



## Introduction



### SOLA Community server

Solution for Open Land Administration (SOLA) Community Server (CS) is a web application that hosts and maintains data collected using the **Open Tenure (OT)** mobile application, commonly used in community based mapping and recording activities, allowing capturing details of land parcels, information about legitimate tenure right holders and their legitimate tenure rights to those parcels. It is an open source application, developed by the Food and Agriculture Organization (FAO) of the United Nations.

This quick reference guide does not aim to replace the complete SOLA Community server & Open Tenure administration guide but rather describes the necessary installation steps to set up the SOLA Community server environment, consisting of various services, such as PostgreSQL database, GeoServer, JasperReports server, database administration console, automated database backup service and Payara application server.

There are two ways of installing the SOLA Community server environment – manual or by applying Docker engine. For development purposes, it is recommended to opt for a manual setup, whereas for production or demonstration purposes, Docker installation should be considered as the preferred option. This guide describes Docker type installation steps. For more detailed information on the Community server installation (both manual and Docker), refer to the SOLA Community server & Open Tenure administration guide, available at <https://tinyurl.com/cs-admin-guide>.



### Why Docker

Docker is an operating system level virtualization software that delivers isolated, self-contained software that bundle their own software, libraries and configurations files and communicate with each other through well-defined channels.

Docker can be considered a virtual machine, as a lightweight, flexible and effective solution. Being an open platform, Docker is available free on most popular operating systems (e.g. Windows and Linux).

The Docker installation of SOLA Community server bundles everything required. It comes fully configured and ready for use once installed. With Docker environment installed, SOLA Community server installation will take less than 15 minutes with strong Internet connectivity.

## System requirements

### Minimum requirements

Specific requirements will depend on your operating system (see the Installation section), but it is generally recommended to have the following minimum parameters:

- A computer model less than seven years old
- 4 GB RAM
- 20 GB of free disk space
- 64-bit operating system
- Reliable Internet connection

## Installation

### 1 Install Docker environment

If you have the Docker engine and Docker Compose already installed, you may skip this step. Otherwise, please refer to the Docker installation page, as per your operating system:

Operating system	Link
<b>Windows 10 Professional, Enterprise, Education</b>	<a href="https://docs.docker.com/docker-for-windows/install/">https://docs.docker.com/docker-for-windows/install/</a>
<b>Windows 10 Home</b>	<a href="https://docs.docker.com/docker-for-windows/install-windows-home/">https://docs.docker.com/docker-for-windows/install-windows-home/</a>
<b>CentOS</b>	<a href="https://docs.docker.com/engine/install/centos/">https://docs.docker.com/engine/install/centos/</a>
<b>Debian</b>	<a href="https://docs.docker.com/engine/install/debian/">https://docs.docker.com/engine/install/debian/</a>
<b>Fedora</b>	<a href="https://docs.docker.com/engine/install/fedora/">https://docs.docker.com/engine/install/fedora/</a>
<b>Ubuntu</b>	<a href="https://docs.docker.com/engine/install/ubuntu/">https://docs.docker.com/engine/install/ubuntu/</a>
<b>Mac</b>	<a href="https://docs.docker.com/docker-for-mac/install/">https://docs.docker.com/docker-for-mac/install/</a>

Windows and Mac installations come already packaged with Docker Compose, while Linux type operating systems require separate installation. For further details, check this link – <https://docs.docker.com/compose/install/>

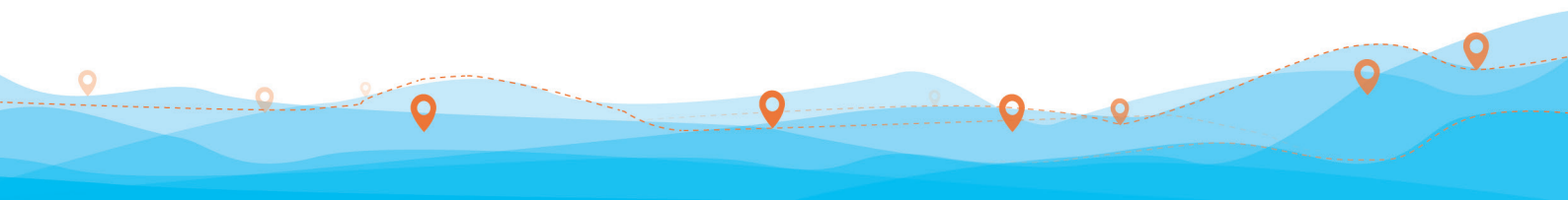
### 2 Download Docker Compose files

Before downloading Docker Compose files, create or select a folder where you want to keep your configuration parameters and data folder. For Windows users, it is recommended to use a folder on the C: drive.

Use the following link <https://tinyurl.com/yxdysvp2> to download and archive with required files and extract **docker-compose.yaml** and **.env** files into your folder.

### 3 Configure parameters

You can adjust various parameters like port numbers, database name, password and data storage location by opening and editing **.env** file using any text editor. Check the table below and adjust these parameters if necessary. In most cases, adjustments are required if default port numbers overlap with the ones already present on your computer or you want to set your database password.

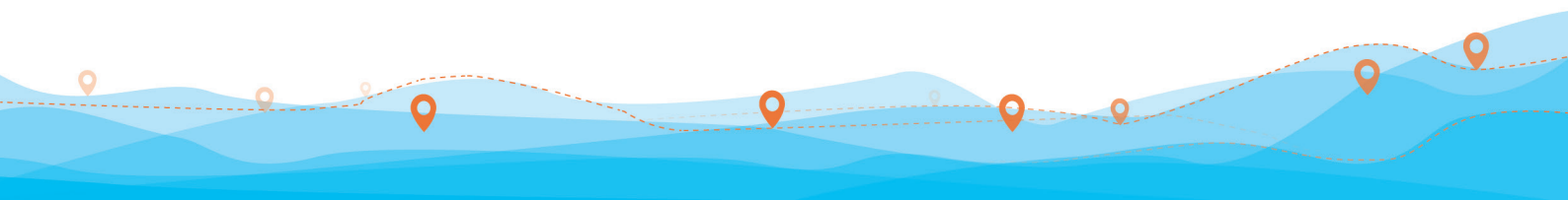


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Parameter	Default value	Description
<b>CS_ADMIN_PORT</b>	4849	Payara administration console port number
<b>CS_HTTP_PORT</b>	8989	Community server port number for accessing it over HTTP protocol (e.g. <a href="http://server-name:8989">http://server-name:8989</a> )
<b>CS_HTTPS_PORT</b>	8990	Community server port number for accessing it over HTTPS protocol (e.g. <a href="https://server-name:8990">https://server-name:8990</a> )
<b>DB_PORT</b>	5434	PostgreSQL database port number
<b>DB_ADMIN_PORT</b>	8991	pgAdmin port number for administering PostgreSQL
<b>GEOSERVER_PORT</b>	8985	GeoServer port number.
<b>REPORTS_PORT</b>	8996	JasperReports server port number.
<b>TIME_ZONE</b>	UTC	Time zone for containers. Full list can be found at <a href="https://tinyurl.com/wiki-tz">https://tinyurl.com/wiki-tz</a> (select from TZ database name column).
<b>DB_NAME</b>	sola_cs	Community server database name.
<b>DB_PASSWORD</b>	OpenTenure	Database password.
<b>DB_ADMIN_EMAIL</b>	admin@opentensure.org	Email address, used as a user name for accessing pgAdmin. Password as per DB_PASSWORD value.
<b>HOST_IP_OR_NAME</b>	localhost	IP address or host name, used to access GeoServer. It should be the hosting server name (running this installation) or its full DNS name, or IP address. Don't use localhost if you are planning to access your server from the network. At least the server name is recommended here.
<b>DB_DATA</b>	./data/db	Folder location for storing database data (e.g. databases). "/" is equivalent to the current folder.
<b>DB_ADMIN_DATA</b>	./data/db_admin_backups	Folder location for storing database backups, created by pgAdmin tool (manual).
<b>DB_BACKUPS</b>	./data/db_auto_backups	Folder location for storing automatic (scheduled) database backups.
<b>GEOSERVER_DATA</b>	./data/geoserver	Folder location for storing GeoServer data (layers, styles, etc.).

Windows users can check existing port numbers by typing the following command:  
`netsh int ipv4 show excludedportrange protocol=tcp` or `netstat -a`

Linux user can do it with: `netstat -ntlp | grep LISTEN`



## Installation

### 4 Run containers

Finally, open a command line and access the your folder with **docker-compose.yml** and **.env** files, then type the following command:

```
docker-compose up -d
```

This simple command will pull the required docker images from the Internet, creating containers and running them. If there are any issues, you will be able to see the errors in your command line. Otherwise, successful installation will take between 2-7 minutes for the first start (after downloading is completed). Processing time depend on your computer processor.

## Verification

If you are running Windows or Mac, you can open Docker Desktop dashboard and check each container by clicking on it and watching the log outputs. Upon successful loading, log outpus will stop showing final message and all containers will turn green as well.

The following commands can be used to check logs and list all running processes (e.g. checking logs of SOLA Community server container):

```
docker logs ot-cs
```

```
docker ps -a
```

The following table shows an example of various services, which can be accessed under default parameters (assuming your IP address is 192.168.0.100 and host name is my-server).

Service	URL	Login/Password
<b>SOLA Community server</b>	<a href="http://my-server:8989">http://my-server:8989</a> <a href="http://192.168.0.100:8989">http://192.168.0.100:8989</a> <a href="https://my-server:8990">https://my-server:8990</a> <a href="https://192.168.0.100:8990">https://192.168.0.100:8990</a>	test/test
<b>SOLA web admin</b>	<a href="http://my-server:8989/admin">http://my-server:8989/admin</a> <a href="http://192.168.0.100:8989/admin">http://192.168.0.100:8989/admin</a> <a href="https://my-server:8990/admin">https://my-server:8990/admin</a> <a href="https://192.168.0.100:8990/admin">https://192.168.0.100:8990/admin</a>	test/test
<b>Payara admin</b>	<a href="http://my-server:4849">http://my-server:4849</a> <a href="http://192.168.0.100:4849">http://192.168.0.100:4849</a> <a href="https://my-server:4849">https://my-server:4849</a> <a href="https://192.168.0.100:4849">https://192.168.0.100:4849</a>	admin/admin
<b>PostgreSQL</b>	<a href="my-server:5434">my-server:5434</a> <a href="192.168.0.100:5434">192.168.0.100:5434</a>	postgres/OpenTenure
<b>pgAdmin console</b>	<a href="http://my-server:8991">http://my-server:8991</a> <a href="http://192.168.0.100:8991">http://192.168.0.100:8991</a>	admin@opentensure.org/ OpenTenure
<b>GeoServer admin console</b>	<a href="http://my-server:8985">http://my-server:8985</a> <a href="http://192.168.0.100:8985">http://192.168.0.100:8985</a>	admin/geoserver
<b>Jasper server admin console</b>	<a href="http://my-server:8996">http://my-server:8996</a> <a href="http://192.168.0.100:8996">http://192.168.0.100:8996</a>	jasperadmin/jasperadmin