



## 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

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- 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 ½ 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
  - switch-1(config-ofa)# switch 1
  - 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 lltormtc-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      VLAN   Type Mode   Status Reason                               Speed   Port
Interface                                           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:

- 
- 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
```