Deploying Cisco Nexus Data Broker Embedded for NX-API

This chapter contains details of procedures for deploying NDB for NX-API.

Before you proceed with the upgrade/ install procedures discussed in this chapter, compare the **md5sum** between the NDB CCO image and image file copied to linux. Use the following command to check (linux):

```
cisco@NDB-virtual-machine:~/3.8.1/$ md5sum ndb1000-sw-app-k9-3.8.1.zip
Displayed output: c2d273dce4abbba03c06aeee8774b901 ndb1000-sw-app-k9-3.8.1.zip
```

Generating TLS certificate between NDB server and NDB switch for Embedded mode of deployment is not supported. For details about TLS, see the *Managing TLS Certificate, KeyStore and TrustStore Files* chapter in the *Cisco Nexus Data Broker Configuration Guide.*

This chapter contains the following topics:

Obtaining the Cisco Nexus Data Broker Embedded Software for NX-API

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

Step 2 In the center pane, click **Cloud and Systems Management**.

Step 3 If prompted, enter your Cisco.com username and password to log in.

Step 4 In the right pane, click **Network Controllers and Applications**, and then click **Cisco Nexus Data Broker.**

Step 5 Download and unzip the **Cisco Nexus Data Broker Release 3.8** application bundle zip file. For more information regarding the NDB zip file name, see Cisco Nexus Data Broker Software Release Filename Matrix.

The application bundle zip file contains the following:

- The Cisco Nexus Data Broker Software Application package, for example, **ndb1000-sw-app-emb-k9-3.8.0.ova**

Step 6 Download activator script. The Python activator script needed to activate the NDB is available at: https://github.com/datacenter/nexus-data-broker. For more information regarding the Python activator script file name, see Python Activator Script Filename Matrix table in Cisco Nexus Data Broker Software Release Filename Matrix.

What to do next

Install the software on a Cisco Nexus 3100, 3200, or 9000 Series switch.

Installing and Activating the Cisco Nexus Data Broker Embedded Software for NX-API Mode for NXOS Versions in 7.0(3)I4(x)

Before you begin

Note For a TACACS user to start NDB in embedded mode, the user should be logged in to the switch with network administrator privileges.

Note To add a device to NDB in embedded mode, use the device IP address. Currently, NDB embedded mode does not support hostname for adding a device.

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.

Step 1 switch# **copy** [*scp:* | *ftp:* | *http:*] *//download_dir* **ndb1000-sw-app-emb-k9-3.8.0.ova bootflash:vrf management**

Copies the Cisco Nexus Data Broker Embedded package from the directory where you downloaded it to the switch. You can download the file from different sources such as HTTP, FTP, or SSH.

Step 2 switch# **show virtual-service list**

Monitors the status of the copy processes.

Step 3 switch# **virtual-service install name ndb_emb package bootflash:ndb1000-sw-app-emb-k9-3.8.0.ova**

Installs the Cisco Nexus Data Broker Embedded package on the switch.

Step 4 switch# **show virtual-service list**

Monitors the status of the installations.

Note Do not continue until the OVA file is successfully installed.

Step 5 switch# **configure terminal**

Enters global configuration mode on the switch.

Step 6 switch(config)# **virtual-service Name_Of_OFA_NDB_EMB_File**

Example:

switch (config)# virtual-service ndb_emb

Starts the virtual service for the Cisco Nexus Data Broker Embedded package and enters virtual service configuration mode on the switch.

Step 7 switch(config-virt-serv)# **activate**

Activates the Cisco Nexus Data Broker Embedded package.

Step 8 switch(config-virt-serv)# **exit**

Exits virtual service configuration mode on the switch.

Step 9 switch(config)# **show virtual-service list**

Monitors the status of the package activations.

Step 10 **switch# python bootflash: Name_Of_python_NDB_Activator_Script -v ndb_emb** .

Example:

switch# python bootflash: NDBActivator3.0_I5_Plus.py -v ndb_emb

Creates `/embndb/interface` file with management interface details using the NDB Python activator script:

The script is available in the **ndb** directory in the GitHub repository at https://github.com/datacenter/nexus-data-broker.

Note The NDB activator script is different for the different Cisco NXOS versions:

- NDBActivator2.0_I3_I4.py: For Cisco NXOS versions 7.0(3)I3(x) and 7.0(3)I4(x).

Step 11 Deactivate the NDB virtual service and activate it.

Update the configuration changes.

Example:

```
device#  configure terminal
device(config)#  virtual-service <virtual-services-name>
device(config)#  no activate
device(config)#  show virtual-service list  (Wait until deactivated complete)
device(config)#  activate
device(config)#  show virtual-service list (Wait until activated complete)
```

```
device(config)#  end
device(config)#  copy running-config startup-config
```

Installing and Activating the Cisco Nexus Data Broker Embedded Software for NX-API Mode for NXOS 7.0(3)I6(1) or Later

Cisco NDB is not installed as OVA, it is installed in the Guestshell. The Guestshell is installed and activated in the NXOS 7.0(3)I6(1) and later releases. You can now install NDB directly on a device in embedded mode on NXOS 7.0(3)I6(1) or later release. To install Cisco Nexus Data Broker Embedded software on NXOS 7.0(3)I6(1) or later release, use the NDB activator script, NDBActivator3.0_I5_Plus.py.

The activator script performs the following functions:

- Resizes the Guestshell resources.
- Unzips and places the XNC folder into the Guestshell home directory.
- Configures the Guestshell to management VRF.

Before you begin

Note By default, you cannot install a new version of the Cisco Nexus Data Broker Embedded if you already have an existing Cisco Nexus Data Broker Embedded application installed and active. You can forcefully run the activator script even if it is already activated using **python bootflash** command with **--force** attribute. For example:

```
Syntax: python <file path>NDBActivator3.0_I5_Plus.py -v guestshell+ <zip file path> --force

Example:  python bootflash:NDBActivator3.0_I5_Plus.py -v guestshell+
/bootflash/ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip --force
```

Note To uninstall NDB application, destroy the Guestshell using the command, **guestshell destroy**. If an instance of NDB exists in the guestshell and you need to install a new NDB instance, you need to destroy the existing Guestshell and re-install the Guestshell and the NDB.

```
N9K-switch# guestshell destroy
```

Note After you disable and enable NXAPI mode, you should reconfigure **nxapi use-vrf management** command on the node.

Important Ensure that you have sufficient space available in the bootflash. The **ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip** file require a total of ~600 MB of space in the bootflash (/volatile folder) for the decompression processes. The script runs only on NXOS platform, version 7.0(3)I6(1), with memory greater than 8GB.

Step 1 switch# **copy** ftp:/10.10.10.1 **NDBActivator3.0_I5_Plus.py bootflash:vrf management**

Copies the NDBActivator3.0_I5_Plus.py from the directory where you downloaded it to the switch. You can download the file from different sources such as HTTP, FTP, or SSH.

Step 2 switch# **copy** ftp://10.10.10.1 **ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip bootflash:vrf management**

Copies the Cisco Nexus Data Broker Embedded package from the directory where you downloaded it to the switch. You can download the file from different sources such as HTTP, FTP, or SSH.

Step 3 switch# **show virtual-service list**

Monitors the status of the copy processes.

Step 4 switch# **guestshell enable**

Enables the guestshell.

Step 5 switch# **python bootflash:NDBActivator3.0_I5_Plus.py -v guestshell+ /bootflash/ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip**

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 To start the NDB application, use the **guestshell enable** command. If the NDB application is initiated through the Python script, guestshell is enabled automatically.

Note To stop the NDB application, use the **guestshell disable** command. Use **guestshell enable** command to enable NDB.

Note Do not continue until installation completes successfully. NDB application starts after it is installed successfully.

Step 7 switch# **show processes cpu sort | grep java**

Example:

switch# show processes cpu sort | grep java

19587 3 6 551 0.00% java

switch#

Verify whether NDB installed and initiated successfully.

Adding a Device

You need to manually add a device to the NDB application to monitor it.

Step 1 Log in to NDB user interface.

Step 2 Click **Administration** Tab and then click **DEVICE CONNECTIONS** Tab.

Step 3 To add a new device, click **Add Devices**, **Add Device** dialog box appears.

Step 4 In the **Add Device Dialog** box, enter the following details:

- **Address**: IP address of the new device.
- **User Name**: User name for accessing the device.
- **Password**: Password to validate the user.
- **Connection Type**: Type of connection the new device will use, select *NXAPI*.
- **Port Number**: Port number through which the device will communicate.

Step 5 Click **Add Device** in the **Add Device** dialog box to add the device with the provided credentials.

Upgrading to Release 3.8 for Cisco NXOS Releases Upto 7.0(3)I4(x)

Upgrading the Cisco NDB to release 3.8 for Cisco NXOS releases upto 7.0(3)I4(x) involves using the GUI to download the configuration, performing the upgrade, and then uploading the configuration.

Note For detailed information about upgrading Cisco Nexus OS from I4(6) to I6(1) and I7(1), see *Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide, Release 7.x*.

Step 1 Navigate to the **System** tab under **Administration**.

The **System Administration** window is displayed.

Step 2 Click **Download Configuration** to download the configuration in a zip file format. The name of the zip file is **configuration_startup.zip**.

Step 3 Download the configuration in Cisco NDB 3.x release version.

Step 4 Deactivate Cisco NDB and uninstall Cisco NDB using the following steps:

a) configure terminal

Example:

```
device# configure terminal
```

b) virtual-service **virtual-services-name**

Example:

```
device(config)# virtual-service vsn1
```

c) no activate

Example:

```
device(config-virt-serv)# no activate
```

d) no virtual-service **<virtual-services-name>**

Example:

```
device(config)# no virtual-service vsn1
```

e) **end**

Example:

```
device(config-virt-serv)# end
```

f) virtual-service uninstall name **virtual-services-name**

Example:

```
# virtual-service uninstall name vsn1
```

Step 5 Install and activate Cisco NDB 3.8 using the following steps:

a) **virtual-service install name <virtual-services-name> package bootflash: NDB_OVA**

```
device# virtual-service install name vsn1 package bootflash: ndb1000-sw-app-emb-k9-3.8.0.ova
```

b) **show virtual-service list**

Use the show command to check the status of the virtual service installation. After the status of the virtual service becomes listed as **Installed**, run the following commands to activate the service.

```
device# show virtual-service list
```

c) **configure terminal**

```
device(config)# conf terminal
```

d) **virtual-service virtual-service-name**

```
device(config)# virtual-service vsn1
```

e) **activate**

```
device(config)# activate
```

f) **end**

```
device(config)# end
```

g) **copy running-config startup-config**

```
device(config)# copy running-config startup-config
```

Step 6 Run the **<python NDB activator script>** script using the **python bootflash:<python activator script> -v <ndb virtual service name>** command.

Note The NDB activator script is different for the different Cisco NXOS versions:

- NDBActivator2.0_I3_I4.py: For Cisco NXOS versions I3 and I4.

Example:

```
device#  configure terminal
device(config)#  virtual-service <virtual-services-name>
device(config)#  no activate
device(config)#  show virtual-service list  (Wait until deactivated complete)
device(config)#  activate
device(config)#  show virtual-service list (Wait until activated complete)
device(config)#  end
device(config)#  copy running-config startup-config

repro-9372-2# python bootflash:NDBActivator2.0_I3_I4_working.py -vndb_emb
```

Step 7 Upload Cisco NDB 3.8 configuration that you downloaded in Step 1 in the Cisco NDB user interface (UI) Navigate to **Administration** -> **System** -> **Backup Restore** -> **Restore Locally**.

Upgrading to Release 3.8 for Cisco NXOS Release 7.0(3)I6(1) or Later

This process involves using the GUI to download the configuration, perform the upgrade, and then upload the configuration.

Note For detailed information about upgrading Cisco Nexus OS from I4(6) to I6(1) and I7(1), see *Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide, Release 7.x*.

Step 1 Navigate to the **System** tab under **Administration** in the running Embedded NDB 3.x or earlier version. Click **Download Configuration** to download the configuration in a zip file format.

OR

Navigate to the **System** tab under **Administration** > **Backup/Restore** tab. Click **Backup and Backup Locally**.

It downloads the configuration in a zip file format. The name of the zip file is configuration_startup.zip

Step 2 Copy the NDBActivator3.0_I5_Plus.py from the directory where you downloaded it to the switch. You can download the file from different sources such as HTTP, FTP, or SSH.

Example:

```
switch# copy scp://10.10.10.1 NDBActivator3.0_I5_Plus.py bootflash:vrf management
```

Step 3 Copy the Cisco Nexus Data Broker Embedded package from the directory where you downloaded it to the switch. You can download the file from different sources such as HTTP, FTP, or SSH.

Example:

```
switch# copy scp://10.10.10.1 ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip bootflash:vrf management
```

Step 4 Monitor the status of the copy processes.

Example:

```
switch# show virtual-service list
```

Step 5 Enable the guestshell.

Example:

```
switch# guestshell enable
```

Step 6 Install the Cisco Nexus Data Broker Embedded package on the switch.

Example:

```
switch# python bootflash:NDBActivator3.0_I5_Plus.py -v guestshell+
/bootflash/ndb1000-sw-app-emb-i6-plus-k9-3.8.0.zip
```

Step 7 Monitor the status of installation process.

Example:

```
switch# show virtual-service list
```

To stop the NDB application, use the guestshell disable command.

Note Do not continue until installation completes successfully. NDB application starts after it is installed successfully.

Step 8 Verify whether NDB installed and initiated successfully.

Example:

```
switch# show processes cpu sort | grep java
Example:
switch# show processes cpu sort | grep java
19587 3 6 551 0.00% java
```

Step 9 Log in to the NDB application using the credentials. You need to manually add a device in NDB.

Step 10 To add a new device, click **Administration**-> **DEVICE CONNECTIONS** Tab.

Step 11 Click **Add Devices**, the **Add Device** dialog box appears.

Step 12 In the **Add Device Dialog** box, enter the following details:

- **Address**: IP address of the new device.
- **User Name**: User name for accessing the device.
- **Password**: Password to validate the user.
- **Connection Type**: Type of connection the new device will use, select *NXAPI*.
- **Port Number**: Port number through which the device will communicate.

Step 13 Click **Add Device** in the **Add Device** dialog box to add the device with the provided credentials.

Step 14 Copy the running configuration to the startup configuration.

Example:

```
switch(config)# copy running-config startup-config
```

Step 15 Upload Cisco NDB 3.8 configuration that you downloaded in Step 1 in the Cisco NDB user interface (UI). Navigate to **Administration** > **System** > **Backup Restore** > **Restore Locally**.

Logging in to the Cisco Nexus Data Broker GUI

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, *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* for the procedures that you need to configure Cisco Nexus Data Broker.