



Managing a Brownfield VXLAN BGP EVPN Fabric

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Overview

This use case shows how to migrate an existing VXLAN BGP EVPN fabric to Cisco DCNM. The transition involves migrating existing network configurations to DCNM.

Typically, your fabric would be created and managed through manual CLI configuration or custom automation scripts. Now, you can start managing the fabric through DCNM. After the migration, the fabric underlay and overlay networks will be managed by DCNM.

For information about MSD fabric migration, see *Migrating an MSD Fabric with Border Gateway Switches*.

Prerequisites

- DCNM-supported NX-OS software versions. For details, refer *Cisco DCNM Release Notes, Release 11.2(1)*.
- Underlay routing protocol is OSPF or IS-IS.
- The supported underlay is based on the DCNM 10.2(1) POAP template's best practices for the VXLAN fabric (dcnm_ip_vxlan_fabric_templates.10.2.1.ST.1.zip) available on Cisco.com.
- The following fabric-wide loopback interface IDs must not overlap:
 - Routing loopback interface for IGP/BGP.
 - VTEP loopback ID
 - Underlay rendezvous point loopback ID if ASM is used for multicast replication.
- BGP configuration uses the 'router-id', which is the IP address of the routing loopback interface.
- If the iBGP peer template is configured, then it must be configured on the leaf switches and route reflectors. The template name that needs to be used between leaf and route reflector should be identical.
- The BGP route reflector and multicast rendezvous point (if applicable) functions are implemented on spine switches. Leaf switches do not support the functions.
- Familiarity with VXLAN BGP EVPN fabric concepts and functioning of the fabric from the DCNM perspective.
- Fabric switch nodes are operationally stable and functional and all fabric links are up.
- vPC switches and the peer links are up before the migration. Ensure that no configuration updates are in progress or changes pending.
- Create an inventory list of the switches in the fabric with their IP addresses and credentials. DCNM uses this information to connect to the switches.
- Shut down any other controller software you are using presently so that no further configuration changes are made to the VXLAN fabric. Alternatively, disconnect the network interfaces from the controller software (if any) so that no changes are allowed on the switches.
- The switch overlay configurations must have the mandatory configurations defined in the shipping DCNM Universal Overlay profiles. Additional network or VRF overlay related configurations found on the switches are preserved in the freeform configuration associated with the network or VRF DCNM entries.
- All the overlay network and VRF profile parameters such as VLAN name and route map name should be consistent across all devices in the fabric for the brownfield migration to be successful.

Guidelines and Limitations

- Fabric interfaces can be numbered or unnumbered.
- Various other interface types are supported.

- The following features are unsupported.
 - eBGP underlay
 - Layer 3 port channel
 - Configuration profiles present in the brownfield configurations (the expectation is that the overlays should be configured through regular CLIs).
 - vPC Fabric Peering
- Take a backup of the switch configurations and save them before the migration.
- No configuration changes (unless instructed to do so in this document) must be made to the switches until the migration is completed. Else, significant network issues can occur.
- Migration to Cisco DCNM is only supported for Cisco Nexus 9000 switches.
- Multi-line banner configuration on the switch is preserved in the `switch_freeform` configuration, along with other configurations captured in the `switch_freeform` configuration, if any.
- From DCNM Release 11.2(1), the Border Spine and Border Gateway Spine roles are supported for the brownfield migration.
- Fabrics with IS-IS Level-1 and Level-2 are supported for the Brownfield migration.
- Switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images support the Brownfield migration. For information about feature compatibility, refer your respective platform documentation and for information about the supported software images, see *Compatibility Matrix for Cisco DCNM*.

Note the following guidelines and limitations:

- The VLAN name for the network or VRF is not captured in the overlay profile if at least one of the non-spine switches have the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images. The VLAN name is captured in the freeform config associated with the overlay network or VRF. The VLAN name can be changed by updating the freeform config. For more information, see *Modifying VLAN Names in a Switch with Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) Images*.
- Config compliance difference for TCAM CLIs on Cisco Nexus 9300 Series switches and Cisco Nexus 9500 Series switches with X9500 line cards. For more information, see *Resolving Config Compliance Error on Switches with Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) Images*.
- The overlay profile refresh feature is unsupported for the brownfield migration of switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.
- Cisco Nexus 9500 Series Switches are supported as VTEPs with border spine, BGW spine, or leaf roles for Cisco NX-OS Release 7.0.3.I7(3) or later.
- During the brownfield migration in the Cisco DCNM Release 11.1(1), the overlay configuration profiles are deployed to switches and all the overlay related configurations are captured in the respective network or VRF freeform configs. Post migration, switches have both the original configuration CLIs and the config-profiles.

From Cisco DCNM Release 11.2(1), during the brownfield migration, the overlay config-profiles are deployed to the switches, and the original configuration CLIs are removed. Post migration, the switches only have the configuration profiles and any extra configuration that is not part of the configuration profile if the switches in the brownfield migration have the following Cisco NX-OS images:

- Cisco NX-OS Release 7.0(3)I7(6) or newer
- Cisco NX-OS Release 9.2(3) or newer

If the switches do not meet these requirements, the brownfield migration behavior is the same as described for the Cisco DCNM Release 11.1(1).

- First, guidelines for updating the settings are noted. Then each VXLAN fabric settings tab is explained:
 - Some values (BGP AS Number, OSPF, etc) are considered as reference points to your existing fabric, and the values you enter must match the existing fabric values.
 - For some fields (such as IP address range, VXLAN ID range), the values that are auto-populated or entered in the settings are only used for future allocation. The existing fabric values are honored during migration.
 - Some fields relate to new functions that may not exist in your existing fabric (such as advertise-pip). Enable or disable it as per your need.
 - At a later point in time, after the fabric transition is complete, you can update settings if needed.

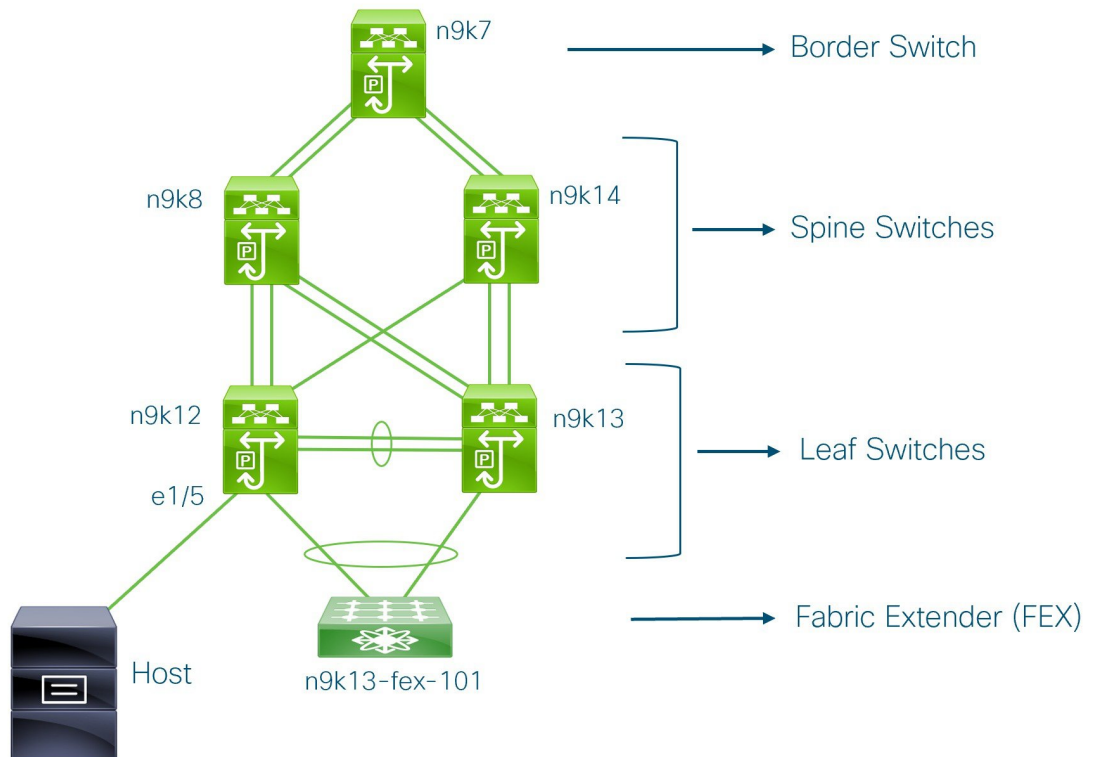
Fabric Topology Overview

This example use case uses the following hardware and software components:

- Five Cisco Nexus 9000 Series Switches running NX-OS Release 7.0(3)I7(6)
- One Fabric Extender or FEX
- One host

For information about the supported software images, see [Compatibility Matrix for Cisco DCNM](#).

Before we start the transition of the existing fabric, let us see its topology.



You can see that there is a border switch, two spine switches, two leaf switches, and a Fabric Extender or FEX.

A host is connected to the n9k12 leaf switch through the interface Ethernet 1/5.

DCNM Brownfield Deployment Tasks

The following tasks are involved in a Brownfield migration:

1. [Verifying the Existing VXLAN BGP EVPN Fabric, on page 5](#)
2. [Creating a VXLAN BGP EVPN Fabric, on page 8](#)
3. [Adding Switches and Transitioning VXLAN Fabric Management to DCNM, on page 16](#)
4. [Verifying the Import of the VXLAN BGP EVPN Fabric, on page 29](#)

Verifying the Existing VXLAN BGP EVPN Fabric

Let us check the network connectivity of the **n9k12** switch from the console terminal.

Procedure

Step 1 Verify the Network Virtual Interface or NVE in the fabric.

```
n9k12# show nve vni summary
Codes: CP - Control Plane      DP - Data Plane
       UC - Unconfigured
```

```
Total CP VNIs: 84    [Up: 84, Down: 0]
Total DP VNIs: 0     [Up: 0, Down: 0]
```

There are 84 VNIs in the control plane and they are up. Before the Brownfield migration, make sure that all the VNIs are up.

Step 2 Check consistency and failures of vPC.

```
n9k12# show vpc
Legend:
          (*) - local vPC is down, forwarding via vPC peer-link

vPC domain id           : 2
Peer status              : peer adjacency formed ok
vPC keep-alive status   : peer is alive
Configuration consistency status : success
Per-vlan consistency status : success
Type-2 consistency status : success
vPC role                 : secondary
Number of vPCs configured : 40
Peer Gateway             : Enabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Enabled
Auto-recovery status    : Enabled, timer is off.(timeout = 300s)
Delay-restore status    : Timer is off.(timeout = 60s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
.
.
.
```

Step 3 Check the EVPN neighbors of the n9k-12 switch.

```
n9k12# show bgp 12vpn evpn summary
BGP summary information for VRF default, address family L2VPN EVPN
BGP router identifier 192.168.0.4, local AS number 65000
BGP table version is 637, L2VPN EVPN config peers 2, capable peers 2
243 network entries and 318 paths using 57348 bytes of memory
BGP attribute entries [234/37440], BGP AS path entries [0/0]
BGP community entries [0/0], BGP clusterlist entries [2/8]

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ OutQ Up/Down  State/PfxRcd
192.168.0.0   4 65000   250    91     637    0   0 01:26:59 75
192.168.0.1   4 65000   221    63     637    0   0 00:57:22 75
```

You can see that there are two neighbors corresponding to the spine switches.

Note that the ASN is 65000.

Step 4 Verify the VRF information.

```
n9k12# show run vrf internet

!Command: show running-config vrf Internet
!Running configuration last done at: Fri Aug  9 01:38:02 2019
```

```

!Time: Fri Aug  9 02:48:03 2019

version 7.0(3)I7(6) Bios:version 07.59

interface Vlan347
  vrf member Internet

interface Vlan349
  vrf member Internet

interface Vlan3962
  vrf member Internet

interface Ethernet1/25
  vrf member Internet

interface Ethernet1/26
  vrf member Internet
vrf context Internet
  description Internet
  vni 16777210
  ip route 204.90.141.0/24 204.90.140.129 name LC-Networks
  rd auto
  address-family ipv4 unicast
    route-target both auto
    route-target both auto evpn
router ospf 300
  vrf Internet
    router-id 204.90.140.3
    redistribute direct route-map allow
    redistribute static route-map static-to-ospf
router bgp 65000
  vrf Internet
    address-family ipv4 unicast
      advertise l2vpn evpn

```

The VRF **Internet** is configured on this switch.

The host connected to the **n9k-12** switch is part of the VRF **Internet**.

You can see the VLANs associated with this VRF.

Specifically, the host is part of **Vlan349**.

Step 5 Verify the layer 3 interface information.

```
n9k12# show run interface vlan349
```

```

!Command: show running-config interface Vlan349
!Running configuration last done at: Fri Aug  9 01:38:02 2019
!Time: Fri Aug  9 02:49:27 2019

version 7.0(3)I7(6) Bios:version 07.59

interface Vlan349
  no shutdown
  vrf member Internet
  no ip redirects
  ip address 204.90.140.134/29
  no ipv6 redirects
  fabric forwarding mode anycast-gateway

```

Note that the IP address is **204.90.140.134**. This IP address is configured as the anycast gateway IP.

- Step 6** Verify the physical interface information. This switch is connected to the Host through the interface Ethernet 1/5.

```
n9k12# show run interface ethernet1/5

!Command: show running-config interface Ethernet1/5
!Running configuration last done at: Fri Aug 9 01:38:02 2019
!Time: Fri Aug 9 02:50:05 2019

version 7.0(3)I7(6) Bios:version 07.59

interface Ethernet1/5
  description to host
  switchport mode trunk
  switchport trunk native vlan 349
  switchport trunk allowed vlan 349,800,815
  spanning-tree bpduguard enable
  mtu 9050
```

You can see that this interface is connected to the host and is configured with VLAN 349.

- Step 7** Verify the connectivity from the host to the anycast gateway IP address.

```
host# ping 204.90.140.134 count unlimited interval 1
PING 204.90.140.134 (204.90.140.134): 56 data bytes
64 bytes from 204.90.140.134: icmp_seq=0 ttl=254 time=1.078 ms
64 bytes from 204.90.140.134: icmp_seq=1 ttl=254 time=1.129 ms
64 bytes from 204.90.140.134: icmp_seq=2 ttl=254 time=1.151 ms
64 bytes from 204.90.140.134: icmp_seq=3 ttl=254 time=1.162 ms
64 bytes from 204.90.140.134: icmp_seq=4 ttl=254 time=1.84 ms
64 bytes from 204.90.140.134: icmp_seq=5 ttl=254 time=1.258 ms
64 bytes from 204.90.140.134: icmp_seq=6 ttl=254 time=1.273 ms
64 bytes from 204.90.140.134: icmp_seq=7 ttl=254 time=1.143 ms
```

We let the ping command run in the background while we transition the existing brownfield fabric into DCNM.

Creating a VXLAN BGP EVPN Fabric

This procedure describes how to create a VXLAN BGP EVPN fabric in DCNM.

Procedure

- Step 1** Choose **Control > Fabric Builder**.

The **Fabric Builder** screen appears. When you log in for the first time, the **Fabrics** section has no entries. After you create a fabric, it is displayed on the **Fabric Builder** screen, wherein a rectangular box represents each fabric.

A standalone or member fabric contains Switch_Fabric (in the Type field), the AS number (in the ASN field), and mode of replication (in the Replication Mode field).

- Step 2** Click **Create Fabric**. The **Add Fabric** window appears.

Fabric Template - From the drop-down menu, choose the **Easy_Fabric_11_1** fabric template. The fabric settings for creating a standalone fabric comes up.

Fabric Name - Enter the name of the fabric.

The tabs and their fields in the screen are explained in the subsequent points. The overlay and underlay network parameters are included in these tabs.

Note If you are creating a standalone fabric as a potential member fabric of an MSD fabric (used for provisioning overlay networks for fabrics that are connected through EVPN Multi-Site technology), then browse through the Multi-Site Domain for VXLAN BGP EVPN Fabrics topic before member fabric creation.

Step 3

The **General** tab is displayed by default. The fields in this tab are:

BGP ASN: Enter the BGP AS number the fabric is associated with.

Enable IPv6 Underlay: Select this check box to enable the IPv6 underlay feature.

Brownfield migration is supported for the VXLANv6 fabrics. Note that L3 vPC keep-alive using IPv6 address is not supported for brownfield migration. This vPC configuration is deleted after the migration. However, L3 vPC keep-alive using IPv4 address is supported.

Fabric Interface Numbering: Specify whether you are using a point-to-point (p2p) or unnumbered network in your existing setup.

Underlay Subnet IP Mask - Specify the subnet mask you are using for the fabric underlay IP address subnets in your existing setup.

Link-State Routing Protocol: The IGP used in the existing fabric, OSPF, or IS-IS.

Route-Reflectors – The Route Reflector count is only applicable post-migration. The existing route reflector configuration is honored when importing into the DCNM setup.

The number of spine switches that are used as route reflectors for transporting BGP traffic. Choose 2 or 4 from the drop-down box. The default value is 2.

To deploy spine devices as route reflectors, DCNM sorts the spine devices based on their serial numbers, and designates two or four spine devices as route reflectors. If you add more spine devices, existing route reflector configuration will not change.

Increasing the count - You can increase the route reflectors from two to four at any point in time. Configurations are automatically generated on the other 2 spine devices designated as route reflectors.

Decreasing the count

When you reduce four route reflectors to two, you must remove the unneeded route reflector devices from the fabric. Follow these steps to reduce the count from 4 to 2.

a. Change the value in the drop-down box to 2.

b. Identify the spine switches designated as route reflectors.

An instance of the **rr_state** policy is applied on the spine switch if it is a route reflector. To find out if the policy is applied on the switch, right-click the switch, and choose **View/edit policies**. In the View/Edit Policies screen, search **rr_state** in the **Template** field. It is displayed on the screen.

c. Delete the unneeded spine devices from the fabric (right-click the spine switch icon and choose **Discovery > Remove from fabric**).

If you delete existing route reflector devices, the next available spine switch is selected as the replacement route reflector.

d. Click Save and Deploy at the top right part of the fabric topology screen.

You can preselect RRs and RPs before performing the first **Save & Deploy** operation. For more information, see *Preselecting Switches as Route-Reflectors and Rendezvous-Points*.

Anycast Gateway MAC: Enter the Anycast gateway MAC address of the existing fabric.

NX-OS Software Image Version: Leave this field blank. You can update this post-transition, as desired.

Step 4

Click the **Replication** tab. Most of the fields are auto generated.

Replication Mode: The mode of replication that is used in the existing fabric, Ingress Replication, or Multicast.

When you choose Ingress replication, the multicast replication fields get disabled.

Multicast Group Subnet - The IP address prefix for multicast communication is used for post-migration allocation. The IP address prefix used in your existing fabric is honored during the transition.

A unique IP address is allocated from this group for each overlay network.

Enable Tenant Routed Multicast – Select the check box to enable Tenant Routed Multicast (TRM) as the fabric overlay multicast protocol.

If you enable TRM, the Multicast address for TRM must be entered. All the TRM specific tenant configuration is captured in the switch freeform policy linked to the tenant network and VRF profile.

Note that the TRM feature is unsupported on switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.

Default MDT address for TRM VRFs – Enter the default multicast distribution tree (MDT) IPv4 address for TRM VRFs.

Rendezvous-Points - Enter the number of spine switches acting as rendezvous points.

RP mode – Select **asm** (Any-Source Multicast) or **bidir** (Bidirectional PIM) mode.

When you choose ASM, the BiDir related fields are not enabled.

The **asm** RP mode supports up to 4 RPs.

The **bidir** mode supports up to 2 RPs. An error message is displayed if the BIDIR configuration indicates that more than 2 RPs are used.

After brownfield migration, only 2 RPs are supported in the migrated fabric. An error message is displayed when you click **Save & Deploy** after changing the RP count to 4.

If an RP is down or deleted from the fabric, this RP cannot be replaced by another spine as Easy Fabric does not remember the configuration of a removed switch. Easy Fabric uses a specific scheme to generate RP configuration for Bidir. Therefore, the generated Bidir configuration will not work with the brownfield imported configuration. After brownfield migration, if you change the RP count or add new spine or leaf switches, you should manually configure the PIM-Bidir feature. If a manual configuration is required, a warning message is displayed after you click **Save & Deploy**. For more information, see *Manually Adding PIM-BIDIR Configuration for Leaf or Spine Post Brownfield Migration*.

You can also modify a brownfield imported bidir configuration to use the configuration generated by **Fabric Builder**. For more information, see *Changing a Brownfield Imported BIDIR Configuration*.

Underlay RP Loopback ID – The loopback ID has to match your existing setup's loopback ID. This is the loopback ID used for the rendezvous point (RP), for multicast protocol peering purposes in the fabric underlay.

The next two fields are enabled if you choose BIDIR-PIM as the multicast mode of replication.

Underlay Primary RP Loopback ID – The primary loopback ID used for the phantom RP, for multicast protocol peering purposes in the fabric underlay.

Underlay Backup RP Loopback ID – The secondary loopback ID used for the phantom RP, for multicast protocol peering purposes in the fabric underlay.

The next two fields are enabled if **Rendezvous-Points** is set to 4. However, the fabric can have only 2 RPs for the brownfield migration.

Underlay Second Backup RP Loopback Id – The second fallback loopback ID for Phantom RP, for multicast protocol peering purposes in the fabric underlay.

Underlay Third Backup RP Loopback Id – The third fallback loopback ID for Phantom RP, for multicast protocol peering purposes in the fabric underlay.

Step 5

Click the **vPC** tab. Most of the fields are auto generated.

vPC Peer Link VLAN - Enter the VLAN ID used for the vPC peer link SVI in the existing fabric.

vPC Peer Keep Alive option – Choose the management or loopback option, as used in the existing fabric. If you want to use IP addresses assigned to the management port and the management VRF, choose management. If you use IP addresses assigned to loopback interfaces (and a non-management VRF), choose loopback.

If you only use IPv6 addresses on the management interface, you must use the loopback option.

During the transition, the switch configuration is not checked for the following fields in the vPC tab. The switch configurations will get updated if they are different.

vPC Auto Recovery Time - Specify the vPC auto recovery time-out period in seconds, as needed.

vPC Delay Restore Time - Specify the vPC delay restore period in seconds, as needed.

vPC Peer Link Port Channel Number - Specifies the Port Channel ID for a vPC Peer Link. By default, the value in this field is 500. Change the value based on your existing settings.

vPC IPv6 ND Synchronize – Enables IPv6 Neighbor Discovery synchronization between vPC switches. The check box is enabled by default. Clear the check box to disable the function as needed.

vPC advertise-pip - Select the check box to enable the Advertise PIP feature.

Note that the Advertise PIP feature is unsupported on switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.

Step 6

Click the **Protocols** tab. Most of the fields are auto generated. You can update the fields if needed.

Underlay Routing Loopback Id - The loopback interface ID is populated as 0 since loopback0 is usually used for fabric underlay IGP peering purposes. This must match the existing configuration on the switches. This must be the same across all the switches.

Underlay VTEP Loopback Id - The loopback interface ID is populated as 1 since loopback1 is usually used for the VTEP peering purposes. This must match the existing configuration on the switches. This must be the same across all the switches where VTEPs are present.

Link-State Routing Protocol Tag - Enter the existing fabric's routing protocol tag in this field to define the type of network.

OSPF Area ID – The OSPF area ID of the existing fabric, if OSPF is used as the IGP within the fabric.

Note The OSPF or IS-IS authentication fields are enabled based on your selection in the **Link-State Routing Protocol** field in the **General** tab.

Enable OSPF Authentication – Select the check box to enable the OSPF authentication. Deselect the check box to disable it. If you enable this field, the **OSPF Authentication Key ID** and **OSPF Authentication Key** fields are enabled.

OSPF Authentication Key ID – Enter the OSPF authentication key ID.

OSPF Authentication Key - The OSPF authentication key must be the 3DES key from the switch.

Note Plain text passwords are not supported. Login to the switch, retrieve the OSPF authentication details.

You can obtain the OSPF authentication details by using the **show run ospf** command on your switch.

```
# show run ospf | grep message-digest-key
ip ospf message-digest-key 127 md5 3 c7c83ec78f38f32f3d477519630faf7b
```

In this example, the OSPF authentication key ID is **127** and the authentication key is **c7c83ec78f38f32f3d477519630faf7b**.

For information about how to configure a new key and retrieve it, see *Retrieving the Authentication Key*.

IS-IS Level - Select the IS-IS level from this drop-down list.

Enable IS-IS Authentication - Select the check box to enable IS-IS authentication. Deselect the check box to disable it. If you enable this field, the IS-IS authentication fields are enabled.

IS-IS Authentication Keychain Name - Enter the keychain name.

IS-IS Authentication Key ID - Enter the IS-IS authentication key ID.

IS-IS Authentication Key - Enter the Cisco Type 7 encrypted key.

Note Plain text passwords are not supported. Login to the switch, retrieve the IS-IS authentication details.

You can obtain the IS-IS authentication details by using the **show run | section “key chain”** command on your switch.

```
# show run | section "key chain"
key chain CiscoIsisAuth
  key 127
    key-string 7 075e731f
```

In this example, the keychain name is **CiscoIsisAuth**, the key ID is **127**, and the type 7 authentication key is **075e731f**.

Enable BGP Authentication - Select the check box to enable BGP authentication. Deselect the check box to disable it. If you enable this field, the **BGP Authentication Key Encryption Type** and **BGP Authentication Key** fields are enabled.

BGP Authentication Key Encryption Type – Choose the 3 for 3DES encryption type, and 7 for Cisco encryption type.

BGP Authentication Key - Enter the encrypted key based on the encryption type.

Note Plain text passwords are not supported. Login to the switch, retrieve the BGP authentication details.

You can obtain the BGP authentication details by using the **show run bgp** command on your switch.

```
# show run bgp
```

```
neighbor 10.2.0.2
remote-as 65000
password 3 sd8478fswerdfw3434fsw4f4w34sdsd8478fswerdfw3434fsw4f4w3
```

In this example, the BGP authentication key is displayed after the encryption type **3**.

Enable BFD feature – Select the check box to enable the BFD feature.

The BFD feature is disabled by default.

Make sure that the BFD feature setting matches with the switch configuration. If the switch configuration contains **feature bfd** but the BFD feature is not enabled in the fabric settings, config compliance generates diff to remove the BFD feature after brownfield migration. That is, **no feature bfd** is generated after migration.

The following config is pushed after you select the **Enable BFD** check box:

```
feature bfd
```

For information about BFD feature compatibility, refer your respective platform documentation and for information about the supported software images, see *Compatibility Matrix for Cisco DCNM*.

Enable BFD for iBGP: Select the check box to enable BFD for the iBGP neighbor. This option is disabled by default.

Enable BFD for OSPF: Select the check box to enable BFD for the OSPF underlay instance. This option is disabled by default, and it is grayed out if the link state protocol is ISIS.

Enable BFD for ISIS: Select the check box to enable BFD for the ISIS underlay instance. This option is disabled by default, and it is grayed out if the link state protocol is OSPF.

Enable BFD for PIM: Select the check box to enable BFD for PIM. This option is disabled by default, and it is grayed out if the replication mode is Ingress.

Here are the examples of the BFD global policies:

```
router ospf <ospf tag>
  bfd

router isis <isis tag>
  address-family ipv4 unicast
  bfd

ip pim bfd

router bgp <bgp asn>
  neighbor <neighbor ip>
  bfd
```

Enable BFD Authentication: Select the check box to enable BFD authentication. If you enable this field, the **BFD Authentication Key ID** and **BFD Authentication Key** fields are editable.

Note

- BFD Authentication is not supported when the **Fabric Interface Numbering** field under the **General** tab is set to **unnumbered**. The BFD authentication fields will be grayed out automatically.

BFD Authentication Key ID: Specifies the BFD authentication key ID for the interface authentication. The default value is 100.

BFD Authentication Key: Specifies the BFD authentication key.

For information about how to retrieve the BFD authentication parameters, see *Retrieving the Authentication Key*.

iBGP Peer-Template Config – Add iBGP peer template configurations on the leaf switches and route reflectors to establish an iBGP session between the leaf switch and route reflector. Set this field based on switch configuration. If this field is blank, it implies that the iBGP peer template is not used. If the iBGP peer template is used, enter the peer template definition as defined on the switch. The peer template name on devices configured with BGP should be the same as defined here.

Note If you use the iBGP peer template, include the BGP authentication configuration in this template config field. Additionally, uncheck the Enable BGP Authentication check box to avoid duplicating the BGP configuration.

Step 7

Click the **Advanced** tab. Most of the fields are auto generated.

VRF Template and **VRF Extension Template**: Specifies the VRF template for creating VRFs, and the VRF extension template for enabling VRF extension to other fabrics.

Network Template and **Network Extension Template**: Specifies the network template for creating networks, and the network extension template for extending networks to other fabrics.

You must not change the templates when migrating. Only the Universal templates are supported for overlay migration.

Site ID - The ID for this fabric if you are moving this fabric within an MSD. You can update this field post-migration.

Intra Fabric Interface MTU - Specifies the MTU for the intra fabric interface. This value should be an even number.

Layer 2 Host Interface MTU - Specifies the MTU for the layer 2 host interface. This value should be an even number.

Power Supply Mode - Choose the appropriate power supply mode.

CoPP Profile - Choose the Control Plane Policing (CoPP) profile policy used in the existing fabric. By default, the strict option is populated.

VTEP HoldDown Time - Specifies the NVE source interface hold down time.

Enable VXLAN OAM - Enables the VXLAN OAM function for existing switches.

This is enabled by default. Clear the check box to disable VXLAN OAM function.

If you want to enable the VXLAN OAM function on specific switches and disable on other switches in the fabric, you can use freeform configurations to enable OAM and disable OAM in the fabric settings.

Note The VXLAN OAM feature in Cisco DCNM is only supported on a single fabric or site.

Note that the NGOAM feature is unsupported on switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.

Enable Tenant DHCP – Select the check box to enable the tenant DHCP support.

Note Ensure that **Enable Tenant DHCP** is enabled before enabling DHCP related parameters in the overlay profiles.

Enable NX-API - Specifies enabling of NX-API.

Enable NX-API on HTTP - Specifies enabling of NX-API on HTTP.

Enable Policy-Based Routing (PBR) - Select this check box to enable routing of packets based on the specified policy. For information on Layer 4-Layer 7 service, refer [Layer 4-Layer 7 Service](#).

Enable Strict Config Compliance - Enable the Strict Config Compliance feature by selecting this check box. By default, this feature is disabled. For more information, refer *Strict Configuration Compliance*.

Note If Strict Config Compliance is enabled in a fabric, you cannot deploy Network Insights for Resources on Cisco DCNM.

Enable AAA IP Authorization - Enables AAA IP authorization, when IP Authorization is enabled in the AAA Server.

Greenfield Cleanup Option – Enable or disable the switch cleanup option for Greenfield switches. This is applicable post-migration when new switches are added.

Enable MPLS Handoff: Select the check box to enable the MPLS Handoff feature. For more information, see [Border Provisioning Use Case in VXLAN BGP EVPN Fabrics - MPLS SR and LDP Handoff](#).

Note: For the brownfield import, you need to select the **Enable MPLS Handoff** feature. Most of the IFC configuration will be captured in **switch_freeform**.

Underlay MPLS Loopback Id: Specifies the underlay MPLS loopback ID. The default value is 101.

Leaf Freeform Config and **Spine Freeform Config** - You can enter these fields after fabric transitioning is complete, as needed.

Intra-fabric Links Additional Config - You can enter this field after fabric transitioning is complete, as needed.

Step 8

Click the **Resources** tab.

Manual Underlay IP Address Allocation – *Do not* select this check box if you are transitioning your VXLAN fabric management to DCNM.

Review the ranges and ensure they are consistent with the existing fabric. The migration will honor the existing resources as found on the fabric. The range settings apply to post migration allocation.

Underlay Routing Loopback IP Range - Specifies loopback IP addresses for the protocol peering.

Underlay VTEP Loopback IP Range - Specifies loopback IP addresses for VTEPs.

Underlay RP Loopback IP Range - Specifies the anycast or phantom RP IP address range.

Underlay Subnet IP Range - IP addresses for underlay P2P routing traffic between interfaces.

Layer 2 VXLAN VNI Range and **Layer 3 VXLAN VNI Range** - Specifies the VXLAN VNI IDs for the fabric.

Network VLAN Range and **VRF VLAN Range** - VLAN ranges for the Layer 3 VRF and overlay network.

Subinterface Dot1q Range - Specifies the subinterface range when L3 sub interfaces are used.

VRF Lite Deployment - Specify the VRF Lite method for extending inter fabric connections.

If you select Manual, the VRF Lite subnet details are required so that the resource manager can reserve the address space.

If you select Back2BackOnly, ToExternalOnly, or Both, then the VRF Lite subnet fields are enabled.

VRF Lite Subnet IP Range and **VRF Lite Subnet Mask** – These fields are populated with the DCI subnet details. Update the fields as needed.

The values shown in your screen are automatically generated. If you want to update the IP address ranges, VXLAN Layer 2/Layer 3 network ID ranges or the VRF/Network VLAN ranges, ensure the following:

Note When you update a range of values, ensure that it does not overlap with other ranges. You should only update one range of values at a time. If you want to update more than one range of values, do it in separate instances. For example, if you want to update L2 and L3 ranges, you should do the following.

- a. Update the L2 range and click **Save**.
- b. Click the **Edit Fabric** option again, update the L3 range and click **Save**.

The remaining tabs do not require updates. However, their purpose is mentioned.

Step 9 Click the **Manageability** tab.

Enter the DNS, NTP, AAA, or syslog servers' IP address, VRF, and other applicable information matching the switch configuration. If there are more than two servers for these features, add the configurations of the additional servers to the **Leaf Freeform Config** and **Spine Freeform Config** fields in the **Advanced** tab.

Step 10 Click the **Bootstrap** tab. Update the fields in this tab post transition, when new switches are added to the fabric.

Step 11 Click the **Configuration Backup** tab. Leave the fields in this tab blank. You can update post transition.

Step 12 Click **Save** after filling and updating relevant information. A note appears briefly at the bottom right part of the screen, indicating that the fabric is created. When a fabric is created, the fabric page comes up. The fabric name appears at the top left part of the screen.

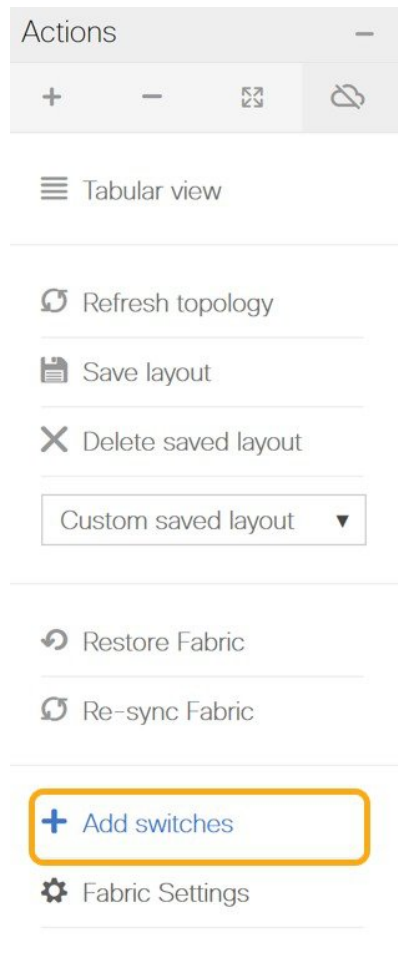
The **Actions** panel at the left part of the screen allows you to perform various functions. One of them is the **Add switches** option to add switches to the fabric. After you create a fabric, you should add fabric devices. The process is explained next:

Adding Switches and Transitioning VXLAN Fabric Management to DCNM

Let us discover and add switches to the newly created fabric.

Procedure

Step 1 Click **Add Switches** in the **Actions** menu.



Step 2 Under the **Discover Existing Switches** tab, enter the IP address of the switch in the **Seed IP** field. Enter the username and password of the switches that you want to discover.

Inventory Management ✕

Discover Existing Switches
PowerOn Auto Provisioning (POAP)

Discovery Information > Scan Details >

Seed IP
Ex: "2.2.2.20"; "10.10.10.40-60"; "2.2.2.20, 2.2.2.21"

Authentication Protocol

Username

Password

Max Hops hop(s)

Preserve Config no yes
Selecting 'no' will clean up the configuration on switch(es)

By default, the value in the **Max Hops** field is **2**. The switch with the specified IP address and the switches that are 2 hops from it will be populated after the discovery is complete.

Make sure that the **Preserve Config** toggle button is set to **yes**.

The **yes** setting means that the current configuration of the switches will be retained.

Important - Ensure that the Preserve Config field remains set to **yes**. Selecting **no** can cause significant configuration loss and fabric disruption.

The POAP tab is only used for adding new switches to the fabric. Use the tab only after migrating your existing fabric to DCNM.

Step 3 Click **Start discovery**.

Inventory Management



Discover Existing Switches

PowerOn Auto Provisioning (POAP)

Discovery Information

Scan Details

Seed IP
*Ex: *2.2.2.20*; *10.10.10.40-60*; *2.2.2.20, 2.2.2.21**

Authentication Protocol

Username

Password

Max Hops hop(s)

Preserve Config no yes
Selecting 'no' will clean up the configuration on switch(es)

The switch with the specified IP address and switches up to two hops away (depending on the setting of Max Hops) from it are populated in the Scan Details section.

Step 4

Check the check box next to the switches that have to be imported into the fabric and click **Import into fabric**.

It is best practice to discover multiple switches at the same time in a single attempt. The switches must be cabled and connected to the DCNM server and the switch status must be manageable.

If switches are imported in multiple attempts, then all the switches must be added to the fabric before you make any changes to the fabric, that is, before you click **Save & Deploy**.

Inventory Management ✕

Discover Existing Switches | PowerOn Auto Provisioning (POAP)

Discovery Information > Scan Details >

[← Back](#) *Note: Preserve Config selection is 'yes'.* Import into fabric

<input type="checkbox"/>	Name	IP Address	Model	Version	Status	Progress
<input checked="" type="checkbox"/>	n9k13	80.80.80.63	N9K-C939...	7.0(3)17(6)	manageable	
<input checked="" type="checkbox"/>	n9k8	80.80.80.58	N9K-C939...	7.0(3)17(6)	manageable	
<input checked="" type="checkbox"/>	n9k12	80.80.80.62	N9K-C939...	7.0(3)17(6)	manageable	
<input checked="" type="checkbox"/>	n9k7	80.80.80.57	N9K-C939...	7.0(3)17(6)	manageable	
<input checked="" type="checkbox"/>	n9k14	80.80.80.64	N9K-C921...	7.0(3)17(6)	manageable	

Show All ▼

Close

Step 5 Click **Import into fabric**.

The switch discovery process is initiated. The **Progress** column displays progress for all the selected switches. It displays **done** for each switch after completion.

Note You should not close the screen and try to import switches again until all selected switches are imported or an error message comes up.

If an error message comes up, close the screen. The fabric topology screen comes up. The error messages are displayed at the top-right part of the screen. Resolve the errors and initiate the import process again by clicking **Add Switches** in the **Actions** panel.

Step 6 After a successful import, the progress bar shows **Done** for all the switches. Click **Close**.

Inventory Management ✕

Discover Existing Switches
PowerOn Auto Provisioning (POAP)

Discovery Information >
Scan Details >

← Back
Note: Preserve Config selection is 'yes'.
Import into fabric

<input type="checkbox"/>	Name	IP Address	Model	Version	Status	Progress
<input checked="" type="checkbox"/>	n9k13	80.80.80.63	N9K-C939...	7.0(3)I7(6)	manageable	done
<input checked="" type="checkbox"/>	n9k8	80.80.80.58	N9K-C939...	7.0(3)I7(6)	manageable	done
<input checked="" type="checkbox"/>	n9k12	80.80.80.62	N9K-C939...	7.0(3)I7(6)	manageable	done
<input checked="" type="checkbox"/>	n9k7	80.80.80.57	N9K-C939...	7.0(3)I7(6)	manageable	done
<input checked="" type="checkbox"/>	n9k14	80.80.80.64	N9K-C921...	7.0(3)I7(6)	manageable	done

Show All ▼ ⌵

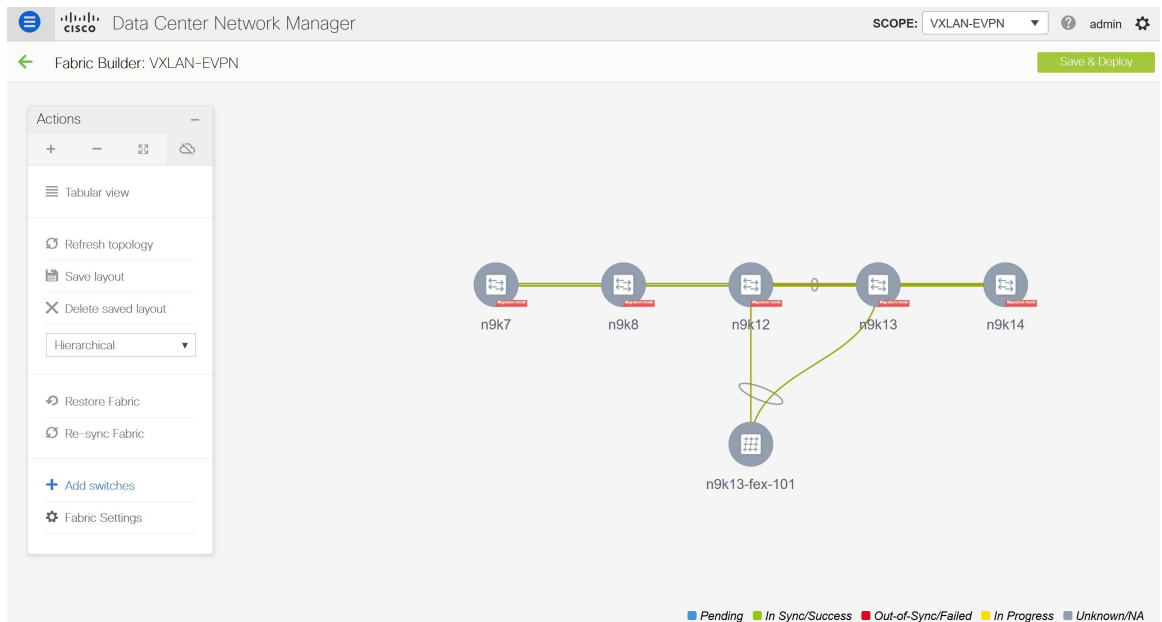
Close

After closing the window, the fabric topology window comes up again. The switch is in Migration Mode now, and the Migration mode label is displayed on the switch icons.

At this point, you must not try to add Greenfield or *new* switches. Support is not available for adding new switches during the migration process. It might lead to undesirable consequences for your network. However, you can add a new switch after the migration process is complete.

Step 7

After all the network elements are discovered, they are displayed in the **Fabric Builder** window in a connected topology. Each switch is assigned the **Leaf** role by default.



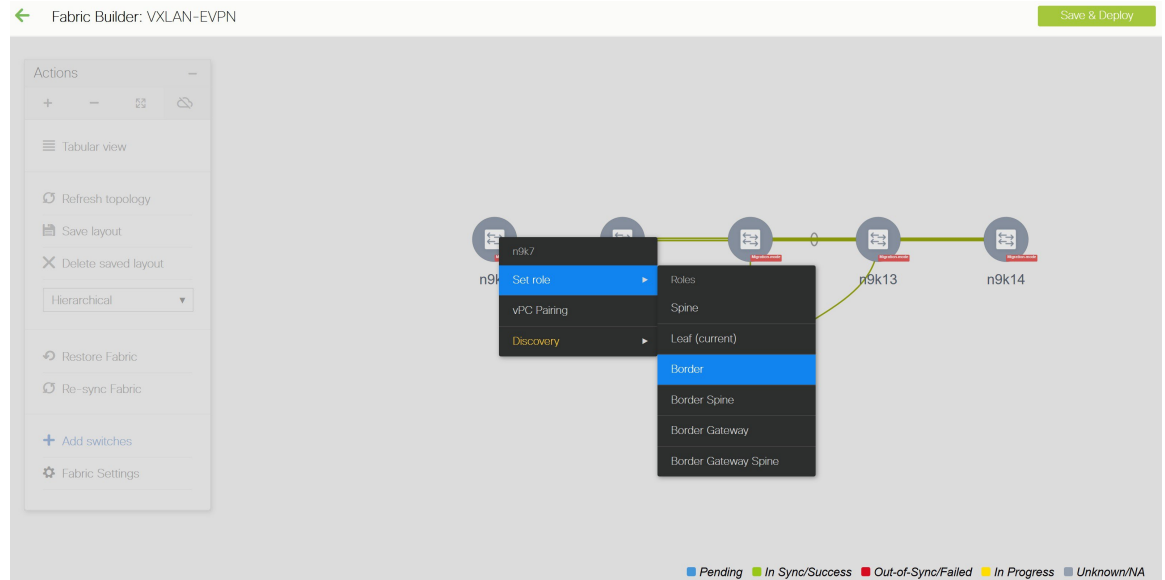
The switch discovery process might fail for a few switches, and the Discovery Error message is displayed. However, such switches are still displayed in the fabric topology. You should remove such switches from the fabric (Right-click the switch icon and click **Discovery > Remove** from fabric), and import them again.

You should not proceed to the next step until all switches in the existing fabric are discovered in DCNM.

If you choose the Hierarchical layout for display (in the Actions panel), the topology automatically gets aligned as per role assignment, with the leaf switches at the bottom, the spine switches connected on top of them, and the border switches at the top.

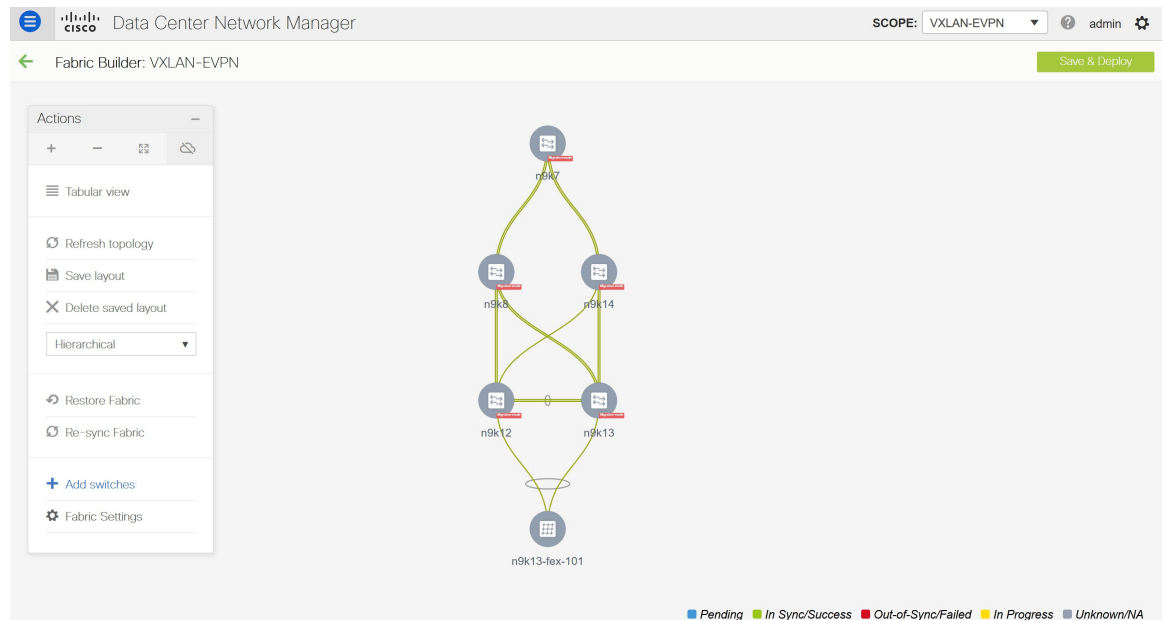
Note The supported roles for switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images are Border Leaf, Border Spine, Leaf, and Spine

Step 8 Right-click the **n9k-7** switch, select **Set Role**, and choose **Border** from the **Roles** drop-down list.



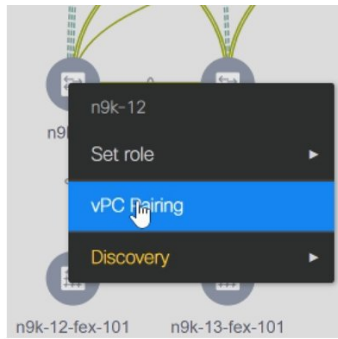
Similarly, set the **Spine** role for the **n9k-14** and **n9k-8** spine switches.

Note You need to manually create a vPC pairing when the L3 keep alive is configured on the switches. Otherwise, the vPC configuration is automatically picked up from the switches. For more information, see [Adding a vPC L3 Peer Keep-Alive Link](#).



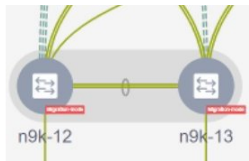
vPC Pairing - The vPC pairing must be done for switches where the Layer 3 vPC peer-keep alive is used. The vPC configuration is automatically picked up from the switches when the vPC peer keep alive is established through the management option. This pairing reflects in the GUI only after the migration is complete.

- a. Right-click the switch icon and click vPC Pairing to set a vPC switch pair.



The Select vPC peer screen comes up. It lists potential vPC peer switches.

- b. Select the appropriate switch and click OK. The fabric topology comes up again. The vPC pair is formed now.



Note Check if you have added all switches from the current fabric. If you have missed adding switches, add them now. Once you are certain that you have imported all existing switches, move to the next step, the Save and Deploy option.

Step 9 Click **Save & Deploy**.

When you click **Save & Deploy**, DCNM obtains switch configurations and populates the state of every switch from the current running config to the current expected config, which is the intended state maintained in DCNM.

The Saving Fabric Configuration message comes up immediately. This indicates that overlay and underlay network migration, and switch and port channel settings migration to DCNM is initiated.

If there are configuration mismatches, error messages are displayed. Update changes in the fabric settings or the switch configuration as needed, and click Save and Deploy again.

After the migration of underlay and overlay networks, the Configuration Deployment screen comes up.

- Note**
- The brownfield migration requires best practices to be followed on the existing fabric such as maintain consistency of the overlay configurations. For more information, see [Guidelines and Limitations](#).
 - Any errors or inconsistencies that are found during the migration is reported in fabric errors. The switches continue to remain in the Migration mode. You should fix these errors and complete the migration again by clicking **Save & Deploy** until no errors are reported.

Step 10 After the configurations are generated, review them by clicking the links in the **Preview Config** column.

Config Deployment



Step 1. Configuration Preview >

Step 2. Configuration Deployment Status >

Switch Name	IP Address	Switch Serial	Preview Config	Status	Re-sync	Progress
n9k12	80.80.80.62	SAL18422FX8	2405 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
n9k13	80.80.80.63	SAL18422FXE	2405 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
n9k7	80.80.80.57	SAL1833YM64	2200 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
n9k14	80.80.80.64	SAL2016NXXB	2 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
n9k8	80.80.80.58	SAL1833YM0V	3 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%

Deploy Config

We strongly recommend that you preview the configuration before proceeding to deploy it on the switches. Click the Preview Config column entry. The Config Preview screen comes up. It lists the pending configurations on the switch.

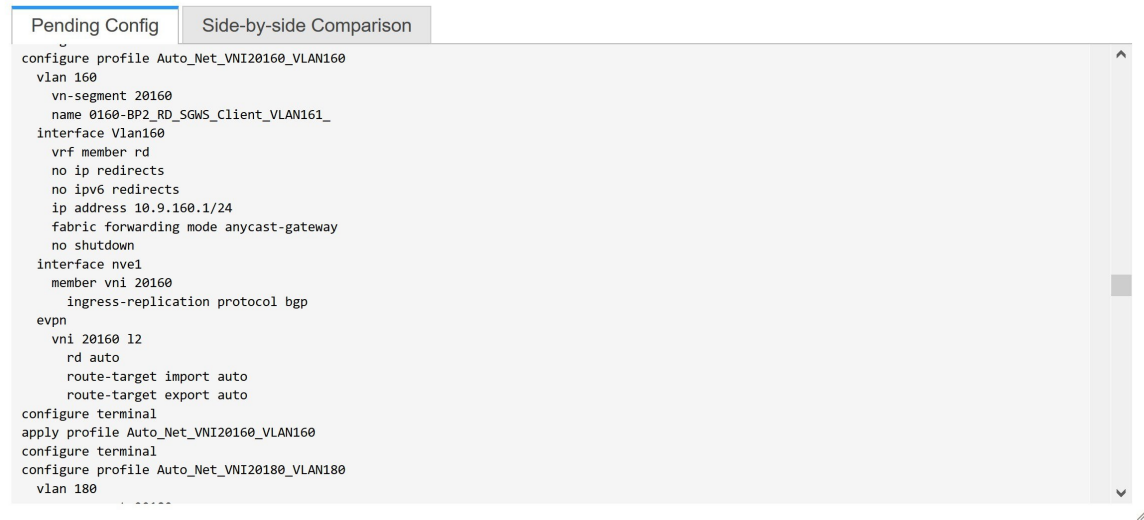
The Side-by-side Comparison tab displays the running configuration and expected configuration side-by-side.

The **Pending Config** tab displays the set of configurations that need to be deployed on a switch in order to go from the current running configuration to the current expected or intended configuration.

The **Pending Config** tab may show many config lines that will be deployed to the switches. Typically, on a successful brownfield import, these lines correspond to the configuration profiles pushed to the switches for a overlay network configuration. Note that the existing network and VRF-related overlay configurations are not removed from the switches.

The configuration profiles are DCNM required constructs for managing the VXLAN configurations on the switches. During the Brownfield import process, they capture the same information as the original VXLAN configurations already present on the switches. In the following image, the configuration profile with **vlan 160** is applied.

Config Preview - Switch 80.80.80.62



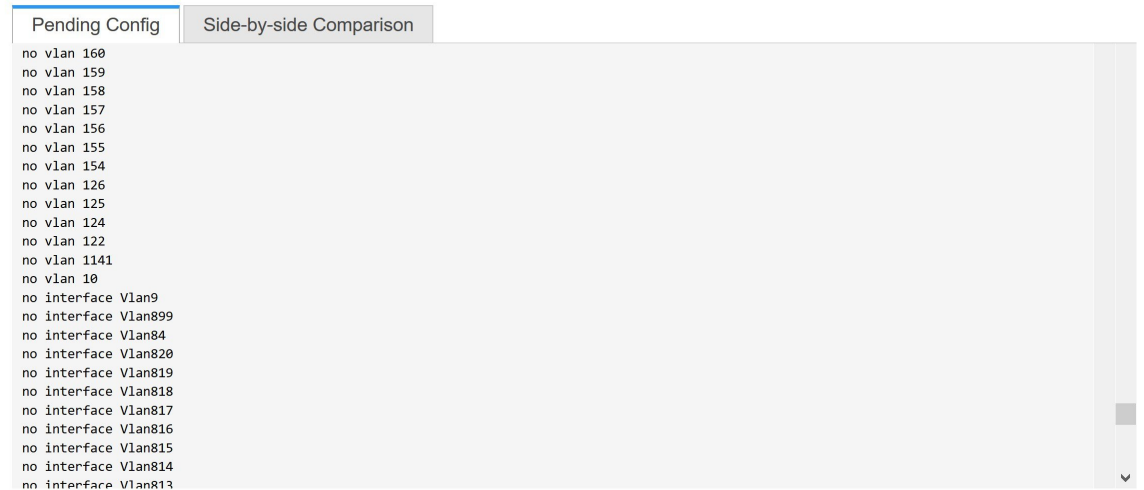
```

Pending Config | Side-by-side Comparison
-----
configure profile Auto_Net_VNI20160_VLAN160
vlan 160
  vn-segment 20160
  name 0160-BP2_RD_SGWS_Client_VLAN161_
interface Vlan160
  vrf member rd
  no ip redirects
  no ipv6 redirects
  ip address 10.9.160.1/24
  fabric forwarding mode anycast-gateway
  no shutdown
interface nve1
  member vni 20160
  ingress-replication protocol bgp
evpn
  vni 20160 12
  rd auto
  route-target import auto
  route-target export auto
configure terminal
apply profile Auto_Net_VNI20160_VLAN160
configure terminal
configure profile Auto_Net_VNI20180_VLAN180
vlan 180

```

As part of the import process, after the configuration profiles are applied, the original CLI based configuration references will be removed from the switches. These are the ‘no’ CLIs that will be seen towards the end of the diffs. The VXLAN configurations on the switches will be persisted in the configuration profiles. In the following image, you can see that the configurations will be removed, specifically, **no vlan 160**.

Config Preview - Switch 80.80.80.62



```

Pending Config | Side-by-side Comparison
-----
no vlan 160
no vlan 159
no vlan 158
no vlan 157
no vlan 156
no vlan 155
no vlan 154
no vlan 126
no vlan 125
no vlan 124
no vlan 122
no vlan 1141
no vlan 10
no interface Vlan9
no interface Vlan899
no interface Vlan84
no interface Vlan820
no interface Vlan819
no interface Vlan818
no interface Vlan817
no interface Vlan816
no interface Vlan815
no interface Vlan814
no interface Vlan813

```

The **Side-by-side Comparison** tab displays the Running Config and Expected Config on the switch.

- Step 11** Close the **Config Preview Switch** window after reviewing the configurations.
- Step 12** Click **Deploy Config** to deploy the pending configuration onto the switches.

Config Deployment



Step 1. Configuration Preview > Step 2. Configuration Deployment Status >

Switch Name	IP Address	Status	Status Description	Progress
n9k14	80.80.80.64	COMPLETED	Deployed successfully	100%
n9k8	80.80.80.58	COMPLETED	Deployed successfully	100%
n9k12	80.80.80.62	COMPLETED	Deployed successfully	100%
n9k7	80.80.80.57	COMPLETED	Deployed successfully	100%
n9k13	80.80.80.63	COMPLETED	Deployed successfully	100%

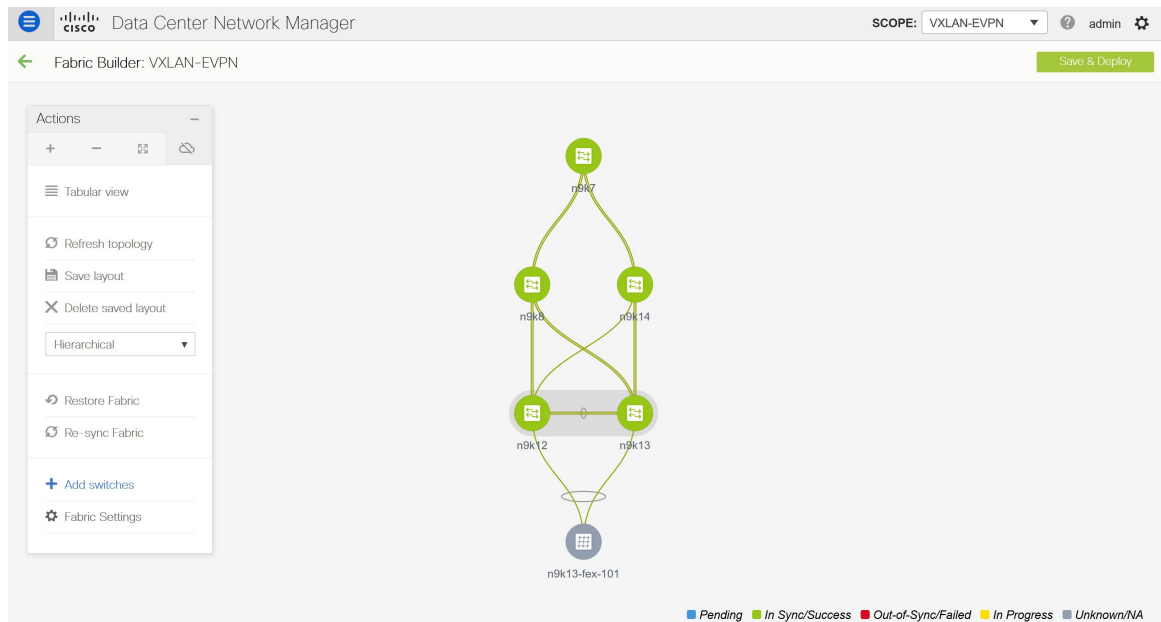
[Close](#)

If the **Status** column displays **FAILED**, investigate the reason for failure to address the issue.

The progress bar shows **100%** for each switch. After correct provisioning and successful configuration compliance, close the screen.

In the fabric topology screen that comes up, all imported switch instances are displayed in green color, indicating successful configuration. Also, the **Migration Mode** label is not displayed on any switch icon.

DCNM has successfully imported a VXLAN-EVPN fabric.



Post-transitioning of VXLAN fabric management to DCNM - This completes the transitioning process of VXLAN fabric management to DCNM. Now, you can add new switches and provision overlay networks for your fabric. For details, refer the respective section in the Fabrics topic in the configuration guide.

Fabric Options

- **Tabular View** - By default, the switches are displayed in the topology view. Use this option to view switches in the tabular view.
- **Refresh topology** - Allows you to refresh the topology.
- **Save Layout** – Saves a custom view of the topology. You can create a specific view in the topology and save it for ease of use.
- **Delete saved layout** – Deletes the custom view of the topology
- **Topology views** - You can choose between Hierarchical, Random and Custom saved layout display options.
 - **Hierarchical** - Provides an architectural view of your topology. Various Switch Roles can be defined that draws the nodes on how you configure your CLOS topology.
 - **Random** - Nodes are placed randomly on the screen. DCNM tries to make a guess and intelligently place nodes that belong together in close proximity.
 - **Custom saved layout** - You can drag nodes around to your liking. Once you have the positions as how you like, you can click Save Layout to remember the positions. Next time you come to the topology, DCNM will draw the nodes based on your last saved layout positions.
- **Restore Fabric** – Allows you to restore the fabric to a prior DCNM configuration state (one month back, two months back, and so on). For more information, see the *Restore Fabric* section.
- **Resync Fabric** - Use this option to resynchronize DCNM state when there is a large scale out-of-band change, or if configuration changes do not register in the DCNM properly. The resync operation does a full CC run for the fabric switches and recollects “show run” and “show run all” commands from the

switches. When you initiate the re-sync process, a progress message is displayed on the screen. During the re-sync, the running configuration is taken from the switches. The Out-of-Sync/In-Sync status for the switches is recalculated based on the intent defined in DCNM.

- **Add Switches** – Allows you to add switch instances to the fabric.
- **Fabric Settings** – Allows you to view or edit fabric settings.

Verifying the Import of the VXLAN BGP EVPN Fabric

Let us verify whether the Brownfield migration was successful.

Verifying VXLANs and Commands on Switches

Procedure

- Step 1** To verify the VXLANs in this fabric, double click a switch and click **Show more details** in the switch pane.

The screenshot displays a network topology on the left and a detailed configuration pane on the right. The topology shows five switches: n9k7 at the top, n9k8 and n9k14 in the middle, n9k12 and n9k13 at the bottom, and n9k13-fex-101 at the very bottom. A legend at the bottom indicates that green circles represent 'In Sync/Success' and blue circles represent 'Pending'. The detailed pane on the right shows the following information:

Summary	
Status:	✓ ok
Serial number:	SAL18422FX8
CPU:	22%
Memory:	30%
VPC Domain ID: 2	
Role:	Secondary
Peer:	n9k13
Peerlink State:	Peer is OK
Keep Alive State:	Peer is alive
Consistency State:	Consistent
Send Interface:	mgmt0
Receive Interface:	mgmt0
Tags	
+	
System Tags	
VTEP	
← Show more details	

- Step 2** Click the **VXLAN** tab.

n9k12
80.80.80.62
N9K-C9396PX

System Info Modules FEX License Features **VXLAN** Port Capacity

VXLAN Total 84

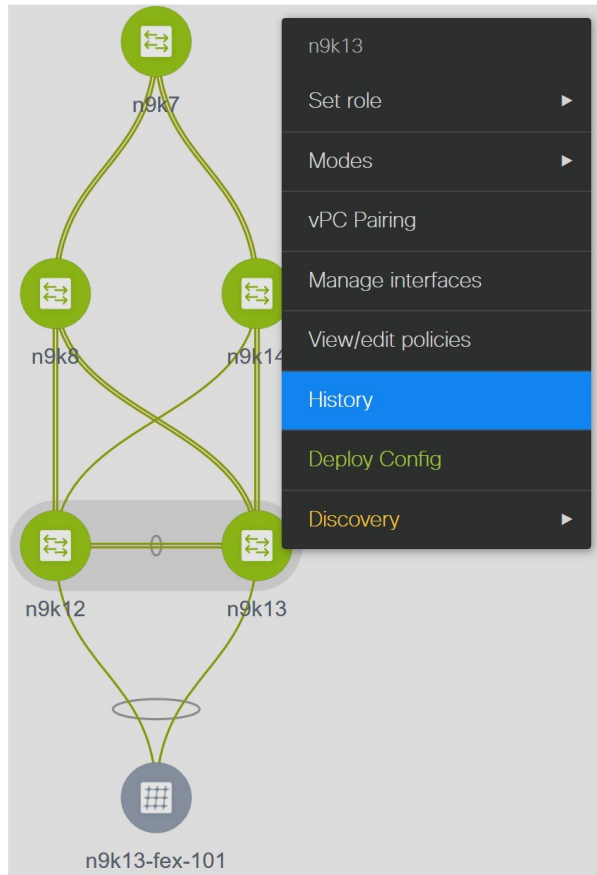
Show Quick Filter

NVE Interface	VNI	Multicast Address	VNI Status	Mode	Type	VRF	Mapped VLAN
nve1	20006	UnicastBGP	Up	Control-Plane	Layer-2	-	6
nve1	20009	UnicastBGP	Up	Control-Plane	Layer-2	-	9
nve1	20010	UnicastBGP	Up	Control-Plane	Layer-2	-	10
nve1	20017	UnicastBGP	Up	Control-Plane	Layer-2	-	17
nve1	20018	UnicastBGP	Up	Control-Plane	Layer-2	-	18
nve1	20027	UnicastBGP	Up	Control-Plane	Layer-2	-	27
nve1	20028	UnicastBGP	Up	Control-Plane	Layer-2	-	28
nve1	20029	UnicastBGP	Up	Control-Plane	Layer-2	-	29
nve1	20030	UnicastBGP	Up	Control-Plane	Layer-2	-	30
nve1	20031	UnicastBGP	Up	Control-Plane	Layer-2	-	31
nve1	20036	UnicastBGP	Up	Control-Plane	Layer-2	-	36
nve1	20040	UnicastBGP	Up	Control-Plane	Layer-2	-	40

You can see that all the VXLANs have been migrated successfully.

Note You can verify remaining information by clicking the different tabs in this window.

Step 3 Right-click a switch and select **History** to see the commands pushed by DCNM.



Step 4 Click the **Success** hyperlink under the **Status** column to view the commands pushed by DCNM.

Policy Deployment History for n9k13 (SAL18422FXE)

Entity Name	Entity Type	Source	Status	Status Description	User	Time of Completion
SAL18422FXE	SWITCH	DCNM	SUCCESS	Successfully deployed	admin	2019-08-08 22:47:13.353
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:32.101
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:14.783
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:07.129
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:06.122
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:05.116
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:04.109
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:03.102
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:02.095
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:01.089
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:36:00.081
SWITCH	SWITCH	UNDERLAY	SUCCESS	Successfully deployed	admin	2019-08-08 22:35:59.275

Verifying Resources

DCNM has a resource manager that tracks all the resources used in a fabric. Navigate to **Control > Management > Resources** in the left menu.

The screenshot shows the 'Resource Allocation' window in Data Center Network Manager. The table lists various resources allocated to devices. The columns are: Scope Type, Scope, Device Name, Device IP, Allocated Resource, Allocated To, Resource Type, Is Allocated?, and Allocated On. The table contains 20 rows of data, including resources like 'Auto_Net_VNI20080_VL...', 'loopback500', 'port-channel101', 'ECD', 'LC-DMZ', 'RD', 'COMMON-MGMT', 'DCI', 'Auto_Net_VNI20058_VL...', 'Auto_Net_VNI20057_VL...', 'COMMON-DMZ', 'LC', 'switchpool-default', 'IALAB', and 'Internet'.

Scope Type	Scope	Device Name	Device IP	Allocated Resource	Allocated To	Resource Type	Is Allocated?	Allocated On
Device	SAL18422FX8	n9k12	80.80.80.62	80	Auto_Net_VNI20080_VL...	TOP_DOWN_NE...	Yes	09/08/2019,...
Device	SAL18422FX8	n9k12	80.80.80.62	500	loopback500	LOOPBACK_ID	Yes	09/08/2019,...
Device	SAL18422FX8	n9k12	80.80.80.62	501	loopback501	LOOPBACK_ID	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	101	port-channel101	PORT_CHANNEL...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3957	ECD	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3959	LC-DMZ	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3958	RD	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3965	COMMON-MGMT	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3961	DCI	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	58	Auto_Net_VNI20058_VL...	TOP_DOWN_NE...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	57	Auto_Net_VNI20057_VL...	TOP_DOWN_NE...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3964	COMMON-DMZ	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3963	LC	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3967	switchpool-default	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3960	IALAB	TOP_DOWN_VR...	Yes	09/08/2019,...
Device	SAL1833YM64	n9k7	80.80.80.57	3962	Internet	TOP_DOWN_VR...	Yes	09/08/2019,...

The resources that are being utilized by the VXLAN EVPN fabric such as VLAN IDs, port channel IDs, point to point IP addresses, and loopback IDs are displayed in this window.

Verifying Networks

Procedure

Step 1 From the menu, choose **Control > Fabrics > Networks**.

Step 2 Choose **VXLAN-EVPN** from the **Scope** drop-down list.

All the networks that are displayed in this window were learned and populated by DCNM as part of the brownfield migration.

Step 3 From the **Show** drop-down list, choose **Quick Filter** and enter **349** in the VLAN ID field.

The screenshot shows the 'Network / VRF Selection' window with 'Fabric Selected: VXLAN-EVPN'. The 'Networks' table is filtered by 'Quick Filter' on the 'VLAN ID' column. The table has columns: Network Name, Network ID, VRF Name, IPv4 Gateway/Subnet, IPv6 Gateway/Prefix, Status, and VLAN ID. One network is visible: 'Auto_Net_VNI20349_VLAN...' with Network ID 20349, VRF Name 'Internet', IPv4 Gateway/Subnet '204.90.140.134/29', Status 'DEPLOYED', and VLAN ID '349'.

Network Name	Network ID	VRF Name	IPv4 Gateway/Subnet	IPv6 Gateway/Prefix	Status	VLAN ID
Auto_Net_VNI20349_VLAN...	20349	Internet	204.90.140.134/29		DEPLOYED	349

This network is associated with the VLAN ID 349 and is configured with the anycast IP 204.90.140.134.

You can see that this network has been deployed.

Select this network and click **Continue**.

Step 4 Click **Detailed View**.

This network has been deployed on the leaf switches and the border switch.

Note that **Ethernet 1/5** is one of the ports on the leaf switch.

Name	Network ID	VLAN ID	Switch	Ports	Status	Role
Auto_Net_VNI20349_VLAN...	20349	349	n9k12	Ethernet1/5, Port-channel500, Port-channel502	DEPLOYED	leaf
Auto_Net_VNI20349_VLAN...	20349	349	n9k13	Port-channel503, Port-channel505	DEPLOYED	leaf
Auto_Net_VNI20349_VLAN...	20349	349	n9k7		DEPLOYED	border

Let us verify the overlay network associated with this interface.

Step 5 From the menu, click **Control > Fabrics > Interfaces**.

All the imported interfaces, including port channels, vPC, and mgmt0 interfaces are displayed in the **Interfaces** window.

Step 6 In the name field, enter **Ethernet 1/5**.

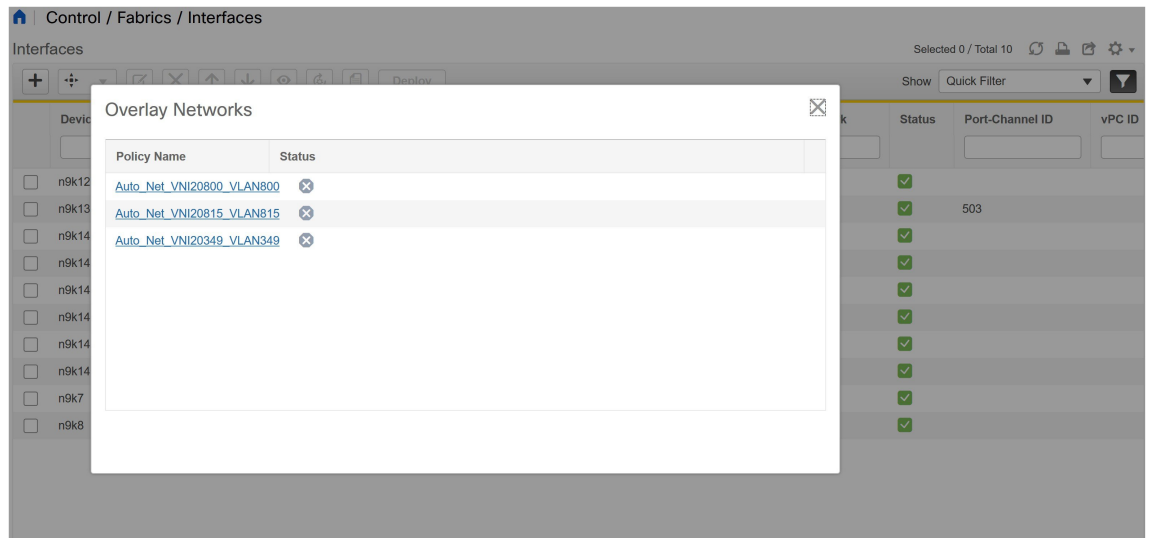
Control / Fabrics / Interfaces

Interfaces

Device Name	Name	Admin	Oper	Reason	Policy	Overlay Network	Status	Port-Channel ID	vPC ID
n9k12	Ethernet1/5	↑	↑	ok	int_trunk_host_11_1	Networks	✓		
n9k13	Ethernet1/5	↑	↓	XCVR not inserted	int_vpc_trunk_po_memt	NA	✓	503	
n9k14	Ethernet1/5	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		
n9k14	Ethernet1/50	↑	↓	Link not connected	int_trunk_host_11_1	NA	✓		
n9k14	Ethernet1/51	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		
n9k14	Ethernet1/52	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		
n9k14	Ethernet1/53	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		
n9k14	Ethernet1/54	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		
n9k7	Ethernet1/5	↑	↓	XCVR not inserted	int_trunk_host_11_1	Networks	✓		
n9k8	Ethernet1/5	↑	↓	XCVR not inserted	int_trunk_host_11_1	NA	✓		

This interface is attached to the host through the **n9k-12** switch.

Step 7 In the **Overlay Networks** column, click **Networks** that corresponds to the n9k-12 switch and the Ethernet 1/5 interface.

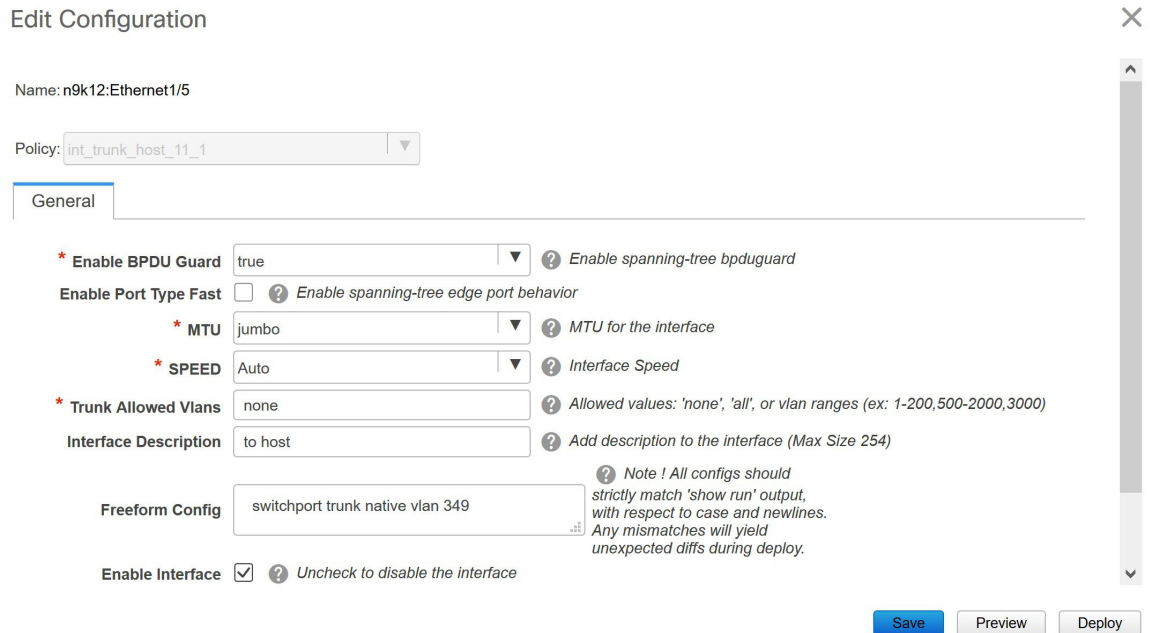


These are the networks that are attached to the **Ethernet 1/5** interface.

VLAN 349 is also one among them.

You can click this network to see the expected config.

Step 8 Select the **n9k-12** switch corresponding to the **Ethernet1/5** interface and click the **Edit** icon.



You can see that all the settings for this interface have been successfully imported, including the BPDU guard settings and the interface description.

Let us go back to the host.

The ping command is still running.

Step 9 End the **ping** command.

```

64 bytes from 204.90.140.134: icmp_seq=4100 ttl=254 time=1.188 ms
64 bytes from 204.90.140.134: icmp_seq=4101 ttl=254 time=1.122 ms
64 bytes from 204.90.140.134: icmp_seq=4102 ttl=254 time=1.224 ms
64 bytes from 204.90.140.134: icmp_seq=4103 ttl=254 time=1.09 ms
64 bytes from 204.90.140.134: icmp_seq=4104 ttl=254 time=1.054 ms
64 bytes from 204.90.140.134: icmp_seq=4105 ttl=254 time=1.079 ms
64 bytes from 204.90.140.134: icmp_seq=4106 ttl=254 time=1.172 ms
64 bytes from 204.90.140.134: icmp_seq=4107 ttl=254 time=1.226 ms
--- 204.90.140.134 ping statistics ---
4108 packets transmitted, 4108 packets received, 0.00% packet loss
round-trip min/avg/max = 1.003/1.264/3.412 ms

```

You can see that 4108 packets are transmitted and received during the migration, and there was zero percent packet loss.

The Brownfield fabric is successfully migrated in to DCNM.

Migrating a Bottom-Up VXLAN Fabric to DCNM

This procedure shows how to migrate a bottom-up VXLAN fabric to DCNM.

Typically, your fabric is created and managed through manual CLI configuration or custom automation scripts. After the migration, the fabric underlay and overlay networks can be managed by using DCNM.

The guidelines and limitations, and prerequisites for bottom-up VXLAN migration are the same as the Brownfield migration. For more information, see *Brownfield Deployment-Transitioning VXLAN Fabric Management to DCNM*.

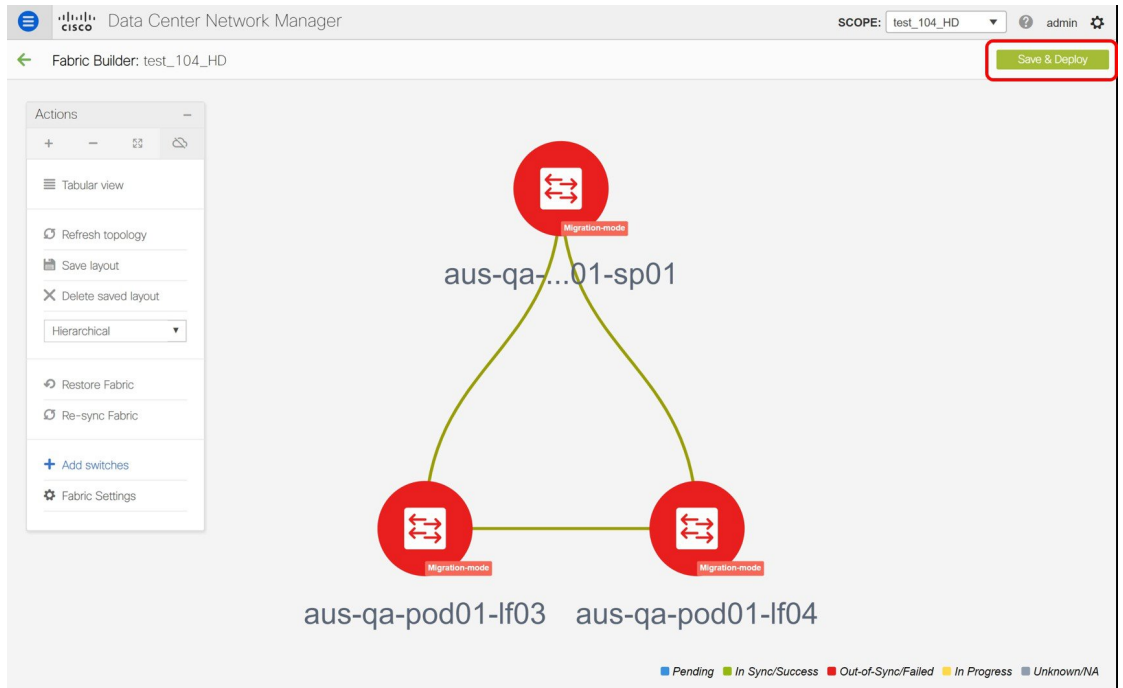
1. Create a VXLAN BGP EVPN fabric.

For more information, see the *Creating a New VXLAN BGP EVPN Fabric* section in *Brownfield Deployment-Transitioning VXLAN Fabric Management to DCNM*.

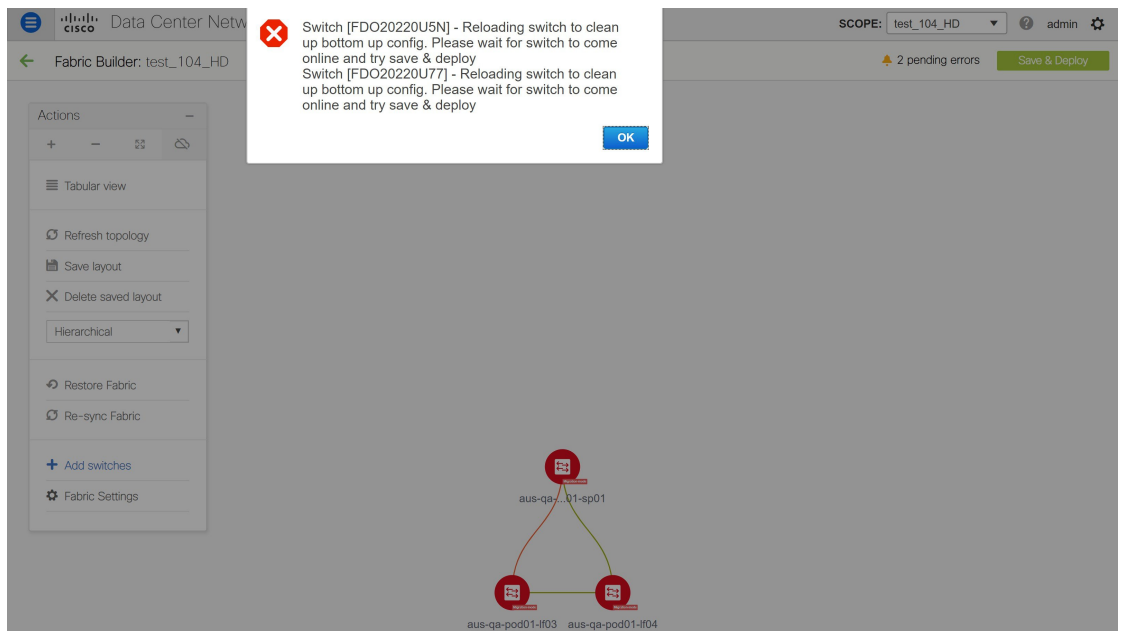
2. Add switch instances to the fabric.

For more information, follow the Step 1 to Step 5 in the *Adding Switch Instances and Transitioning VXLAN Fabric Management* section in *Brownfield Deployment-Transitioning VXLAN Fabric Management to DCNM*.

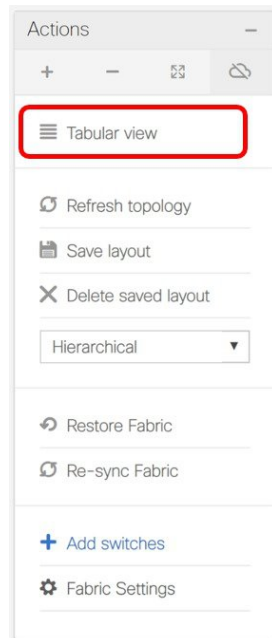
3. Click **Save & Deploy** to sync configurations between the switches and DCNM.



If the added switches contain bottom-up configurations, an error is displayed saying – Reloading switch to clean up bottom up config. Please wait for switch to come online and try **Save & Deploy**.



4. Wait for the switches to complete the reload operation. Click **Tabular view** under the **Actions** menu to view the status of the switches.



- (Optional) Rediscovery of the reloaded switches occurs every 5 minutes. If you want to manually rediscover switches, select the switches and click the **Rediscover switch** icon.

	<input checked="" type="checkbox"/>	Name	IP Address	Role	Serial Number	Fabric Name	Fabric Status	Discovery Status	Model	Software Vers
1	<input checked="" type="checkbox"/>	aus-qa-pod01-1f03	80.80.80.68	leaf	FDO20220U5N	test_104_HD	Out-of-sync	Discovery timec	N9K-C9236C	7.0(3)17(6)
2	<input checked="" type="checkbox"/>	aus-qa-pod01-1f04	80.80.80.69	leaf	FDO20220U77	test_104_HD	Out-of-sync	ok	N9K-C9236C	7.0(3)17(6)
3	<input checked="" type="checkbox"/>	aus-qa-pod01-s...	80.80.80.65	spine	SAL2016NXX2	test_104_HD	Out-of-sync	ok	N9K-C92160YC-X	7.0(3)17(6)



Note Click the **Refresh** icon to refresh the **Fabric Builder** window and see the updated discovery status of switches.

- Check the **Discovery Status** of the switches after the reloading and rediscovering operations are completed. Make sure that the status for all the switches is **ok**.

The screenshot shows the Cisco Data Center Network Manager interface. At the top, it says 'Data Center Network Manager' and 'Fabric Builder: test_104_HD'. Below that are tabs for 'Switches' and 'Links'. A toolbar contains icons for adding, refreshing, editing, deleting, and buttons for 'View/Edit Policies', 'Manage Interfaces', 'History', and 'Deploy'. Below the toolbar is a table with the following data:

	<input type="checkbox"/>	Name	IP Address	Role	Serial Number	Fabric Name	Fabric Status	Disc...
1	<input type="checkbox"/>	aus-qa-pod01-lf03	80.80.80.68	leaf	FDO20220U5N	test_104_HD	Out-of-sync	✓ ok
2	<input type="checkbox"/>	aus-qa-pod01-lf04	80.80.80.69	leaf	FDO20220U77	test_104_HD	Out-of-sync	✓ ok
3	<input type="checkbox"/>	aus-qa-pod01-s...	80.80.80.65	spine	SAL2016NXX2	test_104_HD	Out-of-sync	✓ ok

7. Click **Save & Deploy** again to sync configurations between the switches and DCNM.

The **Saving Fabric Configuration** message comes up immediately. This indicates that overlay and underlay network migration, and switch and port channel settings migration to DCNM is initiated.

After the migration of underlay and overlay networks, the **Config Deployment** window is displayed.

Config Deployment



Step 1. Configuration Preview > Step 2. Configuration Deployment Status >

Switch Name	IP Address	Switch Serial	Preview Config	Status	Re-sync	Progress
aus-qa-pod01-...	80.80.80.68	FDO20220U5N	498 lines	Out-of-sync		100%
aus-qa-pod01-...	80.80.80.65	SAL2016NXX2	0 lines	In-sync		100%
aus-qa-pod01-...	80.80.80.69	FDO20220U77	534 lines	Out-of-sync		100%

Deploy Config

The **Preview Config** column is updated with entries denoting a specific number of lines.

We strongly recommend that you preview the configuration before proceeding to deploy it on the switches. Click a **Preview Config** column entry. The **Config Preview** window is displayed. This window lists the pending configurations on the switch. The **Side-by-side Comparison** tab displays the running configuration and expected configuration side-by-side.

Config Preview - Switch 80.80.80.68



Pending Config

Side-by-side Comparison

```

router bgp 65500
  no neighbor 10.96.32.2
  nxapi http port 80
  vpc domain 998
  auto-recovery reload-delay 360
  configure profile Auto_Net_VNI30113_VLAN113
  vlan 113
  vn-segment 30113
  name aus-qa-sf1-prim
  interface vlan113
    description aus-qa-sf1-prim
  vrf member qa:common
  no ip redirects
  no ipv6 redirects
  ip address 172.18.113.1/24 tag 12345
  ip dhcp relay address 172.20.16.79
  fabric forwarding mode anycast-gateway
  no shutdown
  interface nve1
    member vni 30113
  mcast-group 239.1.1.20
  suppress-arp
  evpn
  .....
```

Close the **Config Preview** window.

- Click **Deploy Config** at the bottom part of the **Config Deployment** window to initiate pending configuration onto the switch. The **Status** column displays the completion state. For a failed state, investigate the reason for failure to address the issue.

Config Deployment ✕

Step 1. Configuration Preview > Step 2. Configuration Deployment Status >

Switch Name	IP Address	Status	Status Description	Progress
aus-qa-pod01-...	80.80.80.65	COMPLETED	No Commands to execute.	100%
aus-qa-pod01-...	80.80.80.69	COMPLETED	Deployed successfully	100%
aus-qa-pod01-...	80.80.80.68	COMPLETED	Deployed successfully	100%

[Close](#)

The progress bar shows 100% for each switch. After correct provisioning and successful configuration compliance, close the **Config Deployment** window.

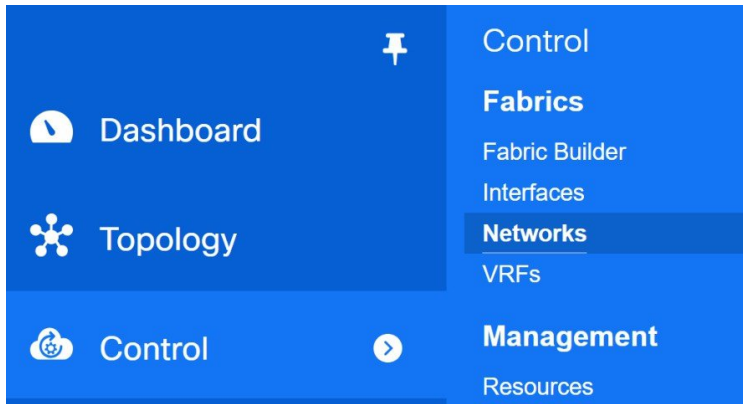
In the fabric topology window, all imported switch instances are displayed in green color, indicating successful configuration. Also, the **Migration Mode** label is not displayed on any switch icon.

This completes the migration process of bottom-up VXLAN fabric to DCNM.

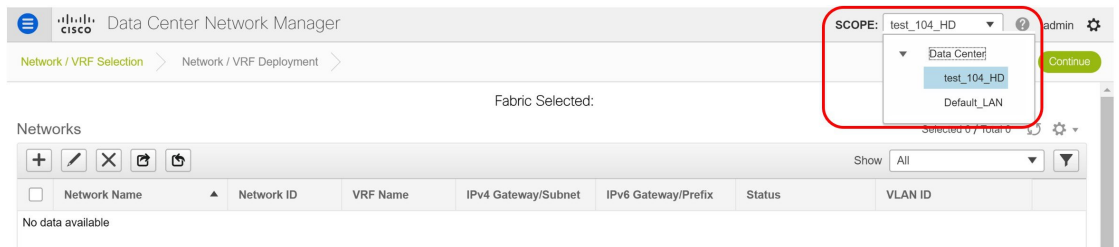
Now, you can add new switches and provision overlay networks for your fabric. For details, refer the respective section in the Fabrics topic in the configuration guide.

You can also verify the migrated networks by following the below steps.

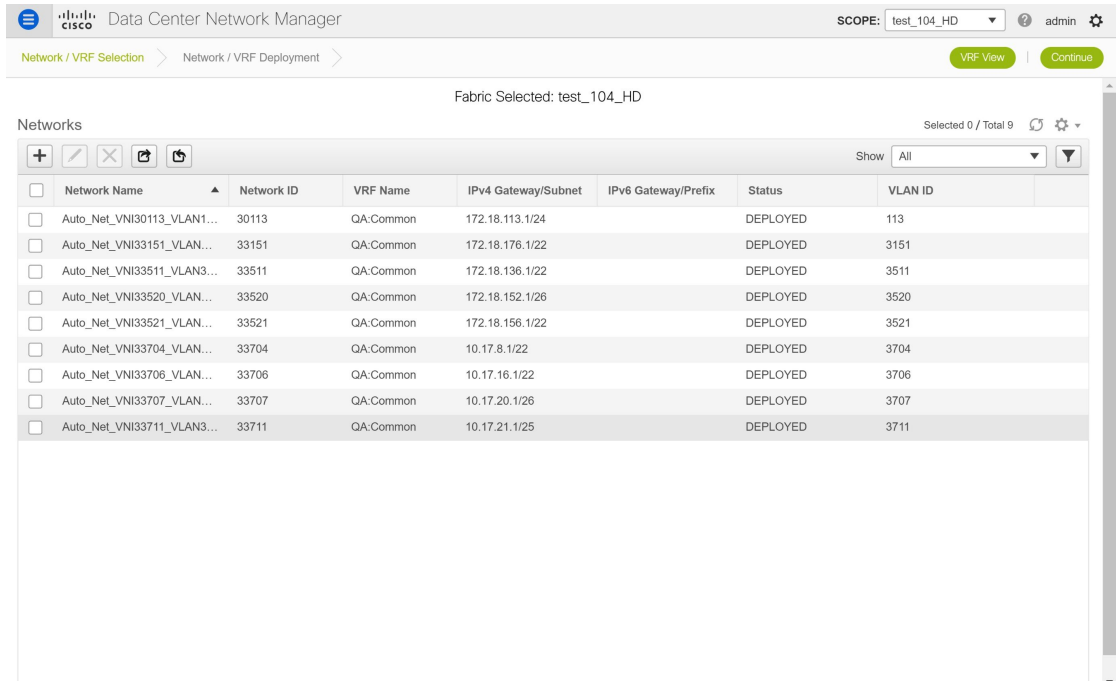
1. Choose **Control > Fabrics > Networks**.



2. Select the fabric from the **SCOPE** drop-down list in the **Networks** window.



3. Check the networks that are migrated from the bottom-up VXLAN fabric and their deployment status.



Resolving Config Compliance Error on Switches with Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) Images

After brownfield deployment of Cisco Nexus 9300 Series switches and Cisco Nexus 9500 Series switches with X9500 line cards with Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images, config compliance difference is displayed. You need to remove the `tcam_pre_config_vxlan` policy from these switches to resolve the config compliance error.



Resolving Config Compliance Error on Switches Post Brownfield Deployment

The following procedure shows how to remove the `tcam_pre_config_vxlan` policy from switches after brownfield deployment.

1. Choose **Control > Fabrics > Fabric Builder**.
2. Click the brownfield fabric that contains a Cisco Nexus 9300 Series switch or Cisco Nexus 9500 Series switches with X9500 line cards in the **Fabric Builder** window.
3. (Optional) Click **Save & Deploy** to see the Config Compliance error.

Config Deployment ✕

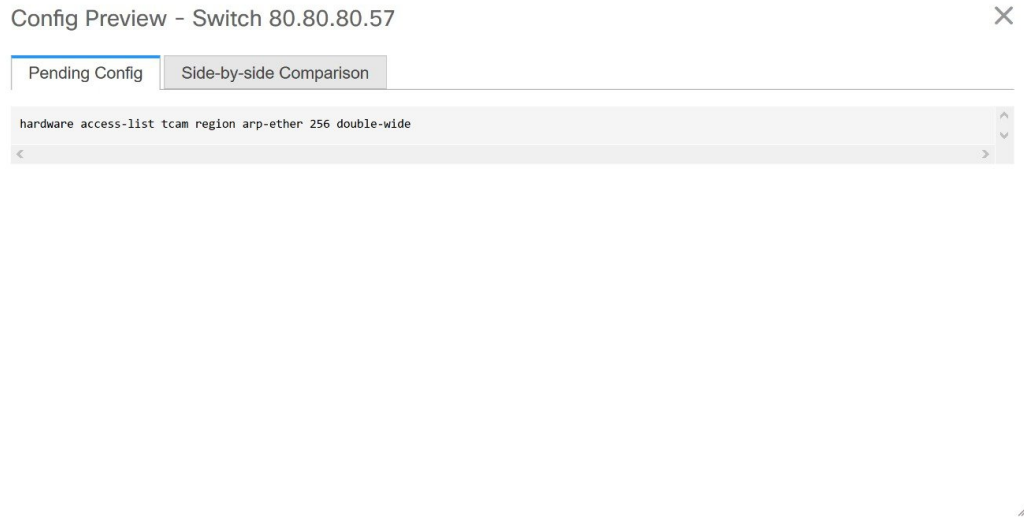
Step 1. Configuration Preview > Step 2. Configuration Deployment Status >

Switch Name	IP Address	Switch Serial	Preview Config	Status	Re-sync	Progress
n9k7_bp2-lfsw...	80.80.80.57	SAL1833YM64	1 lines	Out-of-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
n9k8_bp2-sps...	80.80.80.58	SAL1833YM0V	0 lines	In-sync		<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%

[Deploy Config](#)

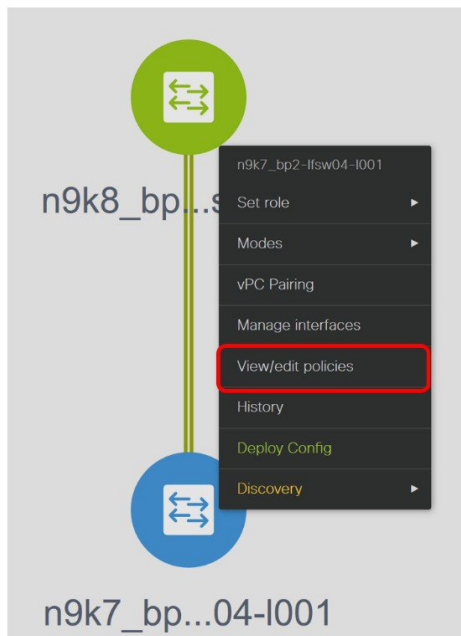
4. (Optional) Click the entry showing **1 lines** under the **Preview Config** column.

You can see the TCAM command under the **Pending Config** tab in the **Config Preview** window.

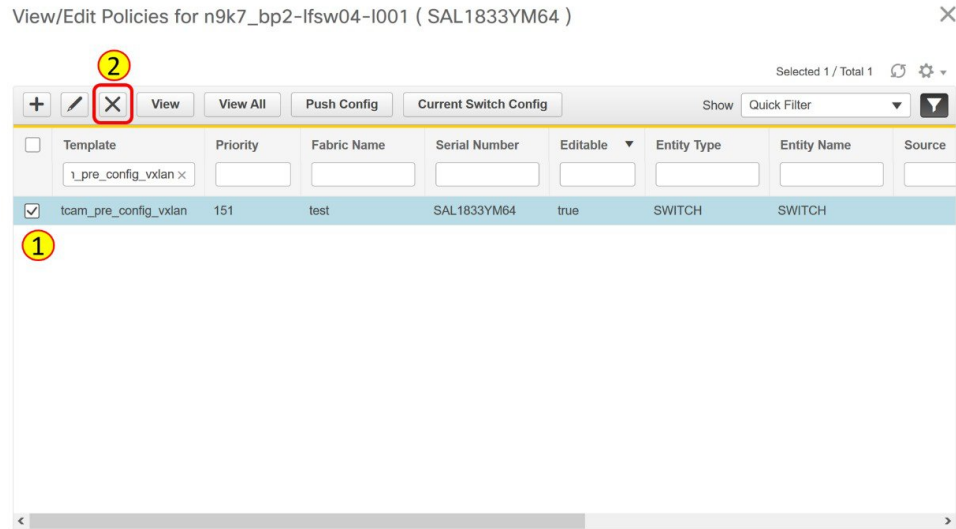


Close the **Config Preview** window.

5. Right-click a switch and click **View/Edit Policies**.

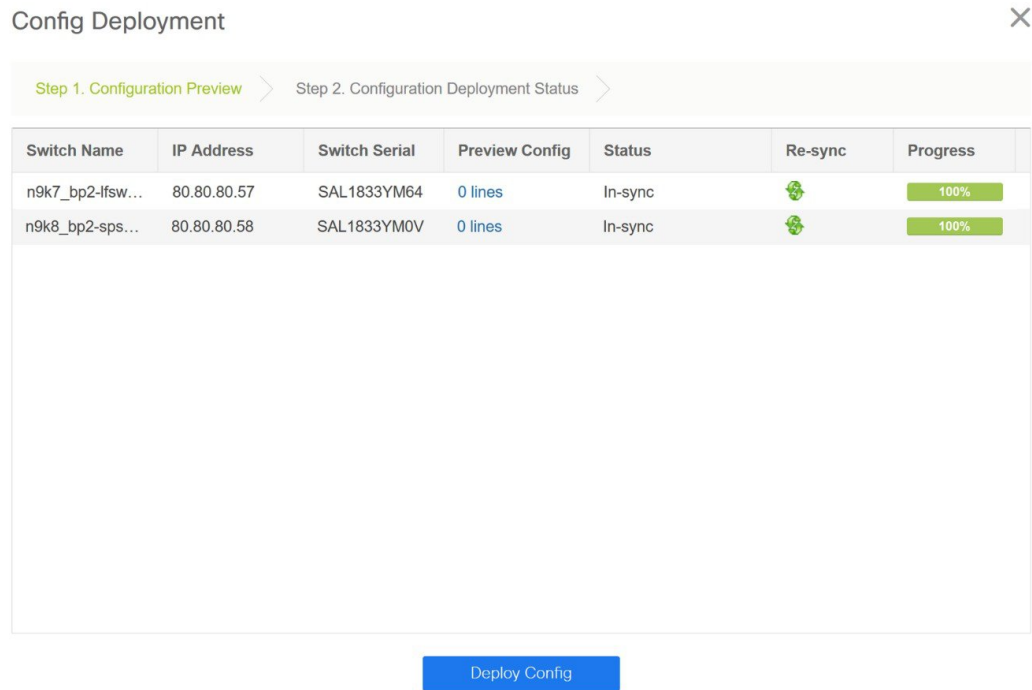


6. Search for the **tcam_pre_config_vxlan** policy in the **Template** search field.
7. Select the **tcam_pre_config_vxlan** policy and click the **Delete** icon to delete the policy.



Close the **View/Edit Policies** window.

- (Optional) Click **Save & Deploy** to verify whether there are any pending configs.

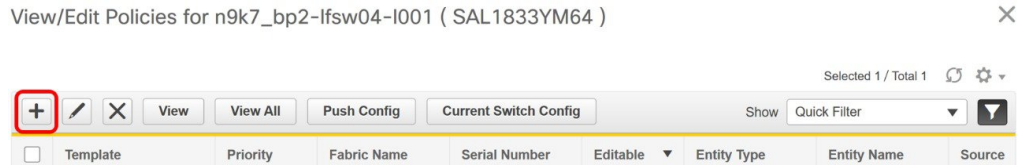


Resolving Config Compliance Error on Switches for RMA, and Write Erase and Reload Operations

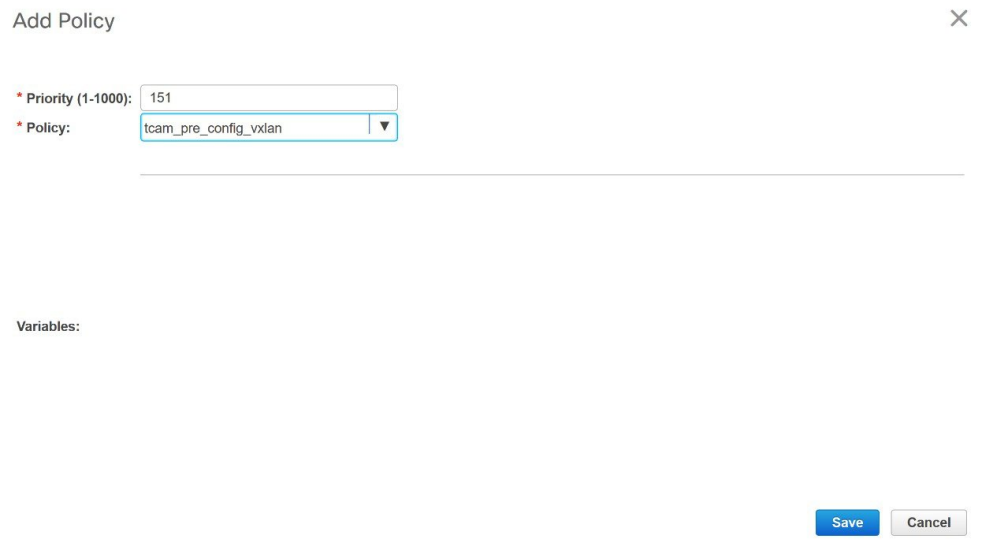
Perform the following procedure before you perform RMA or Write Erase and Reload operation on Cisco Nexus 9300 Series switches and Cisco Nexus 9500 Series switches with X9500 line cards with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.

- Choose **Control > Fabrics > Fabric Builder**.

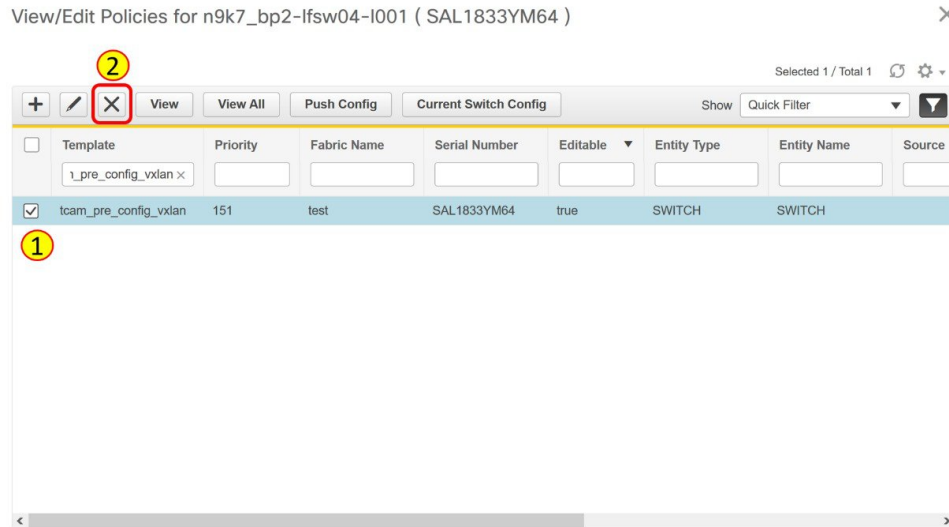
2. Click the brownfield fabric that contains the specified switches with Cisco images.
3. Right-click the switch and click **View/Edit Policies**.
4. Click the **Add** icon.



5. Enter 151 in the Priority (1-1000) field and select **tcam_pre_config_vxlan** from the **Policy** drop-down list.



6. Click **Save**.
7. Complete the RMA or Write Erase and Reload operation.
After the switch is online, it will be Out-of-Sync.
8. Right-click a switch and click **View/Edit Policies**.
9. Search for the **tcam_pre_config_vxlan** policy in the **Template** search field.
10. Select the **tcam_pre_config_vxlan** policy and click the **Delete** icon to delete the policy.



Close the **View/Edit Policies** window.

Modifying VLAN Names in a Switch with Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) Images

Post brownfield migration, the VLAN name for the network or VRF is not captured in the overlay profile if at least one of the non-spine switches have the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.

This procedure shows how to check the VLAN name and modify it.

Procedure

-
- Step 1** Choose **Control > Fabrics > Networks**.
 - Step 2** From the **SCOPE** drop-down list, select a fabric containing the non-spine switches with the Cisco NX-OS Release 7.0(3)I4(8b) and 7.0(4)I4(x) images.
 - Step 3** Select a check box for a network in the **Networks** window and click the **Edit Network** icon.

The screenshot shows the 'Edit Network' window with the 'Network Profile' section expanded. The 'General' tab is selected. The 'Vlan Name' field is empty and highlighted with a red box. Other fields include IPv4 Gateway/NetMask (172.16.6.1/24), IPv6 Gateway/Prefix (1111::2222/48), Interface Description, MTU for L3 interface (1500), IPv4 Secondary GW1 (2.2.2.2/24), and IPv4 Secondary GW2 (3.3.3.3/24). There are 'Save' and 'Cancel' buttons at the bottom right.

In the **Edit Network** window, the **Vlan Name** field is empty because DCNM has not captured this info in the overlay profile. Instead, the VLAN name is captured in the freeform config associated with the overlay network or VRF.

Note If a VLAN did not have a name before the brownfield migration, you can add the name in the **Vlan Name** field in the **Edit Network** window.

Close the **Edit Network** window.

Step 4 Click **Continue** in the **Networks** window.

Step 5 Double-click a switch in the **Topology View** window.

Step 6 In the **Network Attachment** window for a switch, click the **Freeform config** button under the **CLI Freeform** column.

The screenshot shows the 'Network Attachment - Attach networks for given switch(es)' window. The 'Fabric Name' is 'test'. Under 'Deployment Options', there is a table with columns: Switch, VLAN, Interfaces, CLI Freeform, and Status. The row for 'n9k7_bp2-if...' is selected, and the 'Freeform config' button in the 'CLI Freeform' column is highlighted with a red box. A 'Save' button is at the bottom right.

Switch	VLAN	Interfaces	CLI Freeform	Status
<input checked="" type="checkbox"/>	n9k7_bp2-if...	6	Freeform config	DEPLOYED

Step 7 Verify the VLAN name in the **Free Form Config** window.

Free Form Config -n9k7_bp2-lfsw04-l001 (Auto_Net_VNI20006_VLAN6) ✕

```
vlan 6
name 0006-BP2-IALAB-IP-Storage_172_16
vn-segment 20006
interface Vlan6
no shutdown
vrf member IALAB
no ip redirects
ip address 172.16.6.1/24
ip address 2.2.2.2/24 secondary
ip address 3.3.3.3/24 secondary
ipv6 address 1111::2222/48
no ipv6 redirects
fabric forwarding mode anycast-gateway
ip dhcp relay address 10.1.1.1
ip dhcp relay address 10.3.3.3
```

[Save Config](#)

Step 8 Modify the VLAN name in the **Free Form Config** window and click **Save Config**.

Here is an example:

```
vlan 6
name Storage_172_16_Deb
vn-segment 20006
interface Vlan6
.
.
.
```

Free Form Config -n9k7_bp2-lfsw04-l001 (Auto_Net_VNI20006_VLAN6) ✕

```
vlan 6
name Storage_172_16_Deb
vn-segment 20006
interface Vlan6
no shutdown
vrf member IALAB
no ip redirects
ip address 172.16.6.1/24
ip address 2.2.2.2/24 secondary
ip address 3.3.3.3/24 secondary
ipv6 address 1111::2222/48
no ipv6 redirects
fabric forwarding mode anycast-gateway
ip dhcp relay address 10.1.1.1
ip dhcp relay address 10.3.3.3
```

[Save Config](#)

Step 9 Click **Save** in the **Network Attachment** window.

Step 10 Click **Deploy** in the **Networks** window.

The modified VLAN name in the selected network is deployed on the switch.

Changing a Brownfield Imported BIDIR Configuration

This procedure shows how to change a brownfield imported BIDIR configuration to use the configuration generated by **Fabric Builder**.

Procedure

- Step 1** Choose **Control > Fabrics > Networks**.
- Step 2** Click the brownfield fabric.
- Step 3** Click **Tabular View** under the **Actions Panel** in the **Fabric Builder** window.
- Step 4** Select all the devices and click the **View/Edit Policies** icon.
- Step 5** Delete the following policies for all the devices in the **View/Edit Policies** window
- **base_pim_bidir_11_1**
 - If there is 1 RP in the fabric, delete the **rp_lb_id** policy.
If there are 2 RPs in the fabric, delete the **phantom_rp_lb_id1** and **phantom_rp_lb_id2** policies.
- Step 6** Close the **View/Edit Policies** window.
- Step 7** Click the **Manage Interfaces** button in the **Fabric Builder** window.
- Step 8** Delete all the RP loopback interfaces in the **Interfaces** window and close this window.
- Step 9** Click **Save & Deploy** in the **Fabric Builder** window.
- This action generates a new set of BIDIR-related configuration based on the fabric settings for the devices.
-

Manually Adding PIM-BIDIR Configuration for Leaf or Spine Post Brownfield Migration

After brownfield migration, if you add new spine or leaf switches, you should manually configure the PIM-BIDIR feature.

The following procedure shows how to manually configure the PIM-BIDIR feature for a new Leaf or Spine:

Procedure

- Step 1** Check the **base_pim_bidir_11_1** policies that are created for an RP added through the brownfield migration. Check the RP IP and Multicast Group used in each **ip pim rp-address RP_IP group-list MULTICAST_GROUP bidir** command.
- Step 2** Add respective **base_pim_bidir_11_1** policies from the **View/Edit Policies** window for the new Leaf or Spine, push the config for each **base_pim_bidir_11_1** policy.
-

Migrating an MSD Fabric with Border Gateway Switches

When you migrate an existing MSD fabric with a border gateway switch into DCNM, make sure to note the following guidelines:

- Underlay Multisite peering: The eBGP peering and corresponding routed interfaces for underlay extensions between sites are captured in **switch_freeform** and **routed_interfaces**, and optionally in the **interface_freeform** configs. This configuration includes all the global configs for multisite. Loopbacks for EVPN multisite are also captured via the appropriate interface templates.
 - Overlay Multisite peering: The eBGP peering is captured as part of **switch_freeform** as the only relevant config is under **router bgp**.
 - Overlays containing Networks or VRFs: The corresponding intent is captured with the profiles on the Border Gateways with **extension_type = MULTISITE**.
1. Create all the required fabrics including the Easy_Fabric_11_1 and External_Fabric_11_1 fabrics with the required fabric settings. Disable the Auto VRF-Lite options as mentioned above. For more information, refer to *Creating VXLAN EVPN Fabric* and *External Fabric* sections.
 2. Import all the switches into all the required fabrics and set roles accordingly.
 3. Click **Save & Deploy** in each of the fabrics and ensure that the Brownfield Migration process reaches the 'Deployment' phase. Now, do not click **Deploy Config**.
 4. Create an **MSD_Fabric_11_1** fabric with the required fabric settings and disable the **Auto MultiSite IFC** options as shown in Guidelines. For more information, see *Creating an MSD Fabric in Cisco DCNM LAN Fabric Configuration Guide*.
 5. Move all the member fabrics into the MSD. Do not proceed further till this step is completed successfully. For more information, see *Moving the Member1 Fabric Under MSD-Parent-Fabric in Cisco DCNM LAN Fabric Configuration Guide*.

**Note**

The Overlay Networks and VRFs definitions in each of the Easy Fabrics must be symmetric for them to get added successfully to the MSD. Errors will be reported if any mismatches are found. These must be fixed by updating the overlay information in the fabric(s) and added to the MSD.

6. Create all the Multisite Underlay IFCs such that they match the IP address and settings of the deployed configuration. Navigate to **Tabular View** and edit the IFC links.

Below is an example IFC Edit Link window.

Link Management - Edit Link



* Link Type	Inter-Fabric
* Link Sub-Type	MULTISITE_UNDERLAY
* Link Template	multisite_underlay_setup_11_1
* Source Fabric	fab1-11-2
* Destination Fabric	CORE-BGW
* Source Device	Leaf4-BL2
* Source Interface	Ethernet1/9
* Destination Device	N7k1-CORE
* Destination Interface	Ethernet1/1

Link Profile

General

Advanced

* BGP Local ASN	65000	? Local BGP Autonomous S
* IP Address/Mask	10.10.1.1/30	? IP address with mask (e.g.
* BGP Neighbor IP	10.10.1.2	? Neighbor IP address
* BGP Neighbor ASN	4000	? Neighbor BGP Autonomou
* BGP Maximum Paths	1	? Maximum number of iBGP,
* Routing TAG	54321	? Routing tag associated with

Save



Note Additional interface configurations must be added to the Source/Destination interface freeform fields in the Advanced section as needed.

For more information, see *Configuring Multi-Site Overlay IFCs*.

7. Create all the Multisite Overlay IFCs such that they match the IP address and settings of the deployed configuration. You will need to add the IFC links. For more information, see *Configuring Multi-Site Overlay IFCs*.
8. If there are VRF-Lite IFCs also, create them as well.



Note If the Brownfield Migration is for the case where Configuration Profiles already exist on the switches, the VRF-Lite IFCs will be created automatically in Step #3.

9. If Tenant Routed Multicast (TRM) is enabled in the MSD fabric, edit all the TRM related VRFs and Network entries in MSD and enable the TRM parameters.

This step needs to be performed if TRM is enabled in the fabric. If TRM is not enabled, you still need to edit each Network entry and save it.

10. Now click **Save & Deploy** in the MSD fabric, but, do not click **Deploy Config**.

11. Navigate to each member fabric, click **Save & Deploy**, and then click **Deploy Config**.

This completes the Brownfield Migration. You can now manage all the networks or VRFs for BGWs by using the regular DCNM Overlay workflows.