



Cisco Programmable Fabric with VXLAN BGP EVPN Licensing Guide

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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

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Preface

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Audience

This publication is for experienced network administrators who configure and maintain Cisco Programmable Fabric.

Document Conventions

Command descriptions use the following conventions:



Note

As part of our constant endeavor to remodel our documents to meet our customers' requirements, we have modified the manner in which we document configuration tasks. As a result of this, you may find a deviation in the style used to describe these tasks, with the newly included sections of the document following the new format.

Convention	Description
bold	Bold text indicates the commands and keywords that you enter literally as shown.
<i>Italic</i>	Italic text indicates arguments for which the user supplies the values.
[x]	Square brackets enclose an optional element (keyword or argument).

Convention	Description
[x y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.
[x {y z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
<i>variable</i>	Indicates a variable for which you supply values, in context where italics cannot be used.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Examples use the following conventions:

Convention	Description
<code>screen font</code>	Terminal sessions and information the switch displays are in screen font.
<code>boldface screen font</code>	Information you must enter is in boldface screen font.
<i><code>italic screen font</code></i>	Arguments for which you supply values are in italic screen font.
<>	Nonprinting characters, such as passwords, are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Related Documentation for Cisco Programmable Fabric

Software Downloads, Release, and General Information

Cisco Programmable Fabric Release Notes:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/pf/release_notes/programmable_fabric_rel_notes.html

Cisco DCNM Release Notes, Release 10:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/sw/10_0_x/release_notes/b_dcnm_release_notes_10_0.html

Install and Upgrade Guides

Cisco DCNM 10 Installation Guide:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/sw/10_0_x/installation/DCNM_Installation_Guide_10_0_x.html

Configuration Guides

Cisco Programmable Fabric Configuration Guide:

<http://www.cisco.com/c/en/us/td/docs/switches/datacenter/pf/configuration/guide/b-pf-configuration.html>

Cisco DCNM 10 Fundamentals Guide:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/sw/10_0_x/fundamentals/DCNM_Fundamentals_10.html

Cisco Nexus 1000V VDP Configuration Guide, Release 5.x:

<http://www.cisco.com/c/en/us/support/switches/nexus-1000v-switch-vmware-vsphere/products-installation-and-configuration-guides-list.html>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.



CHAPTER

1

Licensing Requirements for Cisco Programmable Fabric

Following are the licensing requirements for Cisco Programmable Fabric with virtual extensible LAN (VXLAN) Border Gateway Protocol Ethernet VPN (BGP EVPN). Review the hardware and software components of your existing fabric with respect to the Cisco Programmable Fabric release requirements and compatibility constraints. Because Cisco Programmable Fabric implements an architectural solution with a switch topology, devices might be required to perform different roles when used in a Cisco Programmable Fabric implementation, and might be subject to new licensing requirements.

Product	License Requirement
Cisco Nexus 5600 Switches	<ul style="list-style-type: none"> • For a Cisco Nexus 5600 Switch as a Cisco Programmable Fabric spine, leaf, or border leaf, the Layer-3 Base Services Package (LAN_BASE_SERVICES_PKG) is required. • For a Cisco Nexus 5600 Switch as a Cisco Programmable Fabric spine, leaf, or border leaf, the Enterprise Services Package (LAN_ENTERPRISE_SERVICES_PKG) is required. <p>For the Cisco NX-OS licensing scheme and how to obtain and apply licenses, see the Cisco NX-OS Licensing Guide.</p>
Cisco Nexus 7000 Series Switches and Cisco Nexus 7700 Switches ¹	<ul style="list-style-type: none"> • For a Cisco Nexus 7000 Series Switch and Cisco Nexus 7700 Switch as a Cisco Programmable Fabric spine, leaf, border leaf, or border PE switch, the LAN Enterprise Services Package (LAN_ENTERPRISE_SERVICES_PKG) is required. • For a Cisco Nexus 7000 Series Switch and Cisco Nexus 7700 Switch as a border PE, the Multiprotocol Label Switching (MPLS) Service Package (MPLS_PKG) is required. The border PE combines an MPLS PE and border leaf functionalities in a single box. <p>For the Cisco NX-OS licensing scheme and how to obtain and apply licenses, see the Cisco NX-OS Licensing Guide.</p>

Product	License Requirement
Cisco Nexus 9000 Series switches	<ul style="list-style-type: none"> For a Cisco Nexus 9000 Series switch as a Cisco Programmable Fabric spine, leaf, or border leaf, the LAN Enterprise Services Package (LAN_ENTERPRISE_SERVICES_PKG) is required. <p>For the Cisco NX-OS licensing scheme and how to obtain and apply licenses, see the Cisco NX-OS Licensing Guide.</p>
Cisco Data Center Network Manager (DCNM)	<p>Note The switch feature licenses must be installed before you install the Cisco DCNM license.</p> <p>Cisco DCNM includes a base functionality for Cisco Programmable Fabric management, LAN management, and limited SAN or Storage management. You do not have to install an Advanced feature license for the base functionality. The Advanced functionality, including performance monitoring, configuration archive, and extended SAN management, requires an Advanced feature license for LAN or SAN for each managed switch.</p> <p>For example, if you require the Advanced LAN functionality, and have to manage a Cisco Nexus 5600 Switch, then you should order one process ID (PID) DCNM-LAN-N5K-K9 when you order the PID with the switch or DCNM-LAN-N5K-K9= when you order it as a spare PID.</p> <p>All LAN operations use this type of Cisco DCNM Server-based license. If you need LAN and SAN functionalities for Cisco Nexus 7000 Series Switches and Cisco Nexus 7700 Switches, order the combination LAN and SAN ('LS') license [for example: DCNM-LS-N77-K9=]. The SAN and Storage functionalities are also available as switch based licenses, where the license is installed on the switch the same way a feature license is installed.</p>

¹ The Cisco Nexus 7000 Series Switches and Cisco Nexus 7700 Switches as a Cisco Programmable Fabric leaf, border leaf, or border PE requires the F3 line card .