

VYATTA, INC.



Vyatta System

Hyper-V

INSTALLING AND UPGRADING



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RELEASE DATE: October 2012

DOCUMENT REVISION: 6.5R1 v01

RELEASED WITH: 6.5.0R1

PART NO. A0-0250-10-0000

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Preface

This document describes how to install and upgrade software running on Hyper-V systems.

This preface provides information about using this guide. The following topics are presented:

- [Intended Audience](#)
- [Organization of This Guide](#)
- [Document Conventions](#)
- [Vyatta Publications](#)

Intended Audience

This guide is intended for experienced system and network administrators. Depending on the functionality to be used, readers should have specific knowledge in the following areas:

- Networking and data communications
- TCP/IP protocols
- General router configuration
- Routing protocols
- Network administration
- Network security
- IP services

Organization of This Guide

This guide has the following aids to help you find the information you are looking for:

- [Quick List of Examples](#)
Use this list to help you locate examples you'd like to look at or try.
- [Quick List of Commands](#)
Use this list to help you quickly locate commands.

This guide has the following chapters:

Chapter	Description	Page
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Document Conventions

This guide uses the following advisory paragraphs, as follows.



WARNING Warnings alert you to situations that may pose a threat to personal safety.



CAUTION Cautions alert you to situations that might cause harm to your system or damage to equipment, or that may affect service.

NOTE Notes provide information you might need to avoid problems or configuration errors.

This document uses the following typographic conventions.

Monospace	Examples, command-line output, and representations of configuration nodes.
bold Monospace	Your input: something you type at a command line.
bold	Commands, keywords, and file names, when mentioned inline. Objects in the user interface, such as tabs, buttons, screens, and panes.
<i>italics</i>	An argument or variable where you supply a value.
<key>	A key on your keyboard, such as <Enter>. Combinations of keys are joined by plus signs (“+”), as in <Ctrl>+c.
[key1 key2]	Enumerated options for completing a syntax. An example is [enable disable].
<i>num1–numN</i>	A inclusive range of numbers. An example is 1–65535, which means 1 through 65535, inclusive.
<i>arg1..argN</i>	A range of enumerated values. An example is eth0..eth3, which means eth0, eth1, eth2, or eth3.
<i>arg[arg...]</i> <i>arg[,arg...]</i>	A value that can optionally represent a list of elements (a space-separated list and a comma-separated list, respectively).

Vyatta Publications

Full product documentation is provided in the Vyatta technical library. To see what documentation is available for your release, see the *Guide to Vyatta Documentation*. This guide is posted with every release of Vyatta software and provides a great starting point for finding the information you need.

Additional information is available on www.vyatta.com and www.vyatta.org.

Chapter 1: Installing the System

This chapter describes how to perform a new installation of the Vyatta software onto Hyper-V-based systems.

This chapter presents the following topics:

- [Overview](#)
- [Before You Begin](#)
- [Installing Vyatta's VHD for Hyper-V](#)
- [Installing Using the Vyatta Virtualization ISO](#)
- [Testing Your Installation](#)

Overview

Microsoft Hyper-V is a virtualization platform. Like other virtualization platforms, Hyper-V provides the ability to run multiple virtual machines on a single hardware platform. The Vyatta system can be run as a virtual machine on the Hyper-V virtualization platform.

Hyper-V Manager is a management system for Hyper-V. Hyper-V Manager allows you to manage multiple physical servers running Hyper-V, in addition to all the virtual machines running on each of the physical servers.

For subscription customers, Vyatta provides a prebuilt Virtual Hard Disk (VHD) for Hyper-V that can be used to run the Vyatta system on a Hyper-V virtual machine. Using the VHD simplifies installation. See [Installing Vyatta's VHD for Hyper-V](#) for procedures to create a Vyatta virtual machine using the VHD for Hyper-V.

For community customers, Vyatta provides a virtualization ISO that can be installed on a Hyper-V virtual machine. See [Installing Using the Vyatta Virtualization ISO](#) for procedures to install the Vyatta virtualization ISO on a Hyper-V virtual machine.

Before You Begin

Before installing, prepare for the installation:

- Install Hyper-V on a server. The Vyatta installation procedures assume that the Hyper-V server that the Vyatta system will be installed on is operational. Hyper-V and accompanying documentation can be obtained from Microsoft at <http://www.microsoft.com>.
- Make sure you have a minimum of 1 GB of free space on the system for a root partition. A minimum of 2 GB of free space is recommended for a production installation.

Installing Vyatta's VHD for Hyper-V

To simplify the installation process, Vyatta provides an optimized Hyper-V virtual hard disk (VHD) to subscription users for each release. The VHD includes the Vyatta system with optimizations for virtual environments as well as Hyper-V-specific customizations and optimizations. The Vyatta VHD for Hyper-V is available from <http://packages.vyatta.com/vyatta-supported/iso/stable/>.



This feature is available only in the Vyatta Subscription Edition.

This section presents the following topics:

- [Download the Vyatta VHD for Hyper-V](#)
- [Create the Vyatta Virtual Machine](#)

Download the Vyatta VHD for Hyper-V

In order to allow Vyatta system virtual machines to run on Hyper-V, you must download the Vyatta VHD for Hyper-V and make a copy of it. The file is available to subscription users at <http://packages.vyatta.com/vyatta-supported/iso/stable/>.

To download and copy the Vyatta VHD for Hyper-V

- 1 Download the Vyatta VHD for Hyper-V file from the Vyatta web site to your Hyper-V server.
- 2 Make a copy of the VHD file in a location where other VHD files are stored. For example, C:\Users\Public\Public Documents\Hyper-V\Virtual hard disks).

NOTE The original Vyatta VHD can be copied again to create additional Vyatta virtual machines as required.

- 3 Rename the new file as appropriate, to reflect the virtual machine that you will be using it to create.

Create the Vyatta Virtual Machine

Once a copy of the Vyatta VHD is created on the Hyper-V machine, you can create a virtual machine from it.

NOTE The following example describes the procedure using Hyper-V Manager on Windows Server 2008 R2 SP1. A similar procedure is required for other versions of Hyper-V Manager or Virtual Machine Manager (VMM).

To create a Vyatta virtual machine

- 1 Within Hyper-V Manager, select the Hyper-V server that you wish to add the new virtual machine to.
- 2 From the **Action** menu, select **New > Virtual Machine** to start the New Virtual Machine Wizard. The Before You Begin screen appears.
- 3 On the Before You Begin screen, click Next; The Specify Name and Location screen opens.
- 4 On the Specify Name and Location screen, specify a name for the virtual machine you are going to create. Click Next; the Assign Memory screen opens.
- 5 On the Assign Memory screen, specify the amount of memory required for the virtual machine (512MB minimum is recommended). Click Next; the Configure Networking screen opens.
- 6 On the Configure Networking screen, specify the virtual network to use. Click Next; the Connect Virtual Hard Disk screen opens.
- 7 On the Connect Virtual Hard Disk screen, select **Use an existing virtual hard disk** and browse to the copy of the Vyatta VHD you created above (see [Installing Vyatta's VHD for Hyper-V](#)). Click Next; the Completing the New Virtual Machine Wizard screen opens.
- 8 On the Completing the New Virtual Machine Wizard screen, confirm that the information you provided is correct. Click Finish; the new virtual machine is created and appears in the list of virtual machines in Hyper-V Manager.
- 9 Start the Vyatta virtual machine. It will boot as an image-based system from the virtual hard disk.
- 10 Test the installation (see [Testing Your Installation](#)).

Installing Using the Vyatta Virtualization ISO

Vyatta also prepares a special virtualization ISO (virt ISO) that has kernel parameters optimized for the virtualized environment.

The procedure in this section installs the Vyatta virt ISO on Hyper-V.

This section presents the following topics:

- [Download the Vyatta Virt ISO](#)
- [Create a Virtual Machine that boots from the Vyatta Virt ISO](#)
- [Install the Vyatta System](#)

Download the Vyatta Virt ISO

In order to create a Vyatta virtual machine on Hyper-V, you must first download the Vyatta virt ISO to the Hyper-V server. Subscription customers can obtain the latest virt ISO from <http://packages.vyatta.com/vyatta-supported/iso/stable/>. Community customers can obtain the latest virt ISO from <http://www.vyatta.org/downloads/>.

Create a Virtual Machine that boots from the Vyatta Virt ISO

Once a copy of the Vyatta virt ISO is downloaded to the Hyper-V machine, you can create a virtual machine and boot it from the Vyatta virt ISO.

NOTE *The following example describes the procedure using Hyper-V Manager on Windows Server 2008 R2 SP1. A similar procedure is required for other versions of Hyper-V Manager or Virtual Machine Manager (VMM).*

To create a virtual machine

- 1 Within Hyper-V Manager, select the Hyper-V server that you wish to add the new virtual machine to.
- 2 From the **Action** menu, select **New > Virtual Machine** to start the New Virtual Machine Wizard. The Before You Begin screen appears.
- 3 On the Before You Begin screen, click **Next**; The Specify Name and Location screen opens.
- 4 On the Specify Name and Location screen, specify a name for the virtual machine you are going to create. Click **Next**; the Assign Memory screen opens.
- 5 On the Assign Memory screen, specify the amount of memory required for the virtual machine (512MB minimum is recommended). Click **Next**; the Configure Networking screen opens.
- 6 On the Configure Networking screen, specify the virtual network to use. Click **Next**; the Connect Virtual Hard Disk screen opens.
- 7 On the Connect Virtual Hard Disk screen, select **Create a virtual hard disk** and specify the name, location, and size of the virtual hard disk. Click **Next**; the Installation Options screen opens.
- 8 On the Installation Options screen, select **Install an operating system from a boot CD/DVD-ROM**, and **Image file (.iso)** then browse to the location of the Vyatta virt ISO that you downloaded. Click **Next**; the Completing the New Virtual Machine Wizard screen opens.
- 9 On the Completing the New Virtual Machine Wizard screen, confirm that the information you provided is correct. Click **Finish**; the new virtual machine is created and appears in the list of virtual machines in Hyper-V Manager.
- 10 Start the virtual machine and connect to it using Hyper-V Manager.

Install the Vyatta System

When the system boots, it will boot from the Vyatta virt ISO. To install the Vyatta system onto the virtual hard disk associated with the virtual machine, do the following.

- 1 On the Virtual Machine Connection screen, log into the Vyatta system as user **vyatta** with password **vyatta** (default login ID).
- 2 At the Vyatta command prompt, issue the **install image** command and follow the prompts to install the Vyatta system to the virtual hard disk.
- 3 Shut down the virtual machine.
- 4 When the virtual machine has shut down, from the **Media** menu on the Virtual Machine Connection screen, select **DVD Drive > Eject xxx.iso** (where **xxx** is the name of the Vyatta virt ISO that you downloaded). This allows the virtual machine to boot to the virtual hard disk instead of from the Vyatta virt ISO.
- 5 Start the virtual machine. This time it will boot as an image-based Vyatta system from the virtual hard disk.
- 6 Test the installation (see [Testing Your Installation](#)).

Testing Your Installation

Once the system has successfully booted you will see the **vyatta login:** prompt. This indicates that the system is operational.

You should:

- [Verify the Release and System Type](#)
- [Verify Connectivity](#)

Verify the Release and System Type

The next step is to confirm that the correct release is running and it is running on the device that you expect.

To verify the release and system type

- 1 Login as user **vyatta** with the password you specified during installation (or a password of **vyatta** if it has not yet been changed from its default value).
- 2 Run the **show version** command.
 - The **Version:** line shows the version number of the running system. Make sure the **Version:** line shows the version you expect.

- The **System Type:** line shows the type of hardware the system is running on and whether it is in a virtual environment. Make sure the **System Type:** line shows the information you expect.
- The **Boot via:** line shows the type of system that is running. Make sure the **Boot via:** line shows the correct system type.
 - livecd** — The system is running from a LiveCD.
 - image** — The system is running as an image-based system.
 - disk** — The system is running as a disk-based system.

Verify Connectivity

The final step is to confirm that the Vyatta system can be accessed on the local network. A quick and easy way to do this is to configure an Ethernet interface on the system and then ping the interface from another host on the network.

NOTE Make sure that the system is physically connected to the network first.

To test system connectivity

- 1 At the command prompt, enter the commands shown in the example, substituting an IP address on your existing subnet. In this example:
 - The network is 192.168.1.0/24
 - The IP address of the interface is 192.168.1.81

Make the appropriate substitutions for your network, as in the following example.

Example 1-1 Configuring a test Ethernet interface

```
vyatta@vyatta:~$ configure
vyatta@vyatta# set interfaces ethernet eth0 address 192.168.1.81/24
vyatta@vyatta# commit
vyatta@vyatta# exit
vyatta@vyatta:~$
```

- 2 From another host on the same subnet, ping the interface to ensure that it is up. From a Linux or Windows command prompt, enter the following command (substituting the IP address you assigned to the interface):

```
ping 192.168.1.81
```

If the Vyatta system is reachable, you will see replies from it in response to the pings. If so, your system is installed and accessible on your network.

Chapter 2: Upgrading the System

This chapter describes how to upgrade Vyatta system software in a Hyper-V environment.

In this chapter:

- [Release-Specific Upgrade Information](#)
- [Before Upgrading](#)
- [Upgrade Overview](#)
- [Upgrading a VHD-installed System](#)
- [Upgrading a Virt ISO-installed System](#)

Release-Specific Upgrade Information

Your system may have special upgrade considerations, depending on the release.

For release-specific upgrade information, and to ensure that configuration information is correctly preserved across upgrade, consult the Release Notes for your release.

Before Upgrading

Before upgrading:

- Save your existing configuration file for reference. Your configuration file is named **config.boot** and is located in the directory **/config**.
- Make sure you have enough space on your root partition to load the image. You can determine the amount of space available using the **show system storage** command.

Upgrade Overview

The method you use to upgrade your system depends on the way it was installed last time.

- If you installed it using the Vyatta Virtual Hard Disk (VHD) for Hyper-V, upgrade using the instructions given in the section [“Upgrading a VHD-installed System” on page 10](#).
- If you installed it using the Vyatta virtualization ISO (the “virt ISO”), upgrade using the instructions given in the section [“Upgrading a Virt ISO-installed System” on page 13](#).

Upgrading a VHD-installed System



Vyatta VHD's for Hyper-V are supported only for the Vyatta Subscription Edition.

The Vyatta VHD for Hyper-V consists of the following:

- The Vyatta virt ISO
- Other Hyper-V-specific modifications and optimizations.

The way you upgrade a Vyatta VHD-installed system depends on what part of the VHD has changed. [Table 2-1](#) shows the upgrade options for Vyatta VHD-installed systems.

Table 2-1 Upgrade options for Vyatta VHD-installed systems

What has changed:	What you need to upgrade:
The virt ISO	Upgrade just the virt ISO. You can use the upgrade system image command. Use the procedure given in Upgrading the System Image .
Hyper-V-specific modifications	Upgrade the full VHD. Use the procedure given in Upgrading the Full VHD
You're not sure	Use the procedure given in Upgrading the System Image . The system will detect whether anything else in the VHD has changed and will alert you if you need to upgrade the VHD.

Upgrading the System Image

The **upgrade system image** command provides a simplified, streamlined upgrade process. If the **upgrade system image** command is executed, the system automatically does all of the following:

- Finds the most recent stable Vyatta Subscription Edition virt ISO image
- Downloads the image
- Installs the image
- Migrates configuration files from the running system
- Sets the new image as the default boot image.

The new image is run the next time the system reboots.

To upgrade using the “**upgrade system image**” command

- 1 At the command prompt, issue the **upgrade system image** command. Follow the prompts; see the sample session given in [Example 2-1](#).

- 2 When the install has completed, reboot the system using the `reboot` command. The system restarts using the new system image.

Sample Session for “upgrade system image”

[Example 2-1](#) shows a session where the `upgrade system image` command is used to upgrade to the latest system image.

NOTE You will not be prompted for your repository username and password if they are already configured within the entitlement system.

Example 2-1 Upgrading a system image

```
vyatta@vyatta:~$ upgrade system image
Vyatta image upgrade utility.
Please enter repository username: testco
Please enter repository password: testpassword
Checking for updated images on the Vyatta repository...
I have found a newer system image on the Vyatta repository.
The new image is version: VSE6.4-2012.02.09
Would you like to upgrade to this image? [Yes/No] yes
OK... Starting process to upgrade system image.
Trying to fetch ISO file from
http://packages.vyatta.com/vyatta-supported/iso/stable/vyatta-livecd-virt_VSE6.4-2012.02.09_i386.iso
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left     Speed
100 196M 100 196M    0     0  489k      0  0:06:49  0:06:49  ---:--:-- 559k
ISO download succeeded.
Checking for digital signature file...
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left     Speed
100 189 100 189    0     0   169      0  0:00:01  0:00:01  ---:--:-- 2333
Found it. Checking digital signature...
gpg: directory `/root/.gnupg' created
gpg: new configuration file `/root/.gnupg/gpg.conf' created
gpg: WARNING: options in `/root/.gnupg/gpg.conf' are not yet active during
this run
gpg: keyring `/root/.gnupg/pubring.gpg' created
gpg: Signature made Mon Feb 6 16:42:22 2012 GMT+8 using DSA key ID 9436A9F8
gpg: /root/.gnupg/trustdb.gpg: trustdb created
gpg: Good signature from "Autobuild <autobuild@vyatta.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to the owner.
Primary key fingerprint: 1B49 FE0A 0239 706A C6D4 13B0 04A2 5B93 9436 A9F8
Digital signature is valid.
```

```
Checking MD5 checksums of files on the ISO image...OK.
Done!
What would you like to name this image? [VSE6.4-2012.02.09]: <Enter>
OK. This image will be named: VSE6.4-2012.02.09
Installing "VSE6.4-2012.02.09" image.
Copying new release files...
Would you like to save the current configuration
directory and config file? (Yes/No) [Yes]: <Enter>
Copying current configuration...
Would you like to save the SSH host keys from your
current configuration? (Yes/No) [Yes]: <Enter>
Copying SSH keys...
Setting up grub configuration...
Done.
```

Upgrading the Full VHD

When Hyper-V-specific content in the Vyatta VHD changes, you must perform an upgrade to the new Vyatta VHD, using the procedure in this section.

To upgrade the Vyatta VHD.

- 1 Save your current system configuration (`/config`) to a separate location on your network.
- 2 Using the new Vyatta VHD, create a new Vyatta virtual machine in your Hyper-V environment. Use the instructions given in [Chapter 1: Installing the System](#), in the section “[Installing Vyatta’s VHD for Hyper-V](#)” on page 3.
- 3 Perform initial configuration of the new virtual machine and test the installation to verify connectivity on the network.
- 4 Shut down the old system so it does not conflict with the new system.
- 5 Load the configuration you saved onto the new Vyatta virtual machine.
- 6 Make the following modification to the loaded configuration:
 - For each Ethernet interface, delete the hardware ID. (In configuration mode, use the `delete interface ethernet ethx hw-id` command, where *ethx* is the name of the Ethernet interface).
- 7 Reboot the system using the `reboot` command. The system restarts using the new configuration.

Upgrading a Virt ISO-installed System

The Vyatta virt ISO preparation of the Vyatta system has modifications and optimizations intended, in general, for virtual environments. On a virt ISO–installed system, two upgrade methods are available:

- Upgrading using the **upgrade system image** command. This command is supported only on the Vyatta Subscription Edition.
- Upgrading using the **add system image** command.

Upgrading Using “upgrade system image”



The upgrade system image command is only available in the Vyatta Subscription Edition.

The upgrade system image command provides a simplified, streamlined upgrade process. If the **upgrade system image** command is executed, the system automatically does all of the following:

- Finds the most recent stable Vyatta Subscription Edition virt ISO image
- Downloads the image
- Installs the image
- Migrates configuration files from the running system
- Sets the new image as the default boot image.

The new image is run the next time the system reboots.

To upgrade using the “upgrade system image” command

- 1 At the command prompt, issue the **upgrade system image** command. Follow the prompts; see the sample session given in [Example 2-2](#).
- 2 When the install has completed, reboot the system using the **reboot** command. The system restarts using the new system image.

Sample Session: “upgrade system image”

[Example 2-2](#) shows a session where the **upgrade system image** command is used to upgrade to the latest system image.

NOTE You will not be prompted for your repository username and password if they are already configured within the entitlement system.

Example 2-2 Upgrading a system image

```

vyatta@vyatta:~$ upgrade system image
Vyatta image upgrade utility.
Please enter repository username: testco
Please enter repository password: testpassword
Checking for updated images on the Vyatta repository...
I have found a newer system image on the Vyatta repository.
The new image is version: VSE6.4-2012.02.09
Would you like to upgrade to this image? [Yes/No] yes
OK... Starting process to upgrade system image.
Trying to fetch ISO file from
http://packages.vyatta.com/vyatta-supported/iso/stable/vyatta-livecd-virt_VSE6.4-2012.02.09_i386.iso
% Total    % Received % Xferd Average Speed   Time    Time     Time  Current
           Dload  Upload   Total             Spent    Left     Speed
100 196M 100 196M    0     0  489k      0  0:06:49  0:06:49 --:--:-- 559k
ISO download succeeded.
Checking for digital signature file...
% Total    % Received % Xferd Average Speed   Time    Time     Time  Current
           Dload  Upload   Total             Spent    Left     Speed
100 189 100 189    0     0  169      0  0:00:01  0:00:01 --:--:-- 2333
Found it. Checking digital signature...
gpg: directory `/root/.gnupg' created
gpg: new configuration file `/root/.gnupg/gpg.conf' created
gpg: WARNING: options in `/root/.gnupg/gpg.conf' are not yet active during
this run
gpg: keyring `/root/.gnupg/pubring.gpg' created
gpg: Signature made Mon Feb 6 16:42:22 2012 GMT+8 using DSA key ID 9436A9F8
gpg: /root/.gnupg/trustdb.gpg: trustdb created
gpg: Good signature from "Autobuild <autobuild@vyatta.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to the owner.
Primary key fingerprint: 1B49 FE0A 0239 706A C6D4 13B0 04A2 5B93 9436 A9F8
Digital signature is valid.
Checking MD5 checksums of files on the ISO image...OK.
Done!
What would you like to name this image? [VSE6.4-2012.02.09]: <Enter>
OK. This image will be named: VSE6.4-2012.02.09
Installing "VSE6.4-2012.02.09" image.
Copying new release files...
Would you like to save the current configuration

```



```
directory and config file? (Yes/No) [Yes]: <Enter>
Copying current configuration...
Would you like to save the SSH host keys from your
current configuration? (Yes/No) [Yes]: <Enter>
Copying SSH keys...
Setting up grub configuration...
Done.
```

Upgrading Using “add system image”

The **add system image** command also uses a Vyatta virt ISO file as the image source. It installs the image with existing images and sets the new image as the default boot image. The new image is run the next time the system reboots.

Preparation

Determine the location of the Vyatta virt ISO file.

- For the Vyatta Subscription Edition, the image is stored at <http://packages.vyatta.com/vyatta-supported/iso/stable/>.
- The Vyatta Core system, the image is stored at <http://www.vyatta.org/downloads/>.

Record the name of the virt ISO file.

To upgrade using the “add system image” command

- 1 Execute the **add system image** command. Use the location and name of the Vyatta virt ISO file as arguments to the command, as shown in [Example 2-3](#).
- 2 Before you reboot, confirm that the new image is loaded and ready to run the next time the system is rebooted. (Use the **show system image** command; see [Example 2-4](#).)
- 3 Reboot the system, using the **reboot** command. The system restarts using the new system image.

Sample Session: “add system image”

[Example 2-3](#) shows a session where the **add system image** command is used to upgrade to system image **xxx.iso** located at <http://packages.vyatta.com/vyatta-supported/iso/stable/>. The username (usr) and password (pwd) to the repository are included in the URL in this example. If they not included, the system will prompt for them.

Example 2-3 Adding a system image

```
vyatta@vyatta:~$ add system image
http://usr:pwd@packages.vyatta.com/vyatta-supported/iso/stable/xxx.iso
Welcome to the Vyatta install program. This script
will walk you through the process of installing the
Vyatta image to a local hard drive.
Would you like to continue? (Yes/No) [Yes]:<Enter>
Trying to fetch ISO file from
http://packages.vyatta.com/vyatta-supported/iso/stable/xxx.iso
#####
100.0%
ISO download succeeded.
Checking MD5 checksums of files on the ISO image...OK.
You are running an installed system. Do you want to use the current install
partition? (Yes/No) [Yes]:<Enter>

Done!
Installing "xxx" release.
Copying new release files...
Would you like to save the current configuration
directory and use the current start-up configuration
for the new version? (Yes/No) [Yes]:<Enter>
Copying current configuration...
Setting up grub configuration...
Done.
```

[Example 2-4](#) uses the **show system image** command to view installed images.

Example 2-4 Showing system images

```
vyatta@vyatta:~$ show system image
The system currently has the following image(s) installed:

  1: xxx (default boot)
  2: yyy (running version)
```

Chapter 3: Installation and Upgrade Commands

This chapter describes installation and upgrade commands.

This chapter presents the following commands.

Configuration Commands	
None.	
Operational Commands	
<code>add system image</code>	Adds a binary system image to the currently running system.
<code>clone system image</code>	Creates a copy of a Vyatta system image installed on the local system or on a remote system.
<code>delete system image</code>	Deletes a Vyatta system image.
<code>install image</code>	Installs a Vyatta system image, using a binary system image.
<code>install system</code>	Installs Vyatta system software, using a traditional layout of files.
<code>rename system image</code>	Renames a Vyatta system image.
<code>set system image default-boot</code>	Selects a Vyatta system image to be run when the system is next rebooted.
<code>show system image</code>	Displays a list of Vyatta system images installed on the system.
<code>upgrade system image</code>	Upgrades the currently running system to the latest version.

add system image

Adds a binary system image to the currently running system.

Syntax

```
add system image {iso-filename | iso-URL [username username password password]}
```

Command Mode

Operational mode.

Parameters

<i>iso-filename</i>	The name of the Vyatta system image file to be added.
<i>iso-URL</i>	The URL location of the Vyatta system image file to be added.
<i>username</i>	Optional. The username required to login to the remote system at the specified URL location.
<i>password</i>	Optional. The password required to login to the remote system at the specified URL location. If the username is specified, then a password must also be specified.

Default

None.

Usage Guidelines

Use this command to add a binary Vyatta system image to the currently running system. A system image can be added to a system that was installed using a disk-based install (using the **install system** command) or an image-based install (using the **install image** command). Once added, it will be set as the new default boot image and will be run the next time the system is booted.

The command will validate the MD5 checksums of the files contained in the ISO image to ensure that it has not been corrupted. In addition, it will not allow more than a single copy of an image to exist on the same system.

The *iso-filename* or *iso-URL* arguments provide the source for the ISO image file.

NOTE If you are accessing the ISO image on the web, in most browsers right-clicking the link to the file will provide access to the URL which can then be copied and pasted as the *iso-URL* argument to this command.

The following table shows the syntax for file specification for different file locations.

Table 3-1

Location	Specification
An absolute path	For <i>iso-filename</i> use standard UNIX file specification.
A relative path	For <i>iso-filename</i> you can also specify the path name relative to the current directory.
FTP server	<p>Use the following syntax for the <i>iso-URL</i> argument:</p> <pre>ftp://user:passwd@host/image-file</pre> <p>where <i>user</i> is the username on the host, <i>passwd</i> is the password associated with the username, <i>host</i> is the host name or IP address of the FTP server, and <i>image-file</i> is the ISO image file, including the path. Alternatively, the username and password can be specified as username and password arguments to the add system image command.</p> <p>If you do not specify <i>user</i> and <i>passwd</i> you are prompted for them.</p>
SCP server	<p>Use the following syntax for the <i>iso-URL</i> argument:</p> <pre>scp://user:passwd@host/image-file</pre> <p>where <i>user</i> is the username on the host, <i>passwd</i> is the password associated with the username, <i>host</i> is the host name or IP address of the SCP server, and <i>image-file</i> is the ISO image file, including the path. Alternatively, the username and password can be specified as username and password arguments to the add system image command.</p> <p>If you do not specify <i>user</i> and <i>passwd</i> you will be prompted for them.</p>
HTTP server	<p>Use the following syntax for the <i>iso-URL</i> argument:</p> <pre>http://host/image-file</pre> <p>where <i>host</i> is the host name or IP address of the HTTP server and <i>image-file</i> is the ISO image file, including the path.</p>
TFTP server	<p>Use the following syntax for the <i>iso-URL</i> argument:</p> <pre>tftp://host/image-file</pre> <p>where <i>host</i> is the host name or IP address of the TFTP server, and <i>image-file</i> is the ISO image file, including the path relative to the TFTP root directory.</p>

clone system image

Creates a copy of a Vyatta system image installed on the local system or on a remote system.

Syntax

```
clone system image [user@host:]source-image-name new-image-name [clean]
```

Availability



Vyatta Subscription Edition.

Command Mode

Operational mode.

Parameters

<i>user</i>	The user name on a remote host. Required for remote host access via SCP. Not required for cloning a local system image.
<i>host</i>	The hostname or IP address of a remote host. Required for remote host access using SCP. Not required for cloning a local system image.
<i>source_image-name</i>	The name of the system image to be copied. The source image can exist on the local system or a remote system.
<i>new-image-name</i>	The name of the new (copied) system image. An image with this name must not already exist on the system.
clean	Creates an empty read-write directory tree for the new image. This creates a new image that is functionally equivalent to the source image as it existed when it was originally installed.

Default

None.

Usage Guidelines

Use this command to create a copy of a system image installed on the local system or on a remote system to the local system.

If `user@host` is specified, the image is fetched from the named host using the SCP protocol. If `user@host` is omitted, the `source-image-name` is the name of an image that already exists on the system. The `new-image-name` is the image name that the system uses for the clone. There must be no image by that name already existing on the system.

Command completion is performed for local image names if `user@host` is not specified. No command completion is performed on remote image names if `user@host` is specified.

If the `clean` argument is omitted, the command copies the `squashfs` file being used by the image named `source-image-name` as well as the read-write directory tree of `source-image-name`. If the `clean` argument is given, then the read-write directory tree of `source-image-name` is NOT copied. Instead, an empty read-write directory tree is created for the new image. This creates a new image that is functionally equivalent to the source image as it existed when it was initially installed.

Images created by this command behave the same as images installed by the [install image](#) or the [add system image](#) commands.

The `https` and `ssh` services must both be enabled on the remote Vyatta system in order for the [clone system image](#) command to work properly. The `https` service is enabled using `set service https` in Configuration mode. The `ssh` service is enabled using `set service ssh` in Configuration mode.

NOTE *This command is only available in the Vyatta Subscription Edition.*

delete system image

Deletes a Vyatta system image.

Syntax

```
delete system image [image-name]
```

Command Mode

Operational mode.

Parameters

<i>image-name</i>	The name of the Vyatta system image to be deleted.
-------------------	--

Default

When used with no options, the system prompts for the image to delete.

Usage Guidelines

Use this command to delete a Vyatta system image from the local disk drive.

The image and all of its local files, including its Vyatta configuration file, are all destroyed. Since this command is destructive, the system prompts for confirmation.

Command completion displays all valid completions for the *image-name* argument. If the *image-name* argument is omitted, the system displays a list of available images and prompts you to select one.

If the system was originally installed in disk-based mode, an **image-name** option is available that you can use to direct that the disk-based installation should be deleted.

The system does not allow you to delete the currently running system image. However, the system does allow you to delete the image currently selected to be run at the next reboot. If you choose this, the system uses the currently running image when the system is next rebooted.

install image

Installs a Vyatta system image, using a binary system image.

Syntax

```
install image
```

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to install a Vyatta system binary image.

This command is similar to the **install system** command in functionality. Once the installation is complete you can add multiple Vyatta versions into the same partition, using the **add system image** command, and you can then choose which version to boot, using the **set system image default-boot** command. This allows you to move easily between different versions of the system.

If you have a new system and want to install the Vyatta system from scratch, you can boot the Vyatta LiveCD and then run the **install image** command to install the image on the LiveCD to the disk. The **install image** command operates similarly to the **install system** command—it creates and formats a new disk partition and then installs the image to the partition while preserving the system configuration.

install system

Installs Vyatta system software, using a traditional layout of files.

Syntax

install system

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to install Vyatta software from a LiveCD onto a persistent device such as a hard disk.

NOTE Vyatta recommends using the **install image** command over the **install system** command.

If you have a new system and want to install the Vyatta system from scratch, you can boot the Vyatta LiveCD and then run the **install system** command to install the system on the LiveCD to the disk. The **install system** command operates similarly to the **install image** command—it creates and formats a new disk partition and then installs the system to the partition while preserving the system configuration.

rename system image

Renames a Vyatta system image.

Syntax

```
rename system image old-image-name new-image-name
```

Command Mode

Operational mode.

Parameters

<i>old-image-name</i>	The name of an existing Vyatta system image to be renamed.
<i>new-image-name</i>	The new name of the Vyatta system image.

Default

None.

Usage Guidelines

Use this command to rename a Vyatta system image.

The old name must match the name of an image on the system. The system does not allow you to rename the currently running system image. The new system image name cannot be in use by another image.

set system image default-boot

Selects a Vyatta system image to be run when the system is next rebooted.

Syntax

```
set system image default-boot [image-name]
```

Command Mode

Operational mode.

Parameters

<i>image-name</i>	The name of the Vyatta system image to be run when the system is rebooted.
-------------------	--

Default

If used with no image name specified, the system displays a list of available images and prompts you to select one.

Usage Guidelines

Use this command to specify which Vyatta system image is to be run when the system is next rebooted.

When multiple system images have been installed using the **add system image** command, you can use this command to direct the system to boot from a specific system image the next time it is restarted.

Command completion displays all valid completions for the *image-name* argument. If the *image-name* argument is omitted, the system displays a list showing all images installed on the system and prompts you to select one. If the system was originally installed in disk-based mode, then a special **image-name** option is available so that you can select the disk-based system as the default system from which to boot.

show system image

Displays a list of Vyatta system images installed on the system.

Syntax

```
show system image [storage | version]
```

Command Mode

Operational mode.

Parameters

storage	Display the amount of disk space used by each image.
version	Include the image version number in the display of system images.

Default

None.

Usage Guidelines

Use this command to display a list of all Vyatta system images currently installed on the system.

The command output identifies the image that is currently running, as well as the image that has been selected to run when the system is next rebooted. If the system was originally installed in disk-based mode, then one of the image names identifies that installation.

upgrade system image

Upgrades the currently running system to the latest version.

Syntax

```
upgrade system image
```

Availability



Vyatta Subscription Edition.

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to upgrade the Vyatta system image to the latest release. It is the preferred method of system upgrade. The system image can be upgraded on a system that was installed using a disk-based install (using the **install system** command) or an image-based install (using the **install image** command or from a virtual machine template). Once the new image is added to the system, the configuration from the currently running system can be migrated. Also, the new image will be set as the new default boot image and will be run the next time the system is booted.

The command will validate the MD5 checksums of the files contained in the ISO image to ensure that it has not been corrupted. In addition, it will not allow more than a single copy of an image to exist on the same system.

Glossary

ACL	access control list
ADSL	Asymmetric Digital Subscriber Line
AMI	Amazon Machine Image
API	Application Programming Interface
AS	autonomous system
ARP	Address Resolution Protocol
AWS	Amazon Web Services
BGP	Border Gateway Protocol
BIOS	Basic Input Output System
BPDU	Bridge Protocol Data Unit
CA	certificate authority
CCMP	AES in counter mode with CBC-MAC
CHAP	Challenge Handshake Authentication Protocol
CLI	command-line interface
DDNS	dynamic DNS
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol version 6
DLCI	data-link connection identifier
DMI	desktop management interface
DMZ	demilitarized zone
DN	distinguished name
DNS	Domain Name System
DSCP	Differentiated Services Code Point

DSL	Digital Subscriber Line
eBGP	external BGP
EBS	Amazon Elastic Block Storage
EC2	Amazon Elastic Compute Cloud
EGP	Exterior Gateway Protocol
ECMP	equal-cost multipath
ESP	Encapsulating Security Payload
FIB	Forwarding Information Base
FTP	File Transfer Protocol
GRE	Generic Routing Encapsulation
HDLC	High-Level Data Link Control
I/O	Input/Ouput
ICMP	Internet Control Message Protocol
IDS	Intrusion Detection System
IEEE	Institute of Electrical and Electronics Engineers
IGP	Interior Gateway Protocol
IPS	Intrusion Protection System
IKE	Internet Key Exchange
IP	Internet Protocol
IPOA	IP over ATM
IPsec	IP security
IPv4	IP Version 4
IPv6	IP Version 6
ISP	Internet Service Provider
KVM	Kernel-Based Virtual Machine
L2TP	Layer 2 Tunneling Protocol

LACP	Link Aggregation Control Protocol
LAN	local area network
LDAP	Lightweight Directory Access Protocol
LLDP	Link Layer Discovery Protocol
MAC	medium access control
MIB	Management Information Base
MLPPP	multilink PPP
MRRU	maximum received reconstructed unit
MTU	maximum transmission unit
NAT	Network Address Translation
ND	Neighbor Discovery
NIC	network interface card
NTP	Network Time Protocol
OSPF	Open Shortest Path First
OSPFv2	OSPF Version 2
OSPFv3	OSPF Version 3
PAM	Pluggable Authentication Module
PAP	Password Authentication Protocol
PAT	Port Address Translation
PCI	peripheral component interconnect
PKI	Public Key Infrastructure
PPP	Point-to-Point Protocol
PPPoA	PPP over ATM
PPPoE	PPP over Ethernet
PPTP	Point-to-Point Tunneling Protocol
PTMU	Path Maximum Transfer Unit

PVC	permanent virtual circuit
QoS	quality of service
RADIUS	Remote Authentication Dial-In User Service
RHEL	Red Hat Enterprise Linux
RIB	Routing Information Base
RIP	Routing Information Protocol
RIPng	RIP next generation
Rx	receive
S3	Amazon Simple Storage Service
SLAAC	Stateless Address Auto-Configuration
SNMP	Simple Network Management Protocol
SMTP	Simple Mail Transfer Protocol
SONET	Synchronous Optical Network
SSH	Secure Shell
SSID	Service Set Identifier
STP	Spanning Tree Protocol
TACACS+	Terminal Access Controller Access Control System Plus
TBF	Token Bucket Filter
TCP	Transmission Control Protocol
TKIP	Temporal Key Integrity Protocol
ToS	Type of Service
TSS	TCP Maximum Segment Size
Tx	transmit
UDP	User Datagram Protocol
VHD	virtual hard disk
vif	virtual interface

VLAN	virtual LAN
VPC	Amazon virtual private cloud
VPN	Virtual Private Network
VRRP	Virtual Router Redundancy Protocol
WAN	wide area network
WAP	wireless access point
WPA	Wired Protected Access
