



## Deploying Parasoft Continuous Testing Platform (CTP) with Docker

## Introduction

A Parasoft Docker image is a template that includes the Parasoft Virtualize Server, Parasoft Continuous Testing Platform, Parasoft Data Repository Server, all required software dependencies (e.g., Apache Tomcat, JRE ...), and default configuration settings for connecting to Parasoft License Server.

## Prerequisites

Ensure that you meet the system requirements for the Parasoft Virtualize Server (WAR deployment), Parasoft CTP, and Parasoft Data Repository (Windows 64-bit, specific Linux 64-bit distributions [see User Guide for details], Mac OS X).

## Licensing

The machine ID used for licensing Parasoft products deployed in Docker is derived from the Docker container ID. If you clone the Docker container, the clone will have a different machine ID and require a new license unless you have a floating license. For floating license issued from License Server, we recommend using License Server on the network outside of Docker. Contact your Parasoft representative if you have any additional questions about licensing.

## Configuring a New Docker Image

To deploy on Docker, you configure default connection details in a configuration file, build Docker images, then run the soavirt Docker image.

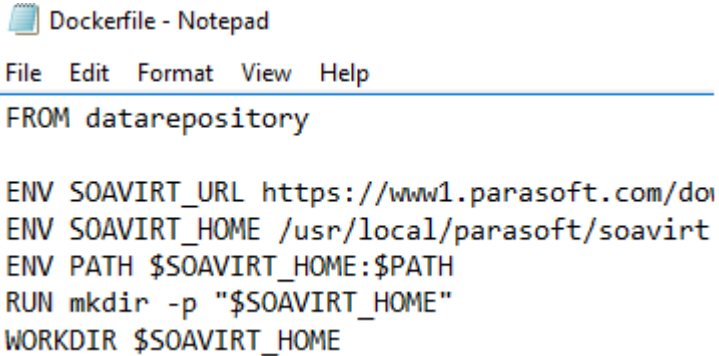
1. Download and install Docker for Windows as described in <https://docs.docker.com/docker-for-windows/>. This page contains Windows instructions and links to Linux and Mac instructions.
2. Launch a Command Prompt and change directory (cd) to the folder where the Parasoft Docker files were extracted. This folder will contain the following subfolders:
  - ctp
  - datarepository
  - server-jre8
  - soavirt
  - tomcat8

3. (Optional) Edit the default values for environment variables in the soavirt/Dockerfile file and ctp/Dockerfile file. As you edit, note that the ENV command declares a new environment variable. The environment variable name and value should be separated by a space.

ENV VIRTUALIZE_SERVER_NAME Docker	Specifies the name that should be used to label this server on Environment Manager.
ENV CTP_HOST localhost	The host name or IP address of the CTP server where this Virtualize server should register when it starts up. If your CTP is running on localhost <i>outside</i> of the Docker container, specify the IP address (e.g., 10.10.255.47) rather than localhost.
ENV CTP_PORT 8080	The port that should be used to connect to CTP.
ENV CTP_USERNAME admin	The username that should be used to connect to CTP (if authentication has been enabled).
ENV CTP_PASSWORD admin	The password that should be used to connect to CTP (if authentication has been enabled).
ENV CTP_NOTIFY true	If true, the Virtualize server notifies CTP when virtual assets are deployed.
ENV LICENSE_EDITION custom_edition	The Virtualize license edition to request from the License Server.
ENV LICENSE_FEATURES "Service Enabled, Performance, Extension Pack, Validate, Message Packs, Unlimited Hits\Day"	The Virtualize license features to request from the License Server when using a custom edition license.
ENV LICENSE_SERVER_HOST localhost	The host name or IP address of the License Server to use for requesting a Virtualize license.
ENV LICENSE_SERVER_PORT 2002	The port to use for connecting to License Server.

**Tip: How to Exclude Data Repository**

If you do not want to include Data Repository in the Docker image, change the first line of the soavirt/Dockerfile to `FROM tomcat8` (instead of `FROM datarepository`).



```
FROM datarepository

ENV SOAVIRT_URL https://www1.parasoft.com/do
ENV SOAVIRT_HOME /usr/local/parasoft/soavirt
ENV PATH $SOAVIRT_HOME:$PATH
RUN mkdir -p "$SOAVIRT_HOME"
WORKDIR $SOAVIRT_HOME
```

4. Build Docker images for each of the sub folders by executing the following commands in the Docker Terminal *in this order*:

```
docker build -t server-jre8 server-jre8/

docker build -t tomcat8 tomcat8/

docker build -t datarepository datarepository/

docker build -t soavirt soavirt/

docker build -t ctp ctp/
```

5. Run the newly created Docker image by executing a command of the format `docker run -it --rm -p 8080:8080 -p 9080:9080 ctp`

This will start up the Data Repository server, Virtualize server, and CTP.

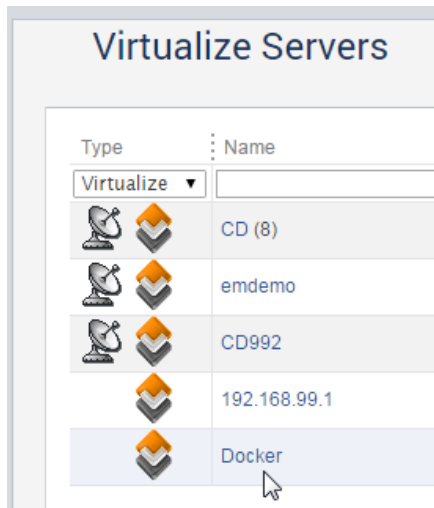
Note that if CTP is already running *outside* of the Docker container, run the soavirt Docker image instead:

```
docker run -it --rm -p 2424:2424 -p 9080:9080 soavirt
```

-it	Makes the running Docker container interactive so it will continue running until you press Ctrl-C in the terminal.
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--rm	Configures CTP and the Virtualize server as a disposable sandbox. Upon shutdown, the Docker container will be removed and discard any changes to the CTP database, Virtualize workspace, and Data Repository. If you want to be able to shut down CTP and Virtualize and then pick up where you left off after a restart, omit -rm.
-p 2424:2424	Map port 2424 from the Docker container to port 2424 in the host (for Data Repository).
-p 8080:8080	Map port 8080 from the Docker container to port 8080 in the host (for CTP).
-p 9080:9080	Map port 9080 from the Docker container to port 9080 in the host (for Virtualize).

You should now see the Virtualize server listed in CTP and be able to use the CTP web interface (by default, at <http://localhost:8080/>) to create virtual assets or upload .pva files.



**Tip: How to Create a Docker Image with Only CTP (No Data Repository or Virtualize)**

If you want to create a Docker image with just CTP (and no Data Repository or Virtualize), change the first line of the ctp/Dockerfile from `FROM soavirt` to `FROM tomcat8` and then rebuild the ctp image.

## Changing the Configuration

If you want to override the default configuration (for example, to use a different CTP or License Server) *without rebuilding the soavirt and ctp images*, do the following:

1. Shut down the running container.
2. Override environment variables in the run command using the `-e` option and environment variable name and value, separated by an equals sign. For example:

```
docker run -it --rm -p 2424:2424 -p 9080:9080 -e CTP_HOST=em.acme.com -e CTP_PORT=8080 -e LICENSE_SERVER_HOST=ls.acme.com soavirt
```

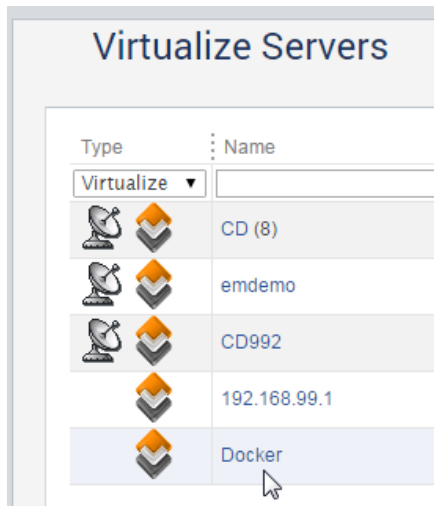
or

```
docker run -it --rm -p 2424:2424 -p 9080:9080 -e CTP_HOST=10.10.255.47 -e CTP_PORT=8080 -e LICENSE_SERVER_HOST=license.parasoft.com soavirt
```

### Tip: Learning More About Options and Environment Variables

Options (`-it`, `--rm`, `-p`) and environment variables (`ENV_MANAGER_HOST`, `ENV_MANAGER_PORT`...) are described in the tables in [Configuring a New Docker Image](#).

You should now see the Virtualize server listed in CTP and be able to use the CTP web interface (by default, at <http://localhost:8080/>) to create virtual assets or upload .pva files.



## Changing the Configuration Defaults Inside Docker Images

Alternatively, if you are willing to rebuild the ctp and soavirt images, you can update the configuration as follows:

1. Shut down the Docker container (e.g., press Ctrl-C in the terminal).
2. Delete the soavirt and ctp images as follows:
  - a. At the Docker terminal, enter the command  
`docker images`
  - b. Remove the ctp image by entering the command  
`docker rmi ctp`
  - c. Remove the soavirt image by entering the command  
`docker rmi soavirt`
  - d. Verify that the images were removed by entering the command  
`docker images`
3. Edit the ctp/Dockerfile and soavirt/Dockerfile files as desired.
4. Rebuild from the base folder in the Docker terminal by entering the commands  
`docker build -t soavirt soavirt/`  
`docker build -t ctp ctp/`