



Cisco Nexus 1000V for VMware vSphere Dynamic Fabric Automation Configuration Guide, Release 5.x

First Published: January 29, 2014

Last Modified: June 23, 2016

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <http://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

© 2013-2016 Cisco Systems, Inc. All rights reserved.



CONTENTS

CHAPTER 1

New and Changed Information 1

New and Changed Information for Dynamic Fabric Automation Configuration 1

CHAPTER 2

Overview 3

Information About Cisco Dynamic Fabric Automation 3

Cisco Nexus 1000V Switches in a DFA Network 3

CHAPTER 3

Configuring DFA Features 5

Prerequisites 5

Guidelines and Limitations 5

Enabling Cisco Dynamic Fabric Automation 6

Adding an Anycast Gateway MAC Address 6

Adding the Forwarding Mode 7

Verifying the DFA Configuration 7

Feature History for DFA 8



CHAPTER

1

New and Changed Information

This chapter contains the following sections:

- [New and Changed Information for Dynamic Fabric Automation Configuration, page 1](#)

New and Changed Information for Dynamic Fabric Automation Configuration

This section lists new and changed content in this document by software release.

Table 1: New and Changed Features

Feature	Description	Changed in Release
Dynamic Fabric Automation	No change.	5.2(1)SV3(1.1)
Dynamic Fabric Automation	Automates device and fabric configuration, eases virtual machine (VM) deployment and migration, and integrates baremetal and virtualized resources without using a dedicated gateway.	4.2(1)SV2(2.2)



Overview

This chapter contains the following sections:

- [Information About Cisco Dynamic Fabric Automation, page 3](#)
- [Cisco Nexus 1000V Switches in a DFA Network, page 3](#)

Information About Cisco Dynamic Fabric Automation

Cisco Dynamic Fabric Automation (DFA) simplifies a cloud deployment through automated provisioning and centralized management. Cisco DFA automates device and fabric configuration, eases virtual machine (VM) deployment and migration, and integrates baremetal and virtualized resources without using a dedicated gateway.

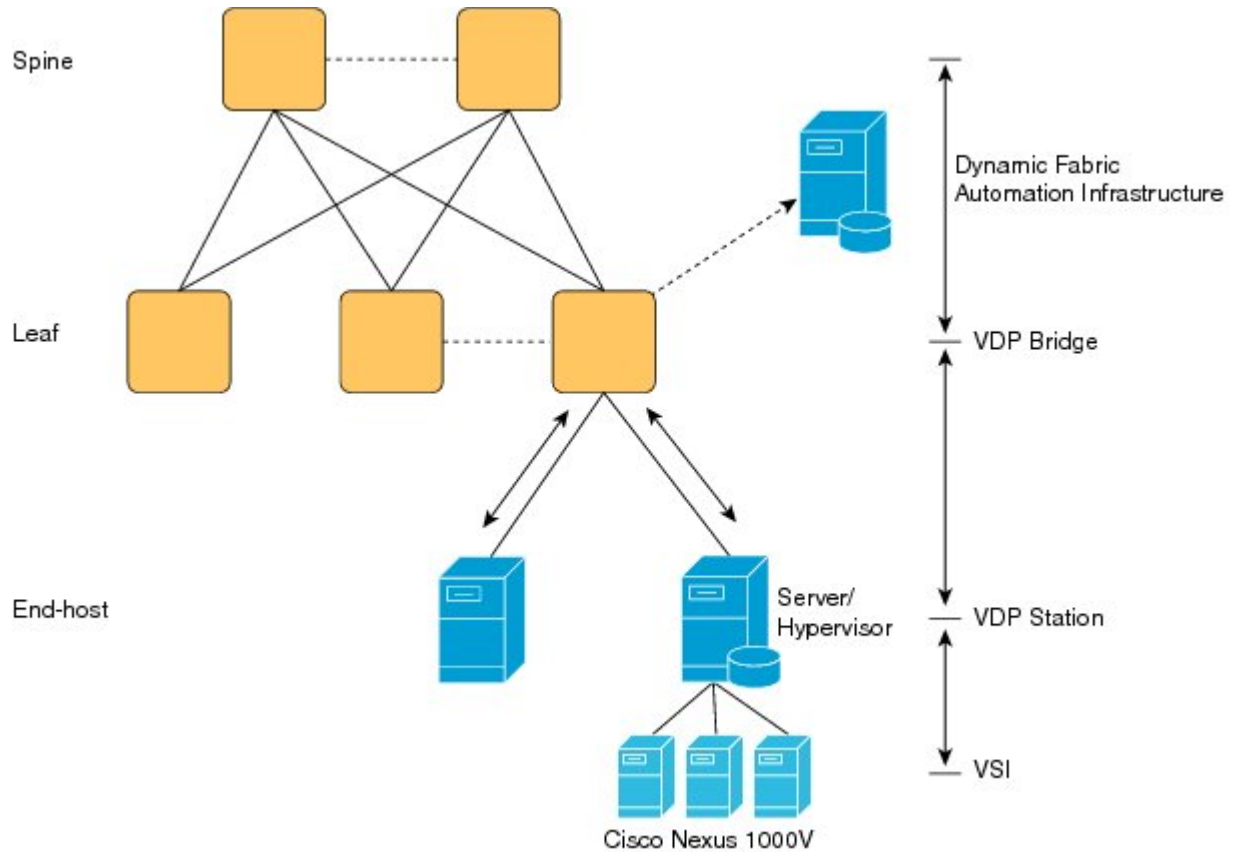
For more information about Cisco DFA, see <http://www.cisco.com/c/en/us/products/cloud-systems-management/dynamic-fabric-automation/index.html>.

Cisco Nexus 1000V Switches in a DFA Network

The Cisco Nexus 1000V acts as a leaf extension in the Cisco DFA network. The Cisco Nexus 1000V is configured as an end station in the DFA network and uses VSI Discovery and Configuration Protocol (VDP)-based communication to notify the DFA leaf of a VM instantiation or a VM mobility event.

The components of Cisco DFA are shown in the following figure.

Figure 1: Components of Cisco DFA



The components of the Cisco DFA architecture are as follows:

- **Leaf switch**—A DFA leaf node operates as the bridge for the VDP exchange that handles requests from end hosts. The leaf node also communicates with the configuration profile databases to retrieve and apply the previously defined port profiles to each attached end host.
- **End station**—An end station in Cisco DFA can be VDP capable or incapable. A VDP-capable end station operates as the primary station for the VDP exchange and registers or deregisters its resident VMs to the attached leaf switch. A VDP-incapable end station is a normal server node that does not participate in the VDP message exchange.
- **Profile database**—This database is a standalone server or a local configuration storage in the leaf switch that maps each end host to its predefined port profile. This profile can be VLAN, ACL, or QoS.



Configuring DFA Features

This chapter contains the following topics:

- [Prerequisites, page 5](#)
- [Guidelines and Limitations, page 5](#)
- [Enabling Cisco Dynamic Fabric Automation, page 6](#)
- [Adding an Anycast Gateway MAC Address, page 6](#)
- [Adding the Forwarding Mode, page 7](#)
- [Verifying the DFA Configuration, page 7](#)
- [Feature History for DFA, page 8](#)

Prerequisites

Configuring Cisco DFA for the Cisco Nexus 1000V has the following prerequisites:

- You have installed and configured the Cisco Nexus 1000V for VMware vSphere software using the *Cisco Nexus 1000V Installation and Upgrade Guide*.
- Ensure that the Virtual Supervisor Module (VSM) has an active SVS connection.
- Ensure that the VSM and Virtual Ethernet Module (VEM) connectivity is functioning.
- You have added hosts to the Cisco Nexus 1000V.
- You have enabled the segmentation feature on the Cisco Nexus 1000V.

For more information on how to install and configure the Cisco Nexus 1000V, see the related documentation available at http://www.cisco.com/en/US/partner/products/ps9902/tsd_products_support_series_home.html

Guidelines and Limitations

For detailed guidelines and limitations for Cisco DFA, see the *Cisco Dynamic Fabric Automation Solutions Guide*.

Enabling Cisco Dynamic Fabric Automation

You can enable Cisco DFA on the Cisco Nexus 1000V by configuring the fabric forwarding feature. This global configuration enables the DFA-specific enhancements.

Before You Begin

Log in to the CLI in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	switch # configure terminal	Enters global configuration mode.
Step 2	switch (config) # feature fabric forwarding	Enables the DFA features on the Cisco Nexus 1000V.
Step 3	switch # show running-config fabric forwarding	(Optional) Displays the running configuration for enabling the fabric forwarding feature.
Step 4	switch (config-feature fabric) # copy running-config startup-config	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Adding an Anycast Gateway MAC Address

You can add the Anycast Gateway MAC address to the global configuration on the Cisco Nexus 1000V.

Before You Begin

- You must enable the fabric forwarding feature.
- Log in to the CLI in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	switch # configure terminal	Enters global configuration mode.
Step 2	switch (config) # fabric forwarding anycast-gateway-mac <mac-address>	Adds the Anycast Gateway MAC address to the Cisco DFA global configuration on the Cisco Nexus 1000V. Note For information about the REST API for this command, see the <i>Cisco Nexus 1000V REST API Plug-In Configuration Guide</i> .
Step 3	switch # show fabric forwarding	(Optional) Displays the fabric forwarding details for the Anycast Gateway MAC address.

	Command or Action	Purpose
Step 4	switch(config)# copy running-config startup-config	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Adding the Forwarding Mode

You can add the forwarding mode to the segmentation configuration.

Before You Begin

- You must configure the fabric forwarding feature.
- You must log in to the CLI in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	switch # configure terminal	Enters global configuration mode.
Step 2	switch (config)# bridge-domain name-string	Creates a bridge domain and associates an identifying name to it.
Step 3	switch (config-bd)# fabric forwarding mode <anycast-gateway> <proxy-gateway>	Adds the forwarding mode to the Cisco Nexus 1000V segmentation configuration. Note For information about the REST API for this command, see the <i>Cisco Nexus 1000V REST API Plug-In Configuration Guide</i> .
Step 4	switch # show fabric forwarding	(Optional) Displays the fabric forwarding configuration on the Cisco Nexus 1000V.
Step 5	switch(config)# copy running-config startup-config	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Verifying the DFA Configuration

To display the DFA configuration information, use the following commands:

Command	Purpose
show running-config fabric forwarding	Shows the running configuration for the fabric forwarding feature on the Cisco Nexus 1000V.

Command	Purpose
show fabric forwarding	Displays the fabric forwarding information for an Anycast gateway or a proxy gateway MAC.

show running-config fabric forwarding

This example shows how to display the fabric forwarding feature configuration.

```
switch# show running-config fabric forwarding
version 4.2(1)SV2(2.2)
feature fabric forwarding
fabric forwarding anycast-gateway-mac 0000.1111.2222
```

show fabric forwarding

This example shows how to display the fabric forwarding details.

```
switch # show fabric forwarding
version 4.2(1)SV2(2.2)
Gateway mac-address: 0000.1111.2222
```

Feature History for DFA

Feature	Release	Feature information
Dynamic Fabric Automation	4.2(1)SV2(2.2)	This feature was introduced.