

**Please consider the Docker C2SIM Server as beta software and report any problems to [mpullen@gmu.edu](mailto:mpullen@gmu.edu)**

### **Running the Docker Container Under MacOS or Linux**

The Docker Container C2SIM Server provided in [openc2sim.github.io](https://openc2sim.github.io) encapsulates the open source C2SIM Reference Implementation Server v4.8.4.7 and supporting software, ready to run under Docker. A docker image can be downloaded from <https://openc2sim.github.io> as c2sim-docker-4.8.4.7.tar.gz. Once this has been downloaded, you will need to use docker load image to load the docker image into docker. Once have done this, you can run the image you have loaded. See below to run it under Docker for Windows.

You can start the container on Mac or Linux with this command in a system with Docker running:

```
docker run -v c2simFilePath:/opt/c2simFiles -p 0.0.0.0:8080:8080 -p 0.0.0.0:61613:61613  
7785a2bb7b87e0fd87884d3fd3b1314ba41584c0aeaa9adbca1dfc52d014b255
```

where c2simFilePath is the path on your system to the c2simFiles directory where server logfiles and any other persistent files are stored, so it must have write access. It must also contain a file c2simServerInit.xml for server auto-initialization (this will be updated by C2SIM initialization XML messages).

The long string ending the command is the image ID generated with the Container.

0.0.0.0 indicates use of IPv4; 8080 is the REST input port for C2SIM orders, reports, and initialization and 61613 is the STOMP connect port for distribution of orders and reports.

You will need also to initialize c2simFiles. There is a download c2simFiles-v2.tar.gz in [openc2sim.github.io](https://openc2sim.github.io) for this. Place it at your c2simFilePath.

Preparation of the Docker Container was provided by software consultant Jonathan Pullen.

## Running the C2SIM Server Container under Docker for Windows 10 (and maybe later Windows)

1. Download c2sim-docker-4.8.4.7.tar-gz and c2simFiles-v2.tar.gz to a working directory (e.g. C:\Users\c2sim\Docker)
2. Enable Windows Hyper-V and Virtual Machine features
  - a. Right click on the Windows button and select **Apps and Features**
  - b. Select **Programs and Features** on the right under related settings
  - c. Select "Hyper-V" and "Virtual Machine Platform" in features panel
  - d. Reboot
3. Run commands in Windows Powershell
  - a. Type "PowerShell" in "Type here to search" and run that as administrator  
You may need to run:  
`cmd Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux`
  - b. Run in PowerShell "wsl --set-default-version 2"
  - c. Run in PowerShell "wsl --install -d Ubuntu-20.04"
  - d. Run in PowerShell "wsl --update"  
You may need to update wsl for Linux use- you will be advised by a popup to do this.
  - e. In PowerShell, cd to working directory holding the downloads
  - f. Create folders c2sim-docker and c2simFiles in your working directory (see above for function of c2simFiles, which must have write access; we found in some cases it is best to make this global write access, because the writing is done by an unidentified account that is somehow associated with the Docker process).
  - g. Untar the container folder "tar -xf c2sim-docker-4.8.4.7.tar.gz -C c2sim-docker"
  - h. Untar c2simFiles folder "tar -xf c2simFiles-4.8.4.7.tar.gz -C c2simFiles"
4. Install Docker for Windows from Docker.com  
A good way to do this is install Docker Desktop which takes care of details. Must "run as administrator".
5. You can now load the C2SIM server Docker image.
  - a. cd "c2simDockerPath"
  - b. docker image load -i "c2simDockerPath"(where "c2simDockerPath" is full path through working directory to c2sim\_docker-4.8.4.7.tar.gz e.g. "C:\Users\c2sim\Docker\c2sim-docker-4.8.4.7.tar.gz" – be sure to use quotes)
6. To run the C2SIM Server in Docker: in regular command window (not PowerShell):
  - a. cd to your working directory
  - b. docker run -v "working directory\c2simFiles":/opt/c2simFiles -p 8080:8080 -p 61613:61613 7785a2bb7b87e0fd87884d3fd3b1314ba41584c0aeaa9adbca1dfc52d014b255
7. to stop the C2SIM server, in a separate regular command window:
  - a. cd to your working directory
  - b. docker ps  
This will output details including the ContainerID, which you can copy and paste
  - c. docker stop ContainerID