Ubuntu Server 14.04 Installation Guide for Cisco OpenStack Installer

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Preface

Audience

This guide is intended primarily for data center and/or network administrators who want to install Ubuntu Linux in preparation for deploying an OpenStack cloud using Cisco OpenStack Installer (Cisco OSI). Although there is some OpenStack-specific content, the Ubuntu installation instructions are generic enough that this guide can be used by anyone wanting to install Ubuntu Linux on a server.

Document Conventions

This document uses the following conventions:

Convention	Description
^ or Ctrl	Both the ^ symbol and Ctrl represent the Control (Ctrl) key on a keyboard. For example, the key combination **^D** or **Ctrl-D** means that you hold down the Control key while you press the D key. (Keys are indicated in capital letters but are not case sensitive.)
bold font	Commands and keywords and user-entered text appear in **bold** font.
Italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
`Courier font`	Terminal sessions and information the system displays appear in `courier` font.
`Bold Courier font`	**`Bold Courier`** font indicates text that the user must enter.

Convention	Description
[x]	Elements in square brackets are optional.
...	An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated.
|	A vertical line, called a pipe, indicates a choice within a set of keywords or arguments.
[x | y]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
{x | y}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x {y | z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Reader Alert Conventions

This document uses the following conventions for reader alerts:

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Tip Means *the following information will help you solve a problem.*

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Timesaver Means *the described action saves time.* You can save time by performing the action described in the paragraph.

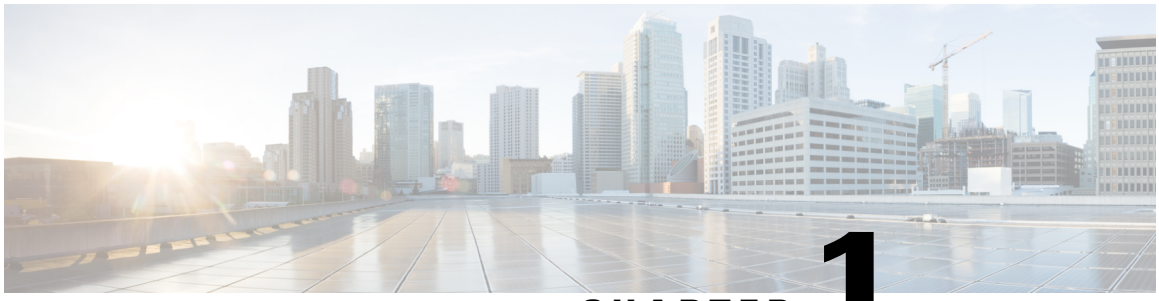
Best-Effort Support

As a community project, Cisco OpenStack Installer is supported on a best-effort basis by Cisco engineers. Our best-effort support mailer is openstack-support@cisco.com.

Related Documentation

The latest information about Cisco OpenStack Installer can be found at the Cisco OpenStack documentation wiki.

Alternative detailed instructions for installing Ubuntu Server can be found on the Ubuntu wiki at: https://help.ubuntu.com/14.04/installation-guide/amd64/index.html.



CHAPTER 1

Installation

Installing Ubuntu Server

This chapter provides instructions for installing Ubuntu 14.04 LTS. These instructions are specific to creating a build node for Cisco OpenStack Installer (Cisco OSI), but the completed installation is generic and can be used for any purpose. The server on which you install Ubuntu is called the "build node" in this document.

Prerequisites for Installing Ubuntu Server

- You must have Internet connectivity. The build node downloads packages over the Internet to complete the installation.
- The Ubuntu 14.04 ISO image must be on a file system that is accessible by the Cisco Integrated Manager Controller (Cisco IMC) console on the build node. The Ubuntu ISO image is available at http://releases.ubuntu.com/14.04/ubuntu-14.04-server-amd64.iso.
- If a RAID controller is present, RAID must be configured.
- A DNS entry for the name of the build node must be created before the installation.

Installing Ubuntu Server

Booting the Installation Image

Step 1 Open your web browser and log into the Cisco UCS CIMC interface on the build node.

Step 2 Under the **Server** tab, choose **BIOS**. Ensure that **CD/DVD** is the first boot option and that **HDD** is the second.

Step 3 Under the **Server** tab, choose **Summary**.

Step 4 Launch the **Virtual KVM**.

Step 5 Accept the security warnings that appear.

Step 6 Mount the Ubuntu 14.04 ISO image:

a) Click the **Virtual Media** tab.
b) Click **Add Image**….
c) Browse to and choose the Ubuntu 14.04 ISO image (referred to in Installing Ubuntu Server, on page 1).
d) Check the **Mapped** check box.

Step 7 Reboot the build node:

a) In the CIMC interface, click the **Server** tab.
b) Choose **Summary**.
c) In the **Actions** area, click **Hard Reset Server**.
d) In the **confirmation** dialog box, click **OK**.

The server reboots from the Ubuntu ISO image.

Note If the server does not reboot from the ISO image, verify your BIOS setting (C-Series) or boot policy (Cisco UCS B-Series) and check that the ISO image is mapped in the **Virtual Media** tab of the KVM Console.

What to Do Next

Use the Install menus to choose language and country configurations.

Using the Install Menus

The build node boots from the Ubuntu ISO image and presents a series of text-based selection screens. In these screens, use your keyboard's arrow keys or the **Tab** key to navigate, and press Enter to choose an option.

Step 1 On the **Language** screen, choose your language.

Step 2 From the **Ubuntu** menu, choose **Install Ubuntu Server**.

Step 3 On the **Select a language** screen, choose the language in which to install the build node.

Step 4 On the **Select your location** screen, choose your country or territory.

Step 5 On the first **Configure the keyboard** screen, answer **No** to the **Detect keyboard layout?** prompt.

Step 6 From the **Country of origin** list, choose a language/country combination.

Step 7 From the **Keyboard layout** list, choose a language/country combination.
The installer loads installation components.

What to Do Next

Configure the network settings.

Configuring Network Settings

Step 1 At the **Primary network interface** prompt on the **Configure the Network** screen, choose **eth0**. The installer automatically tries to configure the network using DHCP. If DHCP installation fails, the installer notifies you.

Step 2 At the **Network autoconfiguration failed** message, choose **Continue** to see more options.

- **Automatic configuration—**If DHCP configuration failed and you want the Build Server to use this method, make sure that there is a DHCP server on the network and retry with or without a DHCP hostname.
- **Manual configuration—**At the **Network configuration method:** prompt, choose **Configure network manually** and proceed as follows.

  Note For the OpenStack build node, we recommend that you configure the build node manually even if DHCP is used during the installation process.

a) At the **IP address:** prompt, enter the IP address that you want to assign to the build node.

b) At the **Netmask:** prompt, enter the netmask for the build node IP address.

  Note The installer automatically assigns 255.255.255.0 as the netmask. Replace this default netmask with the correct netmask for your local network.

c) At the **Gateway:** prompt, enter the gateway IP address for the build node.

  Note The installer automatically assigns `network_IP.1` as the gateway. Change the gateway address if necessary, or choose **Continue** to continue the installation.

d) At the **Name server addresses:** prompt, enter up to three domain name system (DNS) server addresses. Leave the DNS field blank if you will not use name servers or if you want to add the name servers later.
The build node queries the DNS servers in the order entered.

Note The installer automatically assigns `network_IP.1` as the DNS server. Change the default to the IP address(es) of your DNS server(s).

Note Separate the DNS IP addresses with spaces, not commas.

Note Name resolution is required for the proper operation of several services within a multinode OpenStack deployment. If you do not specify a DNS server, you must add static records for OpenStack nodes in the `/etc/hosts` file.

Step 3 At the **Hostname:** prompt, enter the hostname from the DNS host record entry (see Installing Ubuntu Server, on page 1).

Note The installer automatically assigns `ubuntu` as the hostname. Change the default to the correct hostname for your installation.

Step 4 At the **Domain name:** prompt, enter the name of the domain to which the server will belong.

Note Make sure that you use the same domain name for all your OpenStack nodes.

What to Do Next

Create a default user account.

Creating a User Account

Step 1 In the **Full name for the new user:** field, provide a name for the user account. This name is usually the first and last name of the account's owner. This account is used for nonadministrative (nonroot) purposes.

Step 2 In the **Username for your account:** field, enter a username for the new account.

Note We use *localadmin* as the example username in Cisco OSI documentation.

Step 3 In the **Choose a password for the new user:** field, enter a password for the new username.

Note We use *ubuntu* as the example password in Cisco OSI documentation.

Step 4 In the **re-enter password to verify:** field, type the password again.
If your password is fewer than eight characters, the installer asks if you want to use the weak password.

Step 5 At the **Use weak password?** prompt, choose **Yes** if you are sure.
The installer will offer to encrypt your home directory.

Step 6 At the **Encrypt your home directory?** prompt, choose **No**.

What to Do Next

Set the time zone.

Setting the Time Zone

The installer automatically detects your time zone and synchronizes the build node's clock with a Network Time Protocol (NTP) server. You must synchronize time across all OpenStack nodes, even across time zones. We recommend that you select **UTC** as your time zone.

Step 1 In the **Configure the clock** menu, choose **Select from worldwide list**.

Step 2 At the very bottom of the **Select your time zone:** list (you can use the **Page Down** key to scroll through the list), choose **UTC**.

Note The Cisco OpenStack Installer defaults to UTC for the Cobbler preseed. If you must use a time zone other than UTC, change the time_zone: setting in the `data/hiera_data/user.common.yaml` file when you are deploying OpenStack with the Cisco OpenStack Installer.

What to Do Next

Select hard disk settings.

Choosing Hard Disk Settings

The installer detects hard disks and hardware components and then presents options that allow you to partition your local hard disk.

Step 1 At the **Unmount partitions that are in use?** prompt, select **Yes**.

Step 2 In the **Parition disks** menu, choose **Guided partitioning**.

Step 3 At the **Partitioning method:** prompt in the **Partitioning disks** menu, choose the **Guided - use entire disk** option.

Step 4 At the **Select disk to partition:** prompt, choose the available disk.

Note If RAID is configured properly, only a single disk that represents the RAID group should appear in the detected hard drive list.

The installer lists the partitions to be formatted and warns you that continuing will destroy all data on the partitions.

Step 5 At the disk partition overview, choose **Finish partitioning and write changes to disk**.

Step 6 At the **Write the changes to disks?** prompt, choose **Yes**.

The installer creates the file system and installs the base system. This process takes a few minutes.

What to Do Next

Configure automatic updates.

Configuring Automatic Updates, Software Selection, and the Boot Loader

Step 1 At the **HTTP proxy information (blank for none)** prompt in the **Configure the package manager** menu, enter proxy information if you are using an Internet proxy:

Note Proxy information should be provided in the form: `http://[[user][:password]@]host[:port]/`.

a) If you do not use a proxy, leave the field blank and choose **Continue**.
b) Choose an Ubuntu archive mirror country. These mirrors provide repositories and archives of all the software for the Ubuntu distribution.
c) Confirm the name of your Ubuntu archive mirror.

Step 2 At the **How do you want to manage upgrades on this system?** prompt in the **Configuring tasksel** menu, choose the **No automatic updates** option.

Step 3 From the **Choose software to install:** list in the **Software selection** menu, choose only the **OpenSSH server** checkbox. (Use the space bar to select the option. Press the Tab key and then Enter to select **Continue**).
The installer copies more files.

Step 4 In the **Install the GRUB boot loader on a hard disk** menu, install the GRUB boot loader on the master boot record, either by entering `/dev/sda` as the boot loader device or by responding **Yes** when prompted.

Step 5 If prompted with **Is the clock set to UTC?**, select **Yes**.

Step 6 On the **Finish the installation** screen, select **Continue** to complete the Ubuntu 14.04 Server installation and reboot the system.

Configuring Ubuntu Server Post Installation

Step 1 In the **KVM Console** window, Click on the **UCS Virtual Media** tab and remove the Ubuntu 14.04 ISO from the **Client View** list.

Note If the image remains mapped, the server reboots from the image rather than from the hard disk.

Step 2 Click the **KVM Console KVM** tab to view the booting process.

Note Verify your BIOS setting (for Cisco C-Series servers) or boot policy (for Cisco UCS B-Series servers) if your server does not boot from the local hard drive.

Step 3 After the server reboots, log into the KVM Console with the username and password that you created during setup. You can log in at the Virtual KVM Console or through SSH.

Step 4 In the KVM Console, apply software updates:

a) Log in as root. Enter `sudo su` and enter the account password when prompted.
b) On the command line, enter `apt-get update && apt-get dist-upgrade -y`.
c) Restart the system. Use the CIMC console or enter `reboot`.

Step 5 When the build node has finished rebooting, log in to the build node on the KVM Console again.

Step 6 Synchronize the build node with an NTP server:

a) Get the ntpdate server by entering `apt-get install ntpdate -y`.
b) Synchronize the build node by entering `ntpdate` *`ntp_server`*.
   We recommend that you use a local NTP server (for example, a server that is onsite at your company), but you can also use public servers.