



Configuring the Setup for a Use Case in the Centralized Mode

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Configuring Cisco Nexus Data Broker For Centralized Mode Using The CLI

Complete the following steps to configure

Procedure

- Step 1** Create two connections.
- Connection 1 aggregates TAP and SPAN port. Apply filters and deliver to two monitor devices in switch-2, that is connected to 1/2 and 1/1.
 - Connection 2 receives the TAP port traffic. After applying HTTP filter, the traffic is directed to only one monitor device.
- Step 2** Run Cisco Nexus Data Broker in Linux server.
- Step 3** Verify that the ofa package is there.
- Step 4** Install ofa.
- virtual-service install name ofa package ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova
 - sh virtual-service list
 - configure
 - virtual-service ofa
 - activate
 - show virtual-service list
- Step 5** Configure OpenFlow switch.
- switch-1(config-virt-serv)# openflow

- b) switch-1(config-ofa)# switch 1
- c) switch-1(config-ofa-switch)# pipeline 203
- d) switch-1(config-ofa-switch)# controller ipv4 10.16.206.161 port 6653 vrf management security none
- e) switch-1(config-ofa-switch)# sh int br
- f) switch-1(config-ofa-switch)# of-port interface ethernet1/1-4
- g) switch-1(config-ofa-switch)# of-port interface ethernet1/47
- h) switch-2(config-ofa-switch)# show virtual-service list

Example

Run Cisco Nexus Data Broker in Linux server.

```
[root@rhel64-ndb-nxapi NDB3.0.0]#
[root@rhel64-ndb-nxapi NDB3.0.0]# ls
ndb1000-sw-app-k9-3.0.0.zip  xnc
[root@rhel64-ndb-nxapi NDB3.0.0]#
[root@rhel64-ndb-nxapi NDB3.0.0]# cd xnc/
[root@rhel64-ndb-nxapi xnc]# ls
bin  configuration  etc  lib  logs  plugins  runxnc.cmd  runxnc.sh  version.properties
work
[root@rhel64-ndb-nxapi xnc]# ./runxnc.sh -start
Running controller in background with PID: 11987, to connect to it please SSH to this host
on port 2400
[root@rhel64-ndb-nxapi xnc]#
```

Configure NDB to run as a service in the Linux server.

1. Download the script file named, `ndb`, based on the operating system (Ubuntu, CentOS, or Redhat). The service script is available at: <https://github.com/datacenter/nexus-data-broker/tree/master/serviceScripts>.
2. Update the Java Home location in the script file for NDB version is 3.2 and earlier. For the NDB version 3.3 and later, comment the line that configures Java Home.

```
export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64/jre
```

3. Change the permissions for the script file to 755. Use the `chmod 755 ndb` command. For example:

```
ndb-inst# chmod 755 ndb
```

4. Update the NDB location in the downloaded script file.

```
NDB_PATH - /home/user/xnc
```

5. Copy the script file to the `/etc/init.d/` folder in the Linux server.
6. Start, stop, and restart the NDB using the following commands

```
ndb-inst # ndb stop
ndb-inst # ndb start
ndb-inst # ndb restart
```

Verify that the ofa package is installed.

```
switch-1 - Switch
=====

switch-1#
```

```

switch-1# dir
 4096   Jun 01 23:55:07 2016  .patch/
 1044   Aug 13 00:15:17 2014  20140813_001215_poap_3799_init.log
 16     Aug 13 00:30:15 2014  cert.err
 9255   Jun 01 23:38:11 2016  clean_config
2885642 May 12 22:11:57 2014  llformtc-dplug-mzg.6.0.2.A3.0.23.bin
4194304 Sep 08 19:24:42 2014  messages
 3752   Mar 18 00:48:03 2014  mts.log
36825088 Apr 19 18:47:44 2016  n3500-uk9-kickstart.6.0.2.A6.5a.bin
37472256 Jun 01 23:43:34 2016  n3500-uk9-kickstart.6.0.2.A8.0.15.bin
180349300 Apr 19 18:49:37 2016  n3500-uk9.6.0.2.A6.5a.bin
190244286 Jun 01 23:42:07 2016  n3500-uk9.6.0.2.A8.0.15.bin
54343680 Apr 24 05:27:43 2016  ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova
 4096   Mar 18 06:08:07 2014  onep/
 3314   Apr 25 18:14:18 2014  sercert.pl2
 1024   Apr 19 18:58:37 2016  sprom_cstruct_2_0_0
 1024   Apr 19 18:59:22 2016  sprom_cstruct_3_0_0
 4096   Jan 01 03:25:17 2011  vdc_2/
 4096   Jan 01 03:25:17 2011  vdc_3/
 4096   Jan 01 03:25:17 2011  vdc_4/
 4096   Jun 01 23:31:49 2016  virt_strg_pool_bf_vdc_1/
 4096   Jun 01 23:31:49 2016  virtual-instance/
 4096   Aug 09 02:20:14 2014  virtual-instance-stby-sync/
243671040 May 09 20:55:18 2016  xnclite_ofa_jdk1877.ova
243732480 May 10 21:51:52 2016  xnclite_ofa_jdk1892.ova

Usage for bootflash://
1124974592 bytes used
770195456 bytes free
1895170048 bytes total
switch-1#

```

Install ofa.

```

switch-1#
switch-1# virtual-service install name ofa package ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova
Note: Installing package 'bootflash:/ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova' for virtual service
'ofa'. Once the install has finished, the VM may be activated. Use 'show virtual-service
list' for progress.

```

```
switch-1# sh virtual-service list
```

Virtual Service List:

Name	Status	Package Name
ofa	Installed	ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova

```
switch-1# configure
```

Enter configuration commands, one per line. End with CNTL/Z.

```
switch-1(config)# virtual-service ofa
```

```
switch-1(config-virt-serv)# activate
```

Note: Activating virtual-service 'ofa', this might take a few minutes. Use 'show virtual-service list' for progress.

```
switch-1(config-virt-serv)# show virtual-service list
```

Virtual Service List:

Name	Status	Package Name
ofa	Activated	ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova

```
switch-1(config-virt-serv)#
```

Configure OpenFlow switch.

```

switch-1(config-virt-serv)# openflow
switch-1(config-ofa)# switch 1
switch-1(config-ofa-switch)# pipeline 203
switch-1(config-ofa-switch)# controller ipv4 10.16.206.161 port 6653 vrf management security
none
switch-1(config-ofa-switch)# sh int br

```

Ethernet Interface	VLAN	Type	Mode	Status	Reason	Speed	Port Ch #
Eth1/1	1	eth	access	up	none	10G(D)	--
Eth1/2	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/3	1	eth	access	up	none	10G(D)	--
Eth1/4	1	eth	access	up	none	10G(D)	--
Eth1/5	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/6	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/7	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/8	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/9	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/10	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/11	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/12	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/13	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/14	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/15	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/16	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/17	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/18	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/19	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/20	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/21	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/22	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/23	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/24	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/25	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/26	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/27	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/28	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/29	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/30	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/31	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/32	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/33	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/34	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/35	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/36	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/37	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/38	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/39	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/40	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/41	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/42	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/43	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/44	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/45	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/46	1	eth	access	down	SFP not inserted	10G(D)	--
Eth1/47	1	eth	access	up	none	10G(D)	--
Eth1/48	1	eth	access	down	SFP not inserted	10G(D)	--

```

-----
Port      VRF      Status IP Address      Speed  MTU
-----
mgmt0    --      up      10.16.206.129    1000   1500
switch-1 (config-ofa-switch) #
switch-1 (config-ofa-switch) #
switch-1 (config-ofa-switch) #
switch-1 (config-ofa-switch) # of-port interface ethernet1/1-4
switch-1 (config-ofa-switch) # of-port interface ethernet1/47
switch-1 (config-ofa-switch) #

Switch-2
=====

switch-2 (config-ofa-switch) # show virtual-service list

Virtual Service List:

Name      Status      Package Name
-----
ofa       Activated   ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova

switch-2 (config-ofa-switch) #

```

What to do next

For centralized mode, complete the steps for configuring Cisco Nexus Data Broker using the GUI as outlined in the next section.

Configuring Cisco Nexus Data Broker in Centralized Mode Using The GUI

After configuring the Cisco Nexus Data Broker using the CLI, complete the following steps:

Procedure

- Step 1** Open a new browser window and type `https://<NDB-IP>:8443`.
- Step 2** Configure the TAP and SPAN ports using the GUI.
- Step 3** Select switch 2 and configure the delivery ports.
- Step 4** Add switch 1 and switch 2 in NX-API as in auxiliary mode by enabling the **Set Auxiliary Node** option in the **Add Device** window.
- Step 5** Click **Nodes Learned** to configure the mode.
- Step 6** For switch 1, click on the OpenFlow device ID and change the **Operation Mode** in the **Update Node Information** window to **Proactive forwarding only** option.
- Step 7** For switch 2, click on the OpenFlow device ID and change the **Operation Mode** in the **Update Node Information** window to **Proactive forwarding only** option.
- Step 8** In the **Port Definition** window, click **Edit** for delivery port 1/1.
- Step 9** Check the **Enable Timestamp Tagging** option in the **Configure Ports** window and click **Submit**.

- Step 10** In the **Port Definition** window, click **Edit** for delivery port 1/2.
- Step 11** Check the **Enable Timestamp Tagging** option in the **Configure Ports** window and click **Submit**.
After you configure the timestamp, the **TS-Tag** field is displayed next to the port under the **Port Configuration** tab. You can view the monitoring devices in the **Monitoring Devices** tab.
- Step 12** Add different traffic filters under the **Filters** tab.
- Step 13** Click **Topology** to understand how the devices are learned.
- Step 14** Click **Connections** to create a connection.
- Step 15** Click **Add Connection** and add filters and the monitoring devices for connection 1.
- Step 16** Add connection 2 in a similar way.
After the connections are created, view the connections in the **Connections** tab.
- Step 17** View the final topology.

Example of the configuration on switch 1 and switch 2:

Switch 1 Configuration: switch-1

```
hardware profile tcam region racl 512
hardware profile tcam region ifacl 1024 double-wide
hardware profile forwarding-mode openflow-only
hardware internal mtc-usd ttag-eth-type 0x88b5
snmp-server user admin network-admin auth md5 0x188749ba5e1c6af881227235b1b14d04 priv
0x188749ba5e1c6af881227235b1b14d04 localizedkey
```

```
vlan 1
vrf context management
ip route 0.0.0.0/0 10.16.206.1
```

```
interface Ethernet1/1
no lldp transmit
spanning-tree bpdufilter enable
mode openflow
no shutdown
```

```
interface Ethernet1/2
no lldp transmit
spanning-tree bpdufilter enable
mode openflow
no shutdown
```

```
interface Ethernet1/3
no lldp transmit
switchport mode trunk
spanning-tree bpdufilter enable
mode openflow
no shutdown
```

```
interface Ethernet1/4
no lldp transmit
switchport mode trunk
spanning-tree bpdufilter enable
mode openflow
no shutdown
```

```
interface Ethernet1/5
```

```
no shutdown

interface Ethernet1/6
no shutdown

interface Ethernet1/7
no shutdown

interface Ethernet1/8
no shutdown

interface Ethernet1/9
no shutdown

interface Ethernet1/10
no shutdown

interface Ethernet1/11
no shutdown

interface Ethernet1/12
no shutdown

interface Ethernet1/13
no shutdown

interface Ethernet1/14
no shutdown

interface Ethernet1/15
no shutdown

interface Ethernet1/16
no shutdown

interface Ethernet1/17
no shutdown

interface Ethernet1/18
no shutdown

interface Ethernet1/19
no shutdown

interface Ethernet1/20
no shutdown

interface Ethernet1/21
no shutdown

interface Ethernet1/22
no shutdown

interface Ethernet1/23
no shutdown

interface Ethernet1/24
no shutdown

interface Ethernet1/25
no shutdown

interface Ethernet1/26
no shutdown
```

```
interface Ethernet1/27
  no shutdown

interface Ethernet1/28
  no shutdown

interface Ethernet1/29
  no shutdown

interface Ethernet1/30
  no shutdown

interface Ethernet1/31
  no shutdown

interface Ethernet1/32
  no shutdown

interface Ethernet1/33
  no shutdown

interface Ethernet1/34
  no shutdown

interface Ethernet1/35
  no shutdown

interface Ethernet1/36
  no shutdown

interface Ethernet1/37
  no shutdown

interface Ethernet1/38
  no shutdown

interface Ethernet1/39
  no shutdown

interface Ethernet1/40
  no shutdown

interface Ethernet1/41
  no shutdown

interface Ethernet1/42
  no shutdown

interface Ethernet1/43
  no shutdown

interface Ethernet1/44
  no shutdown

interface Ethernet1/45
  no shutdown

interface Ethernet1/46
  no shutdown

interface Ethernet1/47
  no lldp transmit
  spanning-tree bpdufilter enable
```



```
mode openflow
no shutdown

interface Ethernet1/48
no shutdown

interface mgmt0
vrf member management
ip address 10.16.206.129/24
line console
line vty
boot kickstart bootflash:/n3500-uk9-kickstart.6.0.2.A8.0.15.bin
boot system bootflash:/n3500-uk9.6.0.2.A8.0.15.bin
openflow
switch 1
pipeline 203
controller ipv4 10.16.206.161 port 6653 vrf management security none
of-port interface ethernet1/1-4
of-port interface ethernet1/47
virtual-service ofa
activate
=====

Switch 2 Configuration : switch-2

hardware profile tcam region racl 512
hardware profile tcam region ifacl 1024 double-wide
hardware profile forwarding-mode openflow-only
hardware internal mtc-usd ttag-eth-type 0x88b5
snmp-server user admin network-admin auth md5 0xb7289bc7f348c5044b495f93bac10137 priv
0xb7289bc7f348c5044b495f93bac10137 localizedkey

vlan 1
vrf context management
ip route 0.0.0.0/0 10.16.206.1

interface Ethernet1/1
no lldp transmit
ttag
switchport mode trunk
spanning-tree bpdufilter enable
mode openflow
no shutdown

interface Ethernet1/2
no lldp transmit
ttag
switchport mode trunk
spanning-tree bpdufilter enable
mode openflow
no shutdown

interface Ethernet1/3
no shutdown

interface Ethernet1/4
no shutdown

interface Ethernet1/5
no shutdown

interface Ethernet1/6
no shutdown
```

```
interface Ethernet1/7
  no shutdown

interface Ethernet1/8
  no shutdown

interface Ethernet1/9
  no shutdown

interface Ethernet1/10
  no shutdown

interface Ethernet1/11
  no shutdown

interface Ethernet1/12
  no shutdown

interface Ethernet1/13
  no shutdown

interface Ethernet1/14
  no shutdown

interface Ethernet1/15
  no shutdown

interface Ethernet1/16
  no shutdown

interface Ethernet1/17
  no shutdown

interface Ethernet1/18
  no shutdown

interface Ethernet1/19
  no shutdown

interface Ethernet1/20
  no shutdown

interface Ethernet1/21
  no shutdown

interface Ethernet1/22
  no shutdown

interface Ethernet1/23
  no shutdown

interface Ethernet1/24
  no shutdown

interface Ethernet1/25
  no shutdown

interface Ethernet1/26
  no shutdown

interface Ethernet1/27
  no shutdown
```

```
interface Ethernet1/28
  no shutdown

interface Ethernet1/29
  no shutdown

interface Ethernet1/30
  no shutdown

interface Ethernet1/31
  no shutdown

interface Ethernet1/32
  no shutdown

interface Ethernet1/33
  no shutdown

interface Ethernet1/34
  no shutdown

interface Ethernet1/35
  no shutdown

interface Ethernet1/36
  no shutdown

interface Ethernet1/37
  no shutdown

interface Ethernet1/38
  no shutdown

interface Ethernet1/39
  no shutdown

interface Ethernet1/40
  no shutdown

interface Ethernet1/41
  no shutdown

interface Ethernet1/42
  no shutdown

interface Ethernet1/43
  no shutdown

interface Ethernet1/44
  no shutdown

interface Ethernet1/45
  no shutdown

interface Ethernet1/46
  no shutdown

interface Ethernet1/47
  no lldp transmit
  spanning-tree bpdufilter enable
  mode openflow
  no shutdown

interface Ethernet1/48
```

```
no shutdown

interface mgmt0
  vrf member management
  ip address 10.16.206.130/24
line console
line vty
boot kickstart bootflash:/n3500-uk9-kickstart.6.0.2.A8.0.15.bin
boot system bootflash:/n3500-uk9.6.0.2.A8.0.15.bin
openflow
  switch 1
    pipeline 203
      controller ipv4 10.16.206.154 port 6653 vrf management security none
      controller ipv4 10.16.206.161 port 6653 vrf management security none
      of-port interface ethernet1/1-2
      of-port interface ethernet1/47
virtual-service ofa
  activate
```