

VYATTA, INC.



Vyatta System

# Installing and Upgrading

REFERENCE GUIDE



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RELEASE DATE: January 2010

DOCUMENT REVISION: VC6 v01

RELEASED WITH: VC6.0.0

PART NO. A0-0090-10-0011

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# Quick List of Examples

Use this list to help you locate examples you'd like to look at or try.

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# Quick List of Commands

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# Preface

This document describes the various deployment, installation, and upgrade options for Vyatta software.

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

## Organization of This Guide

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

- [Quick List of Commands](#)  
Use this list to help you quickly locate commands.

This guide has the following chapters and appendixes:

Chapter	Description	Page
<a href="#">Chapter 1: Installing the System</a>	This chapter describes methods for performing a new install of the Vyatta system.	1
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# Document Conventions

This guide contains advisory paragraphs and uses typographic conventions.

## Advisory Paragraphs

This guide uses the following advisory paragraphs:




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**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.

---



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

---

## Typographic Conventions

This document uses the following typographic conventions:

Monospace	Examples, command-line output, and representations of configuration nodes.
<b>bold Monospace</b>	Your input: something you type at a command line.
<b>bold</b>	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.
[ <i>arg1</i>   <i>arg2</i> ]	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 in the first case and a comma-separated list in the second case).

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## Vyatta Publications

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More information about the Vyatta system is available in the Vyatta technical library, and on [www.vyatta.com](http://www.vyatta.com) and [www.vyatta.org](http://www.vyatta.org).

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.

# Chapter 1: Installing the System

This chapter describes methods for performing a new install of the Vyatta system.

In this chapter:

- [Deployment Options](#)
- [About LiveCDs](#)
- [Image-Based Install](#)
- [Disk-Based Install](#)
- [Testing Your Installation](#)

# Deployment Options

---

The Vyatta system supports a number of flexible deployment options. This section describes each option so that you can determine the best option for your needs and environment and explains how to deploy in each case.

- 1 First, decide on what kind of platform you want to run the system. You can read about this [here](#).
- 2 Then, decide what kind of install you want to perform. You can read about this [here](#). You can read about this [here](#).

## Deciding on the System Platform

You have three options for deploying a Vyatta system:

- **Hardware.** The Vyatta system can be installed and run on most standard x86 servers and PCs. The system can be installed onto a variety of persistent devices, including hard drive, USB memory stick, and compact flash.

---

**NOTE** *Not all hardware supports the ability to boot from USB device or Flash; check the BIOS of your hardware to see if yours does.*

---

- **Virtualized environment or cloud.** Alternatively, the Vyatta system can be run as a software appliance in a virtual or cloud computing environment, allowing you to virtualize your network. The Vyatta software appliance has been optimized for Xen and VMware virtual environments. These platforms provide a great deal of flexibility as to how the virtual machine can be configured, especially with respect to memory and Ethernet interfaces. Multiple Vyatta systems can be run simultaneously on a single hardware platform configured for multiple virtual machines. Instructions for installing the Vyatta system on VMware can be found in [here](#). Instructions for installing the Vyatta system on XenServer can be found in [here](#).
- **LiveCD.** As a third option, you can run the Vyatta system from a LiveCD. A LiveCD runs the Vyatta software on a RAM disk on the host machine, without disturbing or changing the existing operating system on the host machine. You can read more about LiveCDs [here](#).

## Deciding on the Type of Install

Once you've decided on your platform, you have two options for installing the system:

- **An image-based install.** This is the simplest, most flexible, and most powerful way to install a Vyatta system is using a binary system image. With this method, you can install multiple versions of the Vyatta system as images and switch between the images simply and easily. You install the image from a LiveCD or by downloading an ISO file, and select the image to be run when the system is rebooted. Then you reboot your system and it runs the selected image. You can read about this installation method [here](#).
- **A disk-based install.** A disk-based install also installs from a LiveCD or ISO onto a persistent device such as a hard disk partition. However, unlike an image-based install, in a disk-based install only one version of the system can reside in the partition. You can read about this installation method [here](#).

## About LiveCDs

A LiveCD runs the Vyatta software on a RAM disk on the host machine. The system uses the RAM disk for writeable sections of the file system, and uses the floppy drive or a TFTP server for saving configuration files.

The LiveCD can run on a machine with an existing operating system without disturbing or changing the previously installed operating system. Configuration is not stored on the system, but you can save configuration to a persistent device such as a USB memory stick. Also, you cannot upgrade an installation run from LiveCD; each upgrade requires a fresh install. While you are running the system from a LiveCD, you will not be able to access other applications or programs on your machine.

This method of deployment is best suited for evaluation and test scenarios.

## Creating a LiveCD

To create a LiveCD, download one of the ISO software images directly from the Vyatta web site at <http://www.vyatta.org>.

Then use CD-burning software to create a bootable ISO image. Note that:

- The CD must be an ISO image: it won't work to just copy files onto the CD.
- The CD must be bootable. See the documentation for your CD-burning utility for information on how to burn an ISO image.

## Running from LiveCD

► **Get ready**

- Make sure the BIOS of the host machine is configured to boot from CD-ROM.
- Begin with your system powered down.

**To boot from LiveCD**

- 1 With the system powered down, connect a VGA monitor and keyboard to it.
- 2 Insert the Vyatta LiveCD into the CD drive and close the drive.
- 3 Power up the system.

---

**NOTE** Systems with a Flash device may boot slowly from LiveCD, as the system looks for DMA that does not exist on the IDE device. This is expected behavior.

---

After the startup messages complete, the login prompt appears:

---

```
vyatta login:
```

---

This prompt means that your system is running.

Now go to the section [Testing Your Installation](#) to confirm that you can access the system from your network.

## Image-Based Install

---

To install a Vyatta system image, you run the [install-image](#) command.

If you are installing the image from a LiveCD, you don't need to specify any parameters to the command. The system uses the LiveCD as the source of the image and installs it.

If the image is located at a URL (such as the Vyatta web site) or in a file, you must specify the location, using either the *iso-URL* or the *iso-filename* option of the [install-image](#) command, respectively. To download the Vyatta system as an ISO from the Vyatta web site, your computer must be set up to connect to the Internet and access a DNS server for downloading an image.

An image is not run when it is installed. However, after the image is installed, the configuration file of your currently running system (that is, your old software) is copied over to the newly-installed image.

When you install an image, all previously-installed images are preserved. (This is in contrast to a disk-based install, in which only one version of the system at a time can exist in a partition.)

You switch between versions by selecting the version to be run the next time the system reboots. Then, you reboot your system.

In summary, the steps are:

- 1 Download and install the image.
- 2 Select the image to be run at reboot (if not the downloaded image).
- 3 Reboot your system.

► **Try it**      **Download and install a Vyatta system image file**

Run the `install-image` command, specifying the location of the Vyatta system image file (ISO) on the Vyatta web site, as shown in [Example 1-1](#).

Example 1-1 Downloading and installing a system image file

---

```
vyatta@R1:~$ install-image http://www.vyatta.org/downloads/xxx.iso
```

---

The system prompts you for a username and password to complete the download. The image file is then installed onto the system and is automatically selected as the one to be run the next time the system reboots.

► **Try it**      **Select the image to be run the next time the system reboots**

If you wish to run an image other than the one that was just downloaded the next time the system reboots you must select it explicitly.

To select the version to be loaded on reboot use the `set system image default-boot` command, as shown in [Example 1-2](#).

Example 1-2 Selecting the image to be run on system reboot

---

```
vyatta@R1:~$ set system image default-boot yyy.iso
```

---

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" is shown so that you can select the disk-based system as the default system from which to boot.

► **Try it**      **Reboot the system**

Rebooting the system causes the system image to be loaded as the running system.

---

**Example 1-3** Selecting the image to be run on system reboot

---

```
vyatta@R1:~$ reboot
```

---

When the system has rebooted, log on and confirm that the new image is running.

---

**Example 1-4** Selecting the image to be run on system reboot

---

```
vyatta@R1:~$ show version
```

---

## Disk-Based Install

---

Disk-based installs are performed from a LiveCD using the `install-system` command. The software image on the LiveCD includes an installation script for installing the Vyatta system software onto the persistent device. The disk can be any persistent device, such as a hard disk, USB stick, or Flash card.

► **Get ready**

- Create the LiveCD.
- Make sure your BIOS is configured to boot from CD-ROM.
- Make sure you have a minimum of 1000 MB of free space on your hard drive, USB stick, or Flash drive for a root partition. A minimum of 2 GB of free space is recommended for a production installation.
- Find out the device name onto which the software is to be installed.
- If you want to install onto a USB stick, check the BIOS setup of your hardware to confirm that it supports the ability to boot from a USB device.

---

**NOTE** The installation process reformats the specified partition, so it is critical to specify the correct partition. For systems dedicated to Vyatta, the system selected defaults can be used.

---

► **Install**

Begin with your system powered down.

- 1 With the system still powered down, connect a VGA monitor and keyboard to it.
- 2 Insert the Vyatta LiveCD into the CD drive and close the drive.
- 3 Power up the system.

---

**NOTE** Systems with a Flash device may boot slowly from LiveCD, as the system looks for DMA that does not exist on the IDE device. This is expected behavior.

---

After the startup messages complete, the login prompt appears:

```
vyatta login:
```

- 4 Log on to the system as **root** with the password **vyatta**.
- 5 If you are installing onto a USB memory stick, insert the memory stick into a USB port. The system will detect that the USB device is installed and notify you; record the name of the device as displayed in the system message (for example, `/dev/sdb`).
- 6 At the system command prompt enter the following:

```
install-system
```

The installer launches. The installer is an interactive install script that prompts you for some basic information and confirmation during the install.

- 7 Follow the prompts and specify the persistent device name recorded above when required until a system prompt displays.

If you have two hard disks in your system you will be asked if you would like to configure RAID-1 mirroring on them.

- 8 Remove the CD from the drive and reboot.
- 9 If you are installing to a USB device or compact Flash, perform the following steps to modify your system BIOS configuration so that it boots from the correct device:
  - a. During the boot sequence press the appropriate key sequence (for example, `<F2>`) to interrupt the boot sequence and enter your system's BIOS setup program.
  - b. In the boot sequence menu arrange the boot devices such that the device name (for example, "USB HDD" for a USB stick or "IDE" or "SATA" for a compact Flash) is first in the list so that the system will attempt to boot from it first.
  - c. Save the settings and reboot the system. When the system restarts, it will be running from the USB memory stick or compact Flash.

- 10 When the system starts, it will be running from the local install and you will see the following:

```
Welcome to Vyatta - vyatta tty1
vyatta login:
```

At this point, your system is running. Go to the section [Testing Your Installation](#) to confirm that you can access the system from your network.

[Example 1-5](#) shows a sample install session.

---

**Example 1-5** Sample install session

---

```
Last login: Mon Oct 29 15:37:50 2007
Linux vyatta 2.6.20 #1 SMP Fri Sep 21 02:22:08 PDT 2007 i686
Welcome to Vyatta.
This system is open-source software. The exact distribution terms for
each module comprising the full system are described in the individual
files in /usr/share/doc/*/copyright.
vyatta:~# install-system
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>
Probing drives: OK
Looking for pre-existing RAID groups...none found.
The Vyatta image will require a minimum 1000MB root.
Would you like me to try to partition a drive automatically
or would you rather partition it manually with parted? If
you have already setup your partitions, you may skip this step.

Partition (Auto/Parted/Skip) [Auto]: <Enter>

I found the following drives on your system:
sda    1074MB

Install the image on? [sda] <Enter>

This will destroy all data on /dev/sda.
Continue? (Yes/No) [No]: Yes

How big of a root partition should I create? (1000MB - 1074MB) [1074]MB:
<Enter>

Creating filesystem on /dev/sda1: OK
Mounting /dev/sda1
Copying system image files to /dev/sda1:OK
I found the following configuration files
/opt/vyatta/etc/config/config.boot
Which one should I copy to sda? [/opt/vyatta/etc/config/config.boot]:
<Enter>

Enter password for administrator account
Enter vyatta password:vyatta
Retype vyatta password:vyatta
I need to install the GRUB boot loader.
```

```
I found the following drives on your system:  
sda    1074MB
```

```
Which drive should GRUB modify the boot partition on? [sda]: <Enter>
```

```
Setting up grub: OK  
Done!  
vyatta:~#
```

---

When the system is installed to another drive with the **install-system** command, you are given the option to set the **vyatta** administrator password (and the **root** user is disabled until a new password is set). Only the new configuration file on the installed device is changed; the original configuration is not modified. If you are using a configuration file from another media, such as a floppy disk, the media should be removed prior to rebooting the system; otherwise the original configuration file will be used and the system will use the original passwords.

## Testing Your Installation

---

The easiest and fastest way to confirm that the Vyatta system is working is to configure an Ethernet interface on the system and then ping the interface from another host on the network.

### ► Try it

#### To test the system

- 1 Log on to the system as user **vyatta** with the password **vyatta**.
- 2 At the command prompt, enter the commands shown in the example, substituting an IP address on your existing subnet. In the example:
  - The subnet 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 1-6 Configuring a test Ethernet interface

---

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

```
exit  
vyatta@vyatta:~$
```

---

- 3** From another host on the same subnet, ping the interface to ensure that it is up.
- 4** 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 options for upgrading Vyatta system software

In this chapter:

- [Upgrade Options](#)
- [Upgrade Method Availability](#)
- [Package Upgrades](#)

## Upgrade Options

---

You have three options for upgrading Vyatta system software:

- **An image-based upgrade.** An image-based upgrade is a simple matter of downloading a new system image and installing it along with previous versions of the system. The system automatically migrates your configuration to the installed image. To run the new image, select it as the image to run after reboot and reboot your system. The procedure for doing this is [here](#).
- **A fresh disk-based install from LiveCD.** Upgrading a hard disk install from LiveCD provides a “clean” install of the standard Vyatta release: your saved configuration file is preserved, but everything else is wiped clean. You should only upgrade from LiveCD if:
  - You haven’t installed additional packages beyond the standard Vyatta release (or you don’t care if you lose them), AND
  - You have your configuration file saved on a floppy disk (or you don’t care if you lose your configuration)

The procedure for doing this is [here](#).

- **A package upgrade.** The Vyatta system also allows you to upgrade software components, or “packages,” individually. This is called a “package upgrade.” You obtain the packages from the Vyatta software repository. As for a disk-based install, when you use a package upgrade, you can install only one version of the system at a time. The procedure for package upgrade is provided [here](#).

## Upgrade Method Availability

---

The options available to you for upgrade and automatic migration of configuration information depend on how recent your current Vyatta software is.

- Image-based upgrades are available for Release 3.5 and later. Configuration is automatically migrated.
- Package upgrades are available for VC4.0 and release 3.x and later. Configuration is automatically upgraded.
- Systems prior to VC4.0 or R3.0 must be freshly installed from a LiveCD. Configuration migration to VC5.0.2 or R3.4.0 are not automatically migrated; they must be manually recreated.

Before upgrading, save your existing configuration file for reference. Your configuration file is named **config.boot**, and is located in the directory `/opt/vyatta/etc/config`.

## Package Upgrades

---

Software component updates are stored in *packages*. A package is a precompiled software component that can be installed or upgraded independently of other software components on your machine. Each package contains software and any scripts required to install, configure, or remove the package.

The Vyatta system keeps a record of which of all available packages have been installed on the system and which have not. The system also keeps track of differences between packages, including differences between versions of packages, as necessary, as well as dependencies between packages. When you direct the system to install a package (using the [full-upgrade](#) command), the system also installs any packages on which the specified package depends and requires a reboot.

Installation of packages is atomic: all packages, and the packages on which they depend must install successfully, or else the installation will be rolled back, leaving the system as it was before.

Some updates (for example, a kernel upgrade) may require a system reboot. In general, though, updates do not require a reboot.

Vyatta software can be updated using Vyatta's online package archive system. Your system must be set up to connect to the Internet and access a DNS server.

► **Try it**      **Locate the Vyatta software repository**

If you want to be able to retrieve the latest updates of Vyatta software, you must inform the system of the location of the Vyatta software repository. Then you'll be able to find out what software updates are available for your system.

The Vyatta subscription software repository is available to Vyatta subscribers at <http://packages.vyatta.com/vyatta-supported>. This repository requires a user login and password to be configured in your system package configuration.

► **Try it**      **Configure the Vyatta repository options**

Software update is configured in the **system package** configuration node. To use the automatic upgrade feature, the system must be configured to include following options:

- **repository:** A user-defined label for this software repository within the configuration. (Multiple repositories can be configured.)
- **components:** Which components should be upgraded from this repository. Typically, the **main** component is upgraded.
- **distribution:** The distribution or release to upgrade to. When possible, you will typically want to upgrade to the **stable** distribution.
- **url:** The location of the Vyatta repository. It is <http://packages.vyatta.com/vyatta-supported> for Vyatta subscription users.

- **user name:** Your Vyatta subscriber login ID. Required to access the Vyatta subscription repository.
- **password:** Your Vyatta subscriber login password. Required to access the Vyatta subscription repository.

You can view package configuration by using the `show system package` command in configuration mode, as shown in [Example 2-1](#).

Example 2-1 Viewing the “system package” configuration node

Step	Command
Show the contents of the <b>system package</b> configuration node.	<pre>vyatta@R1# show system package repository my-repository {   components main   distribution stable   url http://packages.vyatta.com/vyatta-supported   user-name jane   password mypassword } [edit] vyatta@R1#</pre>

### ► Try it **Download and install updates**

To download and install updates you must be either be logged in as **root** and use the [full-upgrade](#) command, or you must login as a user with administrative privileges (for example, user **vyatta**) and precede the [full-upgrade](#) command by the **sudo** option (that is, issue the command as **sudo full-upgrade**).

The [full-upgrade](#) command is used to download and install updates from the repository specified in the **system package** configuration above.

Before upgrading, make sure your configuration is backed up somewhere external to the Vyatta system. Perform this procedure from an attached keyboard and monitor or using a serial console.

If you have extra packages installed that aren't in your new release, you can elect to keep them using the **-k** option to the [full-upgrade](#) command. If you choose to keep the extra packages, they are included in the package list when you issue the **show version all** command. Keep in mind that the extra packages could affect the behavior of your system.

You may explicitly control which packages are retained during the upgrade process using [full-upgrade -i](#). For more information, see the documentation for the [full-upgrade](#) command.

---

**NOTE** Some older versions of the system (for example, Release 3.0 and earlier) do not support the **-k** and **-i** options of the **full-upgrade** command. In this case, issue the **full-upgrade** command with no options.

---

Log in as a user with administrative privileges for example, user **vyatta**) and enter the command as shown. If prompted for information, press <Enter> to accept the default values.

#### Example 2-2 Performing a full upgrade

Step	Command
Perform the upgrade and keep all non-Vyatta packages.	<pre>vyatta:~# sudo full-upgrade -k Reading package lists... Building dependency tree... Reading state information... 0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded. ...</pre>

---

**NOTE** It is strongly recommended that you let the upgrade process proceed until completion as interrupting it may require manual intervention for a subsequent upgrade to complete successfully.

---

Upgraded packages are listed on the screen as they are upgraded. Your configuration is automatically modified to reflect changes in command syntax between 3.0 and 3.4.0.

Please note the following:

- If you are upgrading from an SSH or Telnet session, your session is terminated. The upgrade continues to completion and the system automatically reboots. For additional control during the upgrade process, we recommend that you upgrade using a system console.
- If the **set system syslog console** command is configured, then prior to upgrade, you should configure, commit, and save the following command:
 

```
set system syslog console facility all
```

 Issuing this command restores default facility of the **syslog** command as seen pre-3.4.0 for the console method.

## Chapter 3: Installing on VMware

This chapter explains how to install the Vyatta virtual appliance onto VMware ESXi.

In this chapter:

- [About VMware](#)
- [Installing VMware Products](#)
- [Installing on VMware ESXi](#)

---

## About VMware

---

Currently the Vyatta system is supported on VMware ESXi.

Like other virtualization platforms, VMware products provide the ability to run multiple virtual systems on a single hardware platform.

Vyatta provides a prebuilt VMware virtual appliance that can be run as a virtual machine on VMware ESXi. You can obtain the Vyatta VMware virtual appliance at <http://www.vyatta.org/downloads/>.

---

## Installing VMware Products

---

Before installing the Vyatta system, VMware must be installed on a server and be operational. VMware ESXi and accompanying documentation can be downloaded from VMware at <http://www.vmware.com>.

The following installation procedures assume an operational VMware system.

---

## Installing on VMware ESXi

---

To install the Vyatta VMware virtual appliance on VMware ESXi

- 1 Download the VMware virtual appliance zip file from <http://www.vyatta.org/downloads/>.
- 2 Extract the Vyatta VMware virtual appliance files from the zip file into to the Virtual Machines folder to be accessed by VMware ESXi (for example, **C:/Virtual Machines**).
- 3 Open the VMware vSphere client.
- 4 In the File menu select **Deploy OVR Template**.
- 5 In the dialog box select **Deploy from file** and select the Vyatta .ova file that was downloaded.
- 6 Follow the deployment dialog customizing for the local site.

The virtual appliance can be run within VMware ESXi like any other virtual machine.

## Chapter 4: Installing on XenServer

This chapter explains how to install the Vyatta template onto Citrix XenServer.

In this chapter:

- [About XenServer](#)
- [Installing XenServer and XenCenter](#)
- [Installing the Vyatta Template](#)
- [Creating a Vyatta Virtual Machine](#)
- [Operating a Vyatta Virtual Machine](#)

## About XenServer

---

Citrix XenServer is a server virtualization platform. Like other virtualization platforms, XenServer provides the ability to run multiple virtual machines on a single hardware platform.

XenCenter is the management system for XenServer. XenCenter allows you to manage multiple physical servers running XenServer, in addition to all the virtual machines running on each of the physical servers.

Virtual machines are created on XenServer using virtual machine templates. For each release of its software, Vyatta provides a XenServer virtual machine template that can be used to create virtual machines running the Vyatta system.

The Vyatta template is designed to work with XenServer 5.5 and XenCenter 5.5. To use the template, you must:

- Download the template
- Import the template into XenServer
- Create a Vyatta virtual machine from the template

## Installing XenServer and XenCenter

---

Before installing the Vyatta template, XenServer 5.5 must be installed on a server and XenCenter 5.5 must be installed on a management PC. Instructions for downloading and installing these products can be found at <http://www.citrix.com>.

## Installing the Vyatta Template

---

In order to allow Vyatta system virtual machines to run on XenServer 5.5, you must install the Vyatta XenServer template.

### To install the Vyatta XenServer template

- 1 Download the compressed Vyatta XenServer template file from <http://www.vyatta.org/downloads/> to a location accessible by your XenCenter machine.
- 2 Extract the Vyatta XenServer template file from the compressed download file.
- 3 Within XenCenter, select **Templates > Import Template**.
- 4 On the Import Source screen, browse to the extracted template file and select **Exported Template** as the **Import Type**. Click **Next**; the Home Server screen opens.

- 5 On the Home Server screen, select the server to be used as the home server for any virtual machines created from the template. Click Next; the Storage screen opens.
- 6 On the Storage screen, select the storage repository where virtual disks for the template will be stored. Click Import and wait for the template to be imported. The Network screen opens.
- 7 On the Network screen, set up any required network interfaces. Click Next; the Finish screen opens.
- 8 On the Finish screen, click Finish to complete the import process. The imported Vyatta template appears in the left pane of XenCenter.

## Creating a Vyatta Virtual Machine

---

Once the Vyatta template is loaded on the XenServer machine, you can create a virtual machine from the template.

### To create a Vyatta virtual machine

- 1 Within XenCenter, select the XenServer that you wish to add the new virtual machine to.
- 2 Click the **New VM** button. The Template screen opens.
- 3 From the Template screen, select the Vyatta template that imported. Click Next; the Name screen opens.
- 4 On the Name screen, enter a name and a description for the new virtual machine. Click Next; the Location screen opens.
- 5 On the Location screen, select **Empty DVD Drive**. Click Next; the CPU & Memory screen opens.
- 6 On the CPU & Memory screen, specify the number of CPUs and the amount of memory that the virtual machine is to use. Click Next; the Virtual Disks screen opens.
- 7 On the Virtual Disks screen, specify a virtual disk for the Vyatta virtual machine. Click Next; the Virtual Interfaces screen opens.
- 8 On the Virtual Interfaces screen, specify the virtual network interfaces to be installed on the Vyatta virtual machine. Click Next; the Finish screen opens.
- 9 On the Finish screen, select Start VM automatically if you would like the Vyatta virtual machine to start when the XenServer machine starts. Click Finish. The new virtual machine appears in the left pane of XenCenter.

---

## Operating a Vyatta Virtual Machine

---

Once a Vyatta virtual machine has been created on XenServer, the virtual machine can be operated from XenCenter in the same way as any other virtual machine on XenServer.

### To operate the Vyatta virtual machine

- 1 Select the Vyatta virtual machine in the left pane of XenCenter. Click the **Start** button.
- 2 Select the Console tab to access the Vyatta console.

## Chapter 5: Configuration Commands

This chapter describes installation and upgrade configuration commands.

This chapter presents the following commands.

<code>system package</code>	Specifies the information needed for automatic software updates.
<code>system package auto-sync &lt;days&gt;</code>	Specifies how often the repository cache should be updated.
<code>system package repository &lt;repository&gt;</code>	Specifies information about the software repository.
<code>system package repository &lt;repository&gt; components &lt;component&gt;</code>	Specifies a repository component name.
<code>system package repository &lt;repository&gt; description &lt;desc&gt;</code>	Specifies a brief description for the repository.
<code>system package repository &lt;repository&gt; distribution &lt;dist&gt;</code>	Specifies a distribution name.
<code>system package repository &lt;repository&gt; password &lt;password&gt;</code>	Specifies a password for accessing a software repository.
<code>system package repository &lt;repository&gt; url &lt;url&gt;</code>	Specifies the URL of the server hosting a software repository.
<code>system package repository &lt;repository&gt; username &lt;username&gt;</code>	Specifies a user name for accessing a software repository.

## system package

Specifies the information needed for automatic software updates.

---

### Syntax

```
set system package
delete system package
show system package
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
  }
}
```

---

### Parameters

None.

---

### Default

None.

---

### Usage Guidelines

Use this command to specify the information needed to obtain software updates from the Vyatta software archive.

Vyatta system packages are stored in the Vyatta software repositories. All customers have access to the community repository. Only customers with support contracts have access to the subscription repository.

Use the **set** form of this command to specify the information needed for automatic software updates.

Use the **delete** form of this command to remove the automatic software update configuration.

Use the **show** form of this command to view the automatic software update configuration.

## system package auto-sync <days>

Specifies how often the repository cache should be updated.

---

### Syntax

```
set system package auto-sync days
delete system package auto-sync
show system package auto-sync
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    auto-sync 1-4294967296
  }
}
```

---

### Parameters

---

<i>days</i>	Optional. Sets the system to update the repository cache every specified number of days. The range is 1 to 4294967296.
-------------	--

---

---

### Default

The default is 1.

---

### Usage Guidelines

Use this command to specify how often the repository cache should be updated.

Use the **set** form of this command to specify how often the repository cache should be updated.

Use the **delete** form of this command to restore the configuration to the default.

Use the **show** form of this command to view the configuration.

## system package repository <repository>

Specifies information about the software repository.

---

### Syntax

```
set system package repository repository
delete system package repository repository
show system package repository repository
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
    }
  }
}
```

---

### Parameters

<i>repository</i>	Multi-node. A label for the repository; for example, “community.”  You can define more than one software repository by creating multiple <b>repository</b> nodes.
-------------------	---

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a software repository and set its properties.  
The repository a Vyatta software repository or some other debian package repository. When the **full-upgrade** command is run, all configured repositories are accessed.

Use the **set** form of this command to create a software repository or modify its information.

Use the **delete** form of this command to remove a repository.

Use the **show** form of this command to view repository configuration information.

## system package repository <repository> components <component>

Specifies a repository component name.

---

### Syntax

```
set system package repository repository components component
delete system package repository repository components component
show system package repository repository components
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      components text
    }
  }
}
```

---

### Parameters

---

<i>repository</i>	The repository label.
<i>component</i>	The component name(s) within the repository. To specify more than one component, use a space-separated list enclosed in double quote marks (for example, “comp1 comp2 comp3”). The stock component is <b>main</b> .

---

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a repository component name.

Use the **set** form of this command to specify a repository component name.

Use the **delete** form of this command to remove the component name.

Use the **show** form of this command to view component configuration.

## system package repository <repository> description <desc>

Specifies a brief description for the repository.

---

### Syntax

```
set system package repository repository description desc
delete system package repository repository description
show system package repository repository description
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      description text
    }
  }
}
```

---

### Parameters

<i>repository</i>	The repository label.
<i>desc</i>	A brief description for the repository.

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a repository description.

Use the set form of this command to specify a brief description for the repository.

Use the **delete** form of this command to remove the description.

Use the **show** form of this command to view description configuration.

## system package repository <repository> distribution <dist>

Specifies a distribution name.

---

### Syntax

```
set system package repository repository distribution dist
delete system package repository repository distribution
show system package repository repository distribution
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      distribution text
    }
  }
}
```

---

### Parameters

---

<i>repository</i>	The repository label.
<i>dist</i>	The name of the distribution. Supported values are as follows: <b>stable:</b> The latest stable release of software. <b>testing:</b> The latest test version of software.

---

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a distribution name.

The stable distribution contains the latest stable release of Vyatta software. The testing distribution is typically newer and typically contains more recent software features; however, it has not completed testing.

Use the **set** form of this command to specify a distribution name.

Use the **delete** form of this command to remove the distribution name.

Use the **show** form of this command to view distribution name configuration.

## system package repository <repository> password <password>

Specifies a password for accessing a software repository.

---

### Syntax

```
set system package repository repository password password
delete system package repository repository password
show system package repository repository password
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      password text
    }
  }
}
```

---

### Parameters

<i>repository</i>	The repository label.
<i>password</i>	The password required for access to the repository.

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a password for access to the repository.

Some repositories require a username and password and others do not. For example, the **packages.vyatta.com/vyatta-supported** repository requires a user name and password but the **packages.vyatta.com/vyatta** repository does not. For repositories requiring login credentials, set the password using this command and the user name using the `system package repository <repository> username <username>` command.

Use the **set** form of this command to specify a password.

Use the **delete** form of this command to remove the password.

Use the **show** form of this command to view repository password configuration.

## system package repository <repository> url <url>

Specifies the URL of the server hosting a software repository.

---

### Syntax

```
set system package repository repository url url
delete system package repository repository url
show system package repository repository url
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      url text
    }
  }
}
```

---

### Parameters

<i>repository</i>	The repository label.
<i>url</i>	The full URL of the server hosting the software repository, including the path if required.

---

### Default

None.

---

### Usage Guidelines

Use this command to specify the URL of a server hosting a software repository.  
Use the **set** form of this command to set the server URL.  
Use the **delete** form of this command to remove the server URL.  
Use the **show** form of this command to view server URL configuration.

## system package repository <repository> username <username>

Specifies a user name for accessing a software repository.

---

### Syntax

```
set system package repository repository username username
delete system package repository repository username
show system package repository repository username
```

---

### Command Mode

Configuration mode.

---

### Configuration Statement

```
system {
  package {
    repository text {
      username text
    }
  }
}
```

---

### Parameters

<i>repository</i>	The repository label.
<i>username</i>	The user name required for access to the repository.

---

### Default

None.

---

### Usage Guidelines

Use this command to specify a user name for accessing a software repository.

Some repositories require a username and password and others do not. For example, the **packages.vyatta.com/vyatta-supported** repository requires a user name and password but the **packages.vyatta.com/vyatta** repository does not. For repositories requiring login credentials, set the user name using this command and the password using the `system package repository <repository> password <password>` command.

Use the **set** form of this command to specify a user name.

Use the **delete** form of this command to remove the user name.

Use the **show** form of this command to view the user name.

## Chapter 6: Operational Commands

This chapter describes installation and upgrade operational commands.

This chapter presents the following commands.

<code>delete system image</code>	Deletes a Vyatta system image.
<code>full-upgrade</code>	Upgrades Vyatta system software.
<code>install-image</code>	Installs a Vyatta system image to a persistent device.
<code>install-system</code>	Installs Vyatta system software to a persistent device.
<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.

## 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, then an "image-name" option will be 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.

# full-upgrade

Upgrades Vyatta system software.

---

## Syntax

```
full-upgrade [-h | -i | -k ]
```

---

## Command Mode

Operational mode.

---

## Parameters

---

<b>-h</b>	“Help.” Displays help for the <b>full-upgrade</b> command.
<b>-i</b>	“Interactive upgrade.” Displays the prompts generated by the various packages during an upgrade. This option is for expert users only.
<b>-k</b>	“Keep all non-Vyatta packages.” Where possible, this option retains all non-Vyatta packages during the upgrade.

---

---

## Default

When used with no parameters, this command displays the same information as when used with the **-h** option.

---

## Usage Guidelines

Use this command to upgrade system software.

You must be logged in as **root** to use this command. An alternative is to log in as a user with administrative privileges (e.g. **vyatta**) and use “**sudo full-upgrade**” instead of “**full-upgrade**”. Prior to its use the appropriate repository must be configured. The repository information can be changed using [system package repository <repository>](#) and related commands.

The **-i** option is for expert users only. This option should only be selected for upgrades executed from the local console; for example, it should not be used from a Telnet or SSH session.

There may be cases where, due to package dependencies, it is not possible to keep all non-Vyatta packages when the **-k** option is specified. Some of the non-Vyatta packages may be removed or changed to a different version. After the upgrade is complete, the system will consist of all the packages from the latest Vyatta release

plus all the non-Vyatta packages that the system was able to keep. The **-k** option is recommended for users who have manually installed non-Vyatta software on their system and do not want to remove it.

# install-image

Installs a Vyatta system image to a persistent device.

---

## Syntax

```
install-image [iso-filename | iso-URL]
```

---

## Command Mode

Operational mode.

---

## Parameters

<i>iso-filename</i>	The path and filename of the Vyatta system image ISO file to install.
<i>iso-URL</i>	The URL of a Vyatta system image ISO file to install.

---

## Default

Specifying the **install-image** command with no parameters is only valid when running directly from a Vyatta LiveCD. In this case, the LiveCD image is installed to the persistent device.

---

## Usage Guidelines

Use this command to install a Vyatta system binary image onto a persistent device, such as a hard disk.

This command is similar to the [install-system](#) command in functionality. However, when a version of the Vyatta system is installed to a disk partition using the [install-system](#) command, that version, exclusively, uses the partition; the version cannot coexist with a different version on the same partition. In contrast, the **install-image** command can install multiple Vyatta versions into the same partition, 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.

The **install-image** command can be used in two different modes.

### 1 From a LiveCD boot.

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. In this mode, 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. However, unlike the `install-system` command, the `install-image` command installs the image with a particular structure, such that later versions can be installed into and coexist on the same partition.

## 2 From an installed system.

This can be a disk-based installation (that is, a system that was installed using the `install-system` command) or from an image-based system (that is, a system that was installed using the `install-image` command). If you already have an existing installed Vyatta system, you can boot the installed system, copy a Vyatta ISO image file to the system (for example, using the SCP protocol), and then run the `install-image` command to install the ISO image file to the disk. Note that when run on an installed system, you must specify the ISO image file to be installed. (In contrast, when the `install-image` command is run from a LiveCD boot, the LiveCD image is installed.) Any existing image installations are preserved and are available for selecting to run at boot time (using the `set system image default-boot` or using the `grub` menu at boot time).

When a new system is installed a new `root` user password must be explicitly specified using the “`set system login user root authentication plaintext-password`” command. See the *Vyatta Basic System Reference Guide*.

# install-system

Installs Vyatta system software to a persistent device.

---

## 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.

When a version of the Vyatta system is installed to a disk partition using the **install-system** command, that version, exclusively, uses the partition; the version cannot coexist with a different version on the same partition. This is in contrast to the [install-image](#) command, which can install multiple Vyatta versions into the same partition

When a new system is installed a new root user password must be explicitly specified using the [system login user <user> authentication](#) command.

---

## 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 [install-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" will be 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
```

---

### Command Mode

Operational mode.

---

### Parameters

None.

---

### 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 select to run when the system is next rebooted. If the system was originally installed in disk-based mode, then one of the "image names" will identify that installation.

# Glossary

ACL	access control list
ADSL	Asymmetric Digital Subscriber Line
API	Application Programming Interface
AS	autonomous system
ARP	Address Resolution Protocol
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
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
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/Output
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
L2TP	Layer 2 Tunneling Protocol
LACP	Link Aggregation Control Protocol
LAN	local area network
LDAP	Lightweight Directory Access 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
PVC	permanent virtual circuit
QoS	quality of service
RADIUS	Remote Authentication Dial-In User Service
RIB	Routing Information Base
RIP	Routing Information Protocol
RIPng	RIP next generation
Rx	receive
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
TCP	Transmission Control Protocol
TKIP	Temporal Key Integrity Protocol
ToS	Type of Service
Tx	transmit
UDP	User Datagram Protocol
vif	virtual interface
VLAN	virtual LAN
VPN	Virtual Private Network
VRRP	Virtual Router Redundancy Protocol
WAN	wide area network
WAP	wireless access point
WPA	Wired Protected Access

---