图像和实例

« (rollingupgrades.html) » (manage-images.html) (https://bugs.launchpad.net/glance/+filebug?field.title=Images%20and%20instances%20in%20glance&field.comment=%0A%0A%0AThis bug tracker is for errors with the documentation, use the following as a template and remove or add fields as you see fit. Convert [ ] into [x] to check boxes:%0A%0A- [ ] This doc is inaccurate in this way: _____%0A- [ ] This is a doc addition request.%0A- [ ] I have a fix to the document that I can paste below including example: input and output. %0A%0AIf you have a troubleshooting or support issue, use the following resources:%0A%0A - Ask OpenStack: http://ask.openstack.org%0A - The mailing list: http://lists.openstack.org%0A - IRC: 'openstack' channel on Freenode%0A%0A----------%0ARelease:%2016.0.1.dev1%20on%20'Thu%20Mar%201%2007:26:57%202018,%20commit%20968f4ae'%0ASHA:%20968f4ae9ce244d9372cb3e8f45acea9d557f317d%0ASour https://docs.openstack.org/glance/queens/admin/troubleshooting.html&field.tags=)

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虚拟机映像包含一个虚拟磁盘，其上保存可引导的操作系统。磁盘映像为虚拟机文件系统提供模板。Image服务控制图像存储和管理。

实例是在云中的物理计算节点上运行的单个虚拟机。用户可以从同一图像启动任意数量的实例。每个启动的实例都从基础映像的副本运行。对实例所做的任何更改都不会影响基础映像。快照捕获运行磁盘的实例的状态。用户可以创建快照，并基于这些快照构建新图像。Compute服务控制实例，映像和快照存储和管理。

当你启动一个实例时，你必须选择一个**flavor**代表一组虚拟资源的代码。Flavors定义虚拟CPU编号，可用RAM容量和临时磁盘大小。用户必须从云中定义的可用风味集中进行选择。OpenStack提供了许多可以编辑或添加的预定义风格。

> **注意**
>
> - 有关创建和解决映像问题的更多信息，请参阅" OpenStack虚拟机映像指南" (https://docs.openstack.org/image-guide/)。
> - 有关映像配置选项的更多信息，请参阅 OpenStack配置参考的 映像服务 (../configuration/index.html)部分。

您可以从正在运行的实例中添加和删除其他资源，例如持久性卷存储或公共IP地址。本章中使用的示例是OpenStack云中的典型虚拟系统。它使用**cinder-volume**提供持久块存储的服务，而不是所选实例风格提供的临时存储。

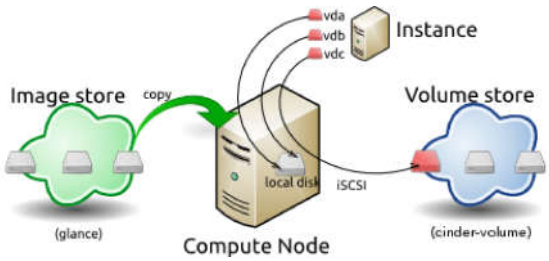
此图显示启动实例之前的系统状态。图像存储具有许多预定义的图像，由Image服务支持。在云中，计算节点包含可用的vCPU，内存和本地磁盘资源。另外，该 **cinder-volume**服务存储预定义的卷。

没有运行实例的基本映像状态

实例启动¶

要启动实例，请选择图像，风味和任何可选属性。所选择的风味提供了一个**vda** 在此图中标记的根卷和另外的短暂存储，标记为**vdb**。在这个例子中，**cinder-volume**商店被映射到这个实例的第三个虚拟磁盘**vdc**。

从图像创建实例



Image服务将基本映像从映像存储复制到本地磁盘。本地磁盘是实例访问的第一个磁盘，即标记的根卷**vda**。较小的实例启动速度更快。需要在网络上复制更少的数据。

新的空的临时磁盘也被创建，标记**vdb**。该磁盘在删除实例时被删除。

计算节点**cinder-volume**使用iSCSI 连接到附件。该 **cinder-volume**映射到第三个磁盘，**vdc**在此图中标记。在计算节点配置vCPU和内存资源后，实例将从根卷启动**vda**。该实例运行并更改磁盘上的数据（图中以红色突出显示）。如果卷存储位于单独的网络上，**my_block_storage_ip**则存储节点配置文件中指定的 选项会将图像流量指向计算节点。

> **注意**
>
> 这个示例场景中的一些细节可能在您的环境中有所不同。例如，您可能使用不同类型的后端存储或不同的网络协议。一种常见的变体是用于卷的临时存储，**vda**并且**vdb**可以由网络存储而不是本地磁盘来支持。

当您删除一个实例时，状态将被回收，但永久卷除外。临时存储，无论是否加密，都被清除。内存和vCPU资源被释放。整个过程中图像保持不变。

实例退出后图像和音量的结束状态

图像属性和属性保护¶

映像属性是管理员或映像所有者附加到OpenStack映像服务映像的键和值对，如下所示：

- 管理员定义核心属性，如图像名称。
- 管理员和图像所有者可以定义其他属性，例如许可和账单信息。

管理员可以将任何属性配置为受保护的，这会限制哪些策略或用户角色可以对该属性执行CRUD操作。受保护的属性通常是只有管理员才能访问的附加属性。

对于不受保护的图像属性，管理员可以管理核心属性，图像所有者可以管理其他属性。

配置财产保护

要配置财产保护，请编辑该`policy.json`文件。该文件也可以用于设置图像服务操作的策略。

1. 在`policy.json`文件中定义角色或策略：

```
{
    “context_is_admin” : “  角色：管理员” ,
    “默认” :  “” ,

    “add_image” : “”  ,
    “delete_image” : “”  ,
    “get_image” : “”  ,
    “get_images” : “”  ,
    “modify_image” :  “” ,
    “publicize_image” :  “角色：admin” ,
    “copy_from” :  “” ,

    “download_image” :  “”,
    “upload_image” :  “” ,

    “delete_image_location” :  “” ,
    “get_image_location” : “”  ,
    “set_image_location” : “”  ,

    “add_member” : “”  ,
    “delete_member” : “”  ,
    “get_member” : “”  ,
    “get_members” : “”  ,
    “modify_member” : “  “ ,

    ”manage_image_cache“ :  ”role：admin“ ,

    ”get_task“ :  ”“ ,
    ”get_tasks“:  “” ,
    “add_task” :  “” ,
    “modify_task” :  “” , “

    取消” :  “” , “
    激活” :  “” ,

    “get_metadef_namespace” : “”  ,
    “get_metadef_namespaces” : “” ,
    “modify_metadef_namespace” : “” ,
    “add_metadef_namespace” : “” ,
    “delete_metadef_namespace” : “ “ ,

    ”get_metadef_object“ : ”“ ,
    ”get_metadef_objects“ : ”“ ,
    “modify_metadef_object” : “” ,
    “add_metadef_object” : “” ,

    “list_metadef_resource_types” : “” ,
    “get_metadef_resource_type” : “” ,
    “add_metadef_resource_type_association” : “” ,

    “get_metadef_property” : “” ,
    “get_metadef_properties” : “” ,
    “modify_metadef_property” : “” ,
    “add_metadef_property” : “ “ ,

    ”get_metadef_tag“ : ”“ ,
    ”get_metadef_tags“ : “” ,
    “modify_metadef_tag” : “” ,
    “add_metadef_tag” : “” ,
    “add_metadef_tags” : “”
 }
```

对于每个参数，用于"**rule:restricted**"限制对所有用户的"**role:admin**"访问或限制对管理员角色的访问。例如：

```
{
    “download_image” :
    “upload_image” :
}
```

2. 定义哪些角色或策略可以管理属性保护配置文件中的哪些属性。例如：

```
[x_none_read]
create = context_is_admin
read = !
update = !
delete = !

[x_none_update]
create = context_is_admin
read = context_is_admin
update = !
delete = context_is_admin

[x_none_delete]
create = context_is_admin
read = context_is_admin
update = context_is_admin
delete = !
```

- A value of **@** allows the corresponding operation for a property.
- A value of **!** disallows the corresponding operation for a property.

3. In the **glance-api.conf** file, define the location of a property protections configuration file.

```
property_protection_file = {file_name}
```

This file contains the rules for property protections and the roles and policies associated with it.

By default, property protections are not enforced.

If you specify a file name value and the file is not found, the **glance-api** service does not start.

To view a sample configuration file, see glance-api.conf (../configuration/glance_api.html).

4. Optionally, in the **glance-api.conf** file, specify whether roles or policies are used in the property protections configuration file

```
property_protection_rule_format = roles
```

The default is **roles**.

To view a sample configuration file, see glance-api.conf (../configuration/glance_api.html).

Image download: how it works¶

Prior to starting a virtual machine, transfer the virtual machine image to the compute node from the Image service. How this works can change depending on the settings chosen for the compute node and the Image service.

Typically, the Compute service will use the image identifier passed to it by the scheduler service and request the image from the Image API. Though images are not stored in glance—rather in a back end, which could be Object Storage, a filesystem or any other supported method—the connection is made from the compute node to the Image service and the image is transferred over this connection. The Image service streams the image from the back end to the compute node.

It is possible to set up the Object Storage node on a separate network, and still allow image traffic to flow between the compute and object storage nodes. Configure the **my_block_storage_ip** option in the storage node configuration file to allow block storage traffic to reach the compute node.

Certain back ends support a more direct method, where on request the Image service will return a URL that links directly to the back-end store. You can download the image using this approach. Currently, the only store to support the direct download approach is the filesystem store. Configured the approach using the **filesystems** option in the **image_file_url** section of the **nova.conf** file on compute nodes.

Compute nodes also implement caching of images, meaning that if an image has been used before it won't necessarily be downloaded every time. Information on the configuration options for caching on compute nodes can be found in the Configuration Reference (../configuration/).

Instance building blocks¶

In OpenStack, the base operating system is usually copied from an image stored in the OpenStack Image service. This results in an ephemeral instance that starts from a known template state and loses all accumulated states on shutdown.

You can also put an operating system on a persistent volume in Compute or the Block Storage volume system. This gives a more traditional, persistent system that accumulates states that are preserved across restarts. To get a list of available images on your system, run:

```
$ openstack image list
+--------------------------------------+-----------------------------+--------+
| ID                                   | Name                        | Status |
+--------------------------------------+-----------------------------+--------+
| aee1d242-730f-431f-88c1-87630c0f07ba | Ubuntu 14.04 cloudimg amd64 | active |
+--------------------------------------+-----------------------------+--------+
| 0b27baa1-0ca6-49a7-b3f4-48388e440245 | Ubuntu 14.10 cloudimg amd64 | active |
+--------------------------------------+-----------------------------+--------+
| df8d56fc-9cea-4dfd-a8d3-28764de3cb08 | jenkins                     | active |
+--------------------------------------+-----------------------------+--------+
```

The displayed image attributes are:

ID

Automatically generated UUID of the image.

Name

Free form, human-readable name for the image.

Status

The status of the image. Images marked **ACTIVE** are available for use.

Server

For images that are created as snapshots of running instances, this is the UUID of the instance the snapshot derives from. For uploaded images, this field is blank.

Virtual hardware templates are called **flavors**, and are defined by administrators. Prior to the Newton release, a default installation also includes five predefined flavors.

For a list of flavors that are available on your system, run:

```
$ openstack flavor list
+-----+-----------+-------+------+-----------+-------+-----------+
| ID  | Name      |   RAM | Disk | Ephemeral | VCPUs | Is_Public |
+-----+-----------+-------+------+-----------+-------+-----------+
| 1   | m1.tiny   |   512 |    1 |         0 |     1 | True      |
| 2   | m1.small  |  2048 |   20 |         0 |     1 | True      |
| 3   | m1.medium |  4096 |   40 |         0 |     2 | True      |
| 4   | m1.large  |  8192 |   80 |         0 |     4 | True      |
| 5   | m1.xlarge | 16384 |  160 |         0 |     8 | True      |
+-----+-----------+-------+------+-----------+-------+-----------+
```

By default, administrative users can configure the flavors. You can change this behavior by redefining the access controls for **compute_extension:flavormanage** in **/etc/nova/policy.json** on the **compute-api** server.

Instance management tools¶

OpenStack provides command-line, web interface, and API-based instance management tools. Third-party management tools are also available, using either the native API or the provided EC2-compatible API.

The OpenStack python-openstackclient package provides a basic command-line utility, which uses the **openstack** command. This is available as a native package for most Linux distributions, or you can install the latest version using the pip python package installer:

```
# pip install python-openstackclient
```

For more information about python-openstackclient and other command-line tools, see the OpenStack End User Guide (../cli/index.html).

Control where instances run¶

The Scheduling section (https://docs.openstack.org/nova/latest/user/filter-scheduler.html) of OpenStack Configuration Reference provides detailed information on controlling where your instances run, including ensuring a set of instances run on different compute nodes for service resiliency or on the same node for high performance inter-instance communications.

Administrative users can specify which compute node their instances run on. To do this, specify the **--availability-zone AVAILABILITY_ZONE:COMPUTE_HOST** parameter.

Launch instances with UEFI¶

统一可扩展固件接口（UEFI）是一种旨在替代传统BIOS的标准固件。操作系统转向UEFI格式有一个缓慢而稳定的趋势，并且在某些情况下，使其成为唯一的格式。

配置UEFI环境

要在QEMU / KVM环境中成功从UEFI映像启动实例，管理员必须在计算节点上安装以下软件包：

- OVMF，英特尔的tianocore固件到QEMU虚拟机的一个端口。
- libvirt，自1.2.9版本以来一直支持UEFI启动。

由于默认的UEFI加载程序路径是**/usr/share/OVMF/OVMF_CODE.fd**，管理员必须在安装UEFI程序包后创建一个指向此位置的链接。

要上传UEFI图像

要从UEFI映像启动实例，管理员首先必须上载一个UEFI映像。为此，**hw_firmware_type**必须在**uefi**创建图像时将属性设置为。例如：

```
$ openstack image create --container格式裸--disk格式qcow2 \  -
  属性hw_firmware_type = uefi  - 文件/tmp/cloud-uefi.qcow --name uefi
```

之后，您可以从此UEFI映像启动实例。

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