

# **BIG-IQ<sup>®</sup> Systems and Linux<sup>®</sup> Community Xen<sup>®</sup>: Setup**

Version 4.5





# Table of Contents

**Legal Notices.....5**

**Acknowledgments.....7**

  

**Chapter 1: Getting Started with BIG-IQ Virtual Edition.....11**

    What is BIG-IQ Virtual Edition?.....12

        About BIG-IQ VE compatibility with Community Xen hypervisor products.....12

        About the hypervisor guest definition requirements.....12

  

**Chapter 2: Deploying BIG-IQ Virtual Edition.....13**

    About VE Community Xen deployment.....14

        Host machine requirements and recommendations.....14

        Deploying the BIG-IQ VE virtual machine.....14



# Legal Notices

---

## Publication Date

This document was published on January 21, 2015.

## Publication Number

MAN-0519-02

## Copyright

Copyright © 2015, F5 Networks, Inc. All rights reserved.

F5 Networks, Inc. (F5) believes the information it furnishes to be accurate and reliable. However, F5 assumes no responsibility for the use of this information, nor any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent, copyright, or other intellectual property right of F5 except as specifically described by applicable user licenses. F5 reserves the right to change specifications at any time without notice.

## Trademarks

AAM, Access Policy Manager, Advanced Client Authentication, Advanced Firewall Manager, Advanced Routing, AFM, Application Acceleration Manager, Application Security Manager, APM, ARX, AskF5, ASM, BIG-IP, BIG-IQ, Cloud Extender, CloudFucious, Cloud Manager, Clustered Multiprocessing, CMP, COHESION, Data Manager, DevCentral, DevCentral [DESIGN], DNS Express, DSC, DSI, Edge Client, Edge Gateway, Edge Portal, ELEVATE, EM, Enterprise Manager, ENGAGE, F5, F5 [DESIGN], F5 Certified [DESIGN], F5 Networks, F5 SalesXchange [DESIGN], F5 Synthesis, f5 Synthesis, F5 Synthesis [DESIGN], F5 TechXchange [DESIGN], Fast Application Proxy, Fast Cache, FirePass, Global Traffic Manager, GTM, GUARDIAN, iApps, IBR, iCall, Intelligent Browser Referencing, Intelligent Compression, IPv6 Gateway, iControl, iHealth, iQuery, iRules, iRules OnDemand, iSession, L7 Rate Shaping, LC, Link Controller, LineRate, LineRate Systems [DESIGN], Local Traffic Manager, LROS, LTM, Message Security Manager, MobileSafe, MSM, OneConnect, Packet Velocity, PEM, Policy Enforcement Manager, Protocol Security Manager, PSM, Real Traffic Policy Builder, SalesXchange, ScaleN, SDAC (except in Japan), SDC, Signalling Delivery Controller, Solutions for an application world, Software Designed Applications Services, SSL Acceleration, StrongBox, SuperVIP, SYN Check, TCP Express, TDR, TechXchange, TMOS, TotALL, Traffic Management Operating System, Traffix (except Germany), Traffix [DESIGN] (except Germany), Transparent Data Reduction, UNITY, VAULT, vCMP, VE F5 [DESIGN], Versafe, Versafe [DESIGN], VIPRION, Virtual Clustered Multiprocessing, WebSafe, and ZoneRunner, are trademarks or service marks of F5 Networks, Inc., in the U.S. and other countries, and may not be used without F5's express written consent.

All other product and company names herein may be trademarks of their respective owners.

## Patents

This product may be protected by one or more patents indicated at:

<http://www.f5.com/about/guidelines-policies/patents>



# Acknowledgments

---

This product includes software developed by Bill Paul.

This product includes software developed by Jonathan Stone.

This product includes software developed by Manuel Bouyer.

This product includes software developed by Paul Richards.

This product includes software developed by the NetBSD Foundation, Inc. and its contributors.

This product includes software developed by the Politecnico di Torino, and its contributors.

This product includes software developed by the Swedish Institute of Computer Science and its contributors.

This product includes software developed by the University of California, Berkeley and its contributors.

This product includes software developed by the Computer Systems Engineering Group at the Lawrence Berkeley Laboratory.

This product includes software developed by Christopher G. Demetriou for the NetBSD Project.

This product includes software developed by Adam Glass.

This product includes software developed by Christian E. Hopps.

This product includes software developed by Dean Huxley.

This product includes software developed by John Kohl.

This product includes software developed by Paul Kranenburg.

This product includes software developed by Terrence R. Lambert.

This product includes software developed by Philip A. Nelson.

This product includes software developed by Herb Peyerl.

This product includes software developed by Jochen Pohl for the NetBSD Project.

This product includes software developed by Chris Provenzano.

This product includes software developed by Theo de Raadt.

This product includes software developed by David Muir Sharnoff.

This product includes software developed by SigmaSoft, Th. Lockert.

This product includes software developed for the NetBSD Project by Jason R. Thorpe.

This product includes software developed by Jason R. Thorpe for And Communications, <http://www.and.com>.

This product includes software developed for the NetBSD Project by Frank Van der Linden.

This product includes software developed for the NetBSD Project by John M. Vinopal.

This product includes software developed by Christos Zoulas.

This product includes software developed by the University of Vermont and State Agricultural College and Garrett A. Wollman.

This product includes software developed by Balazs Scheidler ([bazsi@balabit.hu](mailto:bazsi@balabit.hu)), which is protected under the GNU Public License.

This product includes software developed by Niels Mueller ([nisse@lysator.liu.se](mailto:nisse@lysator.liu.se)), which is protected under the GNU Public License.

## Acknowledgments

In the following statement, "This software" refers to the Mitsumi CD-ROM driver: This software was developed by Holger Veit and Brian Moore for use with 386BSD and similar operating systems. "Similar operating systems" includes mainly non-profit oriented systems for research and education, including but not restricted to NetBSD, FreeBSD, Mach (by CMU).

This product includes software developed by the Apache Group for use in the Apache HTTP server project (<http://www.apache.org/>).

This product includes software licensed from Richard H. Porter under the GNU Library General Public License (© 1998, Red Hat Software), [www.gnu.org/copyleft/lgpl.html](http://www.gnu.org/copyleft/lgpl.html).

This product includes the standard version of Perl software licensed under the Perl Artistic License (© 1997, 1998 Tom Christiansen and Nathan Torkington). All rights reserved. You may find the most current standard version of Perl at <http://www.perl.com>.

This product includes software developed by Jared Minch.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

This product contains software based on oprofile, which is protected under the GNU Public License.

This product includes RRDtool software developed by Tobi Oetiker (<http://www.rrdtool.com/index.html>) and licensed under the GNU General Public License.

This product contains software licensed from Dr. Brian Gladman under the GNU General Public License (GPL).

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

This product includes Hypersonic SQL.

This product contains software developed by the Regents of the University of California, Sun Microsystems, Inc., Scriptics Corporation, and others.

This product includes software developed by the Internet Software Consortium.

This product includes software developed by Nominum, Inc. (<http://www.nominum.com>).

This product contains software developed by Broadcom Corporation, which is protected under the GNU Public License.

This product contains software developed by MaxMind LLC, and is protected under the GNU Lesser General Public License, as published by the Free Software Foundation.

This product includes Intel QuickAssist kernel module, library, and headers software licensed under the GNU General Public License (GPL).

This product includes software licensed from Gerald Combs ([gerald@wireshark.org](mailto:gerald@wireshark.org)) under the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or any later version. Copyright ©1998 Gerald Combs.

This product includes software developed by Thomas Williams and Colin Kelley. Copyright ©1986 - 1993, 1998, 2004, 2007

Permission to use, copy, and distribute this software and its documentation for any purpose with or without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Permission to modify the software is granted, but not the right to distribute the complete modified source code. Modifications are to be distributed as patches to the released version. Permission to distribute binaries produced by compiling modified sources is granted, provided you

1. distribute the corresponding source modifications from the released version in the form of a patch file along with the binaries,



2. add special version identification to distinguish your version in addition to the base release version number,
3. provide your name and address as the primary contact for the support of your modified version, and
4. retain our contact information in regard to use of the base software.

Permission to distribute the released version of the source code along with corresponding source modifications in the form of a patch file is granted with same provisions 2 through 4 for binary distributions. This software is provided "as is" without express or implied warranty to the extent permitted by applicable law.

This product contains software developed by Google, Inc. Copyright ©2011 Google, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

This product includes software developed by Jeremy Ashkenas and DocumentCloud, and distributed under the MIT license. Copyright © 2010-2013 Jeremy Ashkenas, DocumentCloud.

This product includes gson software, distributed under the Apache License version 2.0. Copyright © 2008-2011 Google Inc.

This product includes jxrlib software, copyright ©2009 Microsoft Corp. All rights reserved. Distributed under the new BSD license.

This product includes node-uuid software, copyright © 2010-2012, Robert Kieffer, and distributed under the MIT license.

This product includes opencsv software, which is distributed under the Apache 2.0 license.

This product includes owasp-jave-encoder software, copyright © 2014, Jeff Ichnowski, and distributed under the New BSD license.



---

# Chapter 1

---

## Getting Started with BIG-IQ Virtual Edition

---

- *What is BIG-IQ Virtual Edition?*
-

## What is BIG-IQ Virtual Edition?

---

BIG-IQ<sup>®</sup> Virtual Edition (VE) is a version of the BIG-IQ system that runs as a in specifically-supported hypervisors. BIG-IQ VE emulates a hardware-based BIG-IQ system running a VE-compatible version of BIG-IQ<sup>®</sup> software.

---

**Note:** *The BIG-IQ VE product license determines the maximum allowed throughput rate. To view this rate limit, you can display the BIG-IQ VE licensing page within the BIG-IQ Configuration utility. Lab editions have no guarantee of throughput rate and are not supported for production environments.*

---

## About BIG-IQ VE compatibility with Community Xen hypervisor products

Each time there is a new release of BIG-IQ<sup>®</sup> Virtual Edition (VE) software, it includes support for additional hypervisor management products. The Virtual Edition and Supported Hypervisors Matrix on the AskF5<sup>™</sup> website, <http://support.f5.com>, details which hypervisors are supported for each release.

---

**Important:** *Hypervisors other than those identified in this guide are not supported with this BIG-IQ version; any installation attempts on unsupported platforms might not be successful.*

---

## About the hypervisor guest definition requirements

The Community Xen virtual machine guest environment for the BIG-IQ<sup>®</sup> Virtual Edition (VE), at minimum, must include:

- 2 x virtual CPUs
- 4 GB RAM
- 3 x virtual network adapters

---

**Important:** *Not supplying at least the minimum virtual configuration limits will produce unexpected results.*

---

---

## Chapter

# 2

---

## Deploying BIG-IQ Virtual Edition

---

- *About VE Community Xen deployment*
-

## About VE Community Xen deployment

---

To deploy the BIG-IQ® Virtual Edition (VE) system on Community Xen, you perform these tasks:

- Verify the host machine requirements.
- Deploy a BIG-IQ® system as a virtual machine.
- Deploy a BIG-IP® system.
- After you have deployed the virtual machines, log in to the BIG-IQ VE system and run the Setup utility. Using the Setup utility, you perform basic network configuration tasks, such as assigning VLANs to interfaces.
- Configure secure communication between the BIG-IQ system and the BIG-IP device.

### Host machine requirements and recommendations

To successfully deploy and run the BIG-IQ® VE system, the host system must satisfy minimum requirements.

The host system must include these elements:

- CentOS, Debian, Fedora, RHEL, or Ubuntu with the Community Xen package. The *Virtual Edition and Supported Hypervisors Matrix*, published on the AskF5™ web site, <http://support.f5.com> identifies the Linux versions that are supported.

### Deploying the BIG-IQ VE virtual machine

The primary task in deploying BIG-IQ® VE on the open source Community Xen environment is creating and executing a configuration file that sets up most of what you need to get up and running.

---

**Important:** Do not modify the configuration of the Community Xen guest environment with settings less powerful than the ones recommended in this document. This includes the settings for the CPU, RAM, and network adapters. Doing so might produce unexpected results.

---

1. In a browser, open the F5 Downloads page (<https://downloads.f5.com>).
2. Download the BIG-IQ BIG-IQ v4.x/Virtual Edition file package.

There are two options to choose from.

Option	Description
<b>Large: the file name ends in</b> <b>.LARGE - qcow2.zip</b>	The large option creates a 500GB disk footprint at installation. This choice supports larger log files required for data analytics.
<b>Normal: the file name ends in</b> <b>.qcow2.zip</b>	The standard option creates a 55GB disk footprint at installation. This choice should be the normal working BIG-IQ installation unless data analytics functionality is required.

3. Extract the file from the Zip archive and save it where your qcow2 files reside on the Community Xen server.
4. Use VNC to access the Community Xen server, and then convert the qcow2 image to the raw format necessary for Community Xen. You can use the following syntax to convert the image.  
# qemu-img convert <qcow\_file\_name>.qcow2 <raw\_file\_name>.raw
5. Generate a MAC address for the network interface card associated with the management interface.

---

**Important:** Be sure that the MAC address you create starts with the prefix `00:16:3e:`.

---

To create this address, you can use a tool such as MAC Address Generator (<http://www.miniwebtool.com/mac-address-generator/>).

6. Use an editor to create a BIG-IQ VM definition file that specifies the required parameters for your VM.  
# vi /etc/xen/<config\_file\_name>

---

**Important:** The sample configuration file provided here serves only as an example of the kinds of parameters you need to specify for your virtual machine. The actual file that you create will likely contain different parameters and settings.

---

```
name = <config_file_name>
maxmem = 4096
memory = 4096
vcpus = 2
builder = "hvm"
boot = "c"
pae = 1
acpi = 1
apic = 1
hpet = 1
localtime = 0
on_poweroff = "destroy"
on_reboot = "restart"
on_crash = "restart"
sdl = 0
vnc = 1
vncunused = 1
keymap = "en-us"
disk = [ "file:/mnt/xen-bender/bigip/<raw_file_name.raw>,hda,w" ]
vif = [ "mac=00:16:<mgmt_interface_mac>,bridge=mgmtbr,script=vif-bridge",
"mac=00:16:3e:<external_interface_mac>,bridge=ext_bridge,script=vif-bridge",
"mac=00:16:3e:<internal_interface_mac>,bridge=int_bridge,script=vif-bridge", ]
parallel = "none"
serial = "pty"
#pci = [ '05:10.0', '05:10.1' ]
```

---

**Important:** The last line of the example configuration file contains an optional entry that specifies the IDs for PCI external and internal network interface cards (NIC). This optional entry is required for SR-IOV support. Naturally, if you use this entry, you omit the external and internal bridges specified in the `vif` section.

---

Once you have perfected and saved your configuration file, you are ready to create the BIG-IQ VM,

7. Run the configuration file using an open source tool such as `xm`.  
xm create /etc/xen/<config\_file\_name>  
The console should indicate a successful start up by displaying something similar to this: Started domain <config\_file\_name>(id=444).
8. Allow some time for the boot-up process; then, you should be able to connect to the BIG-IQ console.  
# xm console <config\_file\_name>

## Powering on the virtual machine

You must power on the virtual machine before you can begin assigning IP addresses.

## Assigning a management IP address to a virtual machine

The virtual machine needs an IP address assigned to its virtual management port.

---

**Tip:** *The default configuration for new deployments and installations is for DHCP to acquire the management port IP address.*

---

1. At the password prompt, type `default`.
2. Type `config` and press Enter.  
The F5 Management Port Setup screen opens.
3. Click **OK**.
4. If you want DHCP to automatically assign an address for the management port, select **Yes**. Otherwise, select **No** and follow the instructions for manually assigning an IP address and netmask for the management port.

---

**Tip:** *F5 Networks® highly recommends that you specify a default route for the virtual management port, but it is not required for operation of the virtual machine.*

---



# Index

## C

Community Xen virtual machine  
creating [14](#)

### CPU

and guest definition [12](#)  
and host machine requirements [14](#)

## D

default route for virtual management port [16](#)  
deployment overview [14](#)

## E

environment, for guest [12](#)

## G

guest environment [12](#)

## H

host machine, CPU requirements [14](#)  
hypervisor, See guest environment.  
hypervisor guest definition [12](#)

## I

IP address, management port [16](#)

## L

log in  
assigning management IP address [16](#)  
deploying BIG-IQ VE virtual machine [14](#)

## M

management port IP address, assigning [16](#)  
maximum allowed throughput rate [12](#)

## N

Network Adapter  
adding [14](#)

## P

power-on procedure, virtual machine [15](#)  
product license [12](#)

## R

redundant system configuration  
and host machine requirements [14](#)  
and NTP requirement [14](#)

## S

Setup utility [14](#)

## T

task list  
for deploying on virtual machine [14](#)

## V

VHD file [14](#)  
virtual configuration, and hypervisor guest definition [12](#)  
virtual machine  
deploying Community Xen [14](#)  
virtual machine, powering-on [15](#)  
virtual machine settings [12](#)  
virtual management port [16](#)

