# Virtual Machine Management with Nova

LINUX AUTHOR AND TRAINER

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# Objectives

- Virtual Machine Instances
- Associate Floating IP Address
- Customization Scripts
- Managing Virtual Machines

# Virtual Machines

Virtual machines are maintained by the compute service in OpenStack. This is Nova and one of the founding OpenStack Services. Instances can be cloned from images as well as snapshots. The cloud ready cirros image is installed for testing.

# Launch a Virtual Machine from CLI

# Interacting with Instances

# Floating IP Address

To access the private IP Address externally we will need to associate a Floating IP

# Security Groups

We also need to check that the security group associated with the instance allows the protocols that we need

# SSH Keys

Most cloud images require authentication via SSH keys. During the build of a virtual machine we can inject public keys of users that need to authenticate

# Customization Scripts

During the build process we can customize the image with anything that we can script. This may be adding packages or editing files.

# Instance Management

**Pause: VM does not consume CPU, contents in RAM**

**Suspend: Similar to pause but at a hypervisor level**

**Shelve: Similar to shutoff but creates a snapshot and disconnects from hypervisor**

**Lock: Prevent changes**

# Virtual Machines

**Launched VM from Horizon**

**Launched VM from CLI**

**Used SSH between VM Instances**

# Floating IP

**Associated Floating IP Address with instance**

# Security Groups

**The Firewall Rules within the Security Group are required to allow access to protocols**

# SSH Keys

**Public Keys can be injected into Instances at build time to enable key Authentication**

**ssh-keygen -R (server) can be used to remove host entries from the client if required**

# Actions

**Snapshots**

**Shelving**

**Rebuilding**

# Next up: Working with HEAT and OpenStack Orchestration