

Deploy iServer in Docker

Linux Container virtual technology is a light-weight virtual method. It leverages kernel virtualization to provide lightweight virtualization for thread and resources isolation. Docker extends LXC, provides a higher level of APIs, simplifies application packaging and deployment, and creates an independent private environment for end users, saving deployment time for developers and system administrators.

SuperMap iServer is now available in the Docker Center. Here is downloading address: <http://hub.docker.com/r/supermap/iserver>. You can deploy iServer in Docker in just a few steps.

Taking Ubuntu Wily 15.10 as an example, we will introduce you how to deploy and run iServer in Docker.

The following operations needs root user or the highest authority user to login.

Install Docker

When you download and install the package using apt-get, you first need to update the source and install apt-transport-https to ensure that the system can download the required files correctly, and then execute the following commands:

```
apt-get update
apt-get install apt-transport-https ca-certificates
sudo apt-key adv --keyserver hkp://p80.pool.sks-keyservers.net:80 --recv-keys
58118E89F3A912897C070ADBF76221572C52609D
```

Go to the /etc/apt/sources.list.d directory and create a new docker.list file which is used to add Docker to the apt software installation source:

```
cd /etc/apt/sources.list.d
vi docker.list
```

Add the followings in the docker.list file:

```
deb https://apt.dockerproject.org/repo ubuntu-wily main
```

Update the APT package index and confirm that APT is getting the file from the correct repository:

```
apt-get update
apt-get purge lxc-docker
apt-cache policy docker-engine
```

For Ubuntu system, it is recommended to install linux-image-extra package:

```
sudo apt-get install linux-image-extra-$(uname -r)
```

Install Docker and start:

```
sudo apt-get install docker-engine
sudo service docker start
```

Verify that the Docker was installed successfully. This command downloads a test file and runs it in a container. When the container is running, it will print some information and exit automatically.

```
sudo docker run hello-world
```

As the docker's mirror center is abroad, the download speed is slow. Recommend using the Ali cloud accelerator: https://help.aliyun.com/knowledge_detail/5974865.html. If the operating system is ubuntu, you can use the following script to add the configuration of the mirror to the startup parameters of docker daemon, and restart the Docker.

```
echo "DOCKER_OPTS=\"--registry-mirror=https://hqsuattf.mirror.aliyuncs.com\"" | sudo tee -a /etc/default/docker
sudo service docker restart
```

Download iServer Mirror

Execute the following command in the Docker host to download the latest iServer mirror:

```
docker pull supermap/iserver
```

Once the download is complete, you can view the downloaded image information with the following command:

```
docker images
```

Run Docker to start iServer

Based on the downloaded iServer mirror, run a Docker container iserver1. Execute the following command:

```
docker run --name iserver1 -d -p 8090:8090 -v /home/data:/home supermap/iserver
```

Where, -p 8090: 8090 indicates that the external exposure port number is 8090. -v indicates mapping data path. When you build a cluster, the use of this parameter can publish services on the primary node. If the primary node does not need to publish the service, you do not need to use the -v parameter

Waiting a few seconds until iServer starts up. In the browser, please enter [http:// <host IP>: 8090](http://<host IP>: 8090), you can access iServer.

Publish GIS Services on iServer

In the above steps, the mapping path from the host to the Docker container (-v / home / data: / home) has been specified with the -v parameter, so you can place the data directly in a directory on the host (/ home / data). Log in iServer service manager, enter the Quick Publish Service Wizard. With remote browsing, you can directly find the mapping data and publish them in the container response directory (/ home).

Path mapping approach can be used to publish file GIS data, such as file-based workspace, MBTiles tile package and so on. This mapping is not required for GIS data stored in the database, such as database workspaces, MongoDB tiles, and so on. It is recommended that the database be deployed separately, such as on a host or other machine, and make sure that all iServer can access this database.

Build iServer Cluster Based on Docker

You can use the iServer that was started in the example above as the cluster master. Start the container son1 as a cluster sub-node:

```
docker run --name son1 --link iserver1:master -v /home/data:/home supermap/iserver
```

- The subnode does not need to expose the port number, and it can use the internal IP of the container son1 to access services in the host machine and publish map services.
- The format of the -link parameter is --link name: alias, where --link iserver1: master means that the container is connected to the iserver1 container and set alias master for iserver1. Alias can be specified at will
- -v maps the data path to facilitate publishing services on child nodes

After the two containers are started, you can access the services via `http: // <host IP>: 8090` and see that the child node has been added on the "Cluster" page. The child node can also be used as a tiling node to participate in map tiling.

You can use the cluster function by enabling the cluster service on the master node.

License Configuration

When the host has official license, and if you will start multiple Docker, that is, starting multiple iServer, you can choose the license modules you want.