MANTA Flow Container Architecture (39.x)

Overview

The following MANTA Flow components are provided as separate containers.

› **Artemis for MANTA**—Artemis for MANTA
› **Keycloak for MANTA**—modified version of Keycloak which includes the initialization of a realm
› **MANTA Admin GUI**—Admin GUI and CLI in a common container
› **MANTA Configuration Service**—Configuration service for MANTA components
› **MANTA Flow Server**
› **MANTA Flow Agent**

MANTA Flow Container Images

All container images are hosted in the repo `repo.getmanta.com/manta-ubi8/<image_name>`.

Please see the image listing in the table below.

Image name	URL	Description	Requests: CPU	Requests: Memory	Limits: CPU	Limits: Memory	Default port	Default user: Group
manta-keycloak	`repo.getmanta.com/manta-ubi8/manta-keycloak`	Keycloak for MANTA container image	0.5	512Mi	1	2Gi	9090	1000:0
manta-artemis	`repo.getmanta.com/manta-ubi8/manta-artemis`	Artemis for MANTA container image	0.5	2Gi	1	4Gi	61616	10001:10001
manta-dataflow	`repo.getmanta.com/manta-ubi8/manta-dataflow`	MANTA Flow Server container image	3.5	4Gi	7	16Gi	8282	10001:10001
manta-admin-gui	`repo.getmanta.com/manta-ubi8/manta-admin-gui`	MANTA Admin GUI + CLI	0.1	512Mi	2	4Gi	8181	10001:10001
manta-configuration-service	`repo.getmanta.com/manta-ubi8/manta-configuration-service`	MANTA Configuration service image	0.1	350Mi	0.5	1Gi	8083	10001:10001
manta-flow-agent	`repo.getmanta.com/manta-ubi8/manta-flow-agent`	MANTA Flow Agent container image	0.1	500Mi	0.5	750Mi	8787	10001:10001

The version is always specified as `<major>.<minor>.<patch>`.

All images are rootless, meaning they are not supposed to be run as a root user.

All images are based on `registry.access.redhat.com/ubi8/ubi-minimal`.

Persistent Volumes

MANTA Flow persistent data is stored in external volumes to achieve its existence during container upgrade, removal, or loss and to enable the directories to be stored separately.

The table below shows how directories with persistent data are to be mounted to the containers, their equivalent in the MANTA Flow default installation, and a description of the folder.

Persistent Volumes for manta-admin-gui

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/mantaflow/cli/data/`	Contains data for MANTA Flow CLI: › Data/input: For your input files for MANTA Flow CLI › Data/output: For validation reports and converted and modified input files › Data/temp: Temporary files (such as partial results of analysis) › Data/log: Log files	10 GB	ReadWriteOnce - RWO
`/opt/mantaflow/serviceutility/log`	Logs—MANTA Flow Admin UI	1 GB	ReadWriteOnce - RWO
`/opt/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext`	Folder for third-party libraries that may be required during the extraction phase	1 GB	ReadWriteOnce - RWO
`/opt/mantaflow/cli/platform/conf`	Configuration—CLI	100 MB	ReadWriteOnce - RWO
`/opt/mantaflow/cli/scenarios/manta-dataflow-cli/conf`	Configuration—CLI	200 MB	ReadWriteOnce - RWO
`/opt/mantaflow/serviceutility/WEB-INF/conf`	Configuration—Admin UI	100 MB	ReadWriteOnce - RWO
`/opt/mantaflow/serviceutility/WEB-INF/data`	MANTA Flow admin data	10 GB	ReadWriteOnce - RWO

Persistent Volumes for manta-dataflow

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/mantaflow/server/manta-dataflow-server-dir/logs`	MANTA Flow Server logs	1 GB	ReadWriteOnce - RWO
`/opt/mantaflow/server/manta-dataflow-server-dir/temp`	Temporary folders used for exports	10 GB	ReadWriteOnce - RWO
`/opt/mantaflow/server/manta-dataflow-server-dir/conf`	Configuration files	200 MB	ReadWriteOnce - RWO
`/opt/mantaflow/server/manta-dataflow-server-dir/data`	MANTA Flow Server data	10 GB	ReadWriteOnce - RWO

Persistent Volumes for manta-keycloak

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/jboss/keycloak/standalone/data`	Keycloak persistent data	1 GB	ReadWriteOnce - RWO

Persistent Volumes for manta-artemis

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/mantaflow/artemis/manta_broker`	Artemis message queue persistent data	1 GB	ReadWriteOnce - RWO

Persistent Volumes for manta-configuration-service

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/mantaflow/configurationservice`	Configuration service persistent data	1 GB	ReadWriteOnce - RWO

Persistent Volumes for manta-flow-agent

Container mount path	Description	Recommended minimum size	Storage access mode required
`/opt/mantaflow/agent/manta-flow-agent-dir`	MANTA Flow agent persistent data	1 GB	ReadWriteOnce - RWO

Differences in File Locations between the MANTA Flow Containers and MANTA Flow

In the containerized version of MANTA Flow, some changes have been made to the internal MANTA Flow settings in order to achieve availability of persistent and configuration files outside the container. The following table shows which files are in different locations in MANTA Flow containers.

Container path	MANTA Flow default installation
`/opt/mantaflow/cli/data/input`	`/opt/mantaflow/cli/input`
`/opt/mantaflow/cli/data/output`	`/opt/mantaflow/cli/output`
`/opt/mantaflow/cli/data/temp`	`/opt/mantaflow/cli/temp`
`/opt/mantaflow/cli/data/log`	`/opt/mantaflow/cli/log`

Third-Party Drivers in MANTA Kubernetes Deployments

Third-party drivers should be in `/opt/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext` in the `manta-admin-gui` pod. You can provision the files into the location using the following command.

```
kubectl -n <namespace> cp <any library file.jar> manta-admin-gui-<id>:/opt
/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext/
```

The folder `/opt/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext` is persistent, hence it is required to copy the drivers only once and they will be kept on pod restarts.

Overview of Kubernetes Deployment

MANTA is supposed to be installed in a dedicated Kubernetes namespace.

For Kubernetes, all directories are to be provided as persistent volumes. The scheme below shows the mapping of the persistent volumes to pods.

Communication Matrix for MANTA Containers

The following scheme shows the communication matrix between pods, services, and ingress mapping.
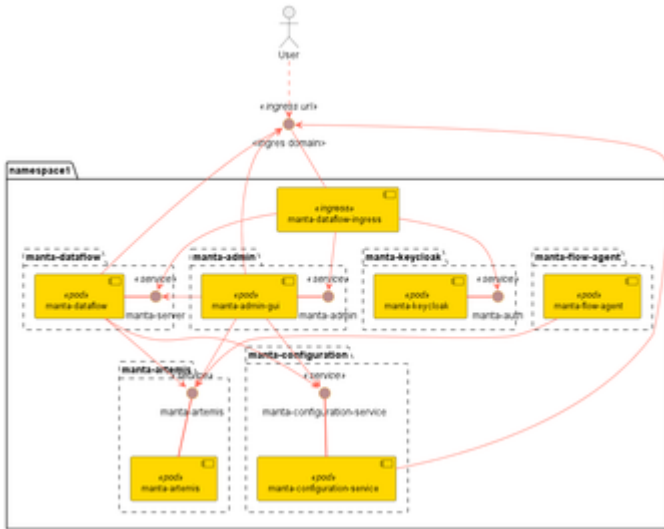
Overview of Deployment Options

Plain Docker Deployment

The deployment only requires Docker. MANTA Flow containers are deployed with Docker, and external orchestration is needed to automate a lot of tasks.

Please see MANTA Flow on Docker Container (39.x) for more details.

Kubernetes Manifests for Amazon EKS

The deployment is done using the provided Kubernetes manifests. The only tool required is kubectl. The manifests provided are customized for Amazon EKS but can easily be customized for most other cloud providers.

Please see MANTA Flow on Amazon EKS Using the Operator (39.x) for more details.

Kubernetes Operator

The default way of deploying MANTA Flow in Kubernetes is by using the MANTA Flow Kubernetes operator. When deployed this way, MANTA Flow Kubernetes resources are managed through Kubernetes Custom Resources (CRs) by the MANTA Flow Kubernetes operator.
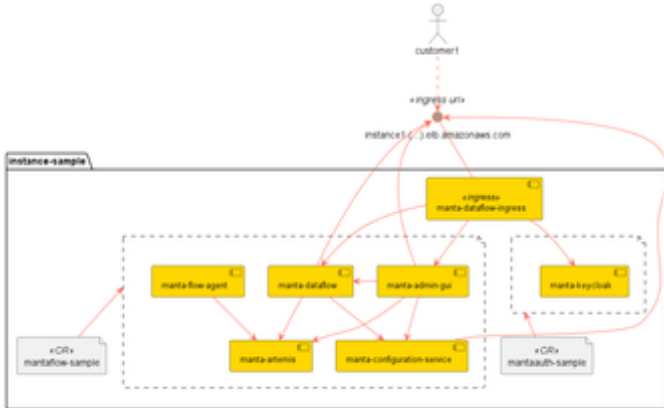
The following operator images are provided for the MANTA Flow Kubernetes operator.

Image name	URL	Description	Base image
mantaflow-operator	repo.getmanta.com/manta-ubi8/mantaflow-operator	MANTA Flow operator image	registry.access.redhat.com/ubi8/ubi-minimal
mantaflow-operator-bundle	repo.getmanta.com/manta-ubi8/mantaflow-operator-bundle	MANTA Flow operator bundle image	scratch
mantaflow-operator-catalog	repo.getmanta.com/manta-ubi8/mantaflow-operator-catalog	MANTA operator catalog image	registry.access.redhat.com/ubi8/ubi-minimal

Currently, Amazon EKS and OpenShift are supported.

For more details, please see:

› MANTA Flow on Amazon EKS Using the Operator (39.x)
› MANTA Flow on OpenShift Using the Operator (39.x)

Supported Versions of Kubernetes

The versions of Kubernetes that are currently supported are:

› Kubernetes 1.24 (Amazon EKS)
› OpenShift 4.10