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Setting Up Alert Manager on Kubernetes – Beginners Guide

by **devopscube** · March 10, 2021

AlertManager is an open-source alerting system that works with the Prometheus Monitoring system. In the last article, I have explained Prometheus setup on Kubernetes.

In this guide, I will cover the Alert Manager setup and its integration with Prometheus.

> **Note:** In this guide, all the Alert Manager Kubernetes objects will be created inside a **namespace called monitoring**. If you use a different namespace, you can replace it in the YAML files.

Alert Manager setup has the following key configurations.

1. A config map for AlertManager configuration
2. A config Map for AlertManager alert templates
3. Alert Manager Kubernetes Deployment
4. Alert Manager service to access the web UI.

Important Setup Notes

You should have a working Prometheus setup up and running. Follow this tutorial for Prometheus setup ==> Prometheus Setup On Kubernetes.

Prometheus should have the correct alert manager service endpoint in its `config.yaml` as shown below to send the alert to Alert Manager.

```
alerting:
   alertmanagers:
      - scheme: http
        static_configs:
        - targets:
          - "alertmanager.monitoring.svc:9093"
```

All the alerting rules have to be present on Prometheus config based on your needs. It should be created as part of the Prometheus config map with a file named **`prometheus.rules`** and added to the `config.yaml` in the following way.

```
rule_files:
      - /etc/prometheus/prometheus.rules
```

Alert manager alerts can be written based on the metrics you receive on Prometheus.

For receiving emails for alerts, you need to have a valid SMTP host in the alert manager `config.yaml` (smarthost parameter). You can customize the email template as per your needs in the Alert Template config map. We have given the generic template in this guide.

Let's get started with the setup.

Alertmanager Kubernetes Manifests

Clone the Github repository using the following command.

```
git clone https://github.com/bibinwilson/kubernetes-alert-manager.git
```

Config Map for Alert Manager Configuration

Alert Manager reads its configuration from a **config.yaml** file. It contains the configuration of alert template path, email and other alert receiving configuration.

In this setup, we are using email and slack webhook receivers. You can have a look at all the supported alert receivers from here.

Create a file named `AlertManagerConfigmap.yaml` and copy the following contents.

```
kind: ConfigMap
apiVersion: v1
metadata:
  name: alertmanager-config
  namespace: monitoring
data:
  config.yml: |-
    global:
    templates:
    - '/etc/alertmanager/*.tmpl'
    route:
      receiver: alert-emailer
      group_by: ['alertname', 'priority']
      group_wait: 10s
      repeat_interval: 30m
      routes:
        - receiver: slack_demo
        # Send severity=slack alerts to slack.
          match:
            severity: slack
          group_wait: 10s
          repeat_interval: 1m

    receivers:
    - name: alert-emailer
      email_configs:
      - to: demo@devopscube.com
        send_resolved: false
        from: from-email@email.com
        smarthost: smtp.eample.com:25
        require_tls: false
    - name: slack_demo
      slack_configs:
      - api_url:
https://hooks.slack.com/services/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s
z4Qk
        channel: '#devopscube-demo'
```

Let's create the config map using kubectl.

Config Map for Alert Template

We need alert templates for all the receivers we use (email, slack etc). Alert manager will dynamically substitute the values and delivers alerts to the receivers based on the template. You can customize these templates based on your needs.

Create a file named `AlertTemplateConfigMap.yaml` and copy the contents from this file link ==> Alert Manager Template YAML

Create the configmap using kubectl.

```
kubectl create -f AlertTemplateConfigMap.yaml
```

Create a Deployment

In this deployment, we will mount the two config maps we created.

Create a file called `Deployment.yaml` with the following contents.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: alertmanager
  namespace: monitoring
spec:
  replicas: 1
  selector:
    matchLabels:
      app: alertmanager
  template:
    metadata:
      name: alertmanager
      labels:
        app: alertmanager
    spec:
      containers:
      - name: alertmanager
        image: prom/alertmanager:v0.19.0
        args:
          - "--config.file=/etc/alertmanager/config.yml"
          - "--storage.path=/alertmanager"
        ports:
        - name: alertmanager
          containerPort: 9093
        volumeMounts:
        - name: config-volume
          mountPath: /etc/alertmanager
        - name: templates-volume
          mountPath: /etc/alertmanager-templates
        - name: alertmanager
          mountPath: /alertmanager
      volumes:
      - name: config-volume
        configMap:
          name: alertmanager-config
```

```
      - name: alertmanager
        emptyDir: {}
```

Create the alert manager deployment using kubectl.

```
kubectl create -f Deployment.yaml
```

Create the Alert Manager Service Endpoint

We need to expose the alert manager using NodePort or Load Balancer just to access the Web UI. Prometheus will talk to alert manager using the internal service endpoint.

Create a `Service.yaml` file with the following contents.

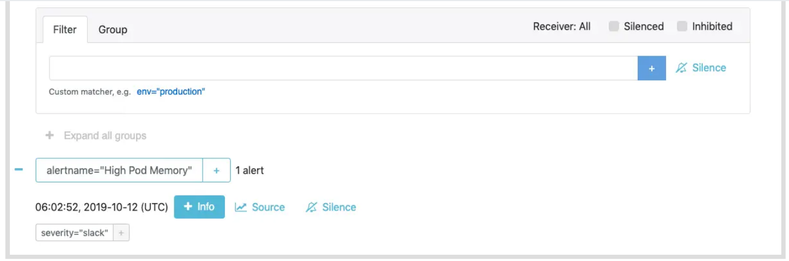
```
apiVersion: v1
kind: Service
metadata:
  name: alertmanager
  namespace: monitoring
  annotations:
      prometheus.io/scrape: 'true'
      prometheus.io/port:   '9093'
spec:
  selector:
    app: alertmanager
  type: NodePort
  ports:
    - port: 9093
      targetPort: 9093
      nodePort: 31000
```

Create the service using kubectl.

```
kubectl create -f Service.yaml
```

Now, you will be able to access Alert Manager on Node Port `31000` . For example,

```
http://35.114.150.153:31000
```



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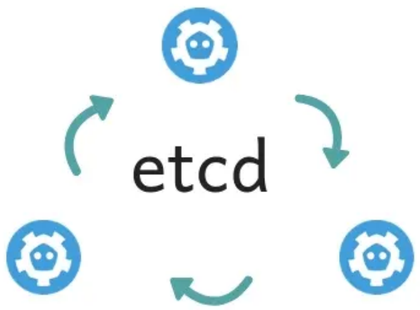

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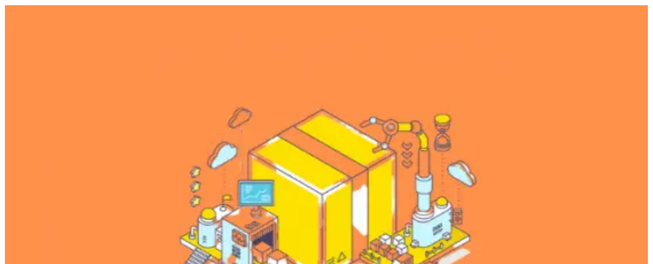

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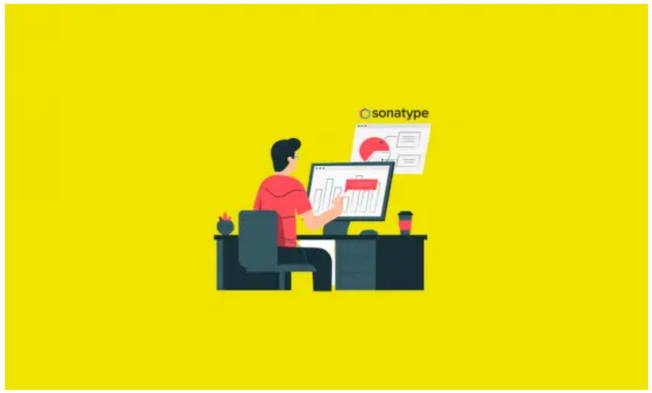

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