

HP Helion OpenStack® 1.1 Installation Troubleshooting Guide

This Helion installation troubleshooting guide is written for Helion OpenStack installers who, during or after building the Helion OpenStack environment, find that the cloud environment does not work as expected. The Helion OpenStack environment is not itself complex but it does include a sufficient number of components that isolating a fault can be challenging. The goal of this guide is to help you to identify the problem or problems affecting your cloud installation and efficiently fix them.

For help with troubleshooting Helion OpenStack 1.1 general issues, refer to:

<http://docs.hpcloud.com/helion/openstack/services/troubleshooting/>

Installing the cloud environment

Helion OpenStack install requirements are fully documented in the support matrix at:

<http://docs.hpcloud.com/helion/openstack/support-matrix/>

The process of building the seed host, creating the seed VM, the overcloud, and the undercloud are described at:

<http://docs.hpcloud.com/helion/openstack/install/overview/>

At each step, you will have confirmation that what you have done works. At the conclusion of each major installation process, you will have confirmation that your installation works or doesn't. If you encounter issues, you should fix them before proceeding. After taking all these steps with an error being reported, you may find that your cloud installation still does not work. This document will help you troubleshoot that experience.

Helion installation

By the time you are ready to start the Helion OpenStack installation process, you will have confirmed that your hardware and your Linux environments are ready for it. If you do this incorrectly, your installation will likely fail.

The installation is mostly scripted such that if you run the script and if the outcome is as expected, you will have confirmation of that. If there are problems, you will be alerted that a problem has occurred. By the end of your installation procedure, you will either have a working Helion environment for your virtual, baremetal, KVM, or ESX environment or you will have the information you need to identify what needs fixing.

Standard Procedures

To prevent known causes of failure, make sure:

- Except where specifically noted otherwise, to run your installation commands as admin (`sudo su -`).
- To enable logging. Pipe your session to a log so you can retrieve error messages and notifications of any configuration results that did not yield the desired result.
- That you have a network connection. Several installation steps require network communications.
- The hardware clock on each machine in your cloud configuration is time synced.
- You don't misapply sizing dimensional units when calculating disk and memory size. A kilobyte (KB) equals 1,000 bytes. A kibibyte (KiB) equals 1024 bytes. KBs are decimal approximations of the binary value. Don't mix decimal and binary values. (If in doubt, refer to your `baremetal.csv` file for baremetal installations.)
- To monitor any exceptions generated by export commands. If you issue an export command that cannot be processed, you will see an error message. If you miss it from your terminal, it will be reported in your logs.
- To power off your overcloud servers before running the overcloud configuration script. The script expects the target servers to be off. When the script finishes configuring each server, it will bring it back online. When the script completes, you should have CLI output confirming the operation states of all your devices. You should also verify that they are all operational by checking their status LEDs (for physical installations). (The requirement to power down your servers is no longer a requirement, but it is still a best practice.)
- To log into your overcloud and undercloud Horizon instances and confirm that your servers are accounted for.
- In general, HP recommends that you disable any firewalls inside of your image and use OpenStack security groups to restrict access to instances. The reason is that having a firewall installed on your instance can make it more difficult to troubleshoot networking issues if you cannot connect to your instance.
- If your system cannot process messages in real time, check the queue size and increase system resource allocations to address this problem.
- In a related issue, your system may be unable to store all installation-related messages. If this is the case, check disk space and `elasticsearch`. You can typically resolve this issue by deleting old data.

If you have issues after complying with these requirements, refer to the problems table in **Error! Reference source not found.** section.

Troubleshooting the installation

The following table is the result lessons learned from troubleshooting actual installations. As customers and HP support personnel report issues, this table will be updated.

NOTE: If you are doing a virtual install, HP recommends that you use `virt-manager` for troubleshooting.

The problem is	Do this first	Additionally
Could not create the seed VM.	For KVM installations: Make sure you have all the required software on the KVM host.	<ul style="list-style-type: none"> Make sure you have <code>qemu</code>, <code>openswitch</code>, <code>libvirt</code>, and <code>python-libvirt</code> packages loaded on the KVM host. Make sure you have the SSH public key Make sure you are installing on Ubuntu 13.10 or 14.04.
	For baremetal installations: Make sure you have the right system resources to support all of your baremetal VMs.	
Could not access the KVM host on the seed VM.	Check that you are exporting to the right bridge interface.	
Launching a new KVM virtual machine instance fails with <code>ERRORstate</code>	On the Nova compute server, check the <code>/var/log/nova/nova-compute.log</code> file for the message: <code>libvirtError: internal error no supported architecture for os type 'hvm'</code>	This message indicates that the KVM kernel modules were not loaded. If you cannot start VMs after installation without rebooting, the permissions might not be set correctly. This can happen if you load the KVM module before you install <code>nova-compute</code> . To check whether the group is set to <code>kvm</code> , run: <code># ls -l /dev/kvm</code> If it is not set to <code>kvm</code> , contact customer support.
Cannot SSH into the seed VM.	Check your IP addressing assignments.	This could be a networking or Security groups issue. To determine where the issue lies, you can, for example, use <code>ip netns</code> to ping the different interfaces along the route to the VM.
	Check the state of the VM.	Use the <code>virsh list</code> command.
The under/overcloud fails when parsing the <code>basemetal.csv</code> file.	Check for proper <code>.csv</code> formatting.	Look for extra spaces, special characters.
	Is the IPMI network accessible?	You need to be able to access this network.
	Check your IP addressing.	One of the IP addresses may be incorrect.
	The <code>basemetal.csv</code> minimum node disk size is invalid.	The minimum node disk size is 512G. If you specify a smaller size in your <code>basemetal.csv</code> file, the file will not process.
	The number of rows in your <code>.csv</code> file is smaller than expected.	The <code>compute_scale</code> parameter reports more rows in your <code>.csv</code> file than are actually found. Resolve the discrepancy.
Cannot create the undercloud stack.	The installer times out.	Check that you are exporting to the right bridge interface. For example, if your external interface is <code>em2</code> , and not <code>eth0</code> ,

The problem is	Do this first	Additionally
		<p>make sure the relevant variables are set correctly on your JSON file.</p> <ul style="list-style-type: none"> • Check the iLO console for a <code>daemon.error tgtd</code>, meaning the installer is stuck. <ul style="list-style-type: none"> • You can reboot. • If you have no local disk, use Ubuntu to DD the disk. • Examine the seed VM log file <code>/var/log/upstartironic-conductor.log</code> • Check the bootstrap OS to make sure you have enough disk space. • If you see a “read-only file system error” on the iLO console, make sure the BIOS date/time stamp matches that on the seed VM. Use the <code>time sync</code> command. • If the iLO console reports that the boot is stuck but the network is booting, check the NIC order; check that the designated port is on a separate VLAN. • If the iLO console reports a metadata access error, disable any DHCP servers on the same VLAN. Also disconnect all active connection except 1 (this was a bug but has been fixed). Finally disconnect all active connections except 1 on the KVM host 1 (this was a bug but has been fixed). • If the iLO console halts at <code>br-ctlplane</code> and you can’t reach the undercloud, and you are using Oneview, there is a patch for this. Or, remove Oneview. <p>This problem can be caused because there is more than one active connection. Contact Customer Support to obtain a patch to fix this issue.</p>
	The installer abends (terminates abruptly).	<ul style="list-style-type: none"> • If your disk size is less than what you specify in the <code>baremetal.csv</code> file, reduce the size in your <code>.csv</code> file. • If the server sees the SAN boot LUN as having an incorrect OS, fix it to be Linux OS.

The problem is	Do this first	Additionally
		<ul style="list-style-type: none"> If the iLO console reports Fatal PCI Express Device Error PCI Slot, you need to reset iLO and clear the event logs.
The Installer fails before the overcloud stack can be created.	The failure happens at the NeutronPublic Interface IP address	Fix the export variable (external VLAN support).
	The error is HTTP 500.	Look for the error details in the <code>/var/log/upstart/os-collect-config</code> log. This will happen if you have a duplicate MAC address in your <code>baremetal.csv</code> file.
	The failure happens with IP addressing at the external VLAN.	Check your VLAN tags and fix any IP addressing errors.
The Installer fails at the overcloud stack creation.	The installer times out.	<ul style="list-style-type: none"> Check the iLO console for a <code>daemon.error tgtd</code>, meaning the installer is stuck. <ul style="list-style-type: none"> You can reboot. If you have no local disk, use Ubuntu to DD the disk. Examine the seed VM log file <code>/var/log/upstart/ironic-conductor.log</code> Check the bootstrap OS to make sure you have enough disk space. If you see a “read-only file system error” on the iLO console, make sure the BIOS date/time stamp matches that on the seed VM. Use the time sync command. If the iLO console reports that the boot is stuck but the network is booting, check the NIC order; check that the designated port is on a separate VLAN. If the iLO console reports a metadata access error, disable any DHCP servers on the same VLAN. Also disconnect all active connection except 1 (this was a bug but has been fixed). Finally disconnect all active connections except 1 on the KVM host 1 (this was a bug but has been fixed). If the iLO console halts at <code>br-ctlplane</code> and you can’t reach the undercloud, and you are using Oneview, there is a patch for this. Or, remove Oneview. This

The problem is	Do this first	Additionally
		<p>problem can be caused because there is more than one active connection.</p> <ul style="list-style-type: none"> If the Undercloud Nova list and Ironic node-list report node states as being Active and Power ON, the problem is somewhere in the overcloud Heat stack. To check this, run the <code>heat stack-show</code>, <code>event-list</code>, <code>event-show</code> commands. Check your logs. Also SSH into the overcloud nodes in your external VLAN and verify that routing is set correctly.
	The installer abends (terminates abruptly).	<ul style="list-style-type: none"> If your disk size is smaller than what you specify in the <code>baremetal.csv</code> file, reduce the size in your <code>.csv</code> file. If the server sees the SAN boot LUN as having an incorrect OS, fix it to be Linux OS. If the iLO console reports Fatal PCI Express Device Error PCI Slot, you need to reset iLO and clear the event logs. If one or more time synced nodes do not power on, you should: <ul style="list-style-type: none"> time sync each node with the seed VM. Also reboot iLO and clear the event logs. And halt the undercloud nova-compute and ironic-conductor processes and then power on the suspect overcloud node. Check the iLO console to verify that it is behaving correctly. Looks at the suspect undercloud node's <code>nova-compute</code>, <code>ironic-conductor</code>, and <code>heat-engine</code> logs.
The Installer fails after the overcloud stack is successfully created.	You are stuck at init-keystone.	<ul style="list-style-type: none"> Check that the firewall ports between the management and external VLANs are open. (This does not apply in HA configurations.) You can bypass the firewall by creating the VLAN interface on the KVM host.
	You cannot create the Neutron network.	<p>Check if the IP address is a superset of the external network. You can export the <code>FIXED_RANGE_START</code>, <code>FIXED_RANGE_END</code>, and <code>FIXED_RANGE_CIDR</code> variables. You can also</p>

The problem is	Do this first	Additionally
		recreate the external network and default network to match your requirements.
	The image upload fails.	You may have a race condition. Upload the image manually after the installation is complete.
	You cannot ping a launched VM.	<ul style="list-style-type: none"> The VM did not get a DHCP issued IP address. You can: <ul style="list-style-type: none"> Restart the <code>neutron-openswitch-agent</code> on the affected VM. Restart the <code>neutron-dhcp-agent</code> on the controller node(s). Run the <code>tcpdump</code> command and examine the output. Check the image to make sure it is available.
The installer completed correctly, but my Helion OpenStack cloud does not work.	You can't SSH into or ping the VM	<ul style="list-style-type: none"> Make sure your security group rules allow ICMP and SSH. Check that the VM was assigned a DHCP IP address. Check the console.log file for metadata access failures.
	You can't attach the Cinder volume.	<ul style="list-style-type: none"> Check the <code>nova-compute.log</code>. Check the keystone-endpoint and Cinder configuration for the IP address of the iSCSI target. There is a bug in Helion when configured in External VLAN mode. Check your Helion release notes for more information.
	When you try to launch a VM, you get a 'no valid host found' error.	<ul style="list-style-type: none"> Is the compute node assigned? Check Admin > Instances. <ul style="list-style-type: none"> Check the <code>nova-compute.log</code> on the suspect node. If the node is not assigned, check the <code>nova-scheduler</code> on the controller node(s). Is this a quota issue? You may have a memory and disk resource allocation issue.
The installer crashed. Did not complete normally.	Check elasticsearch and solver for corrupted data and remove it.	When you experience a crash, check for corrupted data. Before you restart the installer, remove any instances of corrupted data or you risk subsequent installs failing because of corrupted data.

Overcloud update failed because of node in maintenance state

Do NOT proceed with your installation/update if any of the undercloud/overcloud nodes are down or in a maintenance state.

To check if nodes are in maintenance state, source the undercloud credentials:

```
root@hLinux:~# ironic node-list
```

The following is sample output:

UUID	Instance UUID	Power State	Provisioning State	Maintenance
def2a648-8b8f-493c-8f36-40c898392ec9	cd3559b6-0fdd-49d6-b7d1-3cc95615e7fc	power on	active	False
36854b32-10f8-4e41-8b0b-04901935fabb	9af2f1d3-7299-4b69-b01e-71d0878c198e	power on	active	False
54e0af81-4a17-41da-ab67-267eb07bd1e1	b3e85509-4f96-4421-9e8b-d04b51297102	power on	active	False
3fb56d36-5ba7-46e7-9464-5252348d5252	3d125eee-9712-4888-9862-856627c891fe	power on	active	False
e21c7122-9a6e-4b56-b66c-846d28fab118	f2e2bac2-1700-476a-ad53-23a9392d78b1	power on	active	False
964c36a9-53cb-491f-b12c-a24bf3a4ec6e	012dd248-de6a-43a9-b3f7-0c2fc4b16a48	power on	active	False

Verify that all Ironic nodes show `False` for Maintenance mode.

Updating Baremetal Seeds

The section applies when the seed IP address is the default gateway for the baremetal network (brbm). This is normally the case for virtual installs. For baremetal installs you should not be using the seed as the default gateway for brbm. In this case, the following does not apply.

During seed update, it needs to be shut down and then started up with the updated image.

If the seed is the default gateway this mean the undercloud can no longer talk to the overcloud (that is, the network is interrupted). This interruption normally lasts about five minutes. This interruption can cause Ironic running on the undercloud to put some overcloud nodes into maintenance state as Ironic can no longer contact them.

To mitigate nodes being placed in maintenance:

1. Check if any nodes are in maintenance before running the seed update.
2. Fix any nodes that are found to be in maintenance state.
3. Run the seed update.
4. After the seed update completes, check if any nodes are in maintenance state because of the seed update.

To check if any nodes are in maintenance state, enter:

```
root@hLinux:~# ironic node-list
```

The following is sample output.

UUID	Instance UUID	Power State	Provisioning State	Maintenance
def2a648-8b8f-493c-8f36-40c898392ec9	cd3559b6-0fdd-49d6-b7d1-3cc95615e7fc	power on	active	False
36854b32-10f8-4e41-8b0b-04901935fabb	9af2f1d3-7299-4b69-b01e-71d0878c198e	power on	active	False
54e0af81-4a17-41da-ab67-267eb07bd1e1	b3e85509-4f96-4421-9e8b-d04b51297102	power on	active	False
3fb56d36-5ba7-46e7-9464-5252348d5252	3d125eee-9712-4888-9862-856627c891fe	power on	active	False

e21c7122-9a6e-4b56-b66c-846d28fab118	f2e2bac2-1700-476a-ad53-23a9392d78b1	power on	active	False
964c36a9-53cb-491f-b12c-a24bf3a4ec6e	012dd248-de6a-43a9-b3f7-0c2fc4b16a48	power on	active	True

5. If a node is found to have been put in maintenance state, enter `ironic node-set-maintenance` to remove the flag. For example:

```
ironic node-set-maintenance 964c36a9-53cb-491f-b12c-a24bf3a4ec6e
```

6. Proceed with your undercloud and overcloud update.

If all else fails

If you need further assistance, contact [HP Customer Support \(http://www.hpcloud.com/about/contact\)](http://www.hpcloud.com/about/contact). Before contacting HP Customer Support, run the `run-sosreport` command on the affected nodes. The `run-sosreport` command will gather specific reports that will help diagnose your issue. You do not need to be admin (root) to run this command.

For additional information on installation troubleshooting, see:
<http://docs.hpcloud.com/helion/openstack/services/troubleshooting/>