

03. Glance 认证服务组件

参考任务时间： 90min

(因 CentOS、Openstack 版本更新缘故，教材中部分配置不再适用)

系统环境准备 CentOS7.5 + OpenStack Rocky

考官方文档：

<https://docs.openstack.org/keystone/rocky/install/keystone-install-rdo.html>

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3) 上传镜像到 glance

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3.0.glance 概述

1) glance 作用

用户使用镜像服务 (**glance**) 来创建、查询虚拟机镜像。

2) glance 镜像服务的组件

glance-api:

用于接收镜像 **REST API** 的调用，诸如镜像查找、获取、上传、删除。

glance-registry:

用于与 **mysql** 数据库交互，监听端口为 **9191**。

提供镜像元数据相关的 **REST** 接口，用于存储、处理和恢复镜像的元数据。

通过 **glance-registry** 可以向数据库中写入或获取镜像的各种数据。

image: 镜像文件的存储仓库

支持多种类型的仓库，它们有普通文件系统、对象存储以及亚马逊 **S3** 等。

image store:

是一个存储的接口层，通过这个接口 **glance** 可以获取镜像，支持的存储有亚马逊的 **S3**，**openstack** 本身的 **swift** 等。

数据库:

存放镜像元数据，多数的部署使用 **MySQL**。

元数据定义服务:

通用的 **API**，是用于为厂商、管理员以及用户自定义元数据。

3.1.在控制端安装镜像服务 **glance**

1) 创建 **glance** 数据库

复制代码

```
mysql -p123456
```

```
-----  
CREATE DATABASE glance;
```

```
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'localhost' IDENTIFIED BY 'glance';
```

```
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'%' IDENTIFIED BY 'glance';
```

```
flush privileges;
```

```
exit
```

3.2.在 keystone 上面注册 glance

1) 在 keystone 上创建 glance 用户

以下命令在 local_user 表创建 glance 用户

```
source admin-openrc
```

```
openstack user create --domain default --password=glance glance
```

```
openstack user list
```

```
[root@openstack01 tools]# openstack user create --domain default --password=glance glance
```

```
+-----+-----+
| Field          | Value                                |
+-----+-----+
| domain_id      | default                             |
| enabled        | True                                |
```

id	82a27e65ca644a5eadcd54ff44e5e05b
name	glance
options	{}
password_expires_at	None

+-----+-----+

[root@openstack01 tools]# openstack user list

+-----+-----+

ID	Name	
----	------	--

+-----+-----+

82a27e65ca644a5eadcd54ff44e5e05b	glance
----------------------------------	--------

cbb2b3830a8f44bc837230bca27ae563	myuser
----------------------------------	--------

e5dbfc8b394c41679fd5ce229cdd6ed3	admin
----------------------------------	-------

+-----+-----+

2) 在 keystone 上将 glance 用户添加为 service 项目的 admin 角色(权限)

以下命令无输出

```
openstack role add --project service --user glance admin
```

3) 创建 glance 镜像服务的实体

以下命令在 service 表中增加 glance 项目

```
openstack service create --name glance --description "OpenStack Image" image
openstack service list
```

```
[root@openstack01 tools]# openstack service create --name glance --description "OpenStack Image" image
```

```
+-----+-----+
| Field      | Value                                |
+-----+-----+
| description | OpenStack Image                    |
| enabled     | True                               |
| id          | 6c31f22e259b460fa0168ac206265c30 |
| name        | glance                             |
| type        | image                              |
+-----+-----+
```

```
[root@openstack01 tools]# openstack service list
```

```
+-----+-----+-----+
```

ID	Name	Type
63c882889b204d81a9867f9b7c0ba7aa	keystone	identity
6c31f22e259b460fa0168ac206265c30	glance	image

4) 创建镜像服务的 API 端点 (endpoint)

以下命令会在 endpoint 表增加 3 条项目 (注意 IP 地址)

```
openstack endpoint create --region RegionOne image public http://192.168.56.126:9292
```

```
openstack endpoint create --region RegionOne image internal http://192.168.56.126:9292
```

```
openstack endpoint create --region RegionOne image admin http://192.168.56.126:9292
```

```
openstack endpoint list
```

```
[root@openstack01 tools]# openstack endpoint create --region RegionOne image public http://controller:9292
```

Field	Value
enabled	True
id	f13c44af4e8d45d5b0229ea870f2c24f

interface	public	
region	RegionOne	
region_id	RegionOne	
service_id	6c31f22e259b460fa0168ac206265c30	
service_name	glance	
service_type	image	
url	http://controller:9292	

+-----+-----+

[root@openstack01 tools]# openstack endpoint create --region RegionOne image internal http://controller:9292

+-----+-----+

Field	Value	
-------	-------	--

+-----+-----+

enabled	True	
id	756084d018c948039d2ae55b13fc7d4a	
interface	internal	
region	RegionOne	
region_id	RegionOne	
service_id	6c31f22e259b460fa0168ac206265c30	

service_name glance	
service_type image	
url http://controller:9292	

+-----+-----+

[root@openstack01 tools]# openstack endpoint create --region RegionOne image admin http://controller:9292

+-----+-----+

Field	Value	
-------	-------	--

+-----+-----+

enabled	True	
---------	------	--

id	7226f8f9c7164214b815821b77ae3ce6
----	----------------------------------

interface	admin	
-----------	-------	--

region	RegionOne	
--------	-----------	--

region_id	RegionOne	
-----------	-----------	--

service_id	6c31f22e259b460fa0168ac206265c30
------------	----------------------------------

service_name glance	
-----------------------	--

service_type image	
----------------------	--

url	http://controller:9292	
-----	------------------------	--

+-----+-----+

```
[root@openstack01 tools]# openstack endpoint list
```

ID	Region	Service Name	Service Type	Enabled	Interface	URL
049edc22ab854f07afe4b3d98073fc8a	RegionOne	keystone	identity	True	internal	http://controller:5000/v3/
14807d851b564c04a911a4efc163921c	RegionOne	glance	image	True	public	http://192.168.56.126:9292
8648c1ee9af94ec18637759bd8fe0df8	RegionOne	glance	image	True	internal	http://192.168.56.126:9292
86ea71a487bd4a4c8de367b7156b35a7	RegionOne	glance	image	True	admin	http://192.168.56.126:9292
cb87710eddc0467299fd3077a08b075b	RegionOne	keystone	identity	True	admin	http://controller:5000/v3/
f0b22fa89afa44bba6b872c0ef3b9cc9	RegionOne	keystone	identity	True	public	http://controller:5000/v3/

glance 在 keystone 上面注册完成，可以进行相关软件安装

3.3.安装 glance 相关软件

1) 检查 Python 版本

在安装 glance 前需要确认系统的 Python 版本，通常要求 python 2.7

```
python --version
```

```
[root@openstack01 tools]# python --version
```

```
Python 2.7.5
```

2) 安装 glance 软件

```
yum install openstack-glance python-glance python-glanceclient -y
```

3) 执行以下命令可以快速配置 glance-api.conf

```
openstack-config --set /etc/glance/glance-api.conf database connection mysql+pymysql://glance:glance@controller/glance
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token www_authenticate_uri http://controller:5000
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token auth_url http://controller:5000
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token memcached_servers controller:11211
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token auth_type password
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token project_domain_name Default
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token user_domain_name Default
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_auth token project_name service
```

```
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken username glance
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken password glance
openstack-config --set /etc/glance/glance-api.conf paste_deploy flavor keystone
openstack-config --set /etc/glance/glance-api.conf glance_store stores file,http
openstack-config --set /etc/glance/glance-api.conf glance_store default_store file
openstack-config --set /etc/glance/glance-api.conf glance_store filesystem_store_datadir /var/lib/glance/images/
```

4) 执行以下命令可以快速配置 glance-registry.conf

```
openstack-config --set /etc/glance/glance-registry.conf database connection mysql+pymysql://glance:glance@controller/glance
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken www_authenticate_uri http://controller:5000
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken auth_url http://controller:5000
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken memcached_servers controller:11211
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken auth_type password
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken project_domain_name Default
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken user_domain_name Default
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken project_name service
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken username glance
```

```
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken password glance
```

```
openstack-config --set /etc/glance/glance-registry.conf paste_deploy flavor keystone
```

查看生效的配置

```
[root@openstack01 tools]# grep '[a-z]' /etc/glance/glance-api.conf
```

```
connection = mysql+pymysql://glance:glance@controller/glance
```

```
stores = file,http
```

```
default_store = file
```

```
filesystem_store_datadir = /var/lib/glance/images/
```

```
www_authenticate_uri = http://controller:5000
```

```
auth_url = http://controller:5000
```

```
memcached_servers = controller:11211
```

```
auth_type = password
```

```
project_domain_name = Default
```

```
user_domain_name = Default
```

```
project_name = service
```

```
username = glance
```

```
password = glance
```

flavor = keystone

```
[root@openstack01 tools]# grep '^[a-z]' /etc/glance/glance-registry.conf
```

connection = mysql+pymysql://glance:glance@controller/glance

www_authenticate_uri = http://controller:5000

auth_url = http://controller:5000

memcached_servers = controller:11211

auth_type = password

project_domain_name = Default

user_domain_name = Default

project_name = service

username = glance

password = glance

flavor = keystone

glance 软件安装完毕

4.4.同步 glance 数据库

1) 为 glance 镜像服务初始化同步数据库

生成的相关表

```
su -s /bin/sh -c "glance-manage db_sync" glance
```

2) 同步完成进行连接测试

保证所需表已经建立，否则后续无法进行

```
mysql -h192.168.56.126 -uglance -pglance -e "use glance;show tables;"
```

```
[root@openstack01 tools]# mysql -h192.168.56.126 -uglance -pglance -e "use glance;show tables;"
```

```
+-----+
```

```
| Tables_in_glance |
```

```
+-----+
```

```
| alembic_version |
```

```
| image_locations |
```

```
| image_members |
```

```
| image_properties |
```

```
| image_tags |
```


images	
metadef_namespace_resource_types	
metadef_namespaces	
metadef_objects	
metadef_properties	
metadef_resource_types	
metadef_tags	
migrate_version	
task_info	
tasks	
+-----+	

3.5.启动 glance 镜像服务

1) 启动 glance 镜像服务、并配置开机自启动

```
systemctl start openstack-glance-api.service openstack-glance-registry.service
```

```
systemctl status openstack-glance-api.service openstack-glance-registry.service
```

```
systemctl enable openstack-glance-api.service openstack-glance-registry.service
```

```
systemctl list-unit-files |grep openstack-glance*
```

2) 其他命令: 重启, 停止

```
systemctl restart openstack-glance-api.service openstack-glance-registry.service
```

```
systemctl stop openstack-glance-api.service openstack-glance-registry.service
```

```
[root@openstack01 tools]# systemctl start openstack-glance-api.service openstack-glance-registry.service
```

```
[root@openstack01 tools]# systemctl status openstack-glance-api.service openstack-glance-registry.service
```

- openstack-glance-api.service - OpenStack Image Service (code-named Glance) API server

Loaded: loaded (/usr/lib/systemd/system/openstack-glance-api.service; disabled; vendor preset: disabled)

Main PID: 5420 (glance-api)

CGroup: /system.slice/openstack-glance-api.service

└─5420 /usr/bin/python2 /usr/bin/glance-api

- openstack-glance-registry.service - OpenStack Image Service (code-named Glance) Registry server

Loaded: loaded (/usr/lib/systemd/system/openstack-glance-registry.service; disabled; vendor preset: disabled)

Main PID: 5421 (glance-registry)

CGroup: /system.slice/openstack-glance-registry.service

└─5421 /usr/bin/python2 /usr/bin/glance-registry

```
[root@openstack01 tools]# systemctl enable openstack-glance-api.service openstack-glance-registry.service
```

Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-api.service to /usr/lib/systemd/system/openstack-glance-api.service.

Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-registry.service to /usr/lib/systemd/system/openstack-glance-registry.service.

```
[root@openstack01 tools]# systemctl list-unit-files |grep openstack-glance*
```

openstack-glance-api.service	enabled
openstack-glance-registry.service	enabled
openstack-glance-scrubber.service	disabled

3.6.检查确认 glance 安装正确

可以下载小型的 Linux 镜像 CirrOS 用来进行 OpenStack 部署测试。

下载地址: <http://download.cirros-cloud.net/>

1) 下载镜像

```
yum install wget -y
```

```
wget http://download.cirros-cloud.net/0.4.0/cirros-0.4.0-x86_64-disk.img
```

2) 获取管理员权限

```
source admin-openrc
```

3) 上传镜像到 glance

使用 qcow2 磁盘格式， bare 容器格式上传镜像到镜像服务并设置镜像为公共

```
openstack image create "cirros" --file cirros-0.4.0-x86_64-disk.img --disk-format qcow2 --container-format bare --public
```

```
[root@openstack01 tools]# openstack image create "cirros" --file cirros-0.4.0-x86_64-disk.img --disk-format qcow2 --container-format bare --public
```

```
+-----+-----+
+-----+
| Field           | Value |
|                 |       |
+-----+-----+
+-----+
| checksum         | f8ab98ff5e73ebab884d80c9dc9c7290 |
|                 |       |
| container_format | bare |
|                 |       |
| created_at       | 2018-10-26T14:02:00Z |
|                 |       |
| disk_format      | qcow2 |
|                 |       |
```

file	/v2/images/78f5671b-fb2d-494f-8da7-25dbe425cad6/file
id	78f5671b-fb2d-494f-8da7-25dbe425cad6
min_disk	0
min_ram	0
name	cirros
owner	3706708374804e2eb4ed056f55d84666
properties	os_hash_algo='sha512', os_hash_value='f0fd1b50420dce4ca382ccfbb528eef3a38bbeff00b54e95e3876b9bafe7ed2d6f919ca35d9046d437c6d2d8698b1174a335fbd66035bb3 edc525d2cdb187232', os_hidden='False'
protected	False
schema	/v2/schemas/image
size	13267968

status	active
--------	--------

--

tags	
------	--

--

updated_at	2018-10-26T14:02:00Z
------------	----------------------

--

virtual_size	None
--------------	------

--

visibility	public
------------	--------

--

+-----+	-----+
-----+	

4) 查看镜像

```
openstack image list
```

```
[root@openstack01 tools]# openstack image list
```

+-----+	-----+	-----+
ID	Name	Status
+-----+	-----+	-----+
78f5671b-fb2d-494f-8da7-25dbe425cad6	cirros	active

+-----+-----+

glance 镜像服务安装完成，启动成功

完成实验