



# Red Hat Virtualization 4.2

## Metrics Store Installation Guide

Installing Metrics Store for Red Hat Virtualization



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Installing Metrics Store for Red Hat Virtualization

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## Abstract

A comprehensive guide to installing and configuring Metrics Store for Red Hat Virtualization. Metrics Store collects logs and metrics for Red Hat Virtualization 4.2.

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# CHAPTER 1. METRICS STORE INSTALLATION OVERVIEW

The Metrics Store installation involves the following key steps:

1. [Creating the Metrics Store virtual machines](#)
2. [Deploying OpenShift and Metrics Store services on the virtual machines](#)
3. [Deploying \*\*collectd\*\* and \*\*fluentd\*\* on the hosts](#)
4. [Verifying the Metrics Store installation](#)

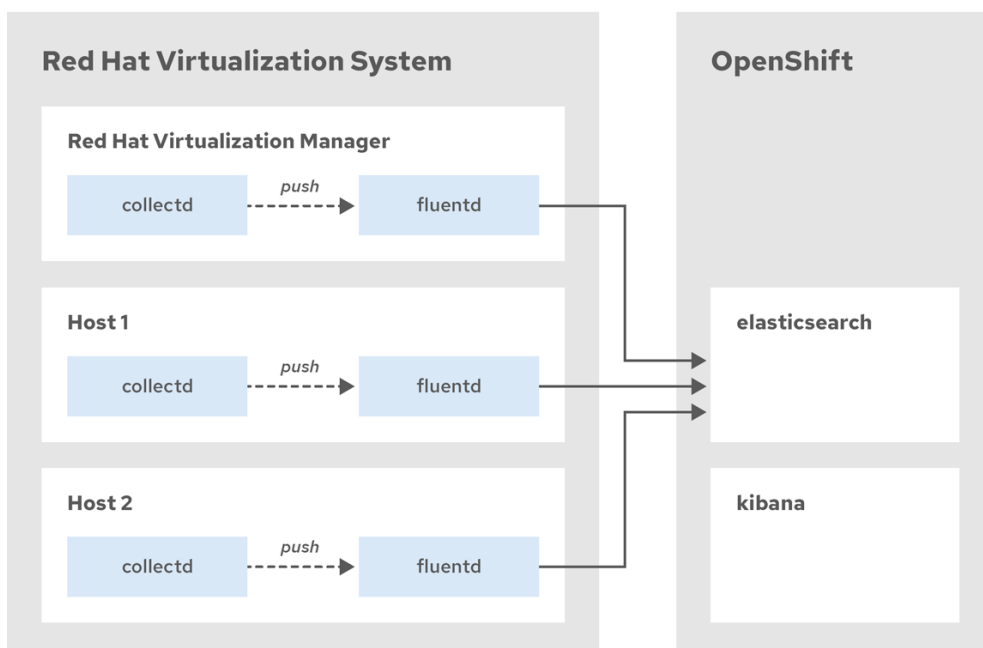
## Metrics Store architecture and workflow

The Metrics Store architecture is based on the [OpenShift EFK logging stack](#), running on [OpenShift Container Platform 3.11](#).

The workflow involves the following steps and services, running on the hosts or the Metrics Store virtual machines:

1. [collectd](#) (hosts) collects metrics from hosts, virtual machines, and databases in the Red Hat Virtualization environment.
2. [fluentd](#) (hosts) gathers the metrics and log data, enriches the data with metadata, and sends the enriched data to Elasticsearch.
3. [Elasticsearch](#) (Metrics Store virtual machine) stores and indexes the data.
4. [Kibana](#) (Metrics Store virtual machine) provides dashboards, charts, and data analysis.

Figure 1.1. Metrics Store Architecture



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## CHAPTER 2. INSTALLING METRICS STORE

### Prerequisites

- Computing resources:
  - 4 CPU cores
  - 30 GB RAM
  - 500 GB SSD disk
- For the Metrics Store Installation virtual machine:
  - 4 CPU cores
  - 8 GB RAM



### NOTE

The computing resource requirements are for an *all-in-one* installation, with a single Metrics Store virtual machine. The all-in-one installation can collect data from up to 50 hosts, each running 20 virtual machines.

- Operating system: [Red Hat Enterprise Linux 7.6](#) or later
- Software: [Red Hat Virtualization 4.2](#) or later
- Network configuration: see [Network\\_configuration\\_for\\_metrics\\_store\\_virtual\\_machines](#)

## 2.1. CREATING THE METRICS STORE VIRTUAL MACHINES

Creating the Metrics Store virtual machines involves the following steps:

1. Configuring the Metrics Store installation with **metrics-store-config.yml**
2. Creating the following Metrics Store virtual machines:
  - The Metrics Store installer, a temporary virtual machine for deploying OpenShift and services on the Metrics Store virtual machines
  - One or more Metrics Store virtual machines
3. Verifying the Metrics Store virtual machines

### Procedure

1. Log in to the Manager machine using SSH.
2. Copy **metrics-store-config.yml.example** to create **metrics-store-config.yml**:

```
# cp /etc/ovirt-engine-metrics/metrics-store-config.yml.example /etc/ovirt-engine-metrics/config.yml.d/metrics-store-config.yml
```



3. Edit the parameters in **metrics-store-config.yml** and save the file. The parameters are documented in the file.
4. On the Manager machine, copy **/etc/ovirt-engine-metrics/secure\_vars.yml.example** to **/etc/ovirt-engine-metrics/secure\_vars.yml**:

```
# cp /etc/ovirt-engine-metrics/secure_vars.yml.example /etc/ovirt-engine-
metrics/secure_vars.yml
```

5. Update the values of **/etc/ovirt-engine-metrics/secure\_vars.yml** to match the details of your specific environment:
6. Encrypt the **secure\_vars.yml** file:

```
# ansible-vault encrypt /etc/ovirt-engine-metrics/secure_vars.yml
```

7. Go to the **ovirt-engine-metrics** directory:

```
# cd /usr/share/ovirt-engine-metrics
```

8. Run the **ovirt-metrics-store-installation** playbook to create the virtual machines:

```
# ANSIBLE_JINJA2_EXTENSIONS="jinja2.ext.do"
./configure_ovirt_machines_for_metrics.sh --playbook=ovirt-metrics-store-installation.yml --
ask-vault-pass
```

9. Log in to the Administration Portal.
10. Click **Compute** → **Virtual Machines** to verify the successful creation of the **metrics-store-installer** virtual machine and the Metrics Store virtual machines.

## 2.2. DEPLOYING OPENSIFT AND METRICS STORE SERVICES

Deploy OpenShift, Elasticsearch, Curator (for managing Elasticsearch indices and snapshots), and Kibana on the Metrics Store virtual machines.

### Procedure

1. Log in to the **metrics-store-installer** virtual machine.
2. Run the **install\_okd** playbook to deploy OpenShift and Metrics Store services to the Metrics Store virtual machines:

```
# ANSIBLE_CONFIG="/usr/share/ansible/openshift-ansible/ansible.cfg" \
ANSIBLE_ROLES_PATH="/usr/share/ansible/roles:/usr/share/ansible/openshift-
ansible/roles" \
ansible-playbook -i integ.ini install_okd.yml -e @vars.yml -e @secure_vars.yml --ask-
vault-pass
```

3. Verify the deployment by logging in to each Metrics Store virtual machine:
  - a. Log in to the **openshift-logging** project:

```
# oc project openshift-logging
```

- 
- b. Check that the Elasticsearch, Curator, and Kibana pods are running:

```
# oc get pods
```

If Elasticsearch is not running, see [Troubleshooting related to ElasticSearch](#) in the *OpenShift Container Platform 3.11* documentation.

- c. Check the Kibana host name and record it so that you can access the Kibana console in [Chapter 4, Verifying the Metrics Store installation](#):

```
# oc get routes
```

### Optional Cleanup

1. Log in to the Administration Portal.
2. Click **Compute** → **Virtual Machines** and delete the **metrics-store-installer** virtual machine.

## 2.3. NETWORK CONFIGURATION FOR METRICS STORE VIRTUAL MACHINES

### Network configuration prerequisites:

- Create a wildcard DNS record (**\*.example.com**) for the DNS zone of the Metrics Store virtual machines.
- Add the Host names of the Metrics Store virtual machines to your DNS server.

### To set a static MAC Address for the Virtual Machine (optional)

1. Log in to the Administration Portal.
2. Click **Compute** → **Virtual Machines**, and select the virtual machine to configure.
3. Select the **Network Interfaces** tab, select a NIC, and click **Edit**.
4. Select **Custom MAC Address**, and enter the MAC address you want to assign to this NIC.
5. Click **OK** to save the configuration.
6. Reboot the virtual machine for the change to take effect.

## CHAPTER 3. DEPLOYING COLLECTD AND FLUENTD

Deploy **collectd** and **fluentd** on the Red Hat Virtualization hosts to collect logs and metrics.



### NOTE

You do not need to repeat this procedure if you create new hosts. The Manager configures the hosts automatically.

### Procedure

1. Log in to the Manager machine using SSH.
2. Copy **/etc/ovirt-engine-metrics/config.yml.example** to create **/etc/ovirt-engine-metrics/config.yml.d/config.yml**:

```
# cp /etc/ovirt-engine-metrics/config.yml.example /etc/ovirt-engine-  
metrics/config.yml.d/config.yml
```

3. Edit the **ovirt\_env\_name** and **elasticsearch\_host** parameters in **config.yml** and save the file. These parameters are mandatory and are documented in the file.
4. Optionally, if you need to connect an additional Red Hat Virtualization Manager or an additional elasticsearch installation, run the following commands to copy the engine public key to your Metrics Store virtual machine:

```
# mytemp=$(mktemp -d)  
  
# cp /etc/pki/ovirt-engine/keys/engine_id_rsa $mytemp  
  
# ssh-keygen -y -f $mytemp/engine_id_rsa > $mytemp/engine_id_rsa.pub  
  
# ssh-copy-id -i $mytemp/engine_id_rsa.pub root@{elasticsearch_host}  
  
# rm -rf $mytemp
```

5. Deploy **collectd** and **fluentd** on the hosts:

```
# /usr/share/ovirt-engine-metrics/setup/ansible/configure_ovirt_machines_for_metrics.sh
```

## CHAPTER 4. VERIFYING THE METRICS STORE INSTALLATION

Verify the Metrics Store installation using the Kibana console. You can view the collected logs and create data visualizations.

### Procedure

1. Log in to the Kibana console using the URL (**<https://kibana.example.com>**) that you recorded in [Section 2.2, “Deploying OpenShift and Metrics Store services”](#). Use the default **admin** user, and the password you defined during the metrics store installation.  
Optionally, you can access the OpenShift Container Platform portal at **<https://example.com:8443>** (using the same **admin** user credentials).
2. In the **Discover** tab, check that you can view the **project.ovirt-logs-ovirt\_env\_name-uuid** index.  
See the [Discover](#) section in the *Kibana User Guide* for information about working with logs.
3. In the **Visualization** tab, you can create data visualizations for the **project.ovirt-metrics-ovirt\_env\_name-uuid** and the **project.ovirt-logs-ovirt\_env\_name-uuid** indexes.  
The [Metrics Store User Guide](#) describes the available parameters. See the [Visualize](#) section of the *Kibana User Guide* for information about visualizing logs and metrics.

## APPENDIX A. ADDING A READ-ONLY KIBANA USER

If you want to allow users without administrator privileges to view the collected logs and metrics, you can create a read-only kibana user. The following is an example for creating a user named *user name* with *view* (read-only) permissions.

1. Create a new user.

```
# oc create user user name  
# oc create identity allow_all: user name  
# oc create useridentitymapping allow_all: user name user name
```

2. Log in to openshift-logging.

```
# oc project openshift-logging
```

3. Add a user role with read-only permissions.

```
# oc adm policy add-role-to-user view user name
```

4. Assign a password to the new user.

```
# oc login --username=user name --password=password
```

A new read-only kibana user is created.