iManager for bigdata Multi-machine Deployment Guide

1 Overview

in iManager, GIS Big Data Site deploy Docker,support multi-machine,some important concepts in the programe are as follows:

GIS image registry:GIS programe center,all the programe can be obtained here:

iManager:comprehensive GIS operational management center,can deploy and manage GIS Big Data Site by UI:

Docker resource pool:the place where GIS programe run on,offer resources like CPU ,memory and storage,etc

Logic diagram is as follows:
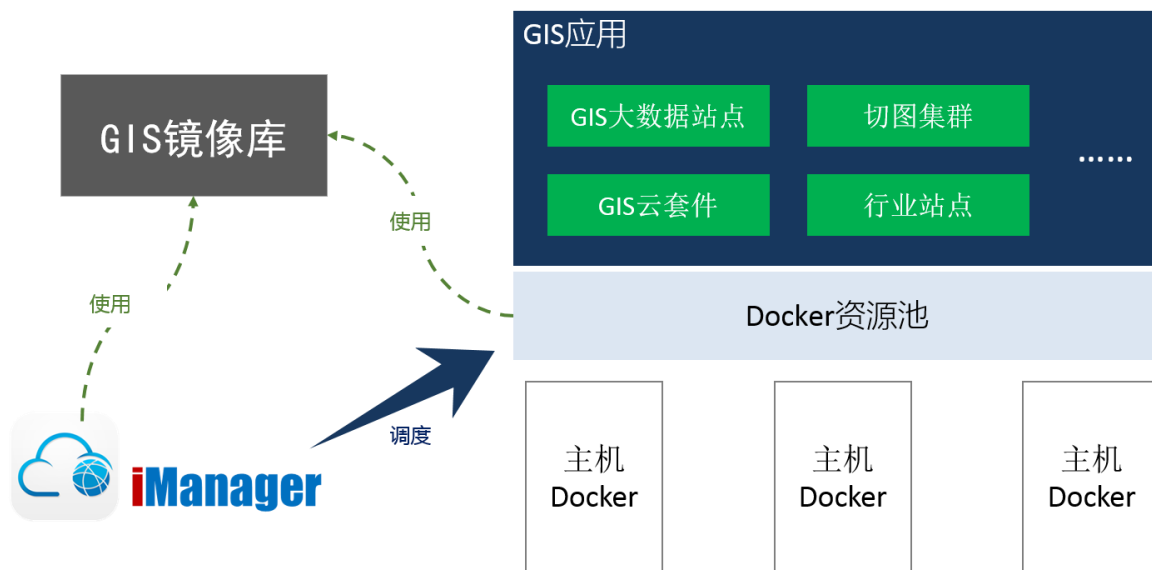
you can either deploy GIS image registry and imanager on a same machine or diferent machines .This document illustrate the deloyment by using two machines as example.

machineA(IP:192.168.17.224):deploy GIS image regjstry and iManager,as Swarm manager node at the sametime

machineB(IP:192.168.21.135):As Swarm worker node.

iManager deployment has the following steps:

1. Install docker

2. Start GIS image registry

3. start iManager

4. Deploy docker resource pool

5. Configure docker resource pool

二、 iManager solution deployment has the following steps

1.Install Dokcer

1.1 Install Docker on Ubuntu 16.04

Place the supermap_docker_for_ubuntu_16.04.tar.gz package in any directory on the machine.

Extract:

```
tar -zxf supermap_docker_for_ubuntu_16.04.tar.gz
```

Install:

```
cd supermap_docker_for_ubuntu_16.04
sudo chmod +x install.sh && sudo ./install.sh
```

Verify:check docker version,if you see the output like Docker version 17.06.0-ce, build 02c1d87,Docker install successfully

```
docker -v
```

1.2 Install Docker on RedHat or CentOS 7

Place the supermap_docker_for_ubuntu_16.04.tar.gz package in any directory on the machine.

Extract:

```
tar -zxf supermap_docker_for_rhel_or_centos_7.tar.gz
```

Enter the extracted root directory:

```
cd supermap_docker_for_rhel_or_centos_7
```

If the operating system is CentOS, perform the following steps, otherwise skip this step:

Check the kernel:

```
uname -r
```

If the kernel version is under 3.18, view the CentOS version:

```
cat /etc/redhat-release
```

If the CentOS version is below 7.3.1611, perform the following command:

```
sudo chmod +x setStorageDriver.sh && sudo ./setStorageDriver.sh
```

Install:

```
sudo chmod +x install.sh && sudo ./install.sh
```

Verify:check docker version,if you see the output like Docker version 17.06.0-ce, build 02c1d87,Docker install successfully

```
docker -v
```

note:install docker in each machine.

2.Start GIS image registry

Place the GIS image registry package supermap-imanager-*-*-*-registry-multi-node.tar.gz in any directory on the machine A.

Extract:

```
tar -zxf supermap-imanager-*-*-*-registry-multi-node.tar.gz
```

Enter the extracted root directory:

```
cd supermap-imanager-docker-images
```

Install:

```
sudo su
chmod +x ./startup.sh && ./startup.sh
```

Verify:Execute the following command,if there is no error,it start successfully.Where <ip> is IP of machine A where GIS image registry is installed

```
docker pull <ip>:5000/supermap/imanager
```

note:GIS image registry address is <ip>:5000.Where <ip> is IP of machine A .here in the example:192.168.17.224:5000.

3.start iManager

3.1 Extract:

Place the supermap-imanager-*-*-*-linux64-docker-multi-node.tar.gz package in any directory on the machine A,Unzip (modify the package name to the real package name):

Enter the extracted root directory:

```
cd supermap-imanager-docker
```

3.2 Start/stop iManager

Start iManager:

```
sudo su
sudo ./startup.sh --advertise-addr <本机 ip> --registry <GIS image registryip>:5000
```

note:Perform the following command to stop iManager:

```
sudo ./shutdown.sh
```

3.3 Access iManager services

http://{IP}:8390/imanager or http://{IP}:8080/imanager

Where {IP} is IP of machine A.

4.Deploy Docker resource pool

This document illustrate the deloyment by using the two machines which we used before ,machine A as the manager,machine B as worker.

Initialize swarm mode:Execute the command on machine A.Where <ip> is IP of machine A .

docker swarm init --listen-addr <ip>

you will see the following output:

```
[root@localhost supermap-imanager-docker]# docker swarm init --listen-addr 192.168.17.224
Swarm initialized: current node (iamehrz6k2ptqygkcxpmahjfw) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-lat4kaqrxflaupirjva8c6olx8ruvo6o90k31q2bwy0u4q5262-czi42pfapidcz5g1g50l3reyb 192.168.17.224:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
```

Join machine B into Swarm Mode as worker:Execute the command given by the previous step on machine B (the contents of the red box).If you see the output like the following.Machine B join successfully:

```
supermap@ubuntu:~$ docker swarm join --token SWMTKN-1-lat4kaqrxflaupirjva8c6olx8ruvo6o90k31q2bwy0u4q5262-czi42pfapidcz5g1g50l3r
This node joined a swarm as a worker.
```

Execute the command on Swarm Mode manager(machine A) to see Swarm Mode nodes list.

docker node ls

if you see the output like the following,resource pool deploy successfully

```
[root@localhost supermap-imanager-docker]# docker node ls
ID                             HOSTNAME               STATUS    AVAILABILITY    MANAGER STATUS
iamehrz6k2ptqygkcxpmahjfw *    localhost.localdomain  Ready     Active          Leader
xborukgj9sbkconlaaksrxado      ubuntu                 Ready     Active
```

Swarm Mode manager is:<ip>:2375.Where <ip> is IP of machine A .In the example is:192.168.17.224:2375

5.Configure docker resource pool

5.1 Import Swarm Mode configuration

Logs on to iManager, the user can access the iManager " GIS Big Data Site" page, click "Multi-machine" item on the " GIS Big Data Site" page to enter the GIS Big Data Site multi-machine page, click "management node" to enter the following page to manage the node..
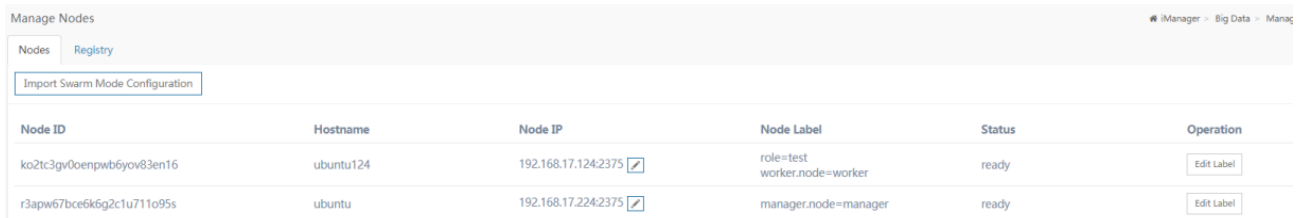
click "Import Swarm Mode Configuration".
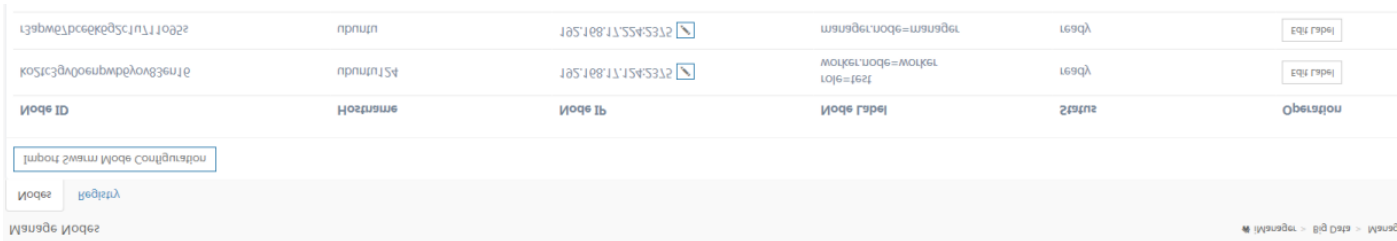
Import Swarm Mode Configuration   ✕

Manager IP: 192.168.17.224

Manager Port: 2375

Confirm   Cancel
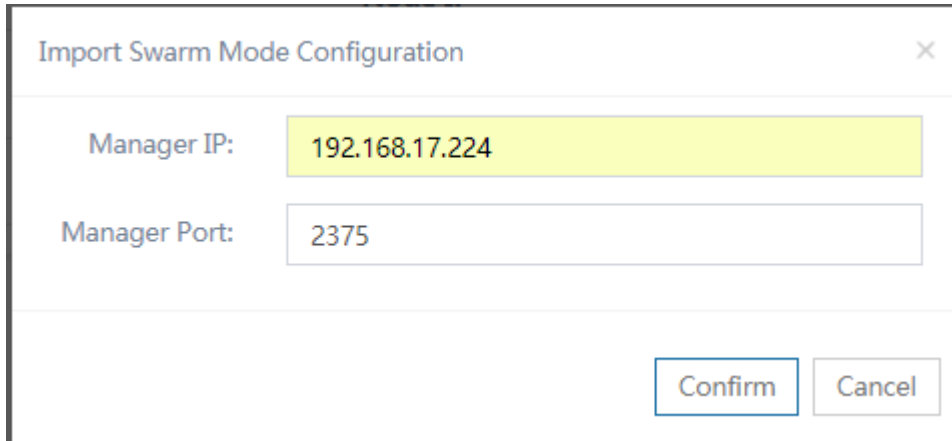
Manager IP:Swarm Mode manager IP(machine A).

Manager port:The port of the Docker on manager (machine A) exposed to Master Node:2375.

After completing the above information, click sthe OK button and the page will show configuration of Swarm Mode node, as shown in the following figure:
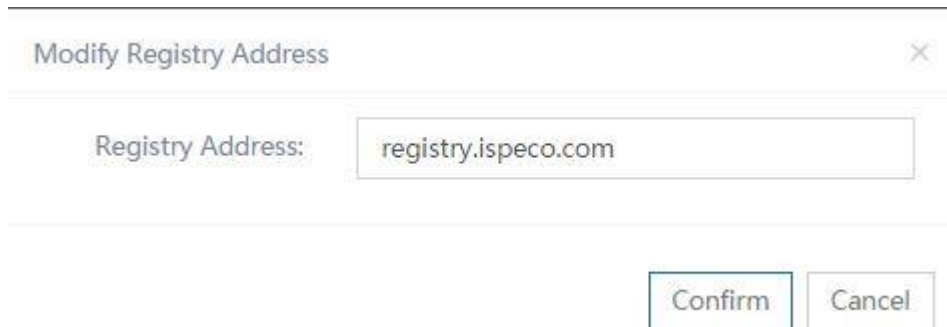
Manage Nodes   🏠 iManager > Big Data > Manag

Nodes   Registry

Import Swarm Mode Configuration

Node ID	Hostname	Node IP	Node Label	Status	Operation
ko2tc3gv0oenpwb6yov83en16	ubuntu124	192.168.17.124:2375	role=test worker.node=worker	ready	Edit Label
r3apw67bce6k6g2c1u711o95s	ubuntu	192.168.17.224:2375	manager.node=manager	ready	Edit Label

5.2 Configurate Repository

Click "Repository" item on the "Manage Node" page to enter repository configuration page, as shown in the following figure:

Manage Nodes   🏠 iManager > Big Data > Manage Nod

Nodes   Registry

Registry Address	Operation
registry.ispeco.com	Edit

You can click "Edit" button to modify the address of repository.

Modify Registry Address ✕

Registry Address: registry.ispeco.com

Confirm Cancel

Repository Address: Enter the address of GIS image registry.

3 Create GIS Big Data Site(Multi-machine)

1.You can click "Multi-machine" item on the "GIS Big Data Site" page to enter the GIS Big Data Site multi-machine page. Click "Create GIS Big Data Site",fill in the correct information and click "Confirm" button

2. GIS Big Data Site contain multi-node,if you want confine the sub-node on some machine,perform the following steps:

a.Define label on "GIS Big Data Site">"Multi-machine">"management node";

b.Select Advanced Options on Create GIS Big Data Site(Multi-machine) page,set constraints value to "node.labels" ,and select the node label you define in previous step:

c. click "Confirm" button to create.