



Cisco Nexus Data Broker Embedded Overview

This chapter contains the following sections:

- [About Cisco Nexus Data Broker Embedded, page 1](#)
- [Supported Web Browsers, page 3](#)
- [Prerequisites for Cisco Nexus Series Switches, page 3](#)
- [Cisco Nexus Data Broker Software Release Filename Matrix, page 5](#)

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, 3200, 3500, or 9000 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, 3200, 3500, or 9000 Series switch for TAP/SPAN aggregation, because it eliminates the requirement to have a separate virtual machine for the Cisco Nexus Data Broker application.

If Cisco Nexus Data Broker does not work after reloading of the device in Embedded mode, you have to run the **ndb_launcher.py** script from the **ndb** directory in the GitHub repository. Before launching the script, ensure that the Cisco Nexus Data Broker is in activated mode. If it is in the deactivated mode, the script does not execute. You can use **show virtual-service list CLI** command to display the status of Cisco Nexus Data Broker. Use **python bootflash:ndb_launcher.py -v ndb** command to execute the script.

When the Python script is run, it creates a file in the virtual machine that is known as the interfaces file. It contains the details of the interfaces and the management IP address and it updates the **launcher.sh** file. The **embndb** folder is created by the Python script.

The Cisco Nexus Data Broker Embedded solution supports the following:

- Support for the OpenFlow mode or the NX-API mode of operation.



Note

The OpenFlow mode and the NX-API mode are supported on both Cisco Nexus 3000 Series and Cisco Nexus 9000 Series switches. Cisco Nexus 9500 supports only NX-API mode of deployment. Cisco Nexus 3500 supports only Openflow mode of deployment.

You can enable only one mode, either OpenFlow or NX-API mode, at a time.

In order to start or stop the Cisco Nexus Data Broker application in embedded mode, you should activate or de-activate the **ofa** file. Do not use **./runxnc.sh** as it is not the right way to start the application.



Note

Starting with Cisco Nexus 3000 Release 7.x, the NX-API configuration is supported on the following Cisco Nexus 3100 Series switches:

- Cisco Nexus 3172 switches
- Cisco Nexus 3132 switches
- Cisco Nexus 3164 switches
- Cisco Nexus 31128 switches
- Cisco Nexus 3232 switches
- Cisco Nexus 3264 switches

- Support for Layer-7 filtering for the HTTP traffic using the HTTP methods.
- Support for VLAN and MPLS tag stripping.
- 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 of 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 Series Switches

Cisco Nexus Data Broker is supported on Cisco Nexus 3000, 3100, 3200, 3500, and 9000 series switches. Before you deploy the software, you must do the following:

- Ensure that you have administrative 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.
- Add the VLAN range in the database that is to be used in Cisco Nexus Data Broker for tap aggregation and inline monitoring redirection to support VLAN filtering. For example, the syntax is **vlan <range of VLAN IDs>**. For example, the VLAN range is <1-3967>.

For running the OpenFlow and NX-API mode on the Cisco Nexus Series switches, see the following pre-requisites.

Device Models	OpenFlow Mode	NX-API Mode
Cisco Nexus 3000 Series switches	Enter the # hardware profile openflow command at the prompt.	With Cisco Nexus 3000 Series switches, only Openflow mode is supported.

Device Models	OpenFlow Mode	NX-API Mode
Cisco Nexus 3164Q switches	The OpenFlow mode is not supported on the Nexus 3164Q switches.	Enter the following commands at the prompt: <ul style="list-style-type: none"> • # hardware profile tcam region qos 0 • # hardware profile tcam region racl 0 • # hardware profile tcam region vacl 0 • # hardware profile tcam region ifacl 1024 double-wide • # hardware access-list tcam region mac-ifacl 512
Cisco Nexus 3172 Series switches	Enter the # hardware profile openflow command at the prompt.	Use the hardware profile mode tap-aggregation [l2drop] CLI command to enable tap aggregation and to reserve entries in the interface table that are needed for VLAN tagging. The l2drop option drops non-IP traffic ingress on tap interfaces.
Cisco Nexus 3200 Series switches	Enter the hardware access-list tcam region openflow 256 command at the prompt.	Enter the following commands at the prompt: <ul style="list-style-type: none"> • # hardware access-list tcam region e-racl 0 • # hardware access-list tcam region span 0 • # hardware access-list tcam region redirect 0 • # hardware access-list tcam region vpc-convergence 0 • # hardware access-list tcam region racl-lite 256 • # hardware access-list tcam region l3qos-intra-lite 0 • # hardware access-list tcam region ifacl 256 double-wide • # hardware access-list tcam region mac-ifacl 512

Device Models	OpenFlow Mode	NX-API Mode
Cisco Nexus 9300 Series switches	<p>Enter the hardware access-list tcam region openflow 512 double-wide command at the prompt to configure the MAC filters.</p> <p>For other scenarios, enter the hardware access-list tcam region openflow 512 command.</p>	<p>Enter the following commands at the prompt:</p> <ul style="list-style-type: none"> • # hardware access-list tcam region qos 0 • # hardware access-list tcam region vacl 0 • # hardware access-list tcam region racl 0 • # hardware access-list tcam region redirect 0 • # hardware access-list tcam region vpc-convergence 0 • # hardware access-list tcam region ifacl 1024 double-wide • # hardware access-list tcam region mac-ifacl 512
Cisco Nexus 9200 and 9300-EX switches	The OpenFlow mode is not supported on the 9200 and 9300-EX switches.	<p>Enter the following commands at the prompt:</p> <ul style="list-style-type: none"> • # hardware access-list tcam region ing-racl 256 • # hardware access-list tcam region ing-l3-vlan-qos 256 • # hardware access-list tcam region egr-racl 256 • # hardware access-list tcam region ing-ifacl 1024

Cisco Nexus Data Broker Software Release Filename Matrix

See the Cisco Nexus Data Broker software release filename matrix for more information on the software images:

Mode of Deployment	OpenFlow	NX-API	N3K	N3500	N9K	File Name
Embedded	N	Y	Y	N	Y	ndb1000-sw-app-emb-nxapi-3.2.0-k9.zip
Embedded	Y	N	Y	Y	N	ndb1000-sw-app-emb-3.2.0-ofa_ mmemb-1.1.5-r3-n3000-SPA-k9.zip
Embedded	Y	N	Y	N	Y	ndb1000-sw-app-emb-3.2.0-ofa_ mmemb-2.1.4-r2-nxos-SPA-k9.zip