SOFTWARE INSTALLATION GUIDE

Brocade Vyatta Network OS VNF Platform Installation Guide, 5.2R1

Supporting VNF Platform

Contents

Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential

hazards.

NOTE
A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION
A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names.
	Identifies keywords and operands.
	Identifies the names of GUI elements.
	Identifies text to enter in the GUI.
italic text	Identifies emphasis.
	Identifies variables.
	Identifies document titles.
Courier font	Identifies CLI output.

Format	Description
	Identifies command syntax examples.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, **--show** WWN.
[ ]	Syntax components displayed within square brackets are optional.
	Default responses to system prompts are enclosed in square brackets.
{ **x** | **y** | **z** }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
	In Fibre Channel products, square brackets may be used instead for this purpose.
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Brocade resources

Visit the Brocade website to locate related documentation for your product and additional Brocade resources.

White papers, data sheets, and the most recent versions of Brocade software and hardware manuals are available at www.brocade.com. Product documentation for all supported releases is available to registered users at MyBrocade.
Click the **Support** tab and select **Document Library** to access documentation on MyBrocade or www.brocade.com You can locate documentation by product or by operating system.

Release notes are bundled with software downloads on MyBrocade. Links to software downloads are available on the MyBrocade landing page and in the Document Library.

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Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

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Brocade OEM customers

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- OEM/solution providers are trained and certified by Brocade to support Brocade® products.
- Brocade provides backline support for issues that cannot be resolved by the OEM/solution provider.
- Brocade Supplemental Support augments your existing OEM support contract, providing direct access to Brocade expertise. For more information, contact Brocade or your OEM.
- For questions regarding service levels and response times, contact your OEM/solution provider.

About This Guide

This guide describes how to install Brocade Vyatta Network OS as a VNF platform.

Installing VNF platform

Overview

The VNF platform installs and runs on most standard devices such as the x86 servers and PCs. You can use VNF platform LiveCD or LiveUSB to install VNF platform onto a variety of persistent devices, including a hard drive, USB memory stick, and compact Flash.

You must create a LiveCD or LiveUSB disk before you being the installation. The installation process uses LiveCD or LiveUSB as the source image, formats the device on which the system is being installed, installs the system, and, if possible, preserves the configuration from previous installations. When the installation is completed, you reboot your system and the newly installed system begins running.

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

About LiveCD and LiveUSB

LiveCD and LiveUSB run on VNF platform on a RAM disk that resides on the host system. The system uses the RAM disk for writeable sections of the file system and uses an external system, such as a TFTP server or USB memory stick, for the storage of configuration files.

LiveCD and LiveUSB can run on a device that has an existing operating system. The previously installed operating system is not disturbed or changed when you use LiveCD or LiveUSB. The configuration is not stored on the system, but you can save it to a persistent device, such as a USB memory stick. In addition, you cannot upgrade an installation from LiveCD or LiveUSB; each upgrade requires a new instance. While you are running the system from LiveCD or LiveUSB, you are not able to access other applications or programs on your system.

LiveCD and LiveUSB is also required to install VNF platform to a persistent device, such as a hard disk. As a method of deployment, running from LiveCD and LiveUSB is best suited for evaluation and test scenarios.

Prerequisites

Before you install the VNF platform, perform the following steps.

- Ensure these hardware requirements:
    - CD ROM drive or a USB drive
    - Quad-core CPU
    - Minimum of 8 GB of storage space
- Download the installation file from the MyBrocade website.
- Create a LiveCD or LiveUSB disk for the software.
- Specify the boot device of the system to boot from LiveCD or LiveUSB.

Data plane memory allocation

Refer to the following section for specifications for each RAM size and the memory allocation.

TABLE 1 Data plane memory allocation

RAM (GB)	Memory allocation to the data plane
8 and 64	1/8
64	8 GB
Greater than 64	8 GB

> NOTE
> The minimum size of RAM that is supported is 8 GB in which 1 GB is allocated for data plane

Guest memory allocation

The VNF platform allocates three-fourths of the total memory to the guests.

Linux and controller memory allocation

RAM that is not allocated to the data plane or guests is shared between Linux and the controller. The following table lists the memory that is allocated to Linux and the controller function based on the size of the RAM.

TABLE 2 Linux and controller memory allocation

RAM (GB)	Memory allocation
8	1GB for the data plane 1 GB for Linux and the controller 6 GB for guests
64	8 GB for the data plane 8 GB for Linux and the controller 48 GB for the guests
128	8 GB for the data plane 24 GB for Linux and the controller 96 GB for the guests

Downloading the files

You must download the software from the MyBrocade website before you can create a LiveCD or LiveUSB disk. To download the installation file, follow the procedure in this section.

To download the installation file, perform the following steps.

1. Go to the MyBrocade website at https://my.brocade.com and sign in.
2. Click the **downloads** tab.
3. From the downloads page, select **Network Functions Virtualization** from the drop-down list of product classifications.
4. Under **Product Name**, click the specific product and the release that you would like to download. The release folder expands to show all subfolders beneath it.
5. From the list of downloadable files, locate the installation file, which is in the ISO format. Click the file to proceed with the download.
6. After you click the file to be downloaded, the Export Compliance screen with an Export Compliance statement is displayed, followed by an End User License Agreement (EULA). You must agree to accept both the statement and EULA to download the file.
7. Save the downloaded file to a location on your local system.

Creating a LiveCD or LiveUSB disk

LiveCD or LiveUSB must be bootable. Refer to your operating system documentation on how to create a bootable LiveCD or LiveUSB disk.

Before creating a bootable LiveCD or LiveUSB disk, download the installation files and perform the following steps:

1. Download the ISO image for the product.
2. Create a bootable ISO image.

Installing VNF platform by using a USB flash drive

You must have USB Flash drive with a VNF platform ISO image and the USB flash drive plugged in to your laptop.

To install VNF platform by using a USB flash drive, perform the following steps.

1. Download the universal USB installer (UUI) application, from the internet.
2. Run the universal USB installer application.

   A UUI dialog box is displayed.
3. Under **Select a Linux Distribution from the drop-down to put on your USB** select **Try Unlisted Linux iso**.
4. Under **Select your *iso** browsing to the location on your local drive and select `vCPE.iso`. For more information on downloading the VNF platform image, refer to Downloading the files on page 13.
5. Under **Select your USB Flash drive Letter Only**, select your flash drive on your laptop from the drop-down list. For example: e:\UUI 14GB
6. Click create.

A bootable VNF platform5545 ISO image is created on your USB flash drive.

Specifying the boot device in the system BIOS

Use LiveCD and LiveUSB to install the software. Before doing so, specify the boot device to boot from a CD, DVD, or USB drive.

To specify the boot device, perform the following steps:

1. During the boot sequence, press the appropriate key (for example, <F2>) to interrupt the boot sequence and enter the BIOS setup program for your system.
2. In the boot sequence menu, arrange the boot devices such that the device name for the CD, DVD, or USB drive is first in the list, which allows the system to boot from a CD, DVD, or USB drive, if one is present.
3. Save the settings and reboot the system. When the system restarts, it boots from the LiveCD or LiveUSB disk.

After the system has booted, you can check that you can access it from your network.

Installing VNF platform by using a USB flash drive

You must have USB Flash drive with a VNF platform ISO image and the USB flash drive plugged in to your laptop.

To install VNF platform by using a USB flash drive, perform the following steps.

1. Download the universal USB installer (UUI) application, from the internet.
2. Run the universal USB installer application.

    A UUI dialog box is displayed.
3. Under **Select a Linux Distribution from the drop-down to put on your USB** select **Try Unlisted Linux iso**.
4. Under **Select your *iso** browsing to the location on your local drive and select `vCPE.iso`. For more information on downloading the VNF platform image, refer to .
5. Under **Select your USB Flash drive Letter Only**, select your flash drive on your laptop from the drop-down list. For example: e: \UUI 14GB
6. Click create.

A bootable VNF platform5545 ISO image is created on your USB flash drive.

Installing the software

You can install the software after you download the ISO file and create a LiveCD or LiveUSB disk.

To install the software, perform the following steps.

1. Create and run LiveCD or LiveUSB.
2. Log in using a username of `vyatta` and a password of `vyatta`.
3. Enter a username for the administrator account.

    > **NOTE**
    > If you do not enter a username for the administrator account, the device uses the default username, `vyatta`.
4. Enter a password for the new username that you provided for the administrator.
5. When the installation is completed, remove the LiveCD or LiveUSB disk.
6. Set the BIOS to boot from the device on which the system is now installed.
7. Reboot the system.

8. Test the installation.

Installation session example

The following example shows how to install VNF platform by using the **install image** command. The name of the image in the example is 4.x.

```
vyatta@vyatta:~$ install image

Welcome to the Brocade vRouter image installer.
What would you like to name this image? [4.x]:
This image will be named: 4.x
The vRouter system requires a minimum 1000MB disk space
on a partiton type 83 (Linux).
Probing drives:  OK

The following drives were detected on your system:
 sda      8589MB


Install the image on? [sda]:

A legacy partition table (msdos) supports drives up to 2 TB
GPT partition format supports larger drives and partitions
Disk label type (msdos/gpt) [msdos]:
Would you like me to try to partition a drive automatically
or would you rather partition it manually with parted?

If partitions are already set up, you may skip this step.
Partition (Auto/Parted/Skip) [Auto]:

Welcome to the Automated Partition Installer!
The default set up for using multiple partitions is to reserve just enough
disk space for the vRouter and use the rest for data storage. The first partition
entry always gets treated as the root partition for vRouter. In this case,
your partitions would look like this:


Partition 1: vRouter 4096MB on /
Partition 2: LIBVIRT 4493MB on /var/lib/libvirt/images


Continue (Yes/No/Adjust/Insert/Delete/Print) [Yes]:
Using msdos label
combined_part_size[8589] size[8589]
Creating a new disklabel on sda
parted /dev/sda mklabel msdos
Creating root partition on /dev/sda sect 1024KiB:4096MB
Creating filesystem on /dev/sda1:  OK
Creating extra partition 1 from 4097MB:8590MB with FS label: LIBVIRT
Creating filesystem on /dev/sda2:  OK
Marking /dev/sda partition 1 as bootable

Done!
Mounting /dev/sda1...
I need to install the GRUB boot loader.
I found the following drives on your system:
 sda      8589MB


Which drive should GRUB modify the boot partition on? [sda]:

Setting up grub on /dev/sda: OK
Copying squashfs image...
Copying kernel and initrd images...
I found the following configuration files:
    /config/config.boot
```

```
        /opt/vyatta/etc/config.boot.default
Which one should I copy? [/config/config.boot]:

Copying /config/config.boot...

Enter username for administrator account [vyatta]:

Enter password for administrator account
Enter password for user 'vyatta':
Retype password for user 'vyatta':
Done.
```

Testing your installation

After the system has successfully booted, you see the **login:** prompt. This prompt indicates that the system is operational.

Perform the following procedures to test your installation:

- Verify the release and system type
- Verify connectivity

Verifying the release and system type

You must confirm that the correct release version is running on the system.

To verify the release and system type, perform the following steps.

1. Log in with the username and password that you provided during installation. During installation, if you did not select the default user of vyatta, use the new username and password you created during the installation. Use the default password of vyatta unless you have changed it.

2. Enter the **show version** command.

   - The **Version:** line displays the version number of the system that is running. Ensure that the displayed result is the version you require.

   - The **System type:** line displays the type of hardware on which the system is running and whether it is in a virtual environment. Ensure that the displayed result is the version you require.

   - The **Boot via:** line displays the type of system that is running.

Verifying connectivity

After you confirm that the correct version is running, you must confirm that the system can be accessed on the local network. Configure an Ethernet interface on the system and ping the interface from another host on the network.

> **NOTE**
> In the system, a data plane interface is an abstraction that represents the underlying physical or virtual Ethernet interface of the system. The terms Ethernet interface and data plane interface are synonymous in this guide.

To test the system connectivity, perform the following steps:

1. At the command prompt, enter the commands that are shown in the example, substituting an IP address from your existing subnet. The example uses the following network and IP address.

   • 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 shown in the following example.

   ```
   vyatta@vyatta:~$ configure
   vyatta@vyatta# set interfaces dataplane dp0sN address 192.168.1.81/24
   vyatta@vyatta# commit
   vyatta@vyatta# save
   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 system can be reached, you see replies from it in response to the pings. If so, your system is installed and can be accessed on your network.

Upgrading the System

Release-specific upgrade information

Your system may have special upgrade considerations, depending on your release. For release-specific upgrade information and to ensure that configuration information is correctly preserved, see the release notes for your release.

Upgrade overview

Using the **add system image** command is currently the only supported upgrade method for physical hardware systems.

You must download a new system image from **my.brocade.com**, and then add the image to previous versions of the system that are present by using the **add system image** command. The **add system image** command also allows you to migrate the current configuration to the new image. After the system is rebooted, the new image is running.

Before upgrading

Before upgrading the system, you must perform the following tasks.

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

Upgrading the ISO

The **add system image** command uses an ISO file as the image source. The command 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 is rebooted.

Determine the location of the ISO file and record the name of the file.

To prepare for the upgrade, perform the following steps.

1. Enter the **add system image** command. Use the location and name of the ISO file as arguments in the command, as shown in Example of upgrading the ISO on page 20.
2. Before you reboot the system, confirm that the new image is loaded and ready to run the next time the system is rebooted. (Enter the **show system image** command; see Example of upgrading the ISO on page 20.)
3. Reboot the system by entering the **reboot** command. The system restarts with the new system image.

Example of upgrading the ISO

The following example shows how to use the **add system image** command to upgrade the *xxx*.`iso` system image, where *xxx* is the file name of the ISO image that you have downloaded. The following example uses the 4.xR1 image.

```
vyatta@vyatta:~$ add system image /home/vyatta/xxx.iso
Checking MD5 checksums of files on the ISO image...OK.
Done!
What would you like to name this image? [4.xR1]:
OK.  This image will be named: 4.xR1
Installing "4.xR1" image.
Copying new release files...
Would you like to save the current configuration
directory and config file? (Yes/No) [Yes]:
Copying current configuration...
Would you like to save the SSH host keys from your
current configuration? (Yes/No) [Yes]:
Copying SSH keys...
Setting up grub configuration...
Done.
vyatta@vyatta:~$
```

The following example shows how to display installed images.

```
vyatta@vyatta:~$ show system image
The system currently has the following image(s) installed:
  1: xxx (default boot)
  2: yyy (running version)
```