Configuring the Setup for a Use Case in the Centralized Mode

This chapter contains the following sections:

Configuring Cisco Nexus Data Broker For Centralized Mode Using The CLI

Complete the following steps to configure

Step 1 Create two connections.

a) 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.

b) 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.

a) virtual-service install name ofa package ofa_mmemb-1.1.5-r3-n3000-SPA-k9.ova

b) sh virtual-service list

c) configure

d) virtual-service ofa

e) activate

f) show virtual-service list

Step 5 Configure OpenFlow switch.

a) 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  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.p12
       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
```