**When working directly with ESP docker images under** [**https://repulpmaster.unx.sas.com/**](https://repulpmaster.unx.sas.com/) **the following steps are similar. You just need to change the repository name.**

**For example**

**sudo docker pull repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-esp-server-edge:10.723.12-20220301.1646098684096**

Setting up your ESP environment in docker

1. We will pull the images required for our ESP setup. Run the following pull commands in separate terminals so that it can happen parallelly to save time.
2. First is ESP on edge

sudo docker pull repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-esp-server-edge:10.723.12-20220301.1646098684096

1. Then ESP Studio (optional)

sudo docker pull repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-event-stream-processing-studio-app:7.26.1-20220520.1653006849360

1. Then ESP Streamviewer (optional)

sudo docker pull repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-event-stream-processing-streamviewer-app:7.26.1-20220519.1653004675386

1. Review the docker images.

sudo docker images

Notice the repo name,tag and imageid

1. Create a shared folder in current directory(/home/espuser):

mkdir dockerdata

1. Give write permissions for all to the folder.

chmod -R 777 dockerdata

1. You need a license file for ESP. You can get the ESP license from makeorder. Copy the license file to the dockerdata folder
2. Start the docker for ESP servercd.   
   sudo docker run -it -p 48787:48787 -p 48989:48989 -e LD\_LIBRARY\_PATH=/opt/sas/viya/home/SASEventStreamProcessingEngine/lib:/opt/sas/viya/home/SASFoundation/sasexe:/data -e PATH=$PATH:/opt/sas/viya/home/SASEventStreamProcessingEngine/bin -e MAS\_PYPATH=/opt/rh/rh-python38/root/usr/bin/python -e MAS\_M2PATH=/opt/sas/viya/home/SASFoundation/misc/embscoreeng/mas2py.py --network="host" --mount type="bind",source="/home/ameliacreek08/ameliacreek/dockerdata",target="/data" repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-esp-server-edge:10.723.12-20220301.1646098684096 /bin/bash
3. You will be in the bash shell of the docker container. To start the ESP server run. Replace .jwt license file with your own.

dfesp\_xml\_server -http 48989 -httpadmin 48787 -license /data/SASViyaV0300\_0B1MW4\_70180938\_Linux\_x86-64.jwt

1. In a separate terminal start the ESP Studiodf.

sudo docker run -p 31500:31500 --mount type="bind",source="/home/ameliacreek08/ameliacreek/dockerdata",target="/data" -e ESP\_STUDIO\_DB="/data/studioH2db" -e sas\_multi\_tenancy\_enabled="false" -e server\_port="31500" repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-event-stream-processing-studio-app:7.26.1-20220520.1653006849360

1. Open the studio in the web browser in your VM. Use Chromium web browser for this.

http://localhost:31500/SASEventStreamProcessingStudio

1. Add the esp server using the ip address of the vm. To get your ip address:

Run ifconfig command in a separate terminal and check the inet address under eth0.

1. To start the Streamviewer in a separate terminal run the following:

sudo docker run -p 31401:31401 --mount type="bind",source="/home/ameliacreek08/ameliacreek/dockerdata",target="/data" -e ESP\_STREAMVIEWER\_DB="/data/stvH2db" -e server\_port="31401" -e sv\_auth="false" repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-event-stream-processing-streamviewer-app:7.18.3-20211011.1633910501328

1. Open the streamviewer in the web browser in your VM:

<http://localhost:31401/SASEventStreamProcessingStreamviewer>

# Enabling a connector

In order to enable a connector (here MQTT connector) which is not active by default run the following commands.

1. Copy the required files in the shared folder. In this case its dockerdata folder and the file is libmosquitto.so.1. You can find the libmosquitto.so.1 file in the labdata folder.
2. Start the docker container using the following command
3. sudo docker run -it -p 48787:48787 -p 48989:48989 -e LD\_LIBRARY\_PATH=/opt/sas/viya/home/SASEventStreamProcessingEngine/lib:/opt/sas/viya/home/SASFoundation/sasexe:/data -e PATH=$PATH:/opt/sas/viya/home/SASEventStreamProcessingEngine/bin -e MAS\_PYPATH=/opt/rh/rh-python38/root/usr/bin/python -e MAS\_M2PATH=/opt/sas/viya/home/SASFoundation/misc/embscoreeng/mas2py.py --network="host" --mount type="bind",source="/home/ameliacreek08/ameliacreek/dockerdata",target="/data" repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-esp-server-edge:10.723.12-20220301.1646098684096 /bin/bash
4. When inside the docker container navigate to

/opt/sas/viya/config/etc/SASEventStreamProcessingEngine/default

1. Need to modify the configuration file to enable the connector. Run the following command:

vi /opt/sas/viya/config/etc/SASEventStreamProcessingEngine/default/esp-properties.yml

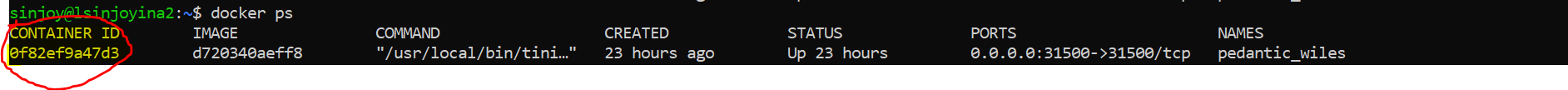
1. Search for connectors section. You can do this by pressing ‘/’ and writing ‘connectors:’ and pressing enter
2. Change the ‘true’ to ‘false’ for the connector you want to enable. In this case mqtt.
3. Now when you start the ESP server(you need to restart the server if it was running already), the connector will be active if it has all the required dependencies. You can verify this in the Studio as well. Refresh the Studio if the connector is not yet visible.
4. **If you want an ESP server image with these changes to be permanent**, you need to create an image out of the current container. Also, you can put the connector library at $DFESP\_HOME/lib folder to be a part of the image.
5. While in the bash terminal of the current server docker copy the mqtt client library to $DFESP\_HOME/lib folder.

cp /data/libmosquitto.so.1 $DFESP\_HOME/lib

1. Run the following command in a separate terminal to get the information about the running docker container

sudo docker ps

You can get the containerid of the current docker you are working on. Keep a note of that.



1. To create image run the following in a separate terminal:

sudo docker commit {docker container id} espwithmqtt:version1

This will create a docker image with name espwithmqtt. This is only for running in your current machine. Pushing this image to repository is out of the scope of this lab

1. Now you can start this docker and your changes will be permanent.

sudo docker run -it -p 48787:48787 -p 48989:48989 -e LD\_LIBRARY\_PATH=/opt/sas/viya/home/SASEventStreamProcessingEngine/lib:/opt/sas/viya/home/SASFoundation/sasexe:/data -e PATH=$PATH:/opt/sas/viya/home/SASEventStreamProcessingEngine/bin -e MAS\_PYPATH=/opt/rh/rh-python38/root/usr/bin/python -e MAS\_M2PATH=/opt/sas/viya/home/SASFoundation/misc/embscoreeng/mas2py.py --network="host" --mount type="bind",source="/home/ameliacreek08/ameliacreek/dockerdata",target="/data" repulpmaster.unx.sas.com/cdp-release-x64\_oci\_linux\_2-docker-latest/sas-esp-server-edge:10.723.12-20220301.1646098684096 /bin/bash

You can check the availability of the connector in your Studio. You may have to refresh your Studio.

Some useful docker commands:

1. To check the current images:

sudo docker images

1. To check the running containers:

sudo docker ps

1. To stop a running container:

sudo docker stop {containerid} you can get the containerid from the docker ps command