Food and Agriculture Organization
of the United Nations

Introduction

SOLA Community Server

SOLA Community Server is a Web-application that hosts and maintains data collected using **Open Tenure** mobile application, commonly used in community based mapping and recording activities, allowing capturing details of land parcels, owners/tenants information and their rights to those parcels. It is fully open source, developed by UN Food and Agriculture Organization.

This guide describes quick installation steps to setup 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 2 ways of installing SOLA Community Server environment – manual and using Docker engine. For development purposes, it's recommended to go for manual setup, whereas for production or demo purposes, Docker installation should be considered as a preferable option. This guide describes Docker type installation steps. For detailed information on 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 operating system level virtualization software that delivers software in isolated, self-contained containers that bundle their own software, libraries and configurations files and communicate with each other through well-defined channels.

You may think of Docker as a virtual machine, but more lightweight, flexible and effective. Being an open platform Docker is available free on the most popular operating systems (Windows and Linux type).

Docker installation of SOLA Community Server bundles everything you need. It comes fully configured and ready for using, once it's installed. Having Docker environment installed, SOLA Community Server installation may take less than 15 minutes if you have strong Internet connectivity.

System requirements

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

- Less than 7 years old computer model
- 4 GB RAM
- 20 GB of free disk space

- 64-bit operating system
- Reliable Internet connection

Installation

1. Install Docker environment

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

Operating System	Link
Windows 10 Professional, Enterprise, Education	https://docs.docker.com/docker-for-windows/install/
Windows 10 Home	https://docs.docker.com/docker-for-windows/install-windows-home/
CentOS	https://docs.docker.com/engine/install/centos/
Debian	https://docs.docker.com/engine/install/debian/
Fedora	https://docs.docker.com/engine/install/fedora/
Ubuntu	https://docs.docker.com/engine/install/ubuntu/
Mac	https://docs.docker.com/docker-for-mac/install/

Windows and Mac installations already packaged with Docker Compose, while Linux type operating systems require separate installation. Please, check this link for more details – 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, recommended to use a folder on C: drive.

Use the following link https://tinyurl.com/docker-cs for downloading an 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 only if you need it. In most of the cases, it's required if default port numbers overlap with the ones already opened on your computer or you want to set your database password.

Parameter	Default value	Description
CS_ADMIN_PORT	4849	Payara administration console port number
CS_HTTP_PORT	8989	Community Server port number for accessing it over HTTP protocol (e.g. http://server-name:8989)
CS_HTTPS_PORT	8990	Community Server port number for accessing it over HTTPS protocol (e.g. https://server-name:8990)
DB_PORT	5434	PostgreSQL database port number
DB_ADMIN_PORT	8991	pgAdmin port number for administering PostgreSQL

GEOSERVER_PORT	8985		GeoServer port number
REPORTS_PORT	8996		JasperReports Server port number
TIME_ZONE	UTC		Time zone for containers. Full list can be found at https://tinyurl.com/wiki-tz (select from TZ database name column)
DB_NAME	sola_cs		Community Server database name
DB_PASSWORD	OpenTenure		Database password
DB_ADMIN_EMAIL	admin@opentenure.org		Email address, used as a user name for accessing pgAdmin. Password as per DB_PASSWORD value
HOST_IP_OR_NAME	localhost		IP address or host name, used to access GeoServer. It should be hosting server (running this installation) name or its full DNS name or IP address. Don't use localhost if you are planning accessing your server from the network. At least server name is recommended here.
DB_DATA	./data/db		Folder location for storing database data (e.g. databases). "./" is equivalent to the current folder.
DB_ADMIN_DATA	./data/db_admin_backups		Folder location for storing database backups, created by pgAdmin tool (manual)
DB_BACKUPS	./data/db_auto_backups		Folder location for storing automatic (scheduled) database backups
GEOSERVER_DATA	./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
```

4. Run containers

Finally open command line and go to your folder with **docker-compose.yaml** and **.env** files and type the following command:

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

This simple command will make all job by pulling required Docker images from 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 2-7 minutes for the first start (after downloading is finished). This time depends on your computer power.

Verification

If you are running on Windows or Mac, you can open Docker Desktop dashboard and check each container by clicking on it and watching logs outputs. Upon successful loading, logs output will stop at some stage showing final messages. All containers must be in green color as well.

The following commands can be use as well 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
SOLA Community Server	http://my-server:8989 http://192.168.0.100:8989 https://my-server:8990 https://192.168.0.100:8990	test/test
SOLA Web Admin	http://my-server:8989/admin http://192.168.0.100:8989/admin https://my-server:8990/admin https://192.168.0.100:8990/admin	test/test
Payara Admin	http://my-server:4849 http://192.168.0.100:4849 https://my-server:4849 https://192.168.0.100:4849	admin/admin
PostgreSQL	my-server:5434 192.168.0.100:5434	postgres/OpenTenure
pgAdmin Console	http://my-server:8991 http://192.168.0.100:8991	admin@opentenure.org/OpenTenure
GeoServer Admin Console	http://my-server:8985 http://192.168.0.100:8985	admin/geoserver
Jasper Server Admin Console	http://my-server:8996 http://192.168.0.100:8996	jasperadmin/jasperadmin