Kaiburr K8s Installation Guide

Installation Options in the order of priority

Environment / Infrastructure	**Flavor**	**Comments**
AWS	EKS (Node Groups)	Only Node Groups option of EKS
AWS	Openshift	
AWS	EC2	
On-Prem	K8s Cluster	Cluster should be pre-installed
On-Prem	VMs	

Note : All above K8S clusters should support persistence volumes - EBS (recommended)

System requirements

Persistent storage size requirements

Minimal: 200Gb
Recommended: 1Tb
Advanced: 2Tb or more

Openshift cluster hardware requirements

Minimal: 3 nodes, 16 vcpu, 96 GB memory in total

Node	CPU	Memory	Disk
Master/Worker 1	8	32Gb	500Gb
Master/Worker 2	4	32Gb	500Gb
Master/Worker 3	4	32Gb	500Gb

Recommended: 6 nodes, 36 vcpu, 144 GB memory in total

Node	CPU	Memory	Disk
Master 1	4	16Gb	500Gb
Master 2	4	16Gb	500Gb

Kaiburr K8s Installation Guide

Worker 2	8	32Gb	500Gb
Worker 3	8	32Gb	500Gb

Other environments

Minimal: 1 node, 8 vcpu, 48 GB memory in total
Medium: 3 nodes, 16 vcpu, 96 GB memory in total

Node	CPU	Memory	Disk
Master/Worker 1	8	32Gb	500Gb
Master/Worker 2	4	32Gb	500Gb
Master/Worker 3	4	32Gb	500Gb

Advanced: 6 nodes, 32 vcpu, 144 GB memory in total

Node	CPU	Memory	Disk
Master 1	4	16Gb	500Gb
Master 2	4	16Gb	500Gb
Master 3	4	16Gb	500Gb
Worker 1	8	32Gb	500Gb
Worker 2	8	32Gb	500Gb
Worker 3	8	32Gb	500Gb

Installation Instructions

AWS - EKS (Node Groups)

Pre-Requisites

- EKS cluster created
- EKS full admin access to Cloud - AWS
- Helm is installed (https://helm.sh/docs/intro/install/)
- Git is installed

Steps

- Install Knative (see Knative installation section)
- Configure Knative (see Configuring Knative section)
- Create your release k8s namespace (e.g. “kaiburr”)
- Clone GitHub repo (https://github.com/cloudply/Kubernetes-Enablement.git)
- Change directory to kaiburr
- Create releaseValues.yaml file and add you overrides for default values into this file (see configuring values.yaml

Kaiburr K8s Installation Guide

● Install kaiburr helm chart (see the “installation commands” section)

AWS - Openshift

Pre-Requisites

- Openshift cluster is created
- Openshift admin access
- Helm is installed (https://helm.sh/docs/intro/install/)
- Git is installed

Steps

- Install Knative (see Knative installation section)
- Configure Knative (see Configuring Knative section)
- Create your openshift project (e.g. “kaiburr”)
- Allow anyuid for your project:
oc adm policy add-scc-to-user anyuid -z default -n kaiburr
- Clone GitHub repo (https://github.com/cloudply/Kubernetes-Enablement.git)
- Change directory to kaiburr
- Create releaseValues.yaml file and add you overrides for default values into this file (see configuring values.yaml overrides section)
- Make sure that you set mongo url in releaseValues.yaml to the url of the mongo service
- Install kaiburr helm chart (see the “installation commands” section)

AWS - EC2

Pre-Requisites

- Full admin access to Cloud - AWS
- Helm is installed (https://helm.sh/docs/intro/install/)
- Git is installed

Steps

- Deploy below EC2 instances

- instance #1: r5a.large for main app
- instance #2: t3a.xlarge for additional services (optional)

- Install Kubernetes (recent version) on Instance - ½
- Install Knative (see Knative installation section)
- Configure Knative (see Configuring Knative section)
- Clone GitHub repo (https://github.com/cloudply/Kubernetes-Enablement.git)
- Change directory to kaiburr
- Create releaseValues.yaml file and add you overrides for default values into this file (see configuring values.yaml overrides section)
- Make sure that you set mongo url in releaseValues.yaml to the url of the mongo service
- Install kaiburr helm chart (see the “installation commands” section)

On Prem - K8s/VM

Kaiburr K8s Installation Guide

	● Full admin access to on-prem k8s cluster ● Helm is installed (https://helm.sh/docs/intro/install/) ● Git is installed
Steps	● Install Knative (see Knative installation section) ● Configure Knative (see Configuring Knative section) ● Clone GitHub repo (https://github.com/cloudply/Kubernetes-Enablement.git) ● Change directory to kaiburr ● Create releaseValues.yaml file and add you overrides for default values into this file (see configuring values.yaml overrides section) ● Make sure that you set mongo url in releaseValues.yaml to the url of the mongo service ● Install kaiburr helm chart (see the “installation commands” section) ● Create persistent volumes if dynamic volume provisioning is not enabled

Installing Knative

Openshift

Install Serverless Operator release channel 4.4

Installing gloo/knative for non-openshift environments

Install glooctl:
curl -sL https://run.solo.io/gloo/install | sh
export PATH=$HOME/.gloo/bin:$PATH

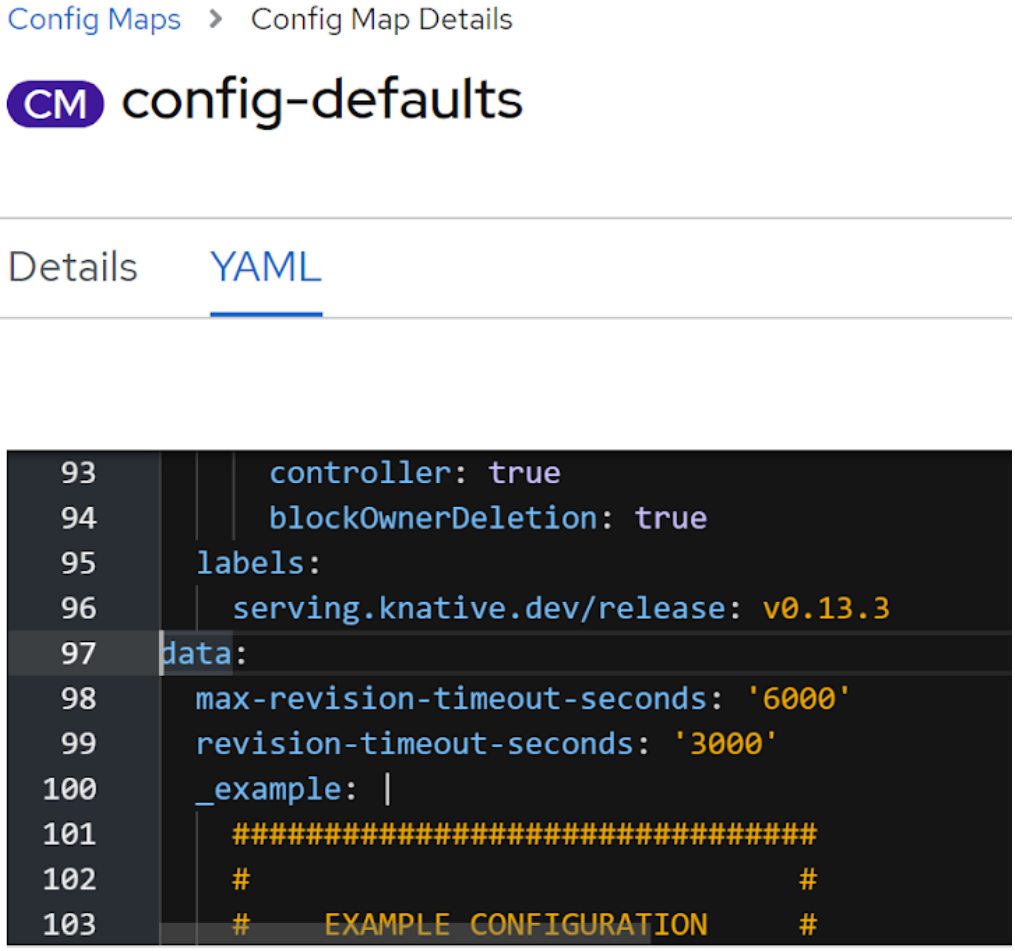
Install gloo/knative:
glooctl install knative -e --install-knative-version 0.14.0 --install-eventing-version 0.11.0

Configuring Knative

Modify the **config-defaults** config map in the **knative-serving** namespace. Add two values to the **data** section of this config map:
max-revision-timeout-seconds: '6000'
revision-timeout-seconds: '3000'

The result should look like this:

Kaiburr K8s Installation Guide



Configuring values.yaml overrides

You might not need to create releaseValues.yaml if your helm release name is “kaiburr”. If it is different - you have to override at least *kaiburr-jobs.mongoUrl* setting.

A full list of configuration options is available here:
https://github.com/cloudply/Kubernetes-Enablement/blob/master/kaiburr/README.md
https://github.com/cloudply/Kubernetes-Enablement/blob/master/kaiburr-jobs/README.md

Example contents of releaseValues.yaml for a release name kaiburr-app and nginx ingresses enabled for kaiburr and grafana components:

```
ingress:
  enabled: true
  annotations:
    kubernetes.io/ingress.class: nginx
  hosts:
    - name: app2.kaiburr.com
      path: /
grafana:
  ingress:
```

Kaiburr K8s Installation Guide

```
    path: /
    hosts:
      - grafana.kaiburr.com
kaiburr-jobs:
  mongoUrl: "mongodb://admin:securePw2020@kaiburr-app-mongo:27017/?
authSource=admin"
```

Installation/update commands.

Same command can be used to install a new instance or update an existing installation.

cd kaiburr
helm dependency update

To install or update to a **particular version** (e.g., 1.2.19):
helm upgrade --install --namespace kaiburr -f releaseValues.yaml kaiburr --set global.appVersion=1.2.19 .

To install or update to the latest version:
helm upgrade --install --namespace kaiburr -f releaseValues.yaml kaiburr .

Firewall Rules -

Nodes in cluster able to talk to each other on any port(being handled in EKS installation)

- port 22 - SSH for login users

- port 443 - web UI access for all app clients

- port 30080 - for all app clients

- port 30443 - for all app clients

- port 31443- for all app clients

- port 32443- for all app clients

- port 31683- for all app clients

Docker images used

Gloo:
quay.io/solo-io/discovery:1.4.0-beta3
quay.io/solo-io/gloo:1.4.0-beta3
quay.io/solo-io/ingress:1.4.0-beta3
quay.io/solo-io/gloo-envoy-wrapper:1.4.0-beta3

Kaiburr K8s Installation Guide

529a9d4150dfd0cd35c97babebd90eedae34ad8af
gcr.io/knative-releases/knative.dev/serving/cmd/autoscaler@sha256:bd125e90fffb44b843a183aa00f481cddee2317c0cfde9151c2482c5c2a8ed71
gcr.io/knative-releases/knative.dev/serving/cmd/autoscaler-hpa@sha256:a3941ff9d5bdd728ae6aabdf6c52a2e05888654cfbf9ac26aa8f3e091dbdd30c
gcr.io/knative-releases/knative.dev/serving/cmd/controller@sha256:71f7c9f101e7e30e82a86d203fb98d6fa607c8d6ac2fcb73fd1defd365795223
gcr.io/knative-nightly/knative.dev/net-istio/cmd/webhook@sha256:51c017906194d39107eafe865d55c91b1b19c3c436eacc1130e2fea1df70829a
gcr.io/knative-releases/knative.dev/serving/cmd/webhook@sha256:90562a10f5e37965f4f3332b0412afec1cf3dd1c06caed530213ca0603e52082

gcr.io/knative-releases/knative.dev/eventing/cmd/controller@sha256:d071a79973911f45ffd9021ad7e7cc6f4e262b3f1edb77d9bfdcf91b0d657b4e
gcr.io/knative-releases/knative.dev/eventing/cmd/webhook@sha256:75b2dfaaf279b98c2e90b02414b2255aebbc58b23beeba838feba57b09da12b6
gcr.io/knative-releases/knative.dev/eventing/cmd/in_memory/channel_controller@sha256:67cf35921e6ba4d8d5027637bdb9f0bec328e0ba5706fb0ea4eb32187a77bd0b
gcr.io/knative-releases/knative.dev/eventing/cmd/in_memory/channel_dispatcher@sha256:f5402f075154adfdfb72bf3e4e1a755df6eb57e0e5c7770450210c3b0270d38f
gcr.io/knative-releases/knative.dev/eventing/cmd/sources_controller@sha256:0df4cfcf82998eccf687a08a456f60578190e68175a441bcd3c26de7a4869739

gcr.io/knative-releases/knative.dev/eventing/cmd/cronjob_receive_adapter@sha256:481f28c916ee68db2d2729e050bc94c88d8f39c95039de98f6400ee0ee2aca28

gcr.io/knative-releases/knative.dev/serving/cmd/queue@sha256:f32c20456c6349a4fe99c83060009c7e9f6ba0c644ef854a04514e1f8aca982e

MongoDB:
busybox:1.29.3
unguiculus/mongodb-install:0.8
mongo:4.4

Nginx:
nginx:1.17.10

Percona:
busybox:1.25.0
percona/percona-xtradb-cluster:5.7.19

DCP-install:
alpine:3.6

DCP-workflow:

Kaiburr K8s Installation Guide

redis:5-alpine
postgres:9.5-alpine
registry.kaiburr.com/redash-server

DCP-dashboards - optional:
grafana/grafana:5.3.2
izakmarais/grafana-reporter:latest

DCP:
registry.kaiburr.com/rule-runner
registry.kaiburr.com/kube-scheduler
registry.kaiburr.com/assessment-docker
registry.kaiburr.com/docker-sonarqube
registry.kaiburr.com/data-collector-jenkins
registry.kaiburr.com/data-collector-github
registry.kaiburr.com/data-collector-aws
registry.kaiburr.com/data-collector-anomaly
registry.kaiburr.com/anomaly-detection
registry.kaiburr.com/kaiburr