

Step 8 for All Nodes. Install Internal Components on the KumoScale Storage Cluster

This page explains Step 8 of installing KumoScale for Appliance Mode in a multi-node environment.

•Complete the Set up of the KumoScale Storage Cluster

Step 7. Verify the KumoScale storage cluster configuration.

Step 8. Install internal components.

The internal components discussed in this section are used for KumoScale internal analytics and should be installed as part of the storage cluster once all management servers are running. In some cases, you will need to edit the CR file before installing the application. In particular:

- Replace the value of \$VIP (in externalIPs: ["\$VIP"]) with the Control Point Endpoint VIP.

Replace the value of replicaCount or replicas to the number of masters in the storage cluster. It will ensure that the services are replicated on all the servers in the storage cluster to provide fail-over[\[1\]](#).

For example, for a single node cluster with one master, use replicas = 1 to get all services available. For a deployment with a 3-server cluster, use replicas = 3; the applications will scale as you add nodes.

Prometheus™ Time Series Database (TSDB): Install the Prometheus monitoring and alerting application by first editing the custom resource (CR) file, `prometheus.kumoscale.kioxia.com_v1_prometheusservice_cr.yaml`. Prometheus includes an example Grafana™ dashboard for visualizing the Prometheus data. To configure the application and dashboard, see the table below, Prometheus/Grafana Installation Parameters.

Note: The initial Grafana credentials are admin/ksAdmin.

Prometheus/Grafana Installation Parameters

prometheusStack Parameter Name	Description	Optional/Required
static_configs: targets	Target associated with the KumoScale Provisioner service expressed as an IP address or FQDN. If FQDN is used it must be on port 8443. For example, kumoscale-provisioner-service.kumo-services:8443.	Required
type nodePort	If a FQDN is specified for the target, then type must be equal to NodePort and nodePort must be 30190: type: NodePort nodePort: 30190	Required when target is a FQDN.
retention	The amount of time to retain metrics. Possible values are [0-9]+(ms s m h d w y). Default 1y.	Optional
replicas	The number of replicas for data collection. For single node clusters replicas should be 1. For other installations replicas should be 3. Default value is 3.	Optional
storageClassName	The storage class of the volume. Default value is kumoscale-local-storage.	Optional
storage	The size of storage for Prometheus service. Default value is 40Gi.	Optional
alertManager: enabled	Whether the alertManager is enabled. Possible values are true (enabled) or false (not enabled). Default value is true.	Optional
alertManager: retention	The amount of time to retain data. Possible values are [0-9]+(ms s m h). Default value is 8760h.	Optional

prometheusStack Parameter Name	Description	Optional/Required
alertManager: storageClassName	The storage class of the volume. Default value is kumoscale-local-storage.	Optional
alertManager: storage	The size of storage for the alertManager service. Default value is 40Gi.	Optional
prometheus-node-exporter: enabled	Whether the Prometheus node exporter is enabled. Possible values are true (enabled) or false (not enabled). Default value is true.	Optional
kube-state-metrics	Whether the Kubernetes kube-state-metrics service is enabled. Possible values are true (enabled) or false (not enabled). Default value is true.	Optional
grafana: externalIPs	The IP address for the Grafana web interface. Required when target is a VIP.	Required when target is an IP address.
grafana: type nodePort	If a FQDN is specified for the target, then type must be equal to NodePort and nodePort must be 30191: type: NodePort nodePort: 30191	Required when target is a FQDN.
grafana: persistence.enabled	Enable grafana persistence for persistent password and data sources. Default value is true.	Optional
grafana: storageClassName	The storage class of the volume. Default value is kumoscale-local-storage.	Optional
grafana: storage	The volume size of storage for grafana service. Default value is 1Gi.	Optional

Then issue the following command:

```
kubectl create -f prometheus.kumoscale.kioxia.com_v1_prometheusservice_cr.yaml
```

Fluentd™ Data Collector: Install the Fluentd data collector by first editing the CR file, **fluentd.kumoscale.kioxia.com_v1_fluentd_cr.yaml** using the parameters listed in Fluentd Installation Parameters.

Fluentd Installation Parameters

fluentd Parameter Name	Description	Optional/Required
clusterIP	The value of cluster_vip provided during KumoScale installation	Required
name	Port name	Optional
Protocol	Syslog protocol	Optional
containerPort	Container port	Optional

Then issue the following command:

```
kubectl create -f fluentd.kumoscale.kioxia.com_v1_fluentd_cr.yaml
```

Loki™ Log Aggregation System: Edit the file **loki.kumoscale.kioxia.com_v1_loki_cr.yaml** using the parameters listed in Loki Installation Parameters.

Loki Installation Parameters

Loki Parameter Name	Description	Optional/Required
size	The size of the volume that saves the logs. Default value is 100Gi.	Optional
storageClassName	The storage class of the volume. Default value is kumoscale-local-storage This has the protocol:Local and provisioningType:"thin".	Optional

Install the Loki log aggregation system by issuing the following command:

```
kubectl create -f loki.kumoscale.kioxia.com_v1_loki_cr.yaml
```

Syslog: Complete details on Syslog are provided in the [KumoScale User Guide](#). In summary, to configure Syslog, edit the CR file as appropriate for your environment. You will need to specify the **name** and **URL**. You can also specify other parameters such as whether the Syslog uses TLS/SSL. In this case you will need to provide the certificate file. You will also need to see that **syslog-secret.yaml** contains the Syslog certificate base64 encoded. To do this, create a Syslog cert secret from the certificate file with:

```
kubect1 create secret generic syslog-secret --from-file=cert=<path to cert file>
```

Set a cert secret for Syslog with:

```
kubect1 create -f syslog-secret.yaml
```

To add a new Syslog:

```
kubect1 create -f config/crd/bases/kumoscale.kioxia.com_syslogs.yaml
```

Verify Tools Configuration

You can see what tools are running by using **kubect1 get pods -A -o wide** and can see the replicas that are created automatically based on the value of replicas specified.

If the number of worker nodes is 0, then you are ready to explore *Next Steps with KumoScale*. If you need to install and configure KumoScale with additional nodes, then return to *Step 1* to start the installation.

Next: [Next Steps with KumoScale](#)

[1] No fail-over is available if there is only one server in the storage cluster.