HP Helion OpenStack® 2.0 Installation Prerequisites

**This document describes the installation process for HP Helion OpenStack 2.0**

(If you already have 1.1.1 installed, you can update ???.)

Make sure the following required tasks are completed before you begin the installation.

* Review the hardware and software requirements
* Preparing your network More to come? Specifics??
* Preparing the baremetal systems
  + ~~Install Ubuntu 14.04 LTS or Debian 8.~~
  + Configure SSH
  + Obtain a public key
  + ~~Install Debian/Ubuntu packages~~
  + Install and configure NTP ??
  + Configure proxy information
  + Insert installation media ~~packages~~
  + edit environment variables file (YAML??)
  + Create the baremetal.csv file ??
  + Set DNS servers name-resolution
  + Integrating LDAP (Lightweight Directory Access Protocol)
  + Disabling SR-IOV

Hardware and software requirements

Before you start, if you have not done so already, make sure your environment meets the hardware and software requirements. See the [HP Helion OpenStack Support Matrix](http://docs.hpcloud.com/helion/openstack/1.1/support-matrix/).

Preparing the network

Before installing HP Helion OpenStack, you are responsible for preparing the network for all installations. You must also prepare the network based on the type of hypervisor you are installing, KVM or ESX.

The network is not installed or managed by the cloud. You must install and manage the network and make sure there is a route to the Management network as described in this section.

### Preparing all networks

To ensure a successful installation, you must satisfy these network configuration requirements:

* The machine hosting the deployer (HLM), and all baremetal systems have to be connected to a management network. Is this true of does thie refer to the external network connectivity that is no longer needed???
* ~~Nodes on this management network~~ The deployer node ?? must be able to reach the iLO subsystem ([HP Integreated Lights-Out](http://www8.hp.com/us/en/products/servers/ilo/index.html)) of each baremetal system to enable reboots as part of the install process.
* The Helion OpenStack architecture required that the IPMI network is a separate network and a route exists from management network to the IPMI network for iLO access as explained above.
* Ensure network interfaces that are not used for PXE boot are disabled from BIOS to prevent PXE boot attempts from those devices.
* If you have other DHCP servers on the same network as your system, you must ensure that the DHCP server does not hand out IP addresses to your physical nodes as they PXE boot.
* The network interface intended as the bridge interface should be configured and working before running the installer. The installer creates a network bridge on the system running the installer, attaching the bridge interface to the network bridge. The installer uses the IP address of the bridge interface for the network bridge.

In addition to preparing all HP Helion OpenStack cloud networks, you need perform additional tasks based on which hypervisor you are using: [KVM](http://docs.hpcloud.com/helion/openstack/1.1/install/prereqs/network/#network_KVM-jumplink-span) or [ESX](http://docs.hpcloud.com/helion/openstack/1.1/install/prereqs/network/#network_ESX-jumplink-span).

See the [Preparing the Network](http://docs.hpcloud.com/helion/openstack/1.1/install/prereqs/network/) page.

Preparing the baremetal systems

Perform the following tasks on each baremetal system before starting the install:

* Configure the boot order with Network/PXE boot as the first option:
  + - For example, to set the boot order for a HP SL390, from the iLO prompt enter set system1/bootconfig1/bootsource5 bootorder=1.
    - To unset, enter set system1/bootconfig1/bootsource5 bootorder=5.
* Configure the BIOS:
  + - to the correct date and time
    - seed cloud host configured in UTC (Coordinated Universal Time)
    - with only one network interface enabled for PXE/network boot and any additional interfaces should have PXE/network boot disabled
    - to stay powered off in the event of being shutdown rather than automatically restarting
* Update to the latest firmware recommended by the system vendor for all system components, including the BIOS, BMC firmware, disk controller firmware, drive firmware, network adapter firmware, and so forth.

Preparing the installer node ( hosting HLM)

The following tasks need to be performed on the node hosting HLM~~, where the seed VM will be installed.~~

* ~~Install Ubuntu 14.04 LTS or Debian 8~~
* Configure SSH
* Obtain a public key
* ~~Install Debian/Ubuntu packages~~
* Install and configure NTP
* Configure proxy information
* ~~Download the installation packages~~
* ~~Create the JSON environment variables file~~
* ~~Create the baremetal.csv file~~
* Set DNS servers name-resolution
* Integrating LDAP (Lightweight Directory Access Protocol)

**Install HLinux**

You may install hLinux on all your nodes yourself using your own tooling, as long as it is the image contained in the installer that you deploy to the modes. Alternatively you can allow HLM to do the OS installations.

**Configure SSH**

On the deployer host, the OpenSSH server must be running and the firewall configuration should allow access to the SSH ports.

**Obtain a public key**

On the seed cloud host, the user root must have a public key, for example:

/root/.ssh/id\_rsa

/root/.ssh/id\_rsa.pub

If user root does not have a public key, you can create one using thessh-keygen -t rsa -N "" command.

**~~Install Debian or Ubuntu packages~~**

~~Before starting the installation, you must first install Debian 8 or Ubuntu 14.04 LTS.~~

~~For more information about the Debian or Ubuntu packages that are required for the seed cloud host, see~~[~~Support Matrix~~](http://docs.hpcloud.com/helion/openstack/1.1/support-matrix/#software-requirements-jumplink-span)~~.~~

**Install and configure NTP**

NTP is a networking protocol for clock synchronization between computer systems.

The HP Helion OpenStack cloud nodes must be configured as NTP clients and point to the same NTP server.

You can install NTP on the seed cloud host and configure it as an NTP server. Or, you can use a pre-existing NTP server that is reachable from the management network. ~~You will also need to configure the undercloud and overcloud systems as NTP clients~~ ~~pointing to the~~ NTP server you have chosen to use during the installation process. Or do you just tell HLM where the NTP source is?

For information on installing NTP, see [Installing an NTP Server](http://docs.hpcloud.com/helion/openstack/1.1/install/ntp/).

**Configure proxy information**

~~Before you begin your installation on the seed cloud host, if necessary configure the proxy information for your environment using the following steps:~~

1. ~~Launch a terminal and log in to your seed cloud host as root:~~

~~sudo su -~~

1. ~~Edit the /etc/environment file to add the following lines:~~
2. ~~export http\_proxy=http://<web\_proxy\_IP>/~~
3. ~~export https\_proxy=http://<web\_proxy\_IP>/~~

~~export no\_proxy=localhost,127.0.0.1,<your 10.x IP address>,<provider\_network>~~

~~Where:~~

~~web\_proxy\_IP is your web proxy IP address.~~

~~provider\_network is your ESX management network~~

1. ~~Log out and re-login to the seed cloud host to activate the proxy configuration.~~

**Download and unpack the installation package**

Before you begin, you must acquire HP Helion OpenStack installation media.

1. ~~Register and then log in to download the required installation package(s) from~~[~~HP Helion OpenStack product installation~~](https://helion.hpwsportal.com/#/Product/%7B%22productId%22%3A%221247%22%7D/Show)~~.~~
   * **~~For KVM installs~~**

|  |  |
| --- | --- |
| **~~Installation package~~** | **~~File name~~** |
| ~~HP Helion OpenStack~~ | ~~HP\_Helion\_OpenStack\_1.1.tgz~~ |

* + **~~For ESX installs~~**

|  |  |
| --- | --- |
| **~~Installation package~~** | **~~File name~~** |
| ~~HP Helion OpenStack~~ | ~~HP\_Helion\_OpenStack\_1.1.tgz~~ |
| ~~HP Helion OpenStack vCenter Proxy Appliance~~ | ~~overcloud\_vcenter\_compute\_proxy\_1.1.ova~~ |
| ~~HP Helion OpenStack VCN Agent Appliance~~ | ~~ovsvapp\_1.1.tgz~~ |

1. ~~Log in to your seed cloud host as root:~~

~~sudo su -~~

1. ~~Copy the installation package to the seed cloud host.~~
2. ~~Extract the HP Helion OpenStack installation package to the root directory:~~

~~tar zxvf /root/HP\_Helion\_OpenStack\_1.1.tgz~~

~~This creates and populates a tripleo/ directory within the `root' directory.~~

**Editing the JSON Environment Variables File for Installation**

To make the HP Helion OpenStack installation process easier, you can enter all of the environment variables required by the installer into a JSON, YAML?? file that will be executed automatically. A JSON file is included in the installation package that you can modify with your environment variables.

For information, see [Editing the JSON Environment Variables File for Installation](http://docs.hpcloud.com/helion/openstack/1.1/install/envars/).

**~~Prepare baremetal.csv file~~ Some other method?**

~~Before installing, ensure you have created the baremetal.csv file that is required for installation.~~

~~The baremetal.csv file informs the installer of the size of each server that each node will be installed into. In this file you can also specify the role (or node type) for each server so you use the right hardware for different tasks such as storage or compute.~~

~~For more information, see~~[~~Creating the baremetal.csv file~~](http://docs.hpcloud.com/helion/openstack/1.1/install/csv/)~~.~~

**Set a default DNS name server**

To set a default DNS name server for your HP Helion OpenStack Commercial cloud, refer to [Enabling Name Resolution from Tenant VMs in the Overcloud](http://docs.hpcloud.com/helion/openstack/1.1/name-resolution/)before installation.

**Integrating LDAP (Lightweight Directory Access Protocol)**

**OPTIONAL** The HP Helion OpenStack Identity service can use Lightweight Directory Access Protocol (LDAP) to integrate your organization's existing directory service and user account management processes. LDAP intergration must be performed during the HP Helion OpenStack installation process.

For information on integrating LDAP, see [HP Helion OpenStack®: Integrating LDAP](http://docs.hpcloud.com/helion/openstack/1.1/services/identity/integrate-ldap/).

**~~Disabling SR-IOV~~**

~~In the HP Helion OpenStack 1.1 release, there is a performance issue with hardware that is configured to support Single Root I/O Virtualization (SR-IOV) on undercloud nodes.~~

~~The problem appears as overcloud performance delays for certain operations, like attempting to SSH into a compute node. The problem is related to DNS performance. The DNS service for the overcloud is the dnsmasq process. Occasionally the openvswitch on the undercloud drops packets which are destined for the dnsmasq tap device. The reason the openvswitch occasionally has problems is due to it seeing the tap device MAC address as a source MAC address on eth0. This source MAC address can flap between the tap device and eth0. Properly, the source address should only be the tap device. Because SR-IOV is enabled, a broadcast from the tap device MAC address as source is being sent back by the NIC through eth0. To fix this problem, HP recommends that you disable SR-IOV in the NIC BIOS (not just in the kernel) on undercloud nodes.~~

Next step