Cisco Nexus Data Broker Embedded Deployment Guide, Release 2.0

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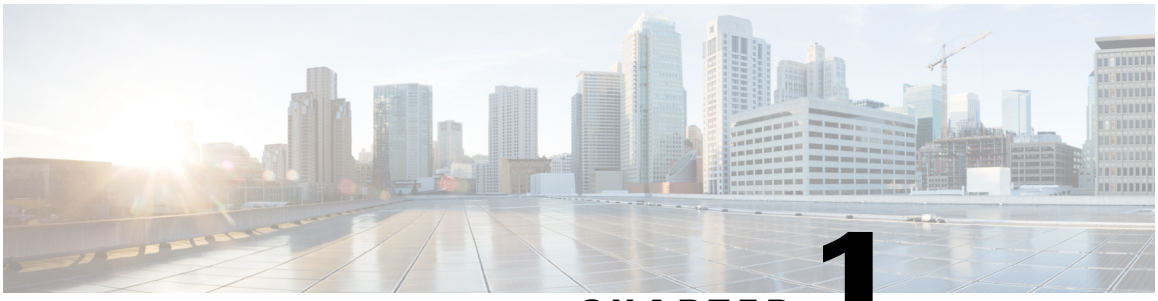


CHAPTER 1

Cisco Nexus Data Broker Embedded Overview

This chapter contains the following sections:

- About Cisco Nexus Data Broker Embedded, page 1
- Supported Web Browsers, page 2
- Prerequisites for Cisco Nexus 3000, 3100, and 3500 Series Switches, page 2

About Cisco Nexus Data Broker Embedded

Visibility into application traffic has traditionally been important for infrastructure operations to maintain security, troubleshooting, and compliance mechanisms, and to perform resource planning. With the technological advances and growth in cloud-based applications, it has become imperative to gain increased visibility into the network traffic. Traditional approaches to gain visibility into network traffic are expensive and rigid, making it difficult to do in large-scale deployments.

Cisco Nexus Data Broker Embedded with Cisco Nexus Switches provides a software-defined, programmable solution to aggregate copies of network traffic using Switched Port Analyzer (SPAN) or network Test Access Points (TAP) for monitoring and visibility. As opposed to traditional network taps and monitoring solutions, this packet-brokering approach offers a simple, scalable and cost-effective solution that is well suited for customers who need to monitor higher-volume and business-critical traffic for efficient use of security, compliance, and application performance monitoring tools.

The Cisco Nexus Data Broker Embedded option provides the flexibility for you to run the Cisco Nexus Data Broker software directly on a Cisco Nexus 3000, 3100, or 3500 Series switch in a single-switch deployment. This is suitable for smaller, co-located facilities where customers need only a single Cisco Nexus 3000, 3100, or 3500 Series switch for TAP/SPAN aggregation, because it eliminates the requirement to have a separate virtual machine for the Cisco Nexus Data Broker application.

The Cisco Nexus Data Broker Embedded solution supports the following:

- The ability to aggregate traffic from multiple TAP or SPAN ports connected to a single switch.
- Support for Q-in-Q to tag input source TAP and SPAN ports.
- Symmetric hashing or symmetric load balancing.
- Rules for matching monitoring traffic based on Layer 1 through Layer 4 information.
- The ability to replicate and forward traffic to multiple monitoring tools.

- Timestamp tagging using the Precision Time Protocol.
- Packet truncation beyond a specified number if bytes to discard payload.
- Security features, such as role-based access control (RBAC), and integration with an external Active Directory using RADIUS or TACACS for authentication and authorization.
- End-to-end path visibility and both port and flow level statistics for troubleshooting.
- Robust Representational State Transfer (REST) API and web-based GUI for all functions.

Supported Web Browsers

The following web browsers are supported for Cisco Nexus Data Broker Embedded:

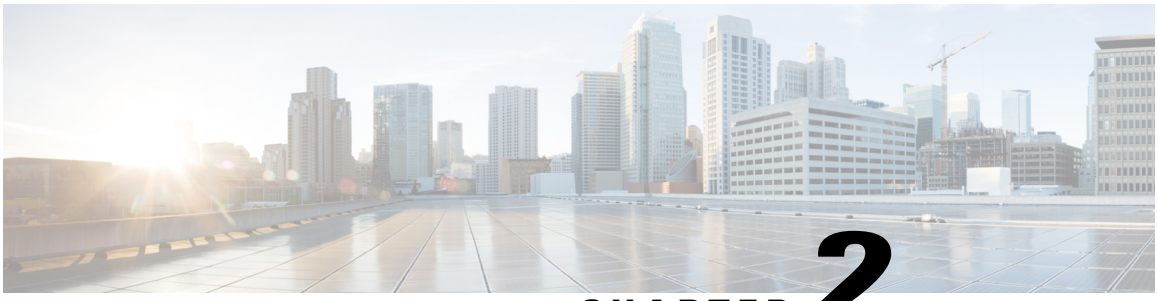
- Firefox 18.x and later versions
- Chrome 24.x and later versions

Note JavaScript 1.5 or a later version must be enabled in your browser.

Prerequisites for Cisco Nexus 3000, 3100, and 3500 Series Switches

You can run Cisco Nexus Data Broker Embedded on Cisco Nexus 3000, 3100, or 3500 Series switches. Before you deploy the software, you must do the following:

- Ensure that you have admin rights to log in to the switch.
- Verify that the management interface of the switch (mgmt0) has an IP address configured by running the switch# **show running-config interface mgmt0** command.



CHAPTER 2

Deploying Cisco Nexus Data Broker Embedded

This chapter contains the following sections:

- Obtaining the Cisco Nexus Data Broker Embedded Software, page 3
- Installing and Activating the Cisco Nexus Data Broker Embedded Software, page 4
- Configuring the Cisco Plug-in for OpenFlow, page 5
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Obtaining the Cisco Nexus Data Broker Embedded Software

Step 1 In a web browser, navigate to Cisco.com.

Step 2 Under **Support**, click **All Downloads**.

Step 3 In the center pane, click **Cloud and Systems Management**.

Step 4 If prompted, enter your Cisco.com username and password to log in.

Step 5 In the right pane, click **Network Controllers and Applications**, and then click **Cisco Nexus Data Broker.**

Step 6 Download and extract the **Cisco Nexus Data Broker Embedded** application bundle.
The application bundle zip file contains the following:

- The Cisco Nexus Data Broker Embedded package, **ndb1000-embsw-2.0.0-ofa-1.0.4-n3000-k9.ova**
- The Cisco Plug-in for OpenFlow package, **ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova**

What to Do Next

Install the software on a Cisco Nexus 3000, 3100, or 3500 Series switch.

Installing and Activating the Cisco Nexus Data Broker Embedded Software

Before You Begin

Note You cannot install a new version of the Cisco Nexus Data Broker Embedded if you already have an existing Cisco Monitor Manager Embedded application installed and active.

Before you begin installing a new version of the Cisco Nexus Data Broker Embedded, you must:

- Deactivate your current Cisco Monitor Manager Embedded OVA file.
- Uninstall the Cisco Monitor Manager Embedded OVA file.

Important Ensure that you have at least 1 GB of available space in the bootflash. The **ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova** and **ndb1000-sw-app-emb-k9-2.0.0.ova** file require a total of 850 MB of space in the bootflash for the decompression and installation processes.

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# **copy** [*scp:* | *ftp:* | *http:*] *//download_dir* **ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova bootflash: vrf management**	Copies the Cisco Plug-in for OpenFlow package from the directory where you downloaded it to the switch.
Step 2	switch# **copy** [*scp:* | *ftp:* | *http:*] *//download_dir* **ndb1000-sw-app-emb-k9-2.0.0.ova bootflash:vrf management**	Copies the Cisco Nexus Data Broker Embedded package from the directory where you downloaded it to the switch.
Step 3	switch# **show virtual-service list**	Monitors the status of the copy processes.
Step 4	switch# **virtual-service install name ofa_ndbemb package bootflash:ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova**	Installs the Cisco Plug-in for OpenFlow package on the switch.
Step 5	switch# **virtual-service install name ofa_ndb package bootflash:ndb1000-sw-app-emb-k9-2.0.0.ova**	Installs the Cisco Nexus Data Broker Embedded package on the switch.
Step 6	switch# **show virtual-service list**	Monitors the status of the installations. **Note** Do not continue until both OVA files have been successfully installed.
Step 7	switch# **configure terminal**	Enters global configuration mode on the switch.
Step 8	switch (config)# **onep**	Specifies that configuration is for onePK services.

	Command or Action	Purpose
Step 9	switch (config)# **service set vty**	Enables onePK VTY services.
Step 10	switch (config)# **virtual-service ofa_ndbemb**	Starts the virtual service for the Cisco Plug-in for OpenFlow package and enters virtual service configuration mode on the switch.
Step 11	switch(config-virt-serv)# **activate**	Activates the Cisco Plug-in for OpenFlow package.
Step 12	switch(config-virt-serv)# **exit**	Returns to global configuration mode.
Step 13	switch(config)# **virtual-service ofa_ndb**	Starts the virtual service for the Cisco Nexus Data Broker Embedded package and enters virtual service configuration mode on the switch.
Step 14	switch(config-virt-serv)# **activate**	Activates the Cisco Nexus Data Broker Embedded package.
Step 15	switch(config-virt-serv)# **exit**	Exits virtual service configuration mode on the switch.
Step 16	switch(config)# **show virtual-service list**	Monitors the status of the package activations.

Configuring the Cisco Plug-in for OpenFlow

The Cisco Plug-in for OpenFlow needs to be connected to the Cisco Nexus Data Broker locally running on the Cisco Nexus 3000, 3100, or 3500 Series switch.

Enter the following pre-requisite command **hardware profile openflow** for the Cisco Nexus 3000 and 3100 Series switches. Enter the following pre-requisite command **hardware profile forwarding-mode openflow-hybrid** for the Cisco Nexus 3500 Series switches.

Note The steps in this procedure continue the steps that were completed in the previous section.

Before You Begin

Install and activate the Cisco Nexus Data Broker package and the Cisco Plug-in for OpenFlow package.

Step 1 Enter the configuration mode on the switch.
switch# **configure terminal**

Step 2 Enter the Cisco Plug-in for OpenFlow configuration mode on the switch.
switch(config-virt-serv)# **openflow**

Step 3 Choose the switch to which you want to connect.
switch(config-ofa)# **switch** *switch_num*

Caution Set the *switch_num* to **1**. This is the default value. Only expert users should set the *pipeline_num* number to any value other than 1.

Step 4 Choose the pipeline to which you want to connect.
switch(config-ofa-switch)# **pipeline** *pipeline_num*

Caution Set the *pipeline_num* to **201** for Cisco Nexus 3000 and 3100 Series switches. This is the default value. Only expert users should set the *pipeline_num* number to any value other than 201.

Set the *pipeline_num* to **203** for Cisco Nexus 3500 Series switches This is the default value. Only expert users should set the *pipeline_num* number to any value other than 203.

Step 5 Configure the controller address using vrf management.
switch(config-ofa-switch)# **controller ipv4** *management_interface_address* **port** *port_num* **vrf management security none**

Note
- The controller ipv4 address should match the management interface (mgmt0) address.
- By default, the Cisco Plug-in for OpenFlow listens on port 6653.

Step 6 Assign ports to the Cisco Plug-in for OpenFlow.
switch(config-ofa-switch)# **of-port interface** *ethernet_port_num*

Step 7 Exit from the current configuration command mode and return to EXEC mode.
switch(config-ofa-switch)# **end**

Step 8 Verify that the Cisco Plug-in for OpenFlow is connected to the Cisco Nexus Data Broker.
switch# **show openflow switch** *switch_num* **controllers**

Logging in to the Cisco Nexus Data Broker GUI

The default HTTP web link for the Cisco Nexus Data Broker GUI is
`http://Nexus_Switch_Management_IP:8080/monitor`

Caution If you use HTTP to log in to the Cisco Nexus Data Broker GUI, sensitive information, such as passwords, will be sent in clear text.

The default HTTPS web link for the Cisco Nexus Data Broker GUI is
`https://Nexus_Switch_Management_IP:8443/monitor`

Note You must manually specify the https:// protocol in your web browser. The controller must also be configured for HTTPS.

Step 1 In your web browser, enter the Cisco Nexus Data Broker web link, for example, *http://Nexus_Switch_Management_IP:8080/monitor*, or *https://Nexus_Switch_Management_IP:8443/monitor*.

Step 2 On the launch page, do the following:

a) Enter your username and password.

The default username and password is admin/admin.

b) Click **Log In**.

What to Do Next

See the *Cisco Nexus Data Broker Configuration Guide, Release 2.0* for the procedures that you need to configure Cisco Nexus Data Broker.