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Brocade Vyatta Controller

Quick Start Guide

Supporting Brocade Vyatta Controller v1.1.1

BROCADE

Contents

Preface

Document conventions

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

Text formatting conventions

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

Format	Description
bold text	Identifies command names
	Identifies keywords and operands
	Identifies the names of user-manipulated GUI elements
	Identifies text to enter at the GUI
italic text	Identifies emphasis
	Identifies variables and modifiers
	Identifies paths and Internet addresses
	Identifies document titles
`Courier font`	Identifies CLI output
	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.

Convention	Description
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.

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.

Brocade resources

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

You can download additional publications supporting your product at www.brocade.com. Select the Brocade Products tab to locate your product, then click the Brocade product name or image to open the individual product page. The user manuals are available in the resources module at the bottom of the page under the Documentation category.

To get up-to-the-minute information on Brocade products and resources, go to MyBrocade. You can register at no cost to obtain a user ID and password.

Release notes are available on MyBrocade under Product Downloads.

White papers, online demonstrations, and data sheets are available through the Brocade website.

Contacting Brocade Technical Support

As a Brocade customer, you can contact Brocade Technical Support 24x7 online, by telephone, or by e-mail. Brocade OEM customers contact their OEM/Solutions provider.

Brocade customers

For product support information and the latest information on contacting the Technical Assistance Center, go to http://www.brocade.com/services-support/index.html.

If you have purchased Brocade product support directly from Brocade, use one of the following methods to contact the Brocade Technical Assistance Center 24x7.

Online	Telephone	E-mail
Preferred method of contact for non-urgent issues: • My Cases through MyBrocade • Software downloads and licensing tools • Knowledge Base	Required for Sev 1-Critical and Sev 2-High issues: • Continental US: 1-800-752-8061 • Europe, Middle East, Africa, and Asia Pacific: +800-AT FIBREE (+800 28 34 27 33) • For areas unable to access toll free number: +1-408-333-6061 • Toll-free numbers are available in many countries.	support@brocade.com Please include: • Problem summary • Serial number • Installation details • Environment description

Brocade OEM customers

If you have purchased Brocade product support from a Brocade OEM/Solution Provider, contact your OEM/Solution Provider for all of your product support needs.

- 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.

Document feedback

To send feedback and report errors in the documentation you can use the feedback form posted with the document or you can e-mail the documentation team.

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. You can provide feedback in two ways:

- Through the online feedback form in the HTML documents posted on www.brocade.com.
- By sending your feedback to documentation@brocade.com.

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.

About this Document

What is new in this document

This document provides instructions to install, uninstall, and upgrade the Brocade Vyatta Controller, its graphical user interface, extensions, and apps.

The Brocade Vyatta Controller Quick Start Guide is a new document.

Supported platform

The Brocade Vyatta Controller is supported on Ubuntu 14.04.

Installing and uninstalling the Brocade Vyatta Controller and GUI

Brocade Vyatta Controller Overview

The Brocade Vyatta Controller is the first commercial distribution based on the OpenDaylight Helium release.

The features of the controller include:

- Brocade installer
- Brocade GUI
- Multi-vendor support through YANG models and OpenFlow or NETCONF standards
- Third-party extensions supported through a REST API or embedded Java OSGi plugins
- Modular structure provisioned by Apache Karaf

System requirements and prerequisites

This section provides the system requirements and prerequisites for the installation of the Brocade Vyatta Controller.

TABLE 1 System Requirements

Requirement	Minimum	Recommended
RAM	6 GB	16 GB
Network	1 GE	10 GE
CPU	4 Cores	8 Cores
Storage	32 GB	64 GB

Prerequisites for the installation of the Brocade Vyatta Controller and GUI

Ensure that you have the following installed before you install the Brocade Vyatta Controller:

- Ubuntu 14.04
- Oracle Server Java SE JRE 1.7.0_71 or a later version
- Zip
- Unzip
- cURL
- Node.js
- OpenSSH
- Google Chrome

Installing Java and setting the JAVA_HOME environment variable

1. Go to the following web location: http://www.oracle.com/technetwork/java/javase/downloads/server-jre7-downloads-1931105.html
2. Accept the Oracle Binary Code License Agreement for Java SE.
3. Download server-jre-7u71-linux-x64.tar.gz.

   7u71 is Java version 1.7.0_71.
4. Enter the following commands to unzip and decompress the folder:
   ```
   tar zxvf server-jre-7u71-linux-x64.tar.gz
   sudo mv ./jdk1.7.0_71/ /opt
   ```
5. Enter the following command to set JAVA_HOME. The path should end with jre.
   ```
   export JAVA_HOME=<path-to-java>
   ```

   (Example: **export JAVA_HOME=/opt/jdk1.7.0_71/jre**)

To check whether the installation was successful, enter the following command:

```
$JAVA_HOME/bin/java -version
```

Sample output showing the version of Java that was installed:

```
java version "1.7.0_71"

Java(TM) SE Runtime Environment (build 1.7.0_71-b14)

Java HotSpot(TM) 64-Bit Server VM (build 24.71-b01, mixed mode)
```

Installing prerequisites for installation: Zip, Unzip, cURL, Node.js, and OpenSSH

Installing Zip and Unzip

1. Enter the following command to download the package lists from the repositories, and update them:
   ```
   sudo apt-get update
   ```
2. Enter the following command to install zip:
   ```
   sudo apt-get install zip
   ```
3. Enter the following command to install Unzip:
   ```
   sudo apt-get install unzip
   ```

Installing cURL

cURL is the command line tool and library that is used for transferring data with URL syntax.

cURL is required for the Node.js installation.

1. Enter the following command to check whether cURL is already installed on your system:
   ```
   dpkg -l curl
   ```
2. Enter the following command to download the package lists from the repositories, and update them:
   ```
   sudo apt-get update
   ```
3. Enter the following command to install cURL:
   ```
   sudo apt-get install curl
   ```

Installing Node.js

Node.js is a platform that is used to build network applications.

The graphical user interface of the controller requires Node.js.

1. Enter the following command to fetch the scripts that are required to set up Node.js:
   ```
   curl -sL https://deb.nodesource.com/setup | sudo bash -
   ```
2. Enter the following command to install Node.js:
   ```
   sudo apt-get install nodejs
   ```
3. **NOTE**
   Ensure that the version of Node.js is a version later than v0.10.29. If the version displayed is lower than the required version, re-run the commands in Steps 1 and 2.

   Enter the following command to check the version of the Node.js that is installed:
   ```
   node --version
   ```
   Sample output showing the version of Node.js:`v0.10.33.`

Installing OpenSSH

OpenSSH is a free version of the SSH connectivity tools. In an effort to prevent attacks, OpenSSH encrypts all traffic.

1. Enter the following command to download the package lists from the repositories, and update them:
   ```
   sudo apt-get update
   ```
2. Enter the following command to install the OpenSSH server:
   ```
   sudo apt-get install openssh-server
   ```

Installing the Brocade Vyatta Controller and GUI

This section provides steps to install the Brocade Vyatta Controller and its graphical user interface (GUI).

Useful commands for the installation of the controller

Command	What it does
--ignore-prereqs	Skips the checking of the minimum CPU and memory requirements of the system by the installer.
--help	Displays the help for the installer.

1. Follow the instructions provided, and download the following installation directories of the Brocade Vyatta Controller that are available at: http://my.brocade.com
   a) bvc-1.1.0.zip
   b) bvc-dependencies-1.1.0.zip
2. Enter the following command to create the /opt/bvc directory:
   ```
   sudo mkdir /opt/bvc
   ```
3. Enter the following command to change the ownership of the directory:
   ```
   sudo chown $USER /opt/bvc
   ```
4. Enter the following commands to unzip the installation directories:
   ```
   unzip -o bvc-1.1.0.zip -d /opt
   unzip -o bvc-dependencies-1.1.0.zip -d /opt
   ```
   These commands create files in the /opt/bvc/ directory.
5. Enter the following commands to install the controller:
   ```
   cd /opt/bvc
   ./install
   ```
   The controller and the GUI automatically start at the end of the installation.

   The installer displays the URL that invokes the controller GUI. For example: `Server @ http://10.18.160.119:9000/`

Verifying the installation of the Brocade Vyatta Controller

This section provides two methods to verify whether the Brocade Vyatta Controller was correctly installed.

Use either of the following methods to verify an installation of the controller:

- Connect to RESTCONF
- Access the API Doc Explorer application

Connecting to RESTCONF

One way of verifying an installation of the controller is to connect to RESTCONF.

1. After the installation script of the controller is run, open a browser, and go to the following web location: http://<controller-ip>:8181/restconf/modules.
2. Log in with the credentials: admin/admin.
   The target web page displays a list of the YANG modules that are defined in the controller.

Accessing the API Doc Explorer

Another way of verifying an installation of the controller is to access the API Doc Explorer application.

Go to the following web location: http://<controller-ip>:8181/apidoc/explorer/index.html.

The OpenDaylight RestConf API Documentation page displays the following:

- List of APIs supported by the controller
- Mount points for any API that you select

Verifying the installation of the Brocade Vyatta Controller GUI

This section provides steps to verify whether the GUI of the controller was correctly installed.

1. Go to the following web location: http://<controller-ip>:9000/
2. Log in with the credentials: admin/admin.
   The graphical user interface of the controller, with the Topology, Nodes, and YANG UI tabs, is displayed.

Starting and shutting down the Brocade Vyatta Controller and GUI

1. Enter the following command to start the controller and the GUI:
   ```
   /opt/bvc/bin/start
   ```
2. Enter the following command to stop the controller and the GUI:
   ```
   /opt/bvc/bin/stop
   ```

Uninstalling the Brocade Vyatta Controller and GUI

This section provides instructions to uninstall the controller and its graphical user interface (GUI).

1. Enter the following command to stop the controller and the GUI:
   ```
   /opt/bvc/bin/stop
   ```
2. Enter the following command to remove the /opt/bvc directory:
   ```
   sudo rm -rf /opt/bvc/
   ```

Installing Brocade Vyatta Controller apps or extensions

The controller apps and extensions such as Path Explorer are available for downloading.

NOTE
For definitions of the terms app and extension, see the Glossary on page 17.

1. Download the app or extension from the following location: http://my.brocade.com.
2. Enter the command to unzip the extension or app into the installation directory. For example, to unzip Path Explorer, enter the following command.
   ```
   unzip bvc-app-pathexplorer-packaging-<version>.zip -d /opt
   ```

   NOTE
   In the command, /opt contains the bvc directory.
3. Go to the installation directory by entering the following command.
   ```
   cd /opt/bvc
   ```
4. Run the installation script by entering the following command.
   ```
   ./install
   ```
   - If the controller is not running, it is started.
   - The jar files are copied, and the features are installed.
   - If this extension is already installed, the server is stopped, karaf is modified, and the controller is restarted.

Upgrading the Brocade Vyatta Controller

Upgrading the controller platform

Brocade Vyatta Controller Platform is a server and user interface process which contains the base controller functionality. The following upgrade scenario uses 1.1.0 as the previous version and 1.1.1.100-SNAPSHOT as the new version.

1. Download bvc-1.1.1.zip and bvc-dependencies-1.1.1.zip files that are available for downloading at: http://my.brocade.com.
2. Enter the following command to stop the controller.
   ```
   /opt/bvc/bin/stop
   ```
3. Enter the following command to back up the /opt/bvc directory.
   ```
   zip -r  bvc-<date> /opt/bvc
   ```
   In the command,<date> is the current date.
4. Unzip the downloaded bvc files. You can unzip one file at a time. For example:
   ```
   unzip -f bvc-1.1.1.zip -d /opt
   unzip -f bvc-dependencies-1.1.1.zip -d /opt
   ```

NOTE

- Before you run the installation script, you must unzip both the bvc-1.1.1.zip and bvc-dependencies-1.1.1.zip files.
- The **-d /opt** must point to the parent folder, which contains the existing bvc directory. If you follow the instructions in this task, then the value for the folder is -d /opt.
- The -f flag is used to stop warnings about overwriting files.

5. Enter the following command to go to the controller installation directory.
   ```
   cd /opt/bvc
   ```
6. Enter the following command to install the controller.
   ```
   ./install
   ```
   The controller is now running.

NOTE

- When the controller platform is upgraded, it rechecks for system conformance.
- You can upgrade the apps or extensions and the controller platform at the same time. For instructions to upgrade the apps or extensions, see Upgrading an app or extension on page 16.
- The upgrade of clusters will be supported in a future release.
- HTTPS configurations are overwritten if you only upgrade the controller platform. Use the following steps to resolve the issue.

Resolving the overwriting of HTTPS configurations

Upon an upgrade of the controller platform, the server is restarted with HTTP, instead of HTTPS.

Enter the following commands to resolve the overwriting of HTTPS configurations and to enable HTTPS.

a) ./bin/stop
b) ./bin/setup_https off
c) ./bin/setup_https on
d) ./bin/start

Upgrading an app or extension

1. Download the app or extension file from http://my.brocade.com. For example, for Path Explorer, download bvc-app-pathexplorer-packaging-xxx.zip.

NOTE
For definitions of the terms app and extension, see the Glossary on page 17.

2. Enter the following command to stop the controller.
```
/opt/bvc/bin/stop
```
3. Enter the following command to back up the /opt/bvc directory.
```
zip -r  bvc-<date> /opt/bvc
```

NOTE
In the command, <date> is the current date.

4. Enter the command to unzip the downloaded app or extension file. For example: **unzip -f bvc-app-pathexplorer-packaging-xxx.zip -d /opt**.
5. Enter the following command to go to the controller installation directory.
```
cd /opt/bvc
```
6. Enter the following command to install the controller.
```
./install
```

The app or extension and the controller are automatically started.

Glossary

Glossary

Brocade Vyatta Controller Platform	A server-and-user platform process that contains the functionality of the base controller. For example: bvc-1.1.0.zip, bvc-dependencies-1.1.0.zip
Brocade Vyatta Controller app	An app that runs on the Brocade Vyatta Controller Platform and provides additional usage cases, features, or both. For example: bvc-app-pathexplorer-packaging-1.1.0.zip, bvc-app-vyattaems-packaging-1.1.0.zip
Brocade Vyatta Controller extension	An extension that modifies or configures the Brocade Vyatta Controller Platform or app. Typically, an extension is bundled with the Brocade Vyatta Controller Platform, a Brocade Vyatta Controller app, or another Brocade product. For example: bvc-ext-l2switch-noflood-packaging-1.0.0.zip

Appendices

Appendix-A: Changing the Java startup settings

This section provides instructions for changing the settings of the Controller Karaf JAVA: JAVA_HOME, JAVA_MAX_MEM, and JAVA_MAX_PERM_SIZE.

1. Access the /opt/bvc/controller/bin/setenv file.
2. Locate the lines that are similar to the following, and make the required changes:
   a) **export JAVA_HOME=/opt/jdk1.7.0_71/jre**
   b) **export JAVA_MAX_MEM=8128m**
   c) **export JAVA_MAX_PERM_SIZE=512m**
3. Save the file, and exit the editor.
4. Enter the following command to stop the Karaf process:
   `/opt/bvc/bin/stop`
5. Restart the Karaf process, by entering the following command, for the new, Java startup settings to take effect:
   `/opt/bvc/bin/start`

JAVA_MAX_MEM must have the trailing **m** that denotes Megabytes, or a trailing **G** that denotes Gigabytes.

Ensure that the JAVA_MAX_MEM setting does not exceed the available memory, and leaves at least 15 percent memory for other processes. By default, the installation sets this value to 85 percent of the available memory, up to a maximum of 12 Gigabytes. This value is the current limit for a Java process based on the pause times for garbage collection.