/work
git clone https://github.com/coreos/kube-prometheus.git
cd kube-prometheus/
sed -i -e 's_quay.io_quay.azk8s.cn_' manifests/*.yaml manifests/setup/*.yaml # 使用微软
的 Registry
kubectl apply -f manifests/setup # 安装 prometheus-operator
kubectl apply -f manifests/ # 安装 promethes metric adapter
```

查看运行状态

```
$ kubectl get pods -n monitoring
```

NAME	READY	STATUS	RESTARTS	AGE
alertmanager-main-0	2/2	Running	0	63s
alertmanager-main-1	2/2	Running	0	63s
alertmanager-main-2	2/2	Running	0	63s
grafana-76b8d59b9b-nd6gk	1/1	Running	0	11m
kube-state-metrics-67b7c5dc78-sktzg	3/3	Running	0	73s
node-exporter-prsvf	2/2	Running	0	34s
node-exporter-qdh6n	2/2	Running	0	71s
node-exporter-z6h4z	2/2	Running	0	69s
prometheus-adapter-5f46ccd66d-bbsns	1/1	Running	0	73s
prometheus-k8s-0	3/3	Running	1	53s
prometheus-k8s-1	3/3	Running	1	53s
prometheus-operator-6d8b95b467-htx56	1/1	Running	0	74s

```
$ kubectl top pods -n monitoring
```

NAME	CPU(cores)	MEMORY(bytes)
alertmanager-main-0	0m	18Mi
alertmanager-main-1	2m	20Mi
alertmanager-main-2	0m	19Mi
grafana-76b8d59b9b-nd6gk	4m	49Mi
kube-state-metrics-67b7c5dc78-sktzg	11m	29Mi
kube-state-metrics-959876458-cjtr5	9m	37Mi
node-exporter-prsvf	4m	11Mi
node-exporter-qdh6n	1m	20Mi
node-exporter-z6h4z	5m	11Mi
prometheus-adapter-5f46ccd66d-bbsns	0m	17Mi
prometheus-k8s-0	15m	190Mi
prometheus-k8s-1	6m	199Mi
prometheus-operator-6d8b95b467-htx56	0m	20Mi

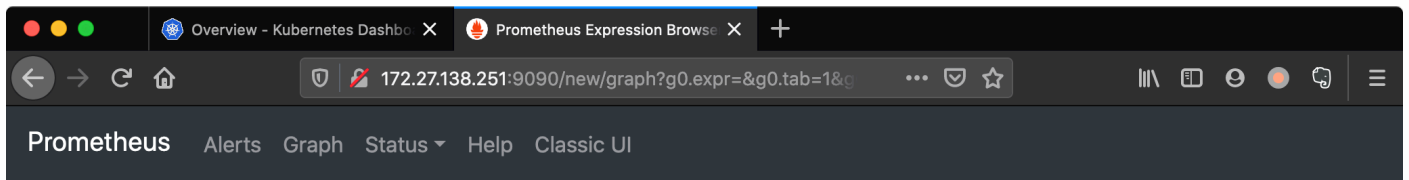
访问 Prometheus UI

启动服务代理:

```
$
$ kubectl port-forward --address 0.0.0.0 pod/prometheus-k8s-0 -n monitoring 9090:9090
Forwarding from 0.0.0.0:9090 -> 9090
```

- port-forward 依赖 socat。

浏览器访问: http://172.27.138.251:9090/new/graph?g0.expr=&g0.tab=1&g0.stacked=0&g0.range_input=1h



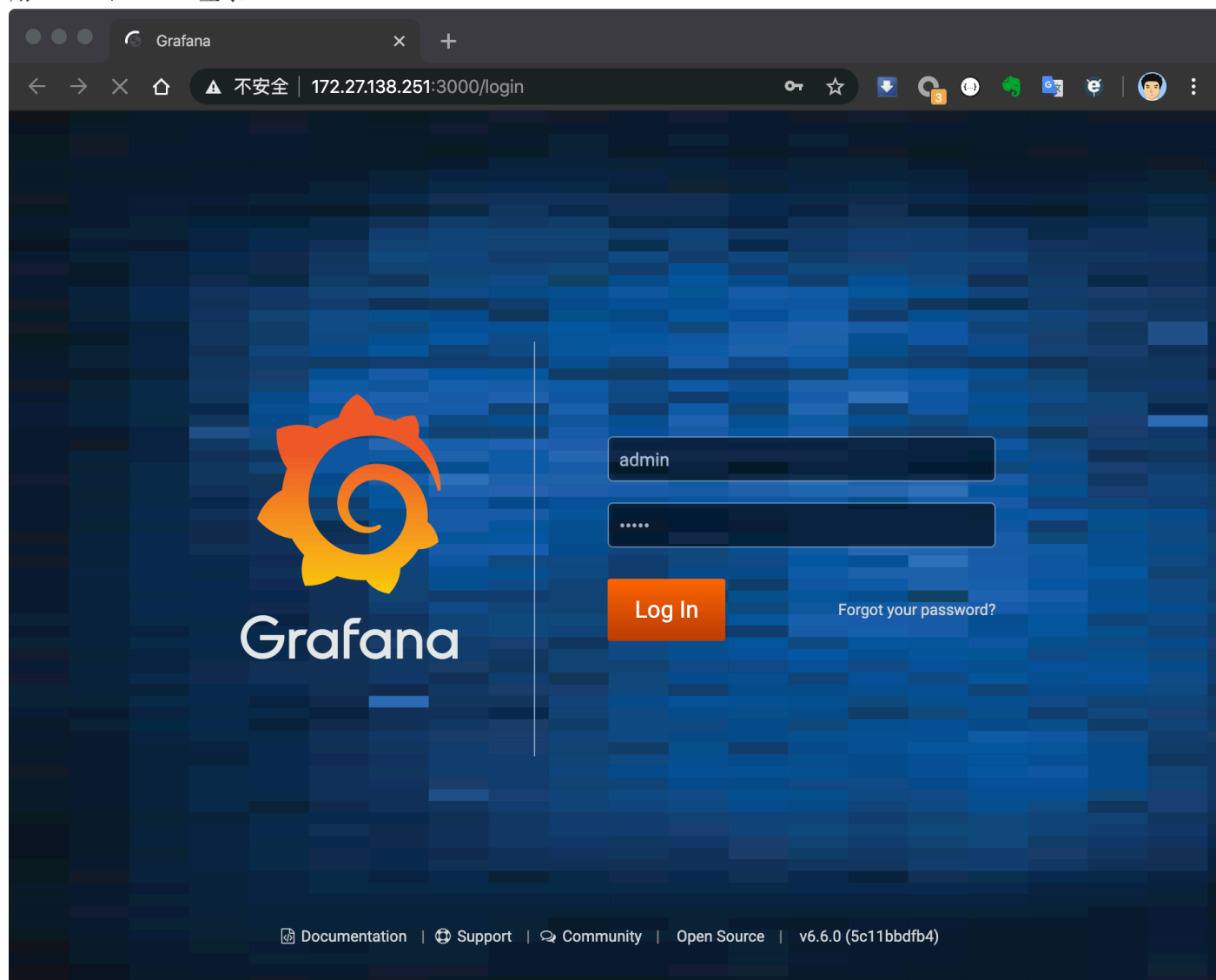
访问 Grafana UI

启动代理:

```
$ kubectl port-forward --address 0.0.0.0 svc/grafana -n monitoring 3000:3000
Forwarding from 0.0.0.0:3000 -> 3000
```

浏览器访问: <http://172.27.138.251:3000/>

用 admin/admin 登录:



然后，就可以看到各种预定义的 dashboard 了：

