



Red Hat Virtualization 4.3

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 and later.

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PREFACE

Metrics Store collects logs and metrics from Red Hat Virtualization. The data is transferred from Red Hat Virtualization to Red Hat OpenShift where it is stored and aggregated in Elasticsearch and saved in indexes. The data can then be analyzed and visualized in Kibana.

- **Elasticsearch** is a distributed, RESTful search and analytics engine that lets you perform and combine many types of searches.
- **Kibana** is an open source analytics and visualization platform designed to work with Elasticsearch. You can easily perform advanced data analysis and visualize your data in a variety of charts and tables.

CHAPTER 1. WORKFLOW AND ARCHITECTURE

To install Metrics Store, complete the following major tasks:

1. [Create the Metrics Store virtual machines.](#)
2. [Deploy Metrics Store services on Red Hat OpenShift .](#)
3. [Configure networking for Metrics Store virtual machines .](#)
4. [Deploy collectd and rsyslog.](#)
5. [Verify the Metrics Store installation.](#)

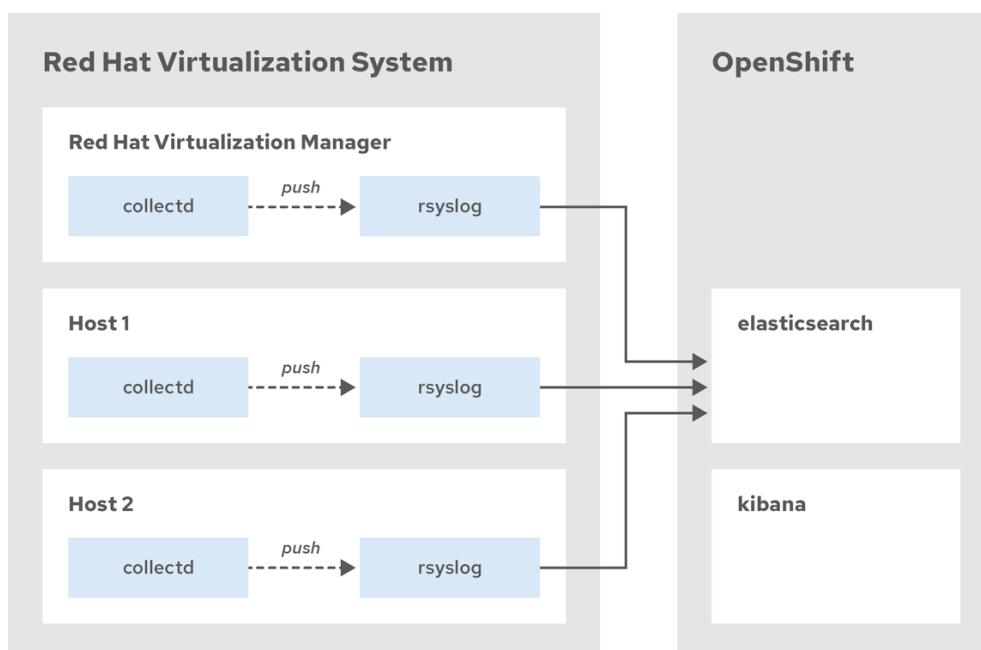
Metrics Store architecture

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

Metrics Store uses the following services:

- [collectd](#) (hosts) collects metrics from hosts, virtual machines, and databases.
- [rsyslog](#) (hosts) collects metrics, adds log data, enriches the data with metadata, and sends the enriched data to Elasticsearch.
- [Elasticsearch](#) (Metrics Store virtual machine) stores and indexes the data.
- [Kibana](#) (Metrics Store virtual machine) analyzes and presents the data as dashboards and charts.

Figure 1.1. Metrics Store architecture

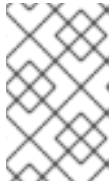


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CHAPTER 2. INSTALLING METRICS STORE

Prerequisites

- Computing resources:
 - 4 CPU cores
 - 30 GB RAM
 - 500 GB SSD disk
- For the Metrics Store Installer 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 7.7](#) or later
- Software: [Red Hat Virtualization 4.3.5](#) or later
- Network configuration: see [Configure networking for Metrics Store virtual machines](#)

2.1. CREATE THE METRICS STORE VIRTUAL MACHINES

To create the Metrics Store virtual machines, perform the following tasks:

1. Configure the Metrics Store installation.
2. Create the following Metrics Store virtual machines:
 - The Metrics Store Installer virtual machine - a temporary virtual machine for deploying Red Hat OpenShift and services on the Metrics Store virtual machines.
 - One or more Metrics Store virtual machines.
3. Verify the Metrics Store virtual machines.

Configure the Metrics Store installation

1. Log in to the Manager machine using SSH.
2. Update the packages:

```
# yum update
```

3. 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
```

4. Edit the parameters in **metrics-store-config.yml** and save the file. The parameters are documented in the file.
5. 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
```

6. Edit the parameters in **/etc/ovirt-engine-metrics/secure_vars.yml** to match the details of your specific environment.
7. Encrypt the **secure_vars.yml** file:

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

Create Metrics Store virtual machines

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

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

2. 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
```

Verify the creation of the virtual machines

1. Log in to the Administration Portal.
2. Click **Compute** → **Virtual Machines** to verify that the **metrics-store-installer** virtual machine and the Metrics Store virtual machines are running.

2.2. DEPLOY METRICS STORE SERVICES ON RED HAT OPENSIFT

Deploy and verify Red Hat 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 Red Hat 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.yaml -e @vars.yaml -e @secure_vars.yaml --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.

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

```
# oc get routes
```

Cleanup

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

2.3. CONFIGURE NETWORKING 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 hostnames of the Metrics Store virtual machines to your DNS server.

Set a static MAC address for a Metrics Store virtual machine (optional)

1. Log in to the Administration Portal.
2. Click **Compute** → **Virtual Machines** and select a Metrics Store virtual machine.
3. In the **Network Interfaces** tab, select a NIC and click **Edit**.
4. Select **Custom MAC Address**, enter the MAC address, and click **OK**.
5. Reboot the virtual machine.

Configure firewall ports

The following table describes the firewall settings needed for communication between the ports used by Metrics Store.

Table 2.1. Configure the firewall to allow connections to specific ports

ID	Port(s)	Protocol	Sources	Destinations	Purpose
MS1	9200	TCP	RHV Red Hat Virtualization Hosts RHV Manager	Metrics Store VM	Transfer data to ElasticSearch.
MS2	5601	TCP	Kibana user	Metrics Store VM	Give users access to the Kibana web interface.

**NOTE**

Whether a connection is encrypted depends on how you deployed the software.

CHAPTER 3. DEPLOY COLLECTD AND RSYSLOG

Deploy **collectd** and **rsyslog** on the hosts to collect logs and metrics.



NOTE

You do not need to repeat this procedure for 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.



NOTE

If you add a Manager or an Elasticsearch installation, copy the Manager's public key to your Metrics Store virtual machine using the following commands:

```
# 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
```

4. Deploy **collectd** and **rsyslog** on the hosts:

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

CHAPTER 4. VERIFY 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, "Deploy Metrics Store services on Red Hat OpenShift"](#) . Use the default **admin** user, and the password you defined during the metrics store installation.
Optionally, you can access the Red Hat 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. SHARING REPORTS WITH NON-ADMINISTRATORS

Users without administrator privileges can view collected logs and metrics as read-only users. The following example creates a user named *user name* with *view* (read-only) permissions.

1. Log in to the Metrics Store virtual machine.
2. Create a new user:

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

3. Log in to the *openshift-logging* project:

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

4. Assign a *view* role to the user:

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

5. Create a password for the user:

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