

MANTA Flow on Docker Container (39.x)

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Overview

For architecture details on MANTA Flow containers, please read [MANTA Flow Container Architecture \(39.x\)](#).

Requirements

The following are the prerequisites necessary to run **MANTA Flow Container**.

- › Docker 19.x
- › OpenSSL 1.1.x
- › Privileges for running Docker
- › Access to the MANTA Docker repository repo.getmanta.com [\[view link\]](#)
- › Valid `license.key` for MANTA Flow

Preparation

Docker Privileges

To run Docker as non-root user, add the Docker group. Then, add your user to this group, as shown below.

```
sudo groupadd docker
sudo usermod -aG docker $USER
```

You might **need to log out and log back in** for the changes to take effect.

Preparing Persistent Directories

First, create a variable containing the prefix to persistent directories. Here, we use the `MANTA_VOLUMES` variable and the directory `manta-volumes` in the current directory. You can use the path of your choice. This variable will later be used for Docker volume mounts.

```
export MANTA_VOLUMES=$(pwd)/manta-volumes # PLEASE UPDATE TO THE LOCATION
echo $MANTA_VOLUMES
```

You should see the variable defined:

```
/home/admin/containerization-docker/manta-volumes
```

Now, create the directories for persistent files.

```
mkdir -p \
  $MANTA_VOLUMES/keycloak \
  $MANTA_VOLUMES/artemis/manta_broker \
  $MANTA_VOLUMES/conf \
  $MANTA_VOLUMES/configuration-service \
  $MANTA_VOLUMES/cli/data \
  $MANTA_VOLUMES/cli/platform/conf \
  $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/lib-ext \
  $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/conf \
  $MANTA_VOLUMES/server/manta-dataflow-server-dir/logs \
  $MANTA_VOLUMES/server/manta-dataflow-server-dir/conf \
  $MANTA_VOLUMES/server/manta-dataflow-server-dir/data \
  $MANTA_VOLUMES/server/manta-dataflow-server-dir/temp \
  $MANTA_VOLUMES/serviceutility/log \
  $MANTA_VOLUMES/serviceutility/WEB-INF/conf \
  $MANTA_VOLUMES/serviceutility/WEB-INF/data \
  $MANTA_VOLUMES/agent/manta-flow-agent-dir
```

License Key

The license key for MANTA Flow needs to be provided in the `$MANTA_VOLUMES/conf` directory. Create the directory and copy the key into it.

```
cp <path_to_license_key>/license.key $MANTA_VOLUMES/conf
```

Running Containers as Non-Root Users

MANTA Flow containers, by default, run inside processes as the non-root user `manta` (UID=10001), group `manta` (GID=10001). To get the correct permissions for the data, this default user has to be overridden by the correct UID and GID of your user. For this, define the following variable.

```
export USER_PARAM="--user $(id -u):$(id -g)"
echo $USER_PARAM
```

You should see the variable defined with your UID and GID (1000:1000 in this example).

```
--user 1000:1000
```

Public IP of the Deployment

Export variable with the public IP of your host:

```
export PUBLIC_IP="<your public IP>"
```

MANTA Flow Container Images

Log in to the MANTA Nexus repository with Docker, and provide your username and password.

```
docker login repo.getmanta.com  
Username:  
Password:
```

You should see an output with a successful login message, as shown below.

```
WARNING! Your password will be stored unencrypted in /home/admin/.docker  
/config.json.  
Configure a credential helper to remove this warning. See  
https://docs.docker.com/engine/reference/commandline/login/#credentials-store  
  
Login Succeeded
```

Please note that MANTA Flow container images use the **major.minor.patch** versioning scheme. There are also **major** and **major.minor** tags that point to the latest version of the image.

Pull MANTA Flow and MANTA Flow Init Container images of the version you choose.

```
docker pull repo.getmanta.com/manta-ubi8/manta-admin-gui:39.0.0  
docker pull repo.getmanta.com/manta-ubi8/manta-artemis:39.0.0  
docker pull repo.getmanta.com/manta-ubi8/manta-configuration-service:  
39.0.0  
docker pull repo.getmanta.com/manta-ubi8/manta-dataflow:39.0.0  
docker pull repo.getmanta.com/manta-ubi8/manta-keycloak:39.0.0  
docker pull repo.getmanta.com/manta-ubi8/manta-flow-agent:39.0.0
```

You can check whether the images (IMAGE IDs, CREATED, and SIZE may change) are available in your local Docker registry by entering:

```
docker image list | grep manta
```

You will see a list of images, as shown below.

```
REPOSITORY
TAG          IMAGE ID          CREATED          SIZE
repo.getmanta.com/manta-ubi8/manta-configuration-service
39.0.0       4bcc1f73f97e     22 minutes ago  598MB
repo.getmanta.com/manta-ubi8/manta-artemis
39.0.0       c4ade2928528     22 minutes ago  337MB
repo.getmanta.com/manta-ubi8/manta-keycloak
39.0.0       3a9e74b81655     22 minutes ago  792MB
repo.getmanta.com/manta-ubi8/manta-dataflow
39.0.0       e143fd7ef1be     22 minutes ago  502MB
repo.getmanta.com/manta-ubi8/manta-admin-gui
39.0.0       817299a18ac6     22 minutes ago  864MB
repo.getmanta.com/manta-ubi8/manta-flow-agent
39.0.0       817299a18ac6     22 minutes ago  864MB
```

The Docker login command has saved the credentials in the configured store. (See <https://docs.docker.com/engine/reference/commandline/login/#credentials-store>.) You can remove the saved credentials after pulling the images using the following command.

```
docker logout repo.getmanta.com
```

Docker will confirm the removal of the credentials.

```
Removing login credentials for repo.getmanta.com
```

Certificates

If you want to use HTTPS/mTLS for communication between containers, you can use your own certificates or generate self-signed ones. In both cases, the certificates should be stored in a folder whose path will be stored in this variable.

```
export MANTA_TLS_CERT_PATH=$MANTA_VOLUMES/tls
echo $MANTA_TLS_CERT_PATH
```

You should see the variable defined:

```
/home/admin/containerization-docker/manta-volumes/tls
```

Alternatively, you can provide your own path to the variable, where you already store your own certificates.

Generating a Self-Signed Certificate

If you do not have certificates, you can generate self-signed certificates by following these steps.

Create a folder for certificates.

```
mkdir -p $MANTA_TLS_CERT_PATH
```

Create the root certificate.

```
openssl req -x509 -newkey rsa:4096 -sha256 -out $MANTA_TLS_CERT_PATH/ca.
crt -keyout $MANTA_TLS_CERT_PATH/ca.pem -subj "/CN=$PUBLIC_IP" -nodes
```

Create the user private key.

```
openssl req -newkey rsa:2048 -sha256 -out $MANTA_TLS_CERT_PATH/tls.csr -
keyout $MANTA_TLS_CERT_PATH/tls.pem -subj "/CN=$PUBLIC_IP" -nodes
```

Create the user certificate and sign it with the root certificate.

```
openssl x509 -req -extfile <(printf "subjectAltName=IP:$PUBLIC_IP") -in
$MANTA_TLS_CERT_PATH/tls.csr -CA $MANTA_TLS_CERT_PATH/ca.crt -CAkey
$MANTA_TLS_CERT_PATH/ca.pem -CAcreateserial -out $MANTA_TLS_CERT_PATH/tls.
crt
```

Convert the user private key to the key format.

```
openssl rsa -in $MANTA_TLS_CERT_PATH/tls.pem -out $MANTA_TLS_CERT_PATH
/tls.key
```

You should have the following files in \$MANTA_VOLUMES/tls.

```
ca.pem
ca.crt
tls.csr
tls.key
tls.crt
```

Running the Containers

MANTA Keycloak

MANTA Flow uses Keycloak for authentication and authorization. Run Keycloak using the following command. You need to provide an initial username and password.

```
docker run -d -p 9090:9090 -p 9990:9990 -e KEYCLOAK_USER='<username>' -e
KEYCLOAK_PASSWORD='<password>' \
-e PROXY_ADDRESS_FORWARDING=true -e MANTA_AUTH=http://$PUBLIC_IP:9090
/auth \
-v $MANTA_VOLUMES/keycloak:/opt/jboss/keycloak/standalone/data repo.
getmanta.com/manta-ubi8/manta-keycloak:39.0.0 \
-Djboss.http.port=9090 -Djboss.bind.address.private=127.0.0.1 -Djboss.
bind.address=0.0.0.0 -Djboss.management.http.port=9990
```

This command will run Keycloak in the background and provide a container ID.

```
cbbf5848879c118cec0d494e4feac7e49d076b554f0cefa4ee37ce940f237855
```

You can check whether Keycloak is running at `http://$PUBLIC_IP:9090`.

MANTA Keycloak with HTTPS

If you want to run MANTA with HTTPS, run the container using the following command.

```
docker run -d -p 9090:9090 -p 9990:9990 -e KEYCLOAK_USER='<username>' -e
KEYCLOAK_PASSWORD='<password>' \
  -e PROXY_ADDRESS_FORWARDING=true -e MANTA_AUTH=https://$PUBLIC_IP:9090
/auth \
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https -e X509_CA_BUNDLE=/etc/x509
/https/ca.crt \
  -v $MANTA_VOLUMES/keycloak:/opt/jboss/keycloak/standalone/data repo.
getmanta.com/manta-ubi8/manta-keycloak:39.0.0 \
  -Djboss.https.port=9090 -Djboss.bind.address.private=127.0.0.1 -
Djboss.bind.address=0.0.0.0 -Djboss.management.https.port=9990
```

This command will run Keycloak in the background and provide a container ID.

```
cbbf5848879c118cec0d494e4feac7e49d076b554f0cefa4ee37ce940f237855
```

You can check whether Keycloak is running at [https://\\$PUBLIC_IP:9090](https://$PUBLIC_IP:9090).

MANTA Artemis

Run Artemis using the following command. You need to provide an initial Artemis username and password.

```
docker run -d $USER_PARAM -v $MANTA_VOLUMES/artemis/manta_broker:/opt
/mantaflow/artemis/manta_broker -p 61616:61616 repo.getmanta.com/manta-
ubi8/manta-artemis:39.0.0
```

You can check whether Artemis is running at [http://\\$PUBLIC_IP:8161/](http://$PUBLIC_IP:8161/). You can click the *Admin Console* link and log in with the username and password you entered during the above initialization. Check the subscribers/providers tabs for Admin UI.

MANTA Artemis with HTTPS

If you want to run MANTA with HTTPS, run the container using the following command.

```
docker run -d $USER_PARAM -v $MANTA_VOLUMES/artemis/manta_broker:/opt
/mantaflow/artemis/manta_broker -p 61616:61616 \
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https -e
MANTA_ARTEMIS_MTLS_ENABLED=true -e MANTA_ARTEMIS_PRIVATE_KEY_PATH=/etc
/x509/https/tls.key \
  -e MANTA_ARTEMIS_PUBLIC_KEY_PATH=/etc/x509/https/tls.crt -e
MANTA_ARTEMIS_CA_CERT_PATH=/etc/x509/https/ca.crt \
  -e MANTA_ARTEMIS_KEYSTORE_PASSWORD='<password>' -e
MANTA_ARTEMIS_TRUSTSTORE_PASSWORD='<password>' repo.getmanta.com/manta-
ubi8/manta-artemis:39.0.0
```

You can check whether Artemis is running at [https://\\$PUBLIC_IP:8161/](https://$PUBLIC_IP:8161/).

MANTA Configuration Service

Run MANTA Configuration Service using the command below.

```
docker run -d $USER_PARAM \
  -v $MANTA_VOLUMES/configuration-service:/opt/mantaflow
/configuration-service \
  -e MANTA_AUTH=http://$PUBLIC_IP:9090/auth \
  -e MANTA_PASSWORD="<password>" \
  -e MANTA_USER="<username>" \
  -p 8083:8083 \
  repo.getmanta.com/manta-ubi8/manta-configuration-service:39.0.0
```

MANTA Configuration Service with HTTPS

If you want to run MANTA with HTTPS, run the container using the following command.

```
docker run -d $USER_PARAM \
  -v $MANTA_VOLUMES/configuration-service:/opt/mantaflow
/configuration-service \
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https \
  -e MANTA_AUTH=https://$PUBLIC_IP:9090/auth \
  -e MANTA_PASSWORD="<password>" \
  -e MANTA_USER="<username>" \
  -e MANTA_TLS_ENABLED=true \
  -e MANTA_TLS_CA_FILE=/etc/x509/https/ca.crt \
  -e MANTA_TLS_CERT_FILE=/etc/x509/https/tls.crt \
  -e MANTA_TLS_KEY_FILE=/etc/x509/https/tls.key \
  -e MANTA_TLS_KEYSTORE_PASSWORD="<password>" \
  -e CAFILE=/etc/x509/https/ca.crt \
  -e CRTFILE=/etc/x509/https/tls.crt \
  -p 8083:8083 \
  repo.getmanta.com/manta-ubi8/manta-configuration-service:39.0.0
```

Note that the command above expects Keycloak to already be running on HTTPS.

Please wait until you see an output similar to the one below before proceeding to the next step.

```

      .
     /\ \ / ___ ' _ _ _ _ ( _ ) _ _ _ _ \ \ \ \ \
    ( ( ) \___| ' _ | ' _ | | ' _ \ / _ ` | \ \ \ \ \
   \ \ / ___ ) | |_) | | | | | | | ( _ | | ) ) ) )
    ' | ___ | . _ | | | | | | \___, | / / / /
   =====|_|=====|___/=/_/_/_/
   :: Spring Boot ::                (v2.6.11)
```

```
2022-09-20 12:57:50.959 [main] WARN org.mybatis.spring.mapper.
ClassPathMapperScanner [Context: MANTA Configuration Service startup -
2022-09-20T12:57:45.765+0000] Skipping MapperFactoryBean with name
'changeRecordMapper' and 'eu.profnit.manta.configuration.service.
repository.mapper.ChangeRecordMapper' mapperInterface. Bean already
defined with the same name!
2022-09-20 12:57:50.967 [main] WARN org.mybatis.spring.mapper.
ClassPathMapperScanner [Context: MANTA Configuration Service startup -
```

```
2022-09-20T12:57:45.765+0000] Skipping MapperFactoryBean with name
'connectionMapper' and 'eu.profnit.manta.configuration.service.
repository.mapper.ConnectionMapper' mapperInterface. Bean already defined
with the same name!
2022-09-20 12:57:50.968 [main] WARN org.mybatis.spring.mapper.
ClassPathMapperScanner [Context: MANTA Configuration Service startup -
2022-09-20T12:57:45.765+0000] Skipping MapperFactoryBean with name
'configurationEntriesMapper' and 'eu.profnit.manta.configuration.service.
repository.mapper.ConfigurationEntriesMapper' mapperInterface. Bean
already defined with the same name!
2022-09-20 12:57:50.968 [main] WARN org.mybatis.spring.mapper.
ClassPathMapperScanner [Context: MANTA Configuration Service startup -
2022-09-20T12:57:45.765+0000] Skipping MapperFactoryBean with name
'configurationValueMapper' and 'eu.profnit.manta.configuration.service.
repository.mapper.ConfigurationValueMapper' mapperInterface. Bean already
defined with the same name!
Sep 20, 2022 12:57:52 PM org.apache.coyote.AbstractProtocol init
INFO: Initializing ProtocolHandler ["http-nio-8083"]
Sep 20, 2022 12:57:52 PM org.apache.catalina.core.StandardService
startInternal
INFO: Starting service [Tomcat]
Sep 20, 2022 12:57:52 PM org.apache.catalina.core.StandardEngine
startInternal
INFO: Starting Servlet engine: [Apache Tomcat/9.0.65]
Sep 20, 2022 12:57:52 PM org.apache.catalina.core.ApplicationContext log
INFO: Initializing Spring embedded WebApplicationContext
Sep 20, 2022 12:58:01 PM liquibase.database
INFO: Set default schema name to PUBLIC
Sep 20, 2022 12:58:01 PM liquibase.lockservice
INFO: Successfully acquired change log lock
Sep 20, 2022 12:58:02 PM liquibase.changelog
INFO: Reading from PUBLIC.DATABASECHANGELOG
Running Changeset: repository/liquibase-changelog.xml::
default_large_values-2022/07/11-12:00::jmoravec
Sep 20, 2022 12:58:03 PM liquibase.changelog
INFO: SQL in file model/default_large_values.sql executed
Sep 20, 2022 12:58:03 PM liquibase.changelog
INFO: ChangeSet repository/liquibase-changelog.xml::default_large_values-
2022/07/11-12:00::jmoravec ran successfully in 723ms
Sep 20, 2022 12:58:03 PM liquibase.lockservice
INFO: Successfully released change log lock
Sep 20, 2022 12:58:04 PM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-nio-8083"]
Sep 20, 2022 3:02:45 PM org.apache.catalina.core.ApplicationContext log
INFO: Initializing Spring DispatcherServlet 'dispatcherServlet'
```

MANTA Flow Server

Run MANTA Flow Server using the command below.


```
docker run -d $USER_PARAM \  
  -v $MANTA_VOLUMES/conf:/opt/mantaflow/conf \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/logs:/opt/mantaflow  
/server/manta-dataflow-server-dir/logs \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/conf:/opt/mantaflow  
/server/manta-dataflow-server-dir/conf \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/data:/opt/mantaflow  
/server/manta-dataflow-server-dir/data \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/temp:/opt/mantaflow  
/server/manta-dataflow-server-dir/temp \  
  -e MANTA_AUTH=http://$PUBLIC_IP:9090/auth \  
  -e MANTA_CONFIGURATION_SERVICE_URL=http://$PUBLIC_IP:8083 \  
  -e MANTA_FLOW_SERVER_URL=http://$PUBLIC_IP:8080/manta-dataflow-server  
\  
  -e MANTA_MASTERPASSWORD="<password for masterkeystore encryption>" \  
  -e MANTA_PASSWORD="<password>" \  
  -e MANTA_USER="<username>" \  
  -p 8080:8282 \  
  repo.getmanta.com/manta-ubi8/manta-dataflow:39.0.0
```

You can check whether Flow Server is running at [http://\\$PUBLIC_IP:8080/manta-dataflow-server/viewer](http://$PUBLIC_IP:8080/manta-dataflow-server/viewer).

MANTA Flow Server with HTTPS

If you want to run MANTA with HTTPS, run the container using the following command.

```
docker run -d $USER_PARAM \  
  -v $MANTA_VOLUMES/conf:/opt/mantaflow/conf \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/logs:/opt/mantaflow  
/server/manta-dataflow-server-dir/logs \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/conf:/opt/mantaflow  
/server/manta-dataflow-server-dir/conf \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/data:/opt/mantaflow  
/server/manta-dataflow-server-dir/data \  
  -v $MANTA_VOLUMES/server/manta-dataflow-server-dir/temp:/opt/mantaflow  
/server/manta-dataflow-server-dir/temp \  
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https \  
  -e MANTA_AUTH=https://$PUBLIC_IP:9090/auth \  
  -e MANTA_CONFIGURATION_SERVICE_URL=https://$PUBLIC_IP:8083 \  
  -e MANTA_FLOW_SERVER_URL=https://$PUBLIC_IP:8443/manta-dataflow-  
server \  
  -e MANTA_MASTERPASSWORD="<password for masterkeystore encryption>" \  
  -e MANTA_PASSWORD="<password>" \  
  -e MANTA_USER="<username>" \  
  -e MANTA_TLS_ENABLED=true \  
  -e MANTA_TLS_CA_FILE=/etc/x509/https/ca.crt \  
  -e MANTA_TLS_CERT_FILE=/etc/x509/https/tls.crt \  
  -e MANTA_TLS_KEY_FILE=/etc/x509/https/tls.key \  
  -e MANTA_TLS_KEYSTORE_PASSWORD="<password>" \  
  -e CAFILE=/etc/x509/https/ca.crt \  
  -e CRTFILE=/etc/x509/https/tls.crt \  
  -p 8080:8282 \  
  repo.getmanta.com/manta-ubi8/manta-dataflow:39.0.0
```

You can check whether Flow Server is running at [https://\\$PUBLIC_IP:8282/manta-dataflow-server/viewer](https://$PUBLIC_IP:8282/manta-dataflow-server/viewer).

MANTA Admin GUI

Run **MANTA Admin GUI** by running the command below.

```
docker run -d $USER_PARAM \  
  -v $MANTA_VOLUMES/conf:/opt/mantaflow/conf \  
  -v $MANTA_VOLUMES/cli/data:/opt/mantaflow/cli/data \  
  -v $MANTA_VOLUMES/cli/platform/conf:/opt/mantaflow/cli/platform/conf \  
  -v $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/conf:/opt/mantaflow/  
cli/scenarios/manta-dataflow-cli/conf \  
  -v $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/lib-ext:/opt  
/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext \  
  -v $MANTA_VOLUMES/serviceutility/log:/opt/mantaflow/serviceutility  
/log \  
  -v $MANTA_VOLUMES/serviceutility/WEB-INF/conf:/opt/mantaflow  
/serviceutility/WEB-INF/conf \  
  -v $MANTA_VOLUMES/serviceutility/WEB-INF/data:/opt/mantaflow  
/serviceutility/WEB-INF/data \  
  -e MANTA_ADMIN_UI_URL=http://$PUBLIC_IP:8181/manta-admin-gui \  
  -e MANTA_ARTEMIS_HOST=$PUBLIC_IP \  
  -e MANTA_ARTEMIS_PORT=61616 \  
  -e MANTA_AUTH=http://$PUBLIC_IP:9090/auth \  
  -e MANTA_CONFIGURATION_SERVICE_URL=http://$PUBLIC_IP:8083 \  
  -e MANTA_FLOW_SERVER_URL=http://$PUBLIC_IP:8080/manta-dataflow-server  
\  
  -e MANTA_MASTERPASSWORD="<password for masterkeystore encryption>" \  
  -e MANTA_PASSWORD="<password>" \  
  -e MANTA_USER="<username>" \  
  -p 8181:8181 \  
  repo.getmanta.com/manta-ubi8/manta-admin-gui:39.0.0
```

You can verify whether MANTA Admin GUI is running at [http://\\$PUBLIC_IP:8181/manta-admin-gui/app](http://$PUBLIC_IP:8181/manta-admin-gui/app).

MANTA Admin GUI with HTTPS

If you want to run MANTA with HTTPS, run the container using the following command.

```

docker run -d $USER_PARAM \
  -v $MANTA_VOLUMES/conf:/opt/mantaflow/conf \
  -v $MANTA_VOLUMES/cli/data:/opt/mantaflow/cli/data \
  -v $MANTA_VOLUMES/cli/platform/conf:/opt/mantaflow/cli/platform/conf \
  -v $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/conf:/opt/mantaflow/
cli/scenarios/manta-dataflow-cli/conf \
  -v $MANTA_VOLUMES/cli/scenarios/manta-dataflow-cli/lib-ext:/opt
/mantaflow/cli/scenarios/manta-dataflow-cli/lib-ext \
  -v $MANTA_VOLUMES/serviceutility/log:/opt/mantaflow/serviceutility
/log \
  -v $MANTA_VOLUMES/serviceutility/WEB-INF/conf:/opt/mantaflow
/serviceutility/WEB-INF/conf \
  -v $MANTA_VOLUMES/serviceutility/WEB-INF/data:/opt/mantaflow
/serviceutility/WEB-INF/data \
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https \
  -e MANTA_ADMIN_UI_URL=https://$PUBLIC_IP:8181/manta-admin-gui \
  -e MANTA_ARTEMIS_HOST=$PUBLIC_IP \
  -e MANTA_ARTEMIS_PORT=61616 \
  -e MANTA_AUTH=https://$PUBLIC_IP:9090/auth \
  -e MANTA_CONFIGURATION_SERVICE_URL=https://$PUBLIC_IP:8083 \
  -e MANTA_FLOW_SERVER_URL=https://$PUBLIC_IP:8443/manta-dataflow-
server \
  -e MANTA_MASTERPASSWORD="<password for masterkeystore encryption>" \
  -e MANTA_PASSWORD="<password>" \
  -e MANTA_USER="<username>" \
  -e MANTA_TLS_ENABLED=true \
  -e MANTA_TLS_CA_FILE=/etc/x509/https/ca.crt \
  -e MANTA_TLS_CERT_FILE=/etc/x509/https/tls.crt \
  -e MANTA_TLS_KEY_FILE=/etc/x509/https/tls.key \
  -e MANTA_TLS_KEYSTORE_PASSWORD="<password>" \
  -e CAFILE=/etc/x509/https/ca.crt \
  -e CRTFILE=/etc/x509/https/tls.crt \
  -e MANTA_ARTEMIS_MTLS_ENABLED=true \
  -e MANTA_ARTEMIS_PRIVATE_KEY_PATH=/etc/x509/https/tls.key \
  -e MANTA_ARTEMIS_PUBLIC_KEY_PATH=/etc/x509/https/tls.crt \
  -e MANTA_ARTEMIS_CA_CERT_PATH=/etc/x509/https/ca.crt \
  -e MANTA_ARTEMIS_KEYSTORE_PASSWORD='<password>' \
  -e MANTA_ARTEMIS_TRUSTSTORE_PASSWORD='<password>' \
  -p 8181:8181 \
  repo.getmanta.com/manta-ubi8/manta-admin-gui:39.0.0

```

You can verify whether MANTA Admin GUI is running at [https://\\$PUBLIC_IP:8181/manta-admin-gui/app](https://$PUBLIC_IP:8181/manta-admin-gui/app).

MANTA Flow Agent

Run the default **MANTA Flow Agent** by running the command below.

```
docker run -d $USER_PARAM \  
  -v $MANTA_VOLUMES/agent/manta-flow-agent-dir:/opt/mantaflow/agent  
/manta-flow-agent-dir \  
  -e MANTA_ARTEMIS_HOST=$PUBLIC_IP \  
  -e MANTA_ARTEMIS_PORT=61616 \  
  -p 8787:8787 \  
  repo.getmanta.com/manta-ubi8/manta-flow-agent:39.0.0
```

MANTA Flow Agent with HTTPS and Artemis mTLS

If you want to run MANTA with HTTPS, run the container using the following command.

```
docker run -d $USER_PARAM \  
  -v $MANTA_VOLUMES/agent/manta-flow-agent-dir:/opt/mantaflow/agent  
/manta-flow-agent-dir \  
  -v $MANTA_TLS_CERT_PATH:/etc/x509/https \  
  -e MANTA_TLS_ENABLED=true \  
  -e MANTA_TLS_CA_FILE=/etc/x509/https/ca.crt \  
  -e MANTA_TLS_CERT_FILE=/etc/x509/https/tls.crt \  
  -e MANTA_TLS_KEY_FILE=/etc/x509/https/tls.key \  
  -e MANTA_TLS_KEYSTORE_PASSWORD="<password>" \  
  -e MANTA_ARTEMIS_HOST=$PUBLIC_IP \  
  -e MANTA_ARTEMIS_PORT=61616 \  
  -e MANTA_ARTEMIS_MTLS_ENABLED=true \  
  -e MANTA_ARTEMIS_PRIVATE_KEY_PATH=/etc/x509/https/tls.key \  
  -e MANTA_ARTEMIS_PUBLIC_KEY_PATH=/etc/x509/https/tls.crt \  
  -e MANTA_ARTEMIS_CA_CERT_PATH=/etc/x509/https/ca.crt \  
  -e MANTA_ARTEMIS_KEYSTORE_PASSWORD='<password>' \  
  -e MANTA_ARTEMIS_TRUSTSTORE_PASSWORD='<password>' \  
  -p 8787:8787 \  
  repo.getmanta.com/manta-ubi8/manta-flow-agent:39.0.0
```

Custom Registered Agent

If you want to run the agent as your own custom registered agent in Agent Manager, run the container with the environment variable with the agent ID.

```
-e MANTA_AGENT_COMMON_ID=<AGENT_ID>
```

Mounting Different Persistent Directories

The persistent directories do not need to be together in one directory. You can mount directories from different locations if you need to. The volume mount option `-v` is in the format:

```
-v <host_path>:<container_path>
```

So, if your host paths are located somewhere other than in this manual, modify the `<host_path>` locations accordingly. **Do not change the `<container_path>` location.**

Accessing MANTA Flow

When launched successfully, MANTA Flow components are available at:

- › Keycloak: <http://localhost:9090/auth>
- › Flow Server: <http://localhost:8080/manta-dataflow-server/>
- › Admin GUI: <http://localhost:8181/manta-admin-gui/app/>

Troubleshooting MANTA Flow

If MANTA Flow is not available on the ports listed above after launch, you can find out what is happening by doing as follows.

Find the container ID by listing the containers. It has `manta-...` in the `IMAGE` column.

```
docker ps -a
```

In a successful run, the list should look like the one below.

```
CONTAINER ID   IMAGE                                STATUS
COMMAND                                CREATED          UP
PORTS
NAMES
666b4f1cf206  manta/manta-admin-gui:39.0.0       Up 40 minutes
sh"          40 minutes ago  Up 40 minutes  0.0.0.0:8181->8181/tcp, :::
8181->8181
/tcp
manta-admin-gui
f00c81105a6d  manta/manta-dataflow:39.0.0       Up 42 minutes
sh"          42 minutes ago  Up 42 minutes  0.0.0.0:8080->8080/tcp, :::
8080->8080/tcp, 8443
/tcp
manta-dataflow
aaa869b87cc4  manta/manta-artemis:39.0.0       Up 42 minutes
sh"          42 minutes ago  Up 42 minutes  0.0.0.0:8161->8161/tcp, :::
8161->8161/tcp, 0.0.0.0:61616->61616/tcp, :::61616->61616
/tcp
manta-artemis
dcb3be093d4b  manta/manta-configuration-service:39.0.0 Up 42 minutes
sh"          42 minutes ago  Up 42 minutes  0.0.0.0:8083->8083/tcp, :::
8083->8083
/tcp
manta-configuration-service
8a12b9d738e9  manta/manta-keycloak:39.0.0       Up 42 minutes
/keycloak..." 42 minutes ago  Up 42 minutes  8080/tcp, 0.0.0.0:9090->
9090/tcp, :::9090->9090/tcp, 8443/tcp, 0.0.0.0:9990->9990/tcp, :::9990->9990/tcp
manta-keycloak
```

To view Docker logs for a container use the `docker logs` command with the `CONTAINER ID`.

```
docker logs 666b4f1cf206
```

You should see an output similar to the one below.

```
Checking for /opt/mantaflow/serviceutility/WEB-INF/conf/installer.
properties
time="2022-08-25T11:11:52Z" level=info msg="manta-admin-gui: trying to
reach artemis 172.30.1.30:8161 ..."
time="2022-08-25T11:11:52Z" level=info msg="manta-admin-gui: starting
Admin UI with opts:      -Dmanta.admin-ui.data-folder=/opt/mantaflow
/serviceutility/..."
[Warning] log4j2-spring.xml:4:97: Include operation failed, reverting to
fallback. Resource error reading file as XML (href='../conf/logging-
configuration.xml'). Reason: /opt/mantaflow/serviceutility/WEB-INF/conf
/logging-configuration.xml (No such file or directory)
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.springframework.cglib.core.
ReflectUtils (file:/opt/mantaflow/serviceutility/WEB-INF/lib/spring-core-
5.3.20.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,
byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of org.
springframework.cglib.core.ReflectUtils
WARNING: Use --illegal-access=warn to enable warnings of further illegal
reflective access operations
WARNING: All illegal access operations will be denied in a future release
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
Warning: Nashorn engine is planned to be removed from a future JDK release
```

Any error messages suggest possible problems that occurred during container startup.

If you do not see any errors in the Docker logs, the next step is to look at the Tomcat/Catalina and MANTA logs in:

- › **manta-volumes/server/logs** for MANTA Server and
- › **manta-volumes/serviceutility/logs** for Admin GUI

Troubleshooting Information to be Provided in MANTA Helpdesk Tickets

If you open a troubleshooting ticket in MANTA Helpdesk, please provide the following.

1. Output of `docker ps`
2. Output of `docker ps -a | grep manta`
3. Output of `docker logs` for the output of `docker logs <container ID>` for all CONTAINER IDs returned by the previous command
4. Content of `manta-volumes/server/logs` and `manta-volumes/serviceutility/logs`

Troubleshooting Inside the Container

It is possible to connect to a running container. This is done using the command:

```
docker exec -it <container id> /bin/bash
```

Then, you are in the container bash and you can check what you need to from inside the container.

Stopping MANTA Flow Container

MANTA Flow Docker Container is launched in the background (detached mode). To stop it, use the `docker stop` command with the `CONTAINER ID`; for example:

```
docker stop 666b4f1cf206
```

The `CONTAINER ID` and the logs from the stop routine are printed out.

To delete stopped containers, use the `docker rm` command with the `CONTAINER ID`.

```
docker rm 666b4f1cf206
```

After the container is deleted, the **persistent directories** still exist and can be reused when launching **MANTA Flow** again.

For more information about working with Docker containers, see <https://docs.docker.com/engine/reference/commandline/run/>.

Upgrading MANTA Flow

The upgrade process is nearly the same as running a new MANTA Flow deployment, except that persistent directories with data from the previous version are used.

Please note that as of version 39.x.x MANTA Flow container images are based on RedHat UBI images and are hosted at `repo.getmanta.com/manta-ubi8/`.

To upgrade the deployment to the newer version, please do the following.

1. Ensure that the variables `$USER_PARAM`, `$MANTA_VOLUMES`, and `$PUBLIC_IP` are properly set.
2. Ensure all the directories for persistent volumes are created. (Please see `$MANTA_VOLUMES` above.)
3. Back up all the directories in `$MANTA_VOLUMES`.
4. List all currently running MANTA Flow containers.

```
docker ps
```

You should see the containers running.

```
CONTAINER ID
IMAGE
COMMAND                CREATED          STATUS
PORTS                  NAMES
5deed65ca32f  repo.getmanta.com/manta-ubi8/manta-dataflow:
39.0.0             "/startup.sh"   10 minutes ago  Up 10
minutes           0.0.0.0:8080->8080/tcp, 0.0.0.0:8181->8181/tcp, 8443
/tcp  practical_visvesvaraya
cbbf5848879c  repo.getmanta.com/manta-ubi8/manta-keycloak:
39.0.0             "/opt/jboss/tools/do..." 15 minutes ago  Up 15
minutes           8080/tcp, 0.0.0.0:9090->9090/tcp, :::9090->9090
/tcp, 8443/tcp, 0.0.0.0:9990->9990/tcp, :::9990->9990/tcp
confident_euler
cbbf5848879c  repo.getmanta.com/manta-ubi8/manta-artemis:
39.0.0             "/opt/jboss/tools/do..." 15 minutes ago  Up 15
minutes           8080/tcp, 0.0.0.0:9090->9090/tcp, :::9090->9090
/tcp, 8443/tcp, 0.0.0.0:9990->9990/tcp, :::9990->9990/tcp
confident_euler
```

4. Stop the MANTA Flow containers.


```
docker stop <manta flow container id>
docker stop <manta artemis container id>
docker stop <manta keycloak container id>
docker stop <manta configuration service container id>
docker stop <manta admin gui container id>
```

5. Follow the instructions under the heading MANTA Flow Container Images on this page. Please note that for the manta-dataflow container, you have to use the correct mount paths from the previous version.

```
docker run -d $USER_PARAM \
  -v $MANTA_VOLUMES/conf:/opt/mantaflow/conf \
  -v $MANTA_VOLUMES/server/logs:/opt/mantaflow/server/manta-dataflow-
server-dir/logs \
  -v $MANTA_VOLUMES/server/webapps/manta-dataflow-server/WEB-INF/conf:
/opt/mantaflow/server/manta-dataflow-server-dir/conf \
  -v $MANTA_VOLUMES/server/webapps/manta-dataflow-server/WEB-INF/data:
/opt/mantaflow/server/manta-dataflow-server-dir/data \
  -v $MANTA_VOLUMES/server/webapps/manta-dataflow-server/WEB-INF/temp:
/opt/mantaflow/server/manta-dataflow-server-dir/temp \
  -e MANTA_AUTH=http://$PUBLIC_IP:9090/auth \
  -e MANTA_CONFIGURATION_SERVICE_URL=http://$PUBLIC_IP:8083 \
  -e MANTA_FLOW_SERVER_URL=http://$PUBLIC_IP:8080/manta-dataflow-server
\
  -e MANTA_MASTERPASSWORD="<password for masterkeystore encryption>" \
  -e MANTA_PASSWORD="<password>" \
  -e MANTA_USER="<username>" \
  -p 8080:8282 \
  repo.getmanta.com/manta-ubi8/manta-dataflow:39.0.0
```