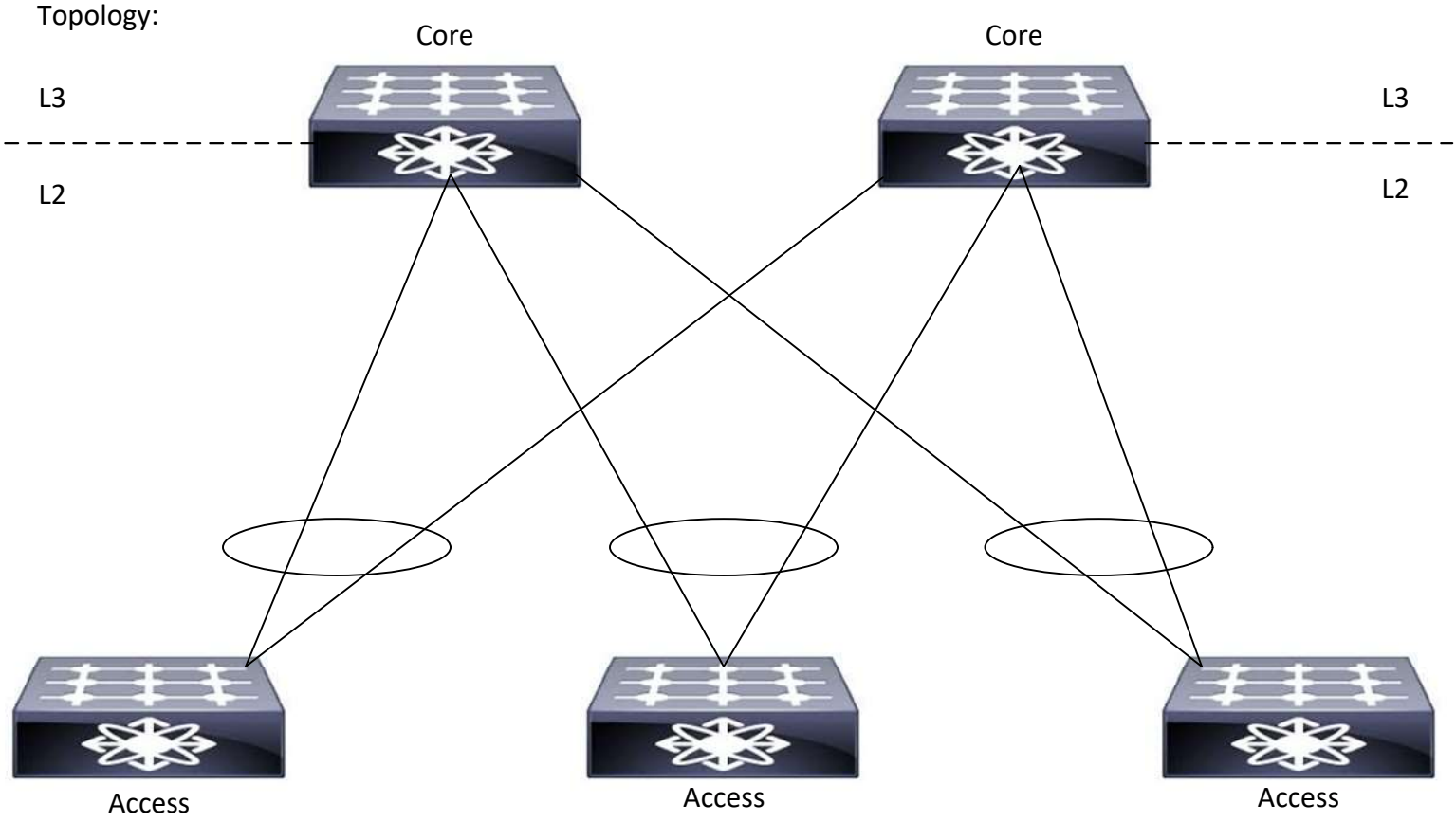
Create an NDFC-Managed Classic LAN Site and Add it to NDI

ND version: 3.1(1k)
NDFC version: 12.2.1
NDI version: 6.4.1

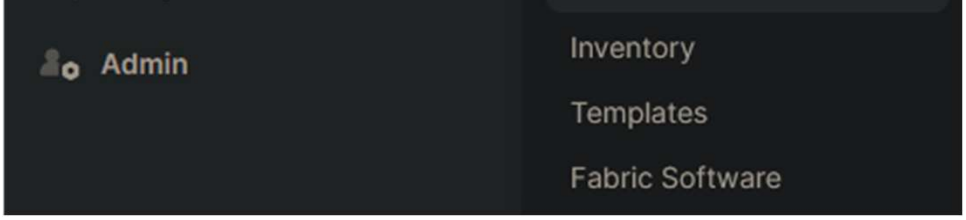
Topology:



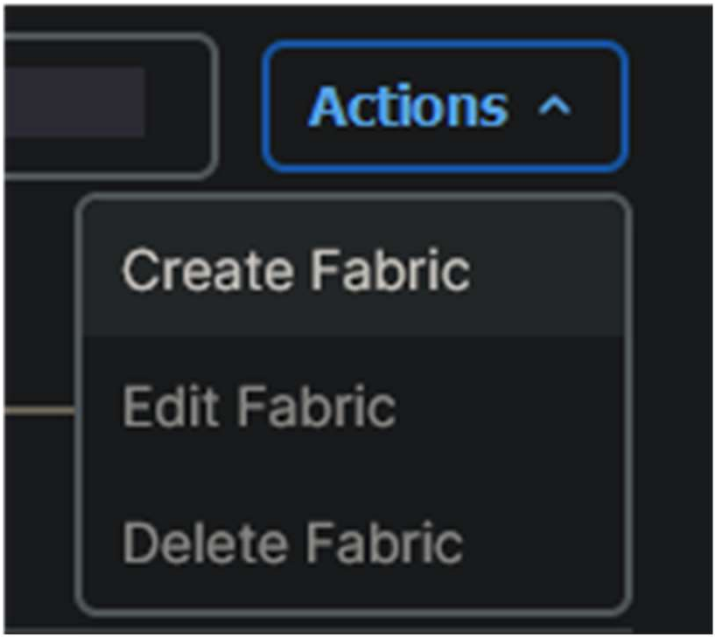
Nowadays, the most common NDFC site deployments are *Data Center VXLAN EVPN* fabrics, but NDFC is capable of deploying many other types of sites/fabrics, including *Classic LAN.* However, before adding an NDFC-managed *Classic LAN* site to NDI, there are some additional configurations that need to be made, all of which are not documented. Therefore, the purpose of this document is to demonstrate how to properly add an NDFC-managed *Classic LAN* site to NDI.

*Note: this document assumes that you already have NDFC and NDI up and running. If this is not the case, please start with the installation guides found on Cisco.com.

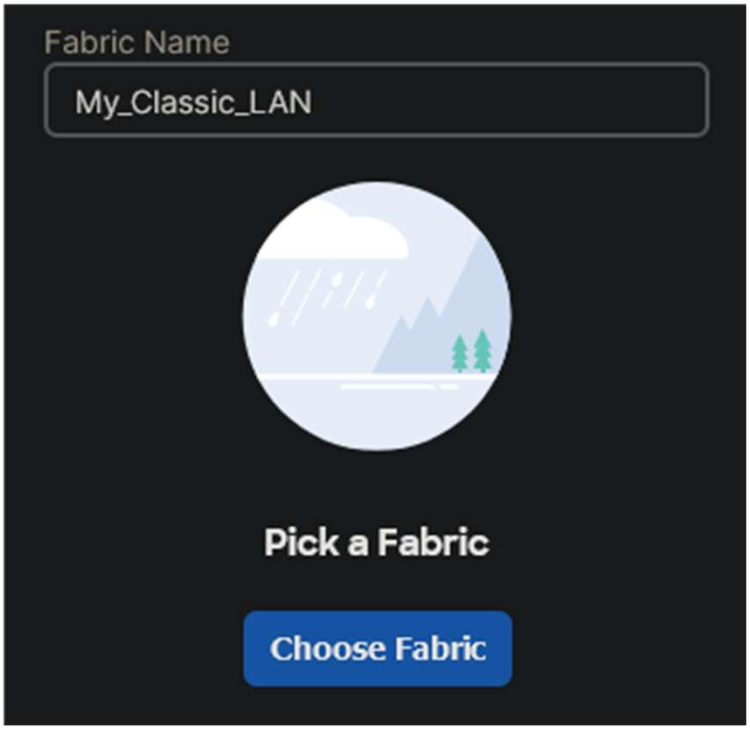
1. Navigate to Nexus Dashboard Fabric Controller, and select Manage → Fabrics



2. From the Actions menu, select Create Fabric

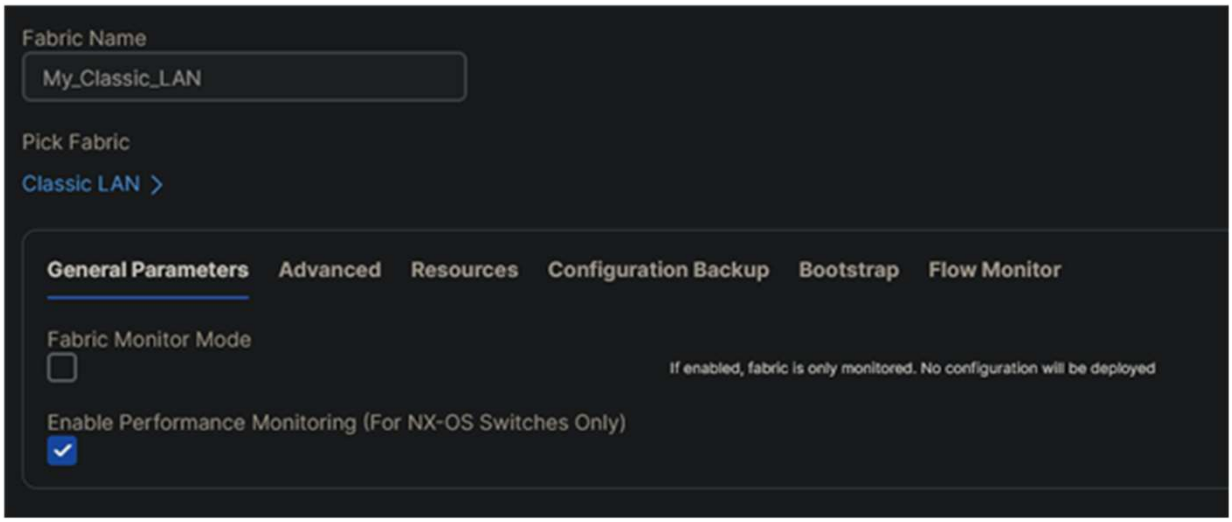


3. In the Fabric Name field, type in the desired name of your fabric

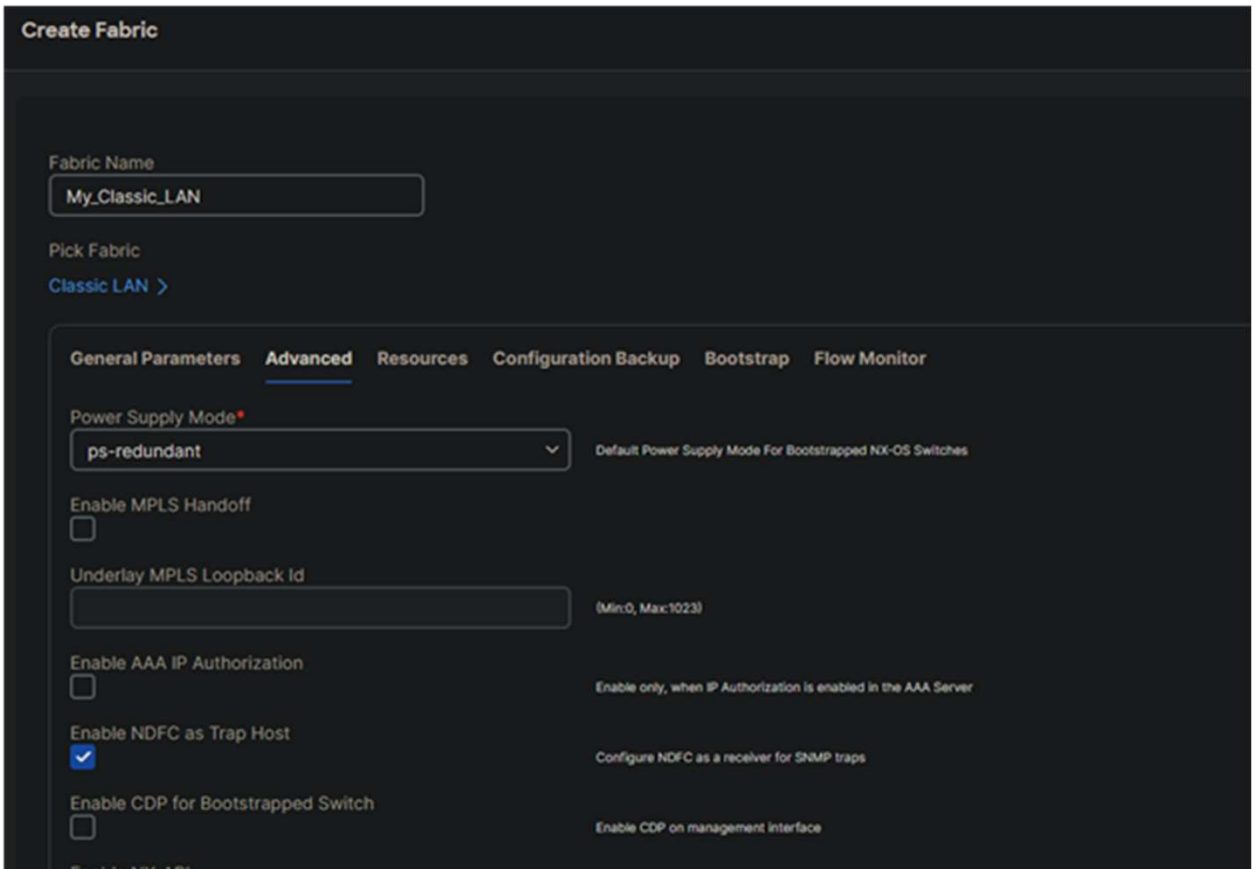


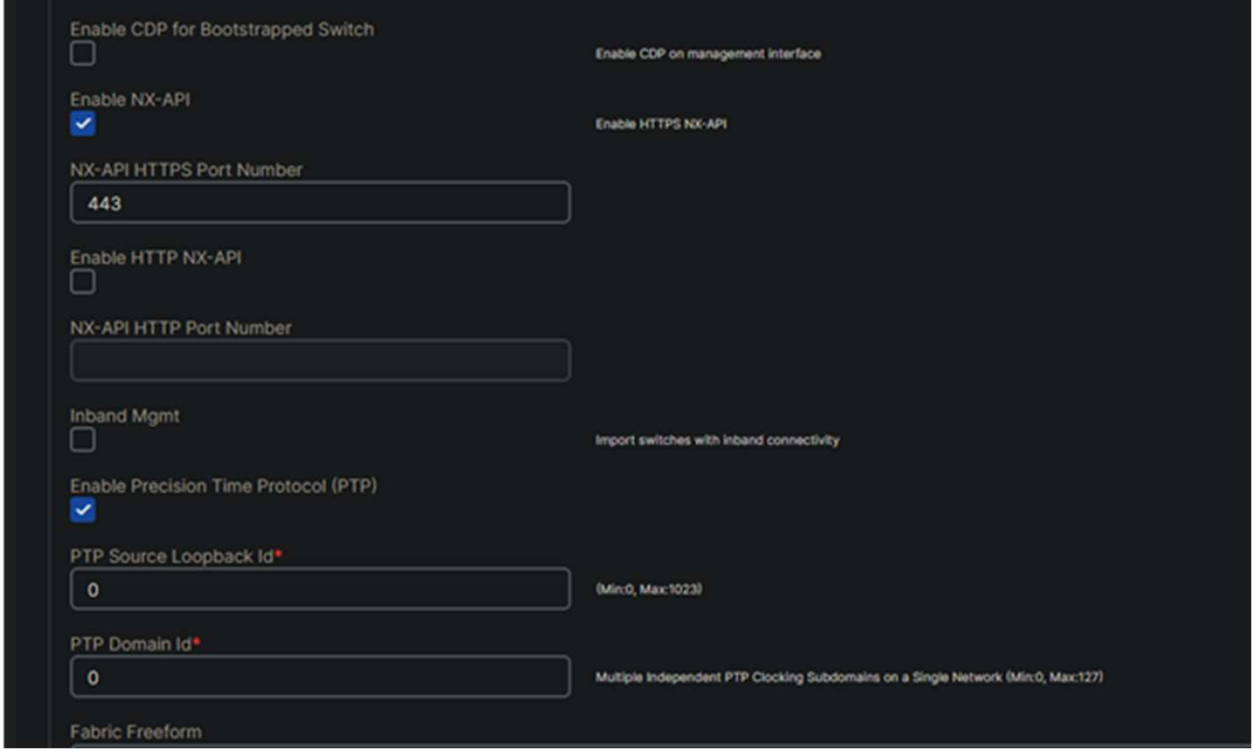
4. Select Classic LAN

5. On the General Parameters tab, **disable** Fabric Monitor Mode, since this site will be a managed site

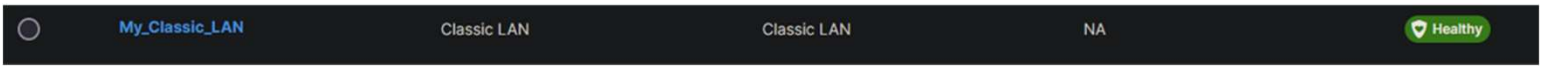


6. On the Advanced tab, **enable** PTP (as this is a necessary feature for NDI to send telemetry data), then click Save

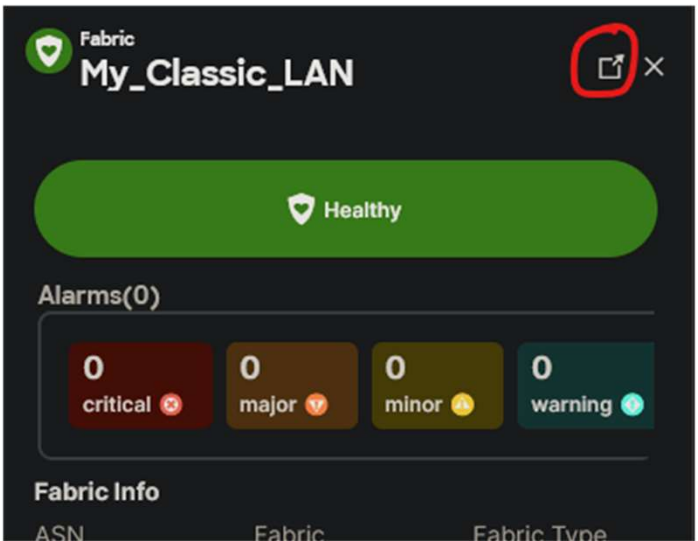


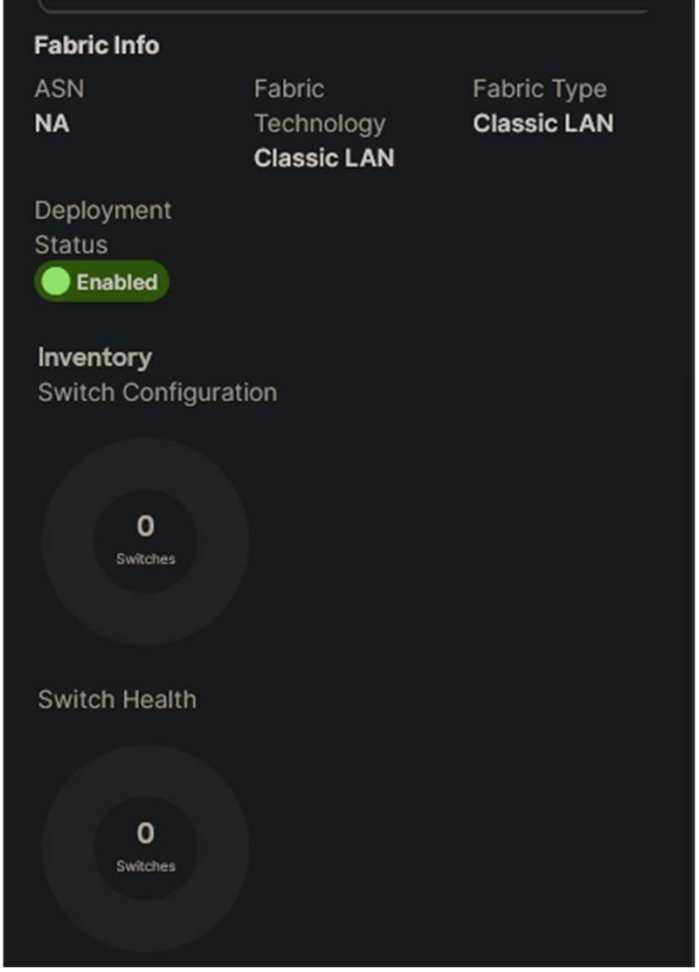


7. Click on the name of your new fabric

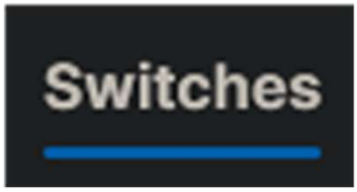


8. Click the box in the top right corner to open the Fabric Overview window

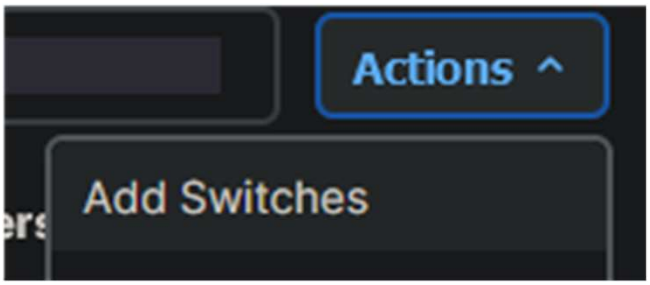




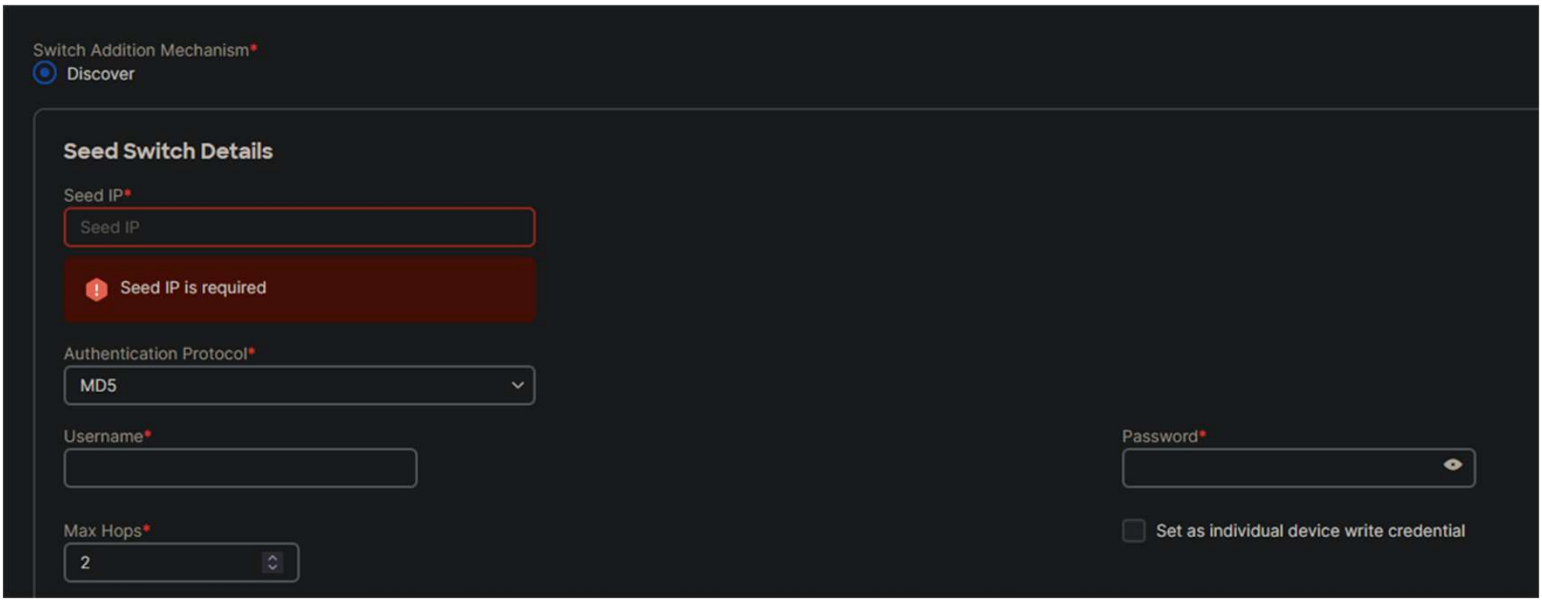
9. Click on the Switches tab

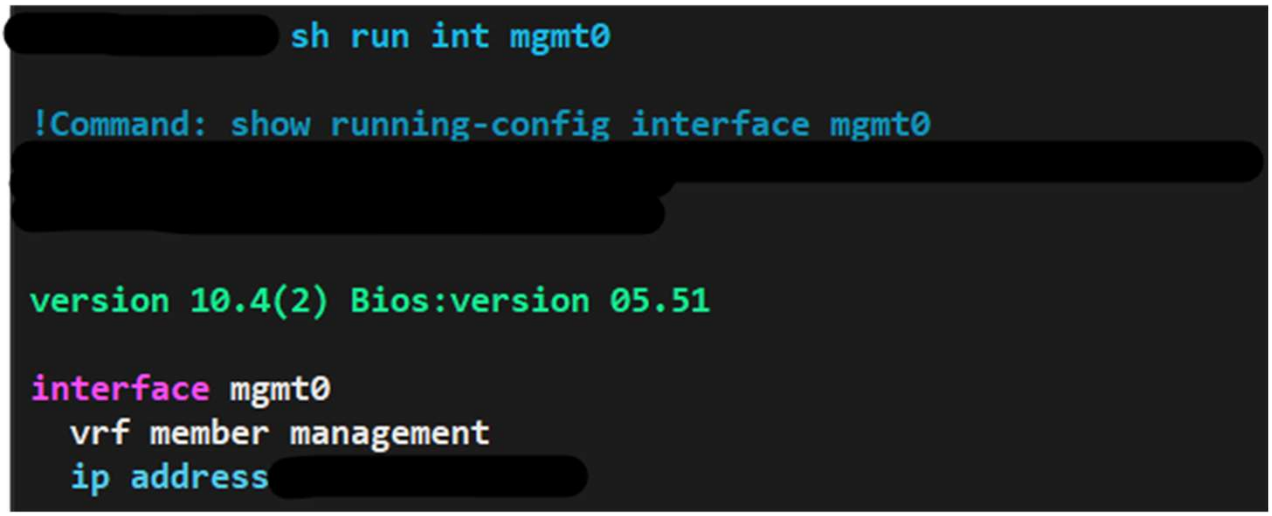


10. From the Actions drop down menu, select Add Switches

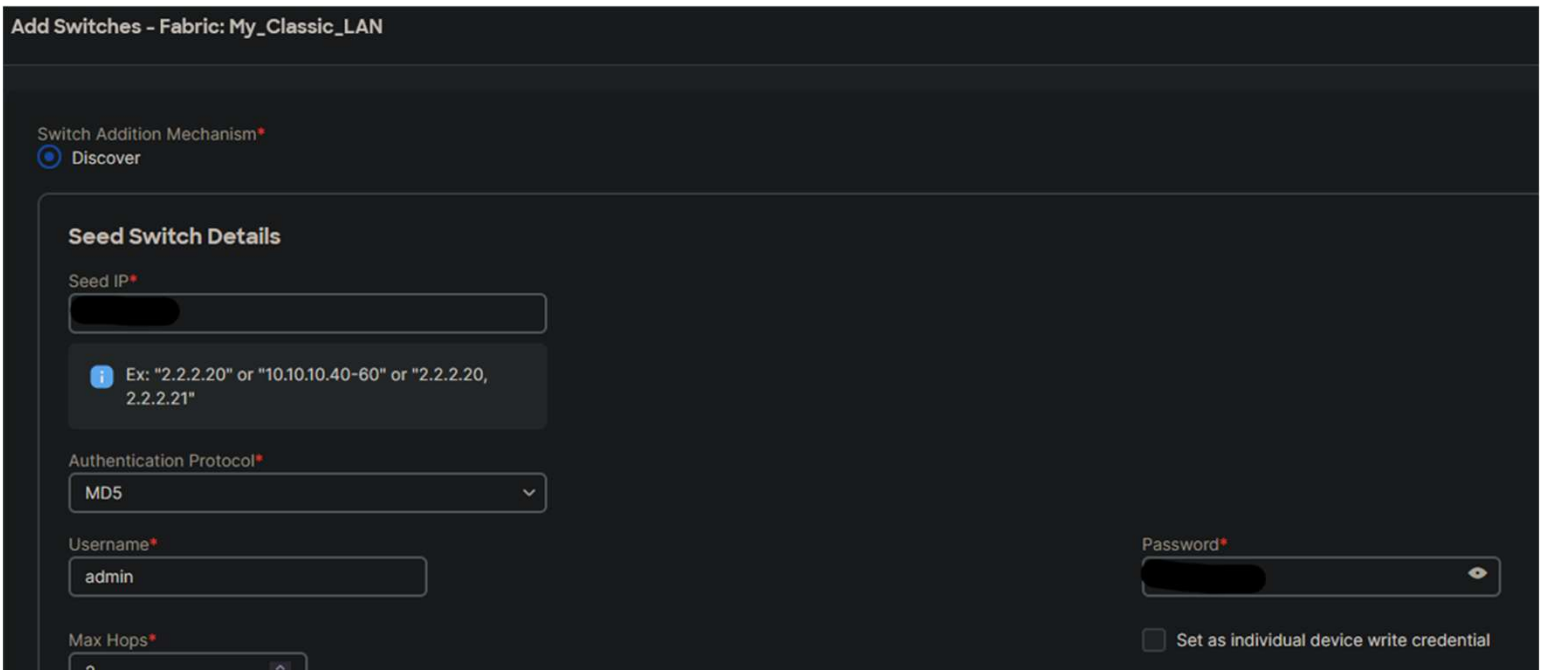


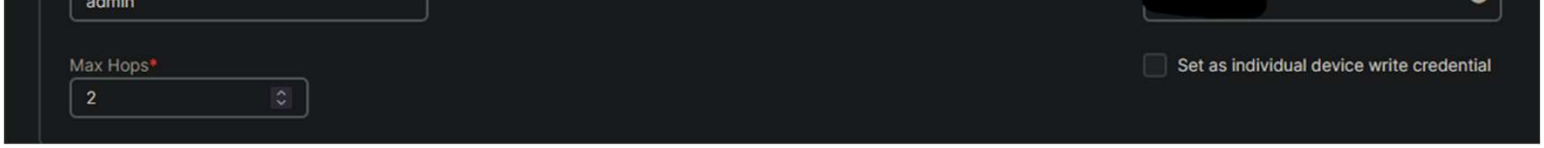
11. In the Seed IP field, input the **mgmt0 interface IP** address of at least one of the switches in your fabric (ND must have OOB mgmt connectivity to the fabric)



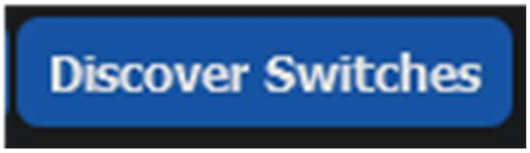


12. In the Username and Password fields, enter the **username** and **password** of the switch(es) in the fabric

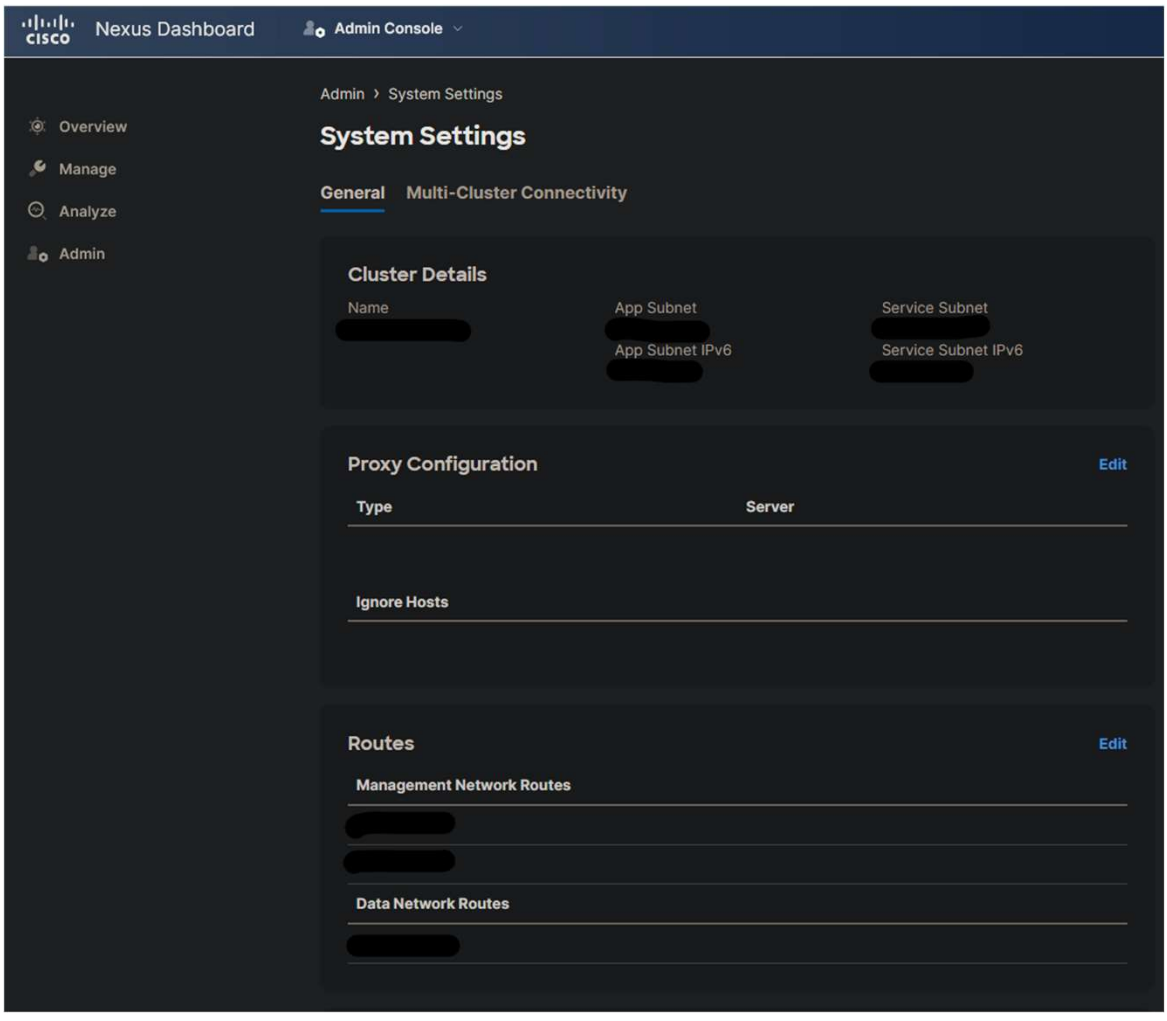




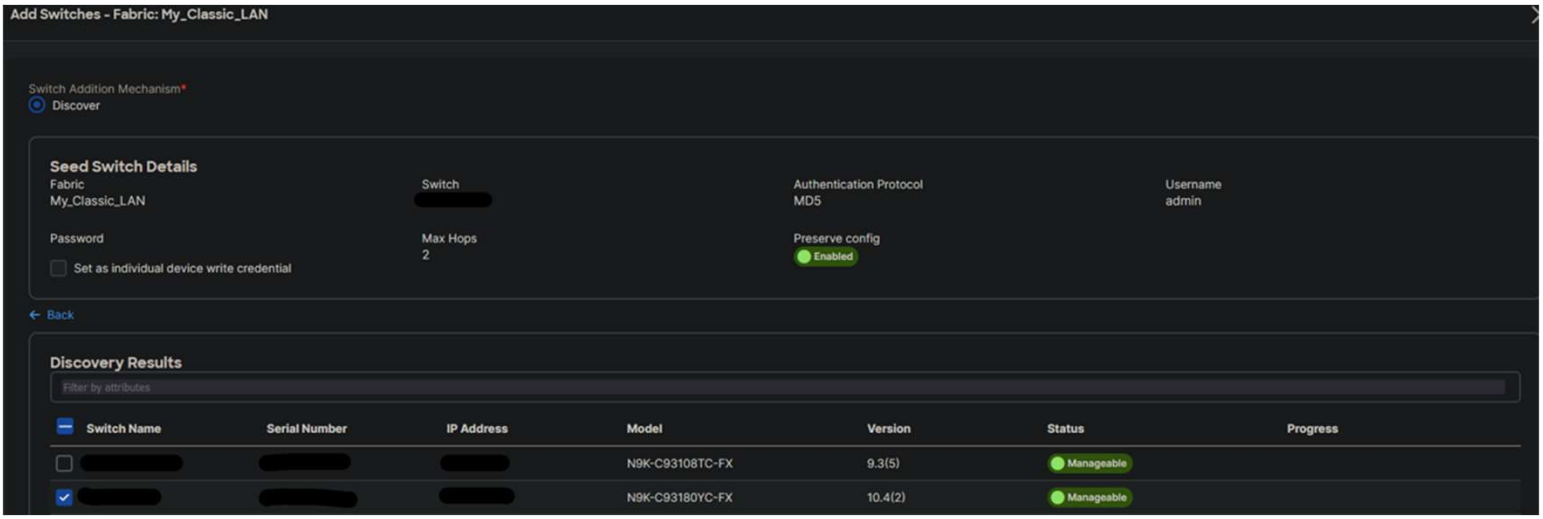
13. Click Discover Switches



14. Take note of the warning message and complete this action under Admin Console → Admin → System Settings → Routes → Management Network Routes, if you haven't already done so

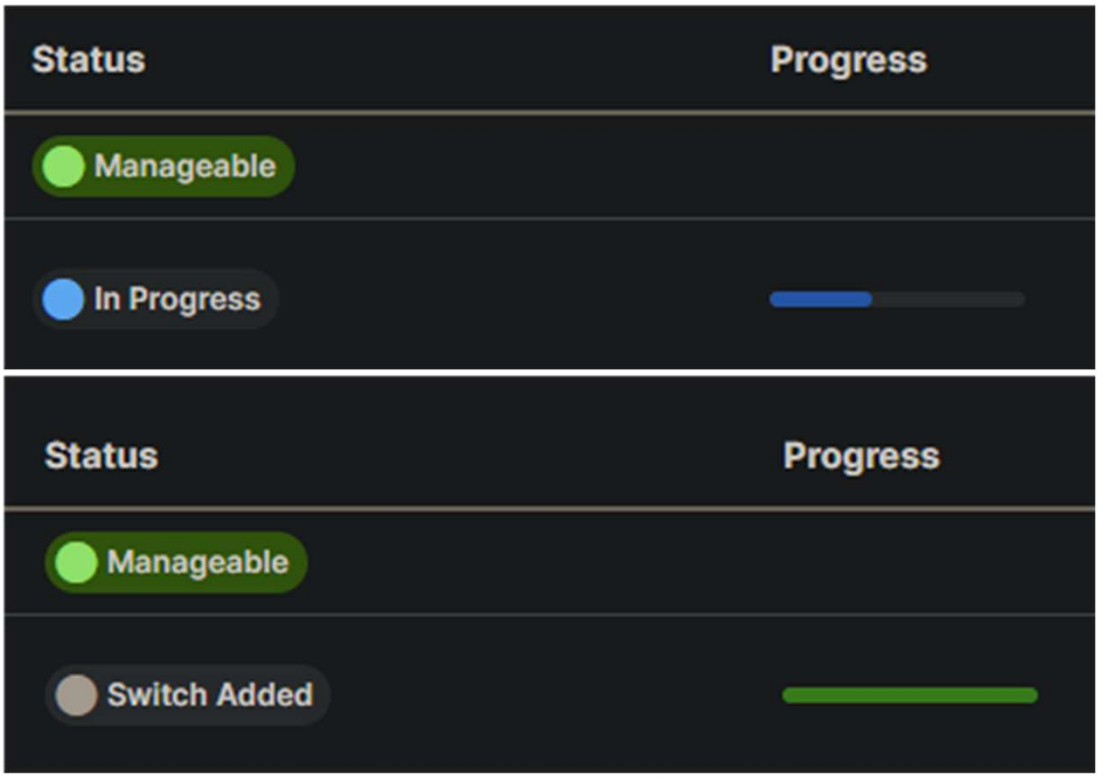


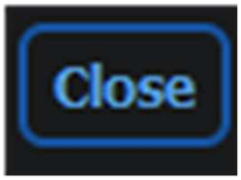
15. You should now see a list of **discovered switches**; choose which switches you want to add to your fabric by **selecting the checkbox** next to them



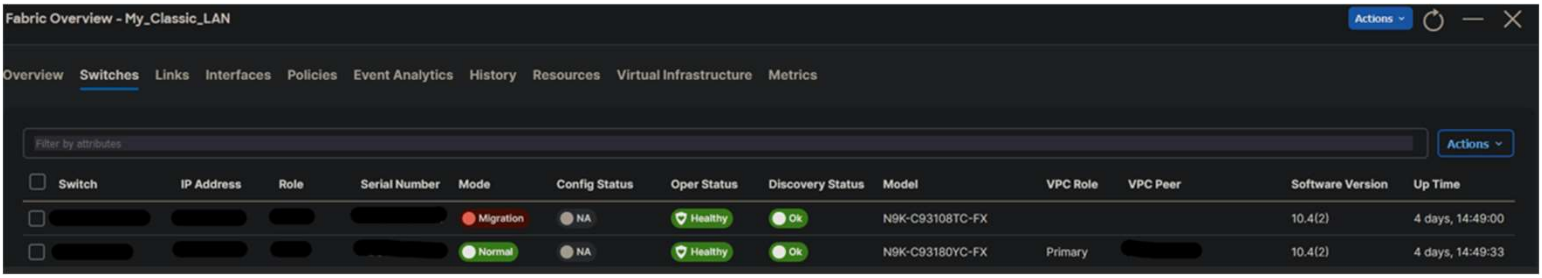
16. After selecting the desired switches, click on Add Switches

17. Watch the Progress bar to ensure that the switches get added properly; after the Status message changes to Switch Added, you may select the Close button

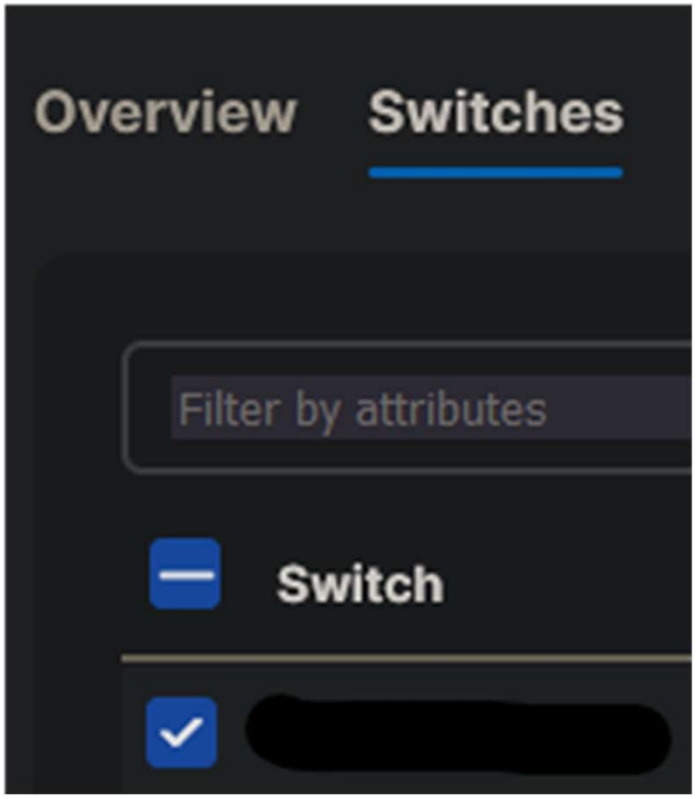


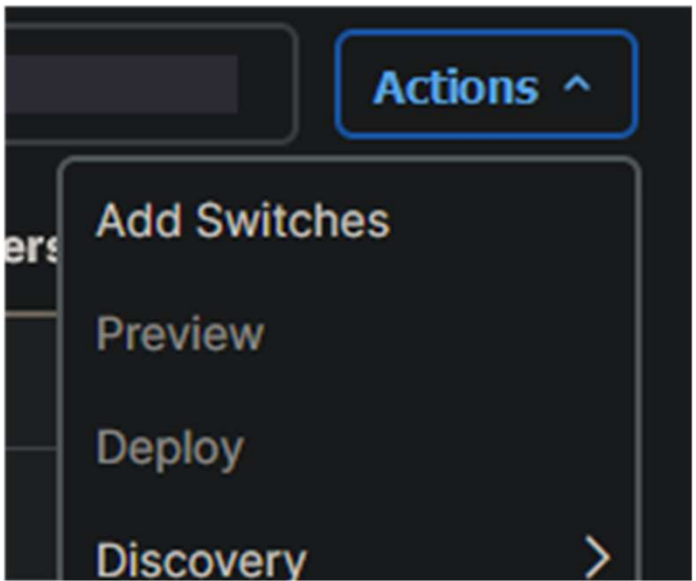


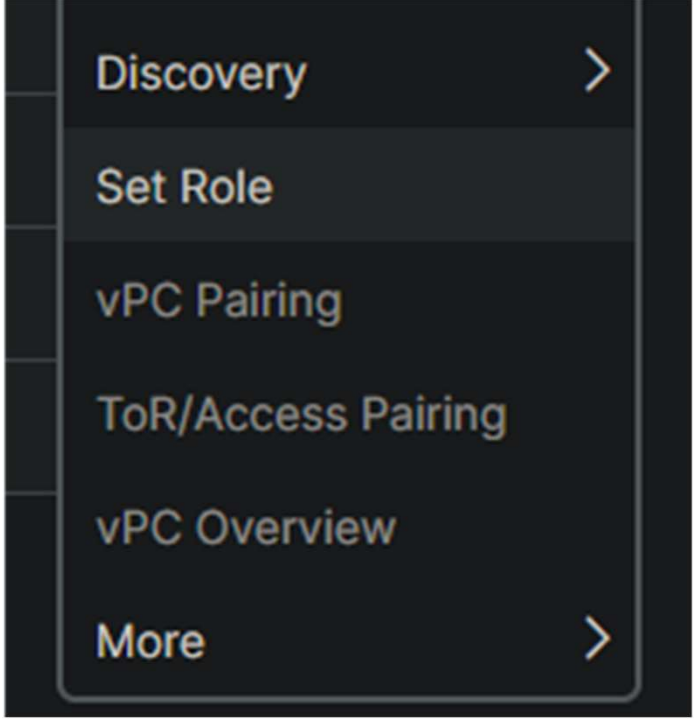
18. In the Fabric Overview window → Switches tab, you should now see switches



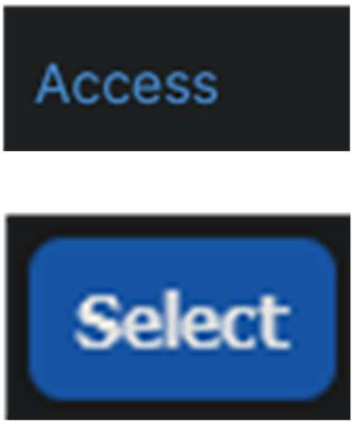
19. Choose each switch by **selecting the checkbox** next to them, then from the Actions menu select Set Role to choose the type of role the switch will have in your fabric



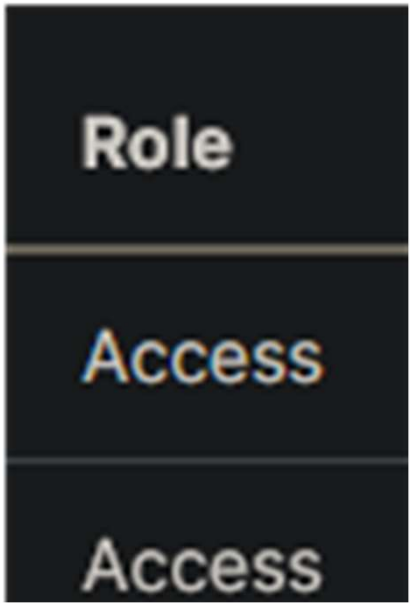


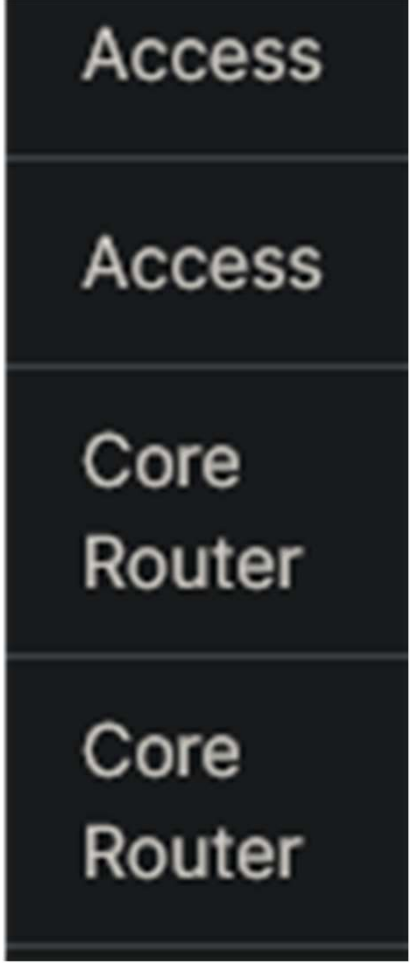


20. Select the desired switch role, then click on the Select button

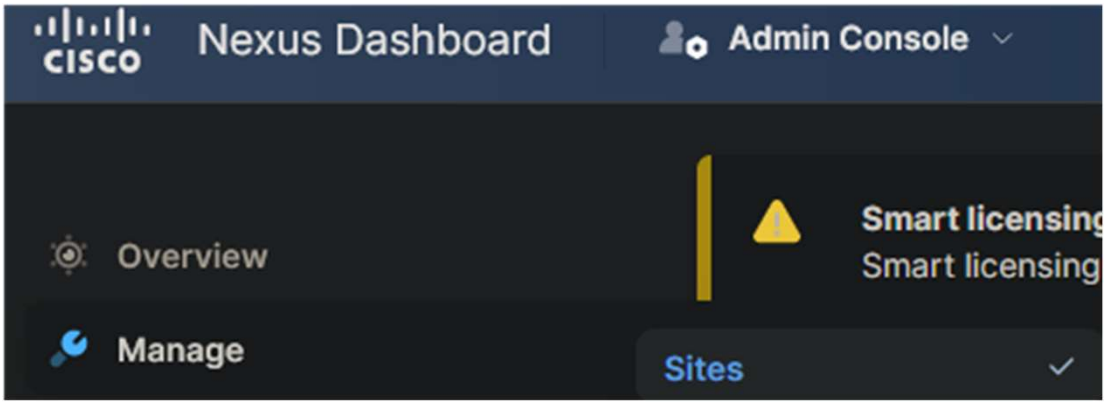


21. You should now see that each switch in the fabric has a **role assigned**

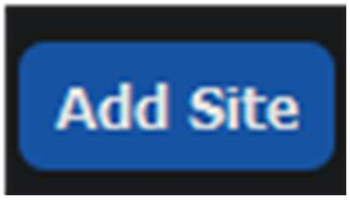




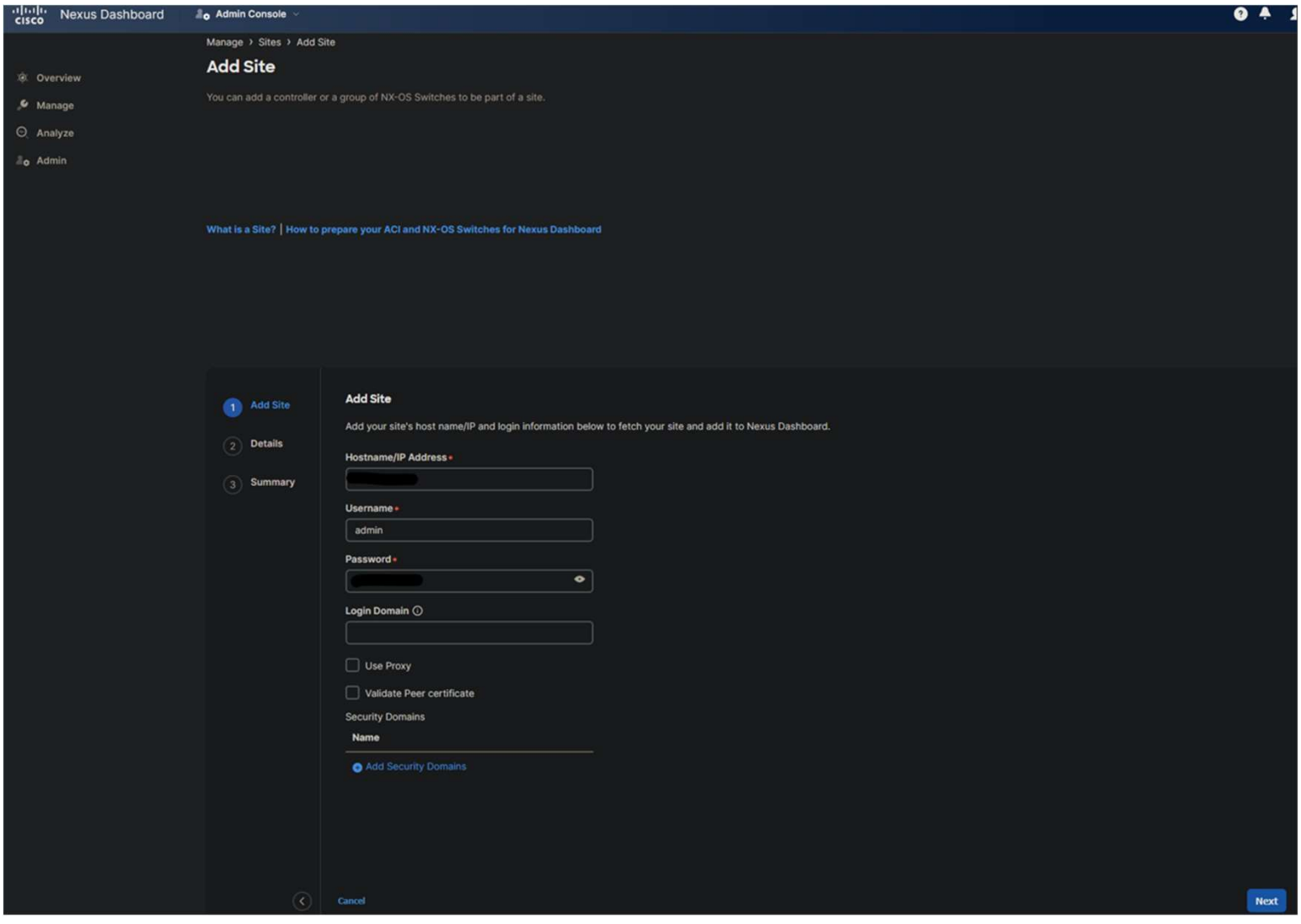
22. Now that your *Classic LAN* fabric has been created, navigate to Nexus Dashboard Insights, and select Manage → Sites



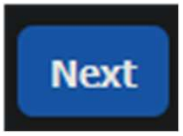
23. Select the Add Site button on the right side of the page



24. Enter the **hostname** or **IP address** of the **Nexus Dashboard data network interface** (can be obtained from the "DATANETWORK" field in the "acs show nodes" command output on the CLI of an ND node), followed by the ND credentials

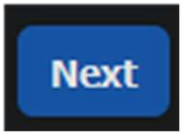


25. Select Next



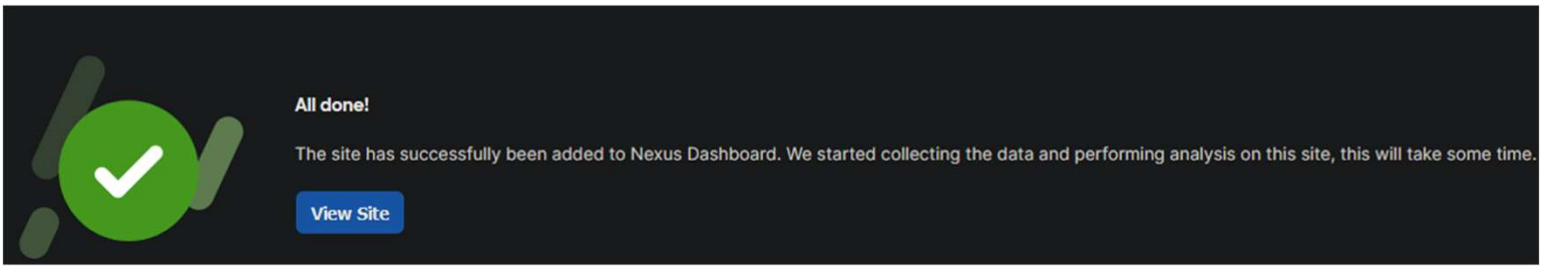
26. Select the checkbox next to your fabric, and choose a location

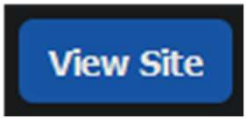
27. Select Next



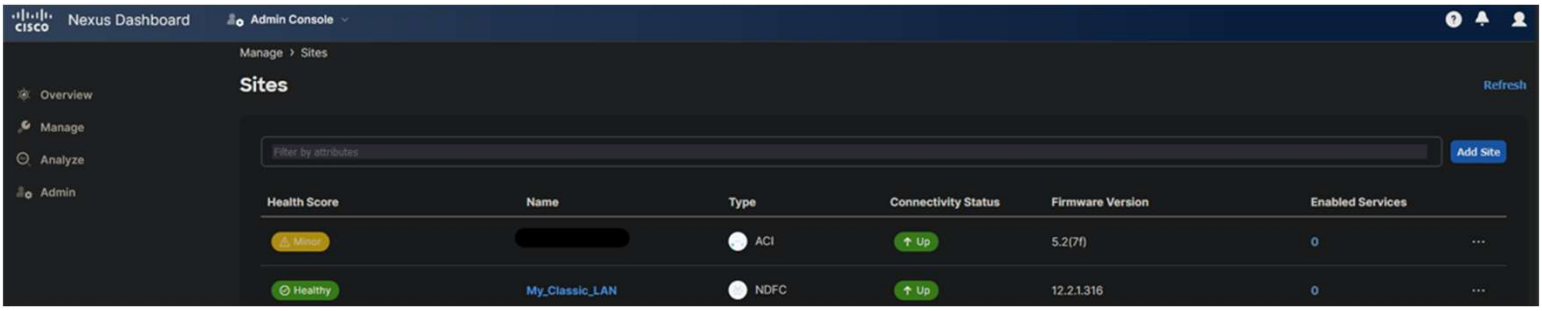
28. Make sure all the information is correct, then select Save

29. On the next page, select View Site

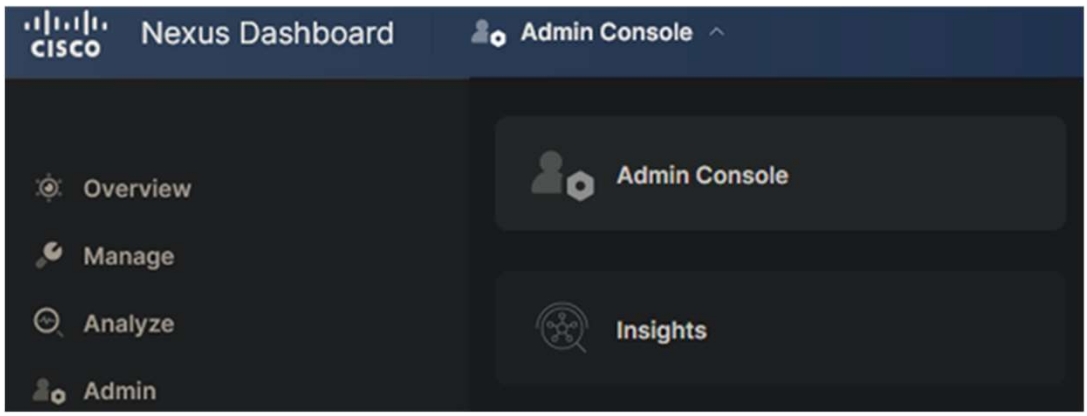


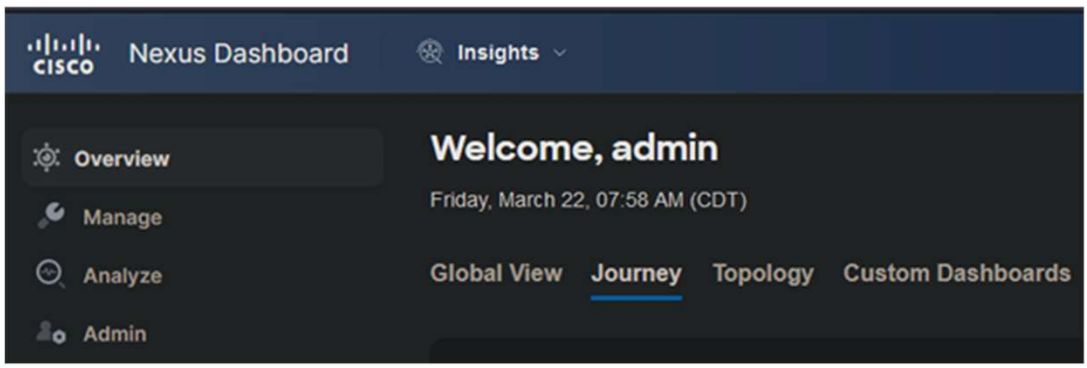


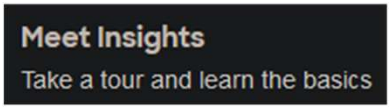
30. Verify that the site is **Healthy** and that the Connectivity Status is **Up**



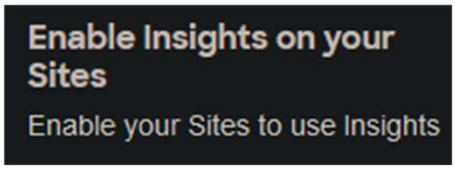
31. Navigate to Insights → Overview → Journey, and go through the steps, starting with Meet Insights

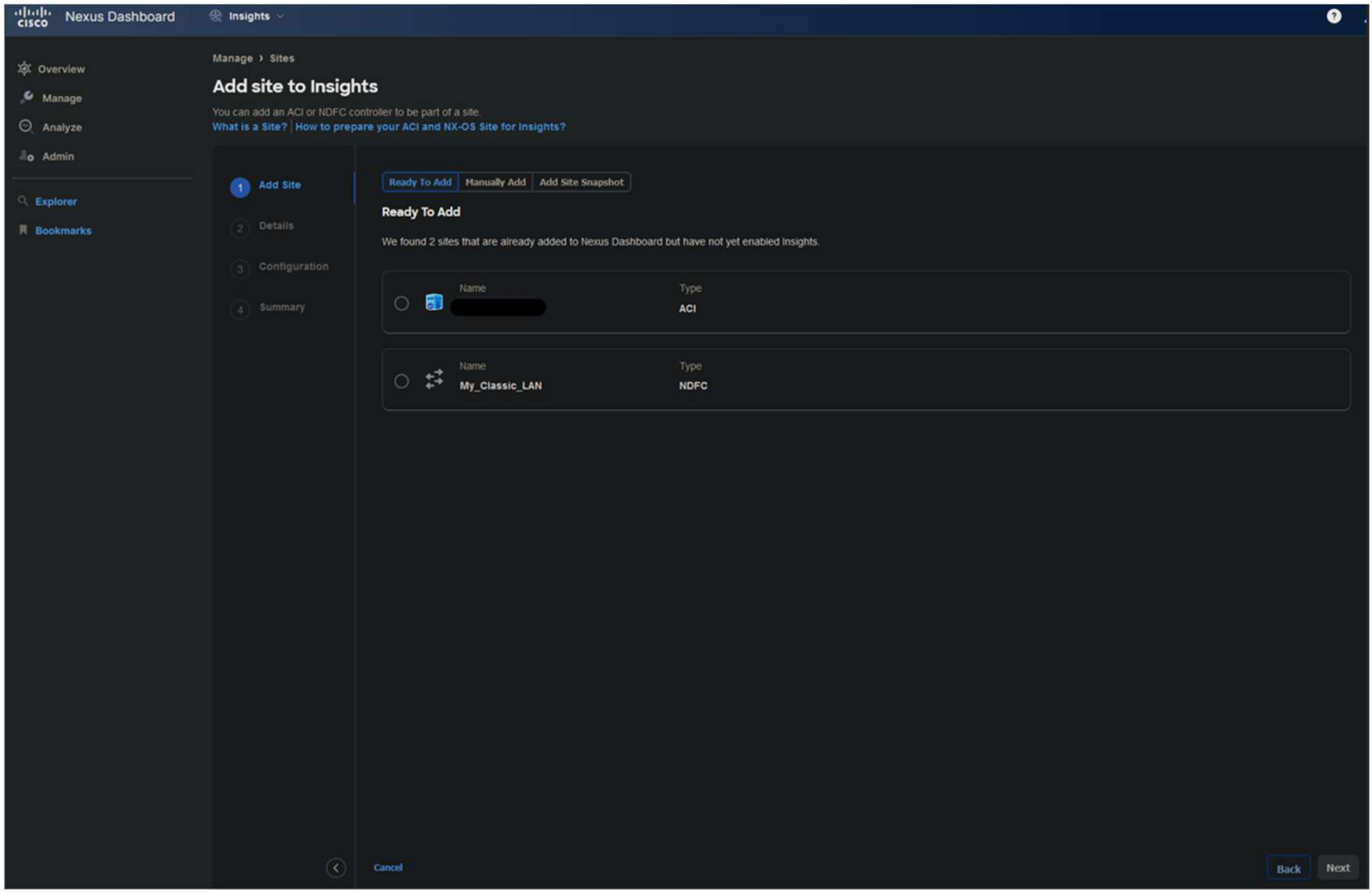




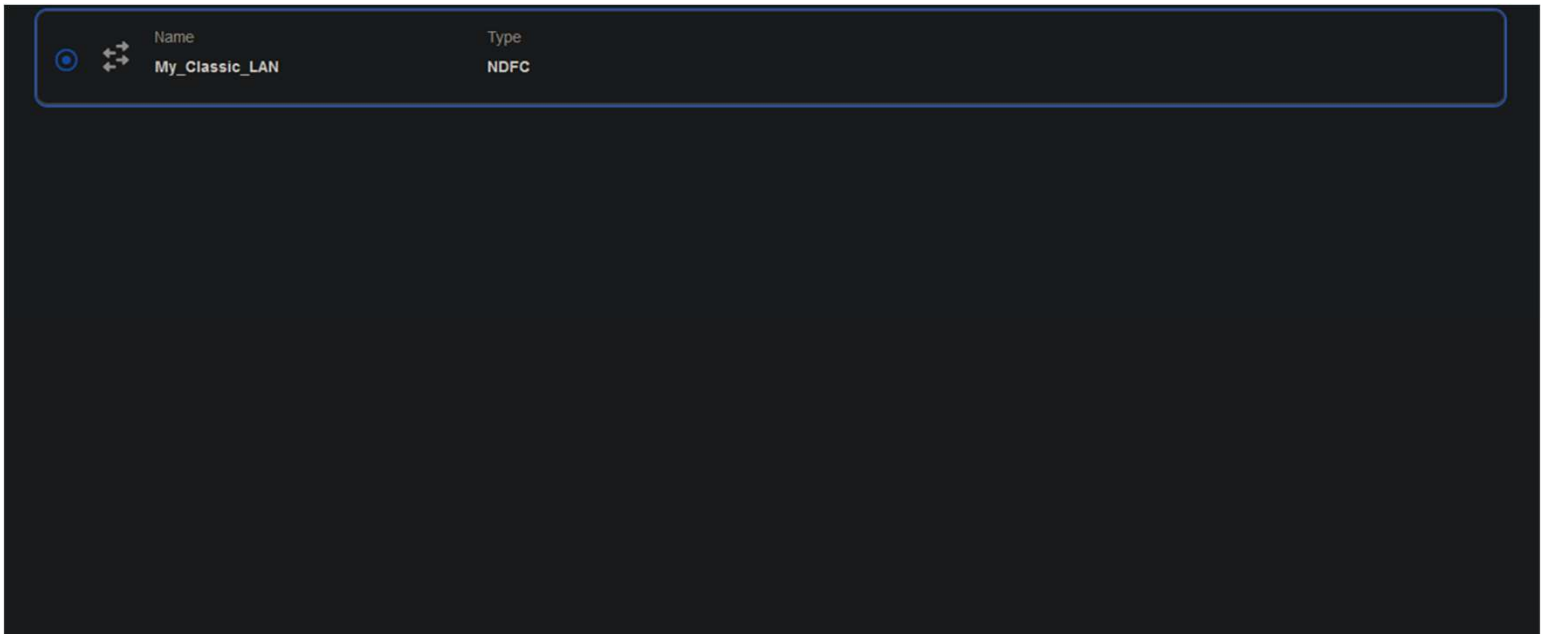


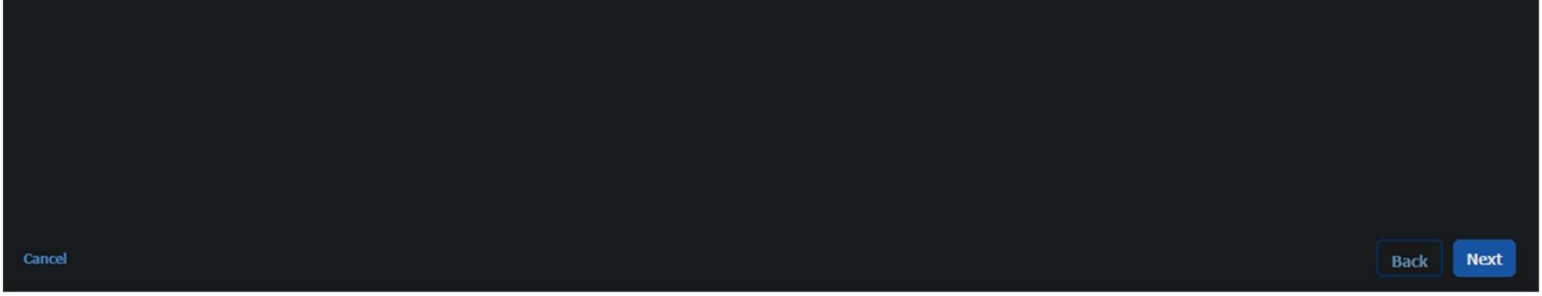
32. The second step, Enable Insights on your Sites, is where you will add your site to Insights



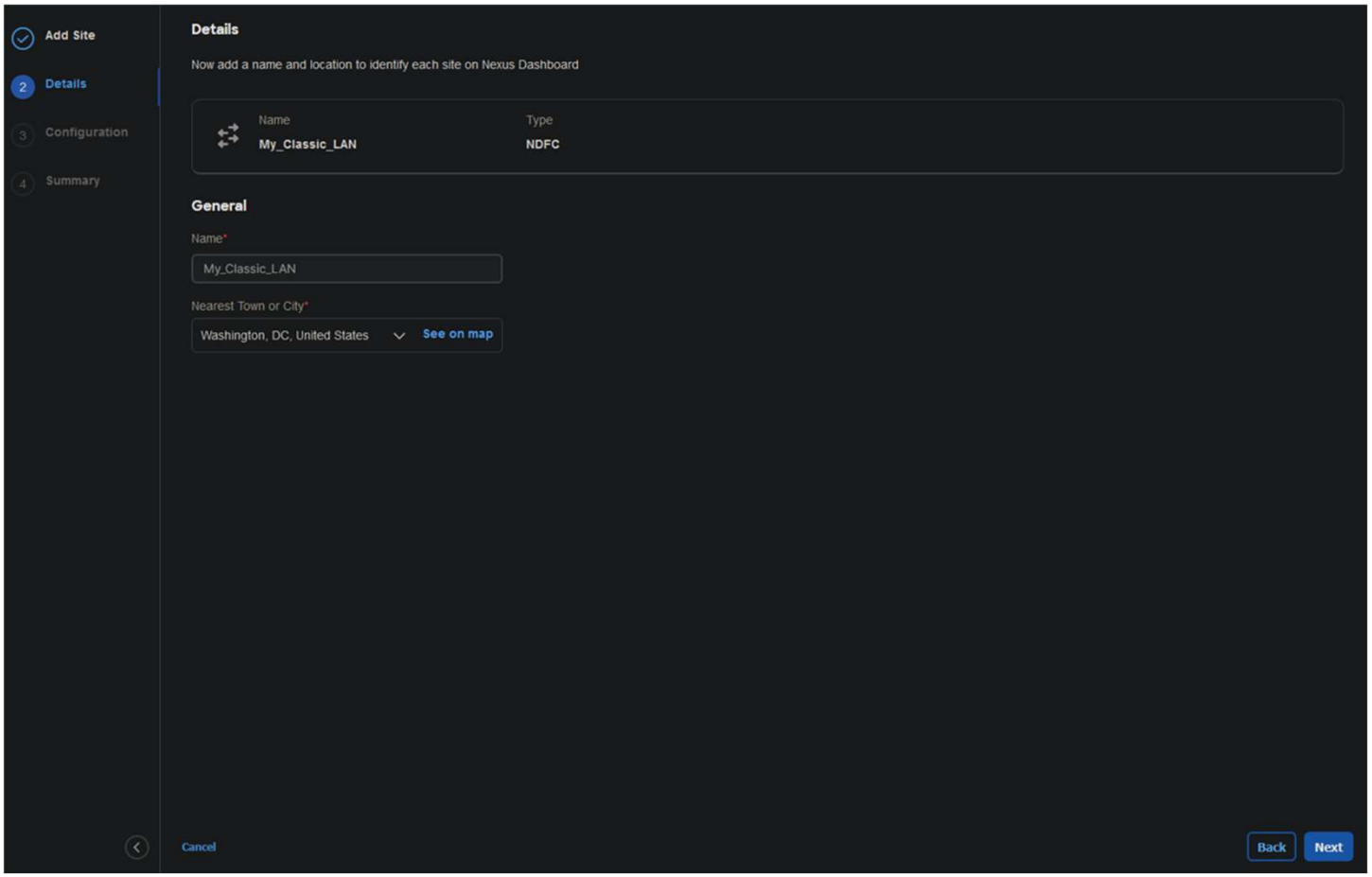


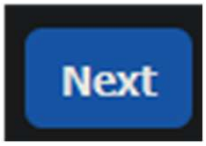
33. Select your site and click Next



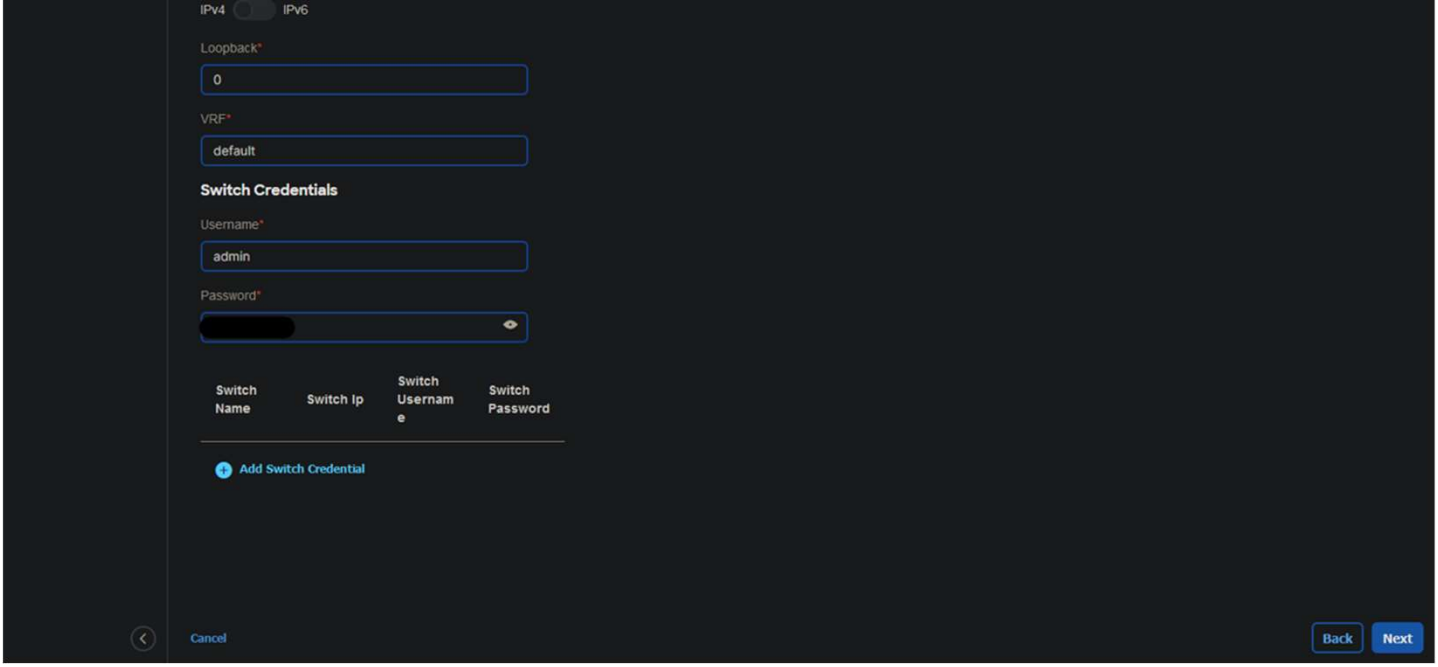


34. On the Details tab, make sure the information is correct, then select Next

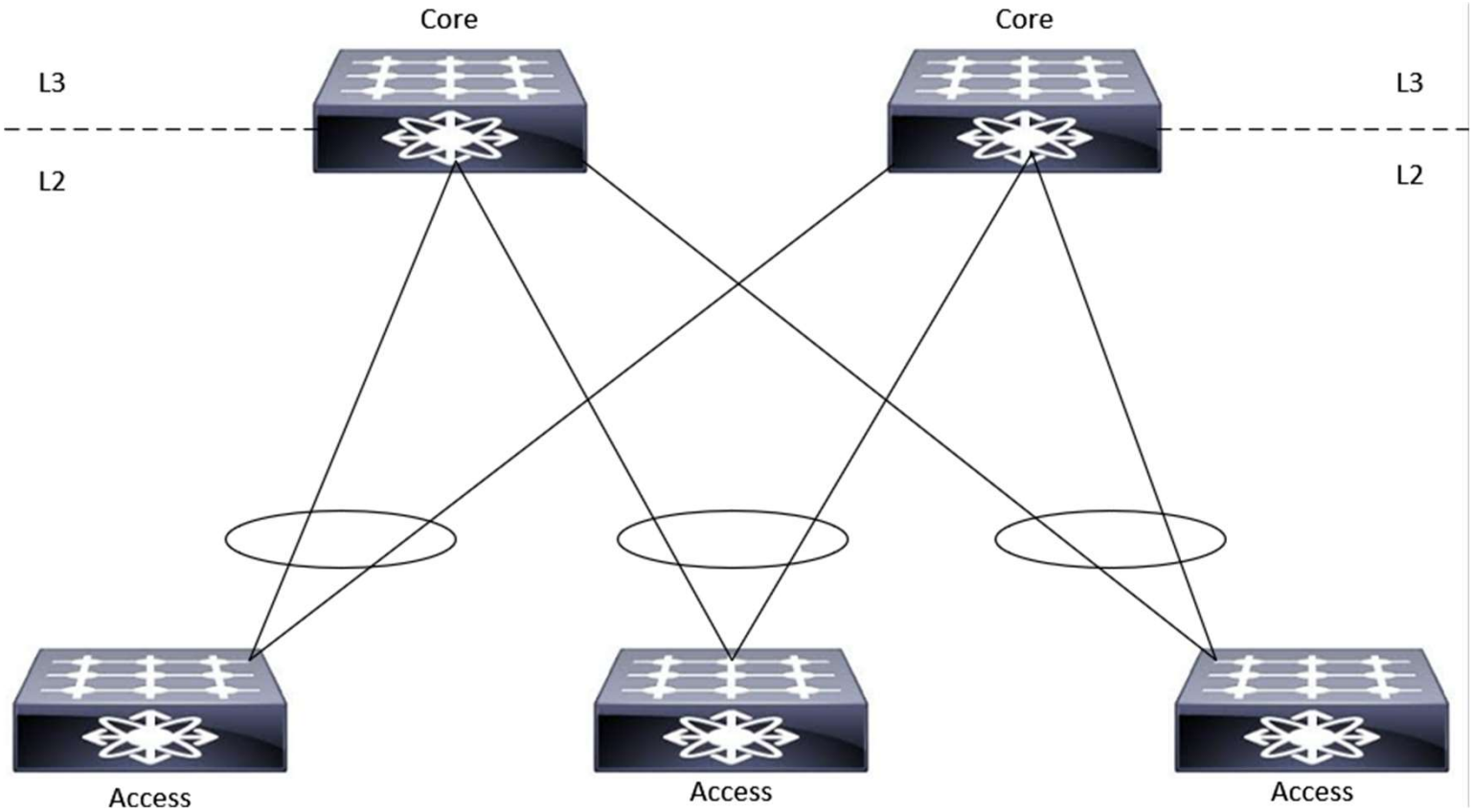




35. On the Configuration tab, select Classic for Fabric Type, Managed for Fabric Mode, then choose the Loopback interface and VRF that has connectivity to the ND data network interface; finally **enter the switch credentials**



Now, this is where we take a detour to explain the loopback interface and VRF configuration. Recall that our topology is a collapsed core design where the access switches are purely L2, while the core switches provide L3/ gateway functionalities. If the access switches are L2-only, yet they require a VRF and routed loopback interface for sending telemetry data to NDI, how will we make this work?



The answer is actually quite simple. We can create the loopback interface on all of the switches, then configure a "transit VLAN" on each switch which will be used to carry the NDI telemetry data. We will then configure an "underlay", just like we do with *Data Center VXLAN BGP EVPN* fabrics, but instead of using routed interfaces, we will use an SVI on each switch. This allows us to keep all our links as L2 trunk links; we simply need to ensure that we add the NDI transit VLAN to the trunks. The SVI on each switch will use the same VLAN ID (e.g., 99), and then we'll configure an IGP (e.g., OSPF) to perform route peering between each switches' SVI and loopback interface. Either the default VRF or a user VRF may be used here, depending on how far you want to segment the traffic. Also, the configs can be made either in NDFC, using a freeform config template (preferred), or directly on the CLI of the switches. With that in mind, let's look at a more detailed design to see how this all works.

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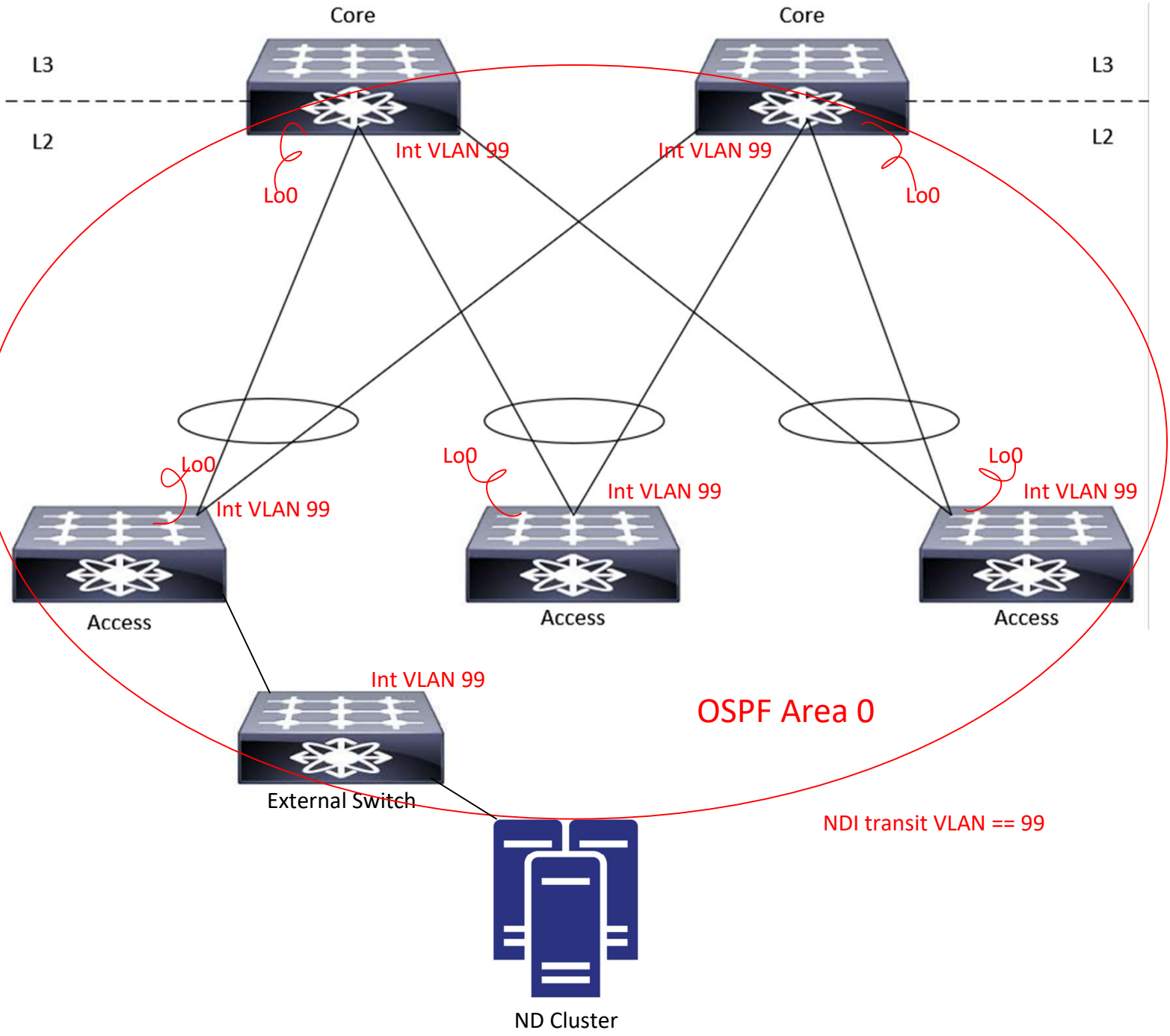


The OSPF configuration on all the core and access switches will look something like this:

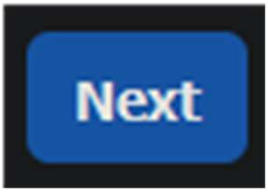
```
[redacted] sh run ospf

!Command: show running-config ospf
[redacted]

version 10.4(2) Bios:version 05.51
feature ospf

router ospf 1

interface Vlan99
```

```
router ospf 1

interface Vlan99
  ip router ospf 1 area 0.0.0.0

interface loopback0
  ip router ospf 1 area 0.0.0.0
```

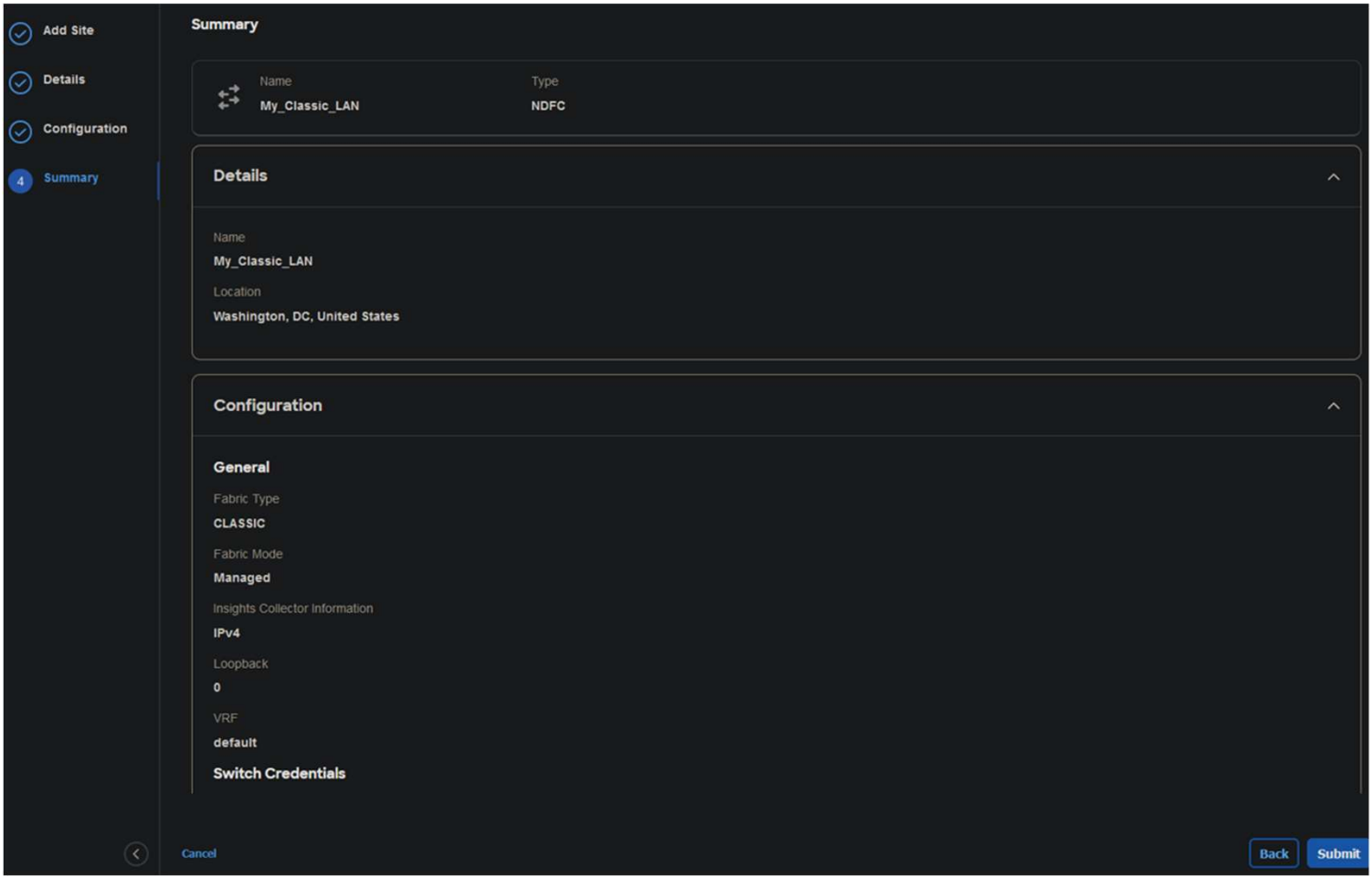
For more information on how to implement this configuration using a freeform config template in NDFC, refer here: https://www.cisco.com/c/dam/en/us/td/docs/dcn/ndfc/1221/articles/ndfc-enabling-freeform-configurations/enabling-freeform-configurations-on-fabric-switches.pdf

Now that we have routed connectivity from our Classic LAN fabric to our ND cluster, we can continue on with next steps.

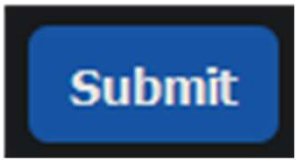
36. Click the Next button to proceed to the next step



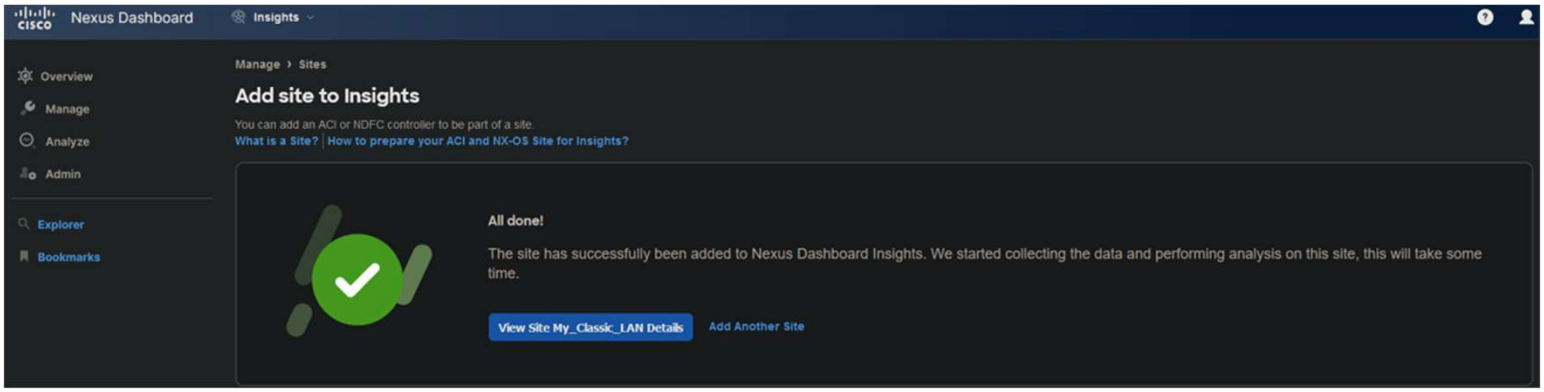
37. On the Summary tab, ensure that the configuration is correct



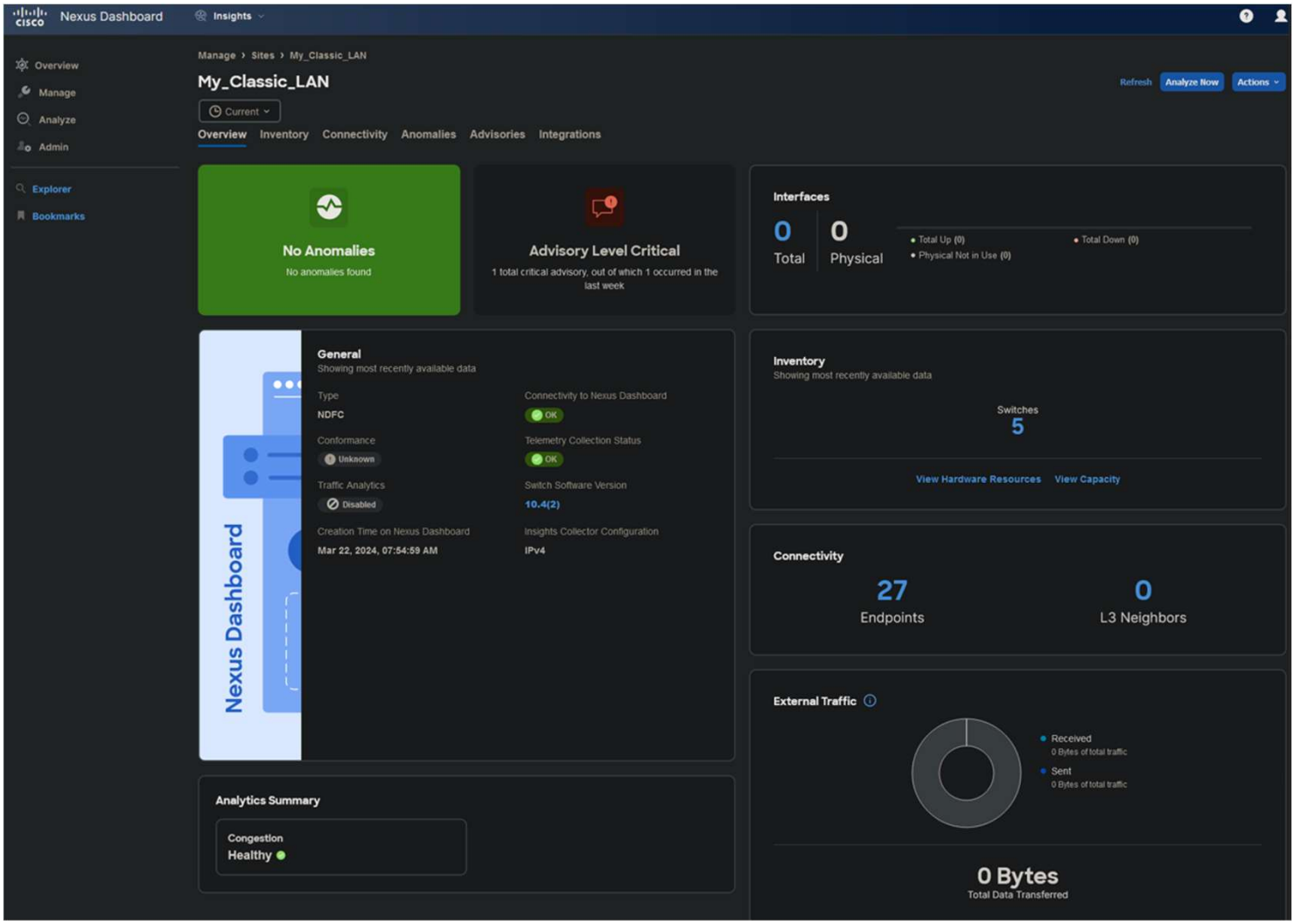
38. Click the Submit button



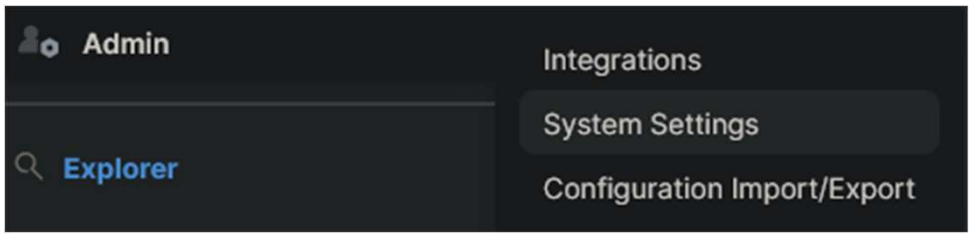
39. Click the View Site Details button to view your site

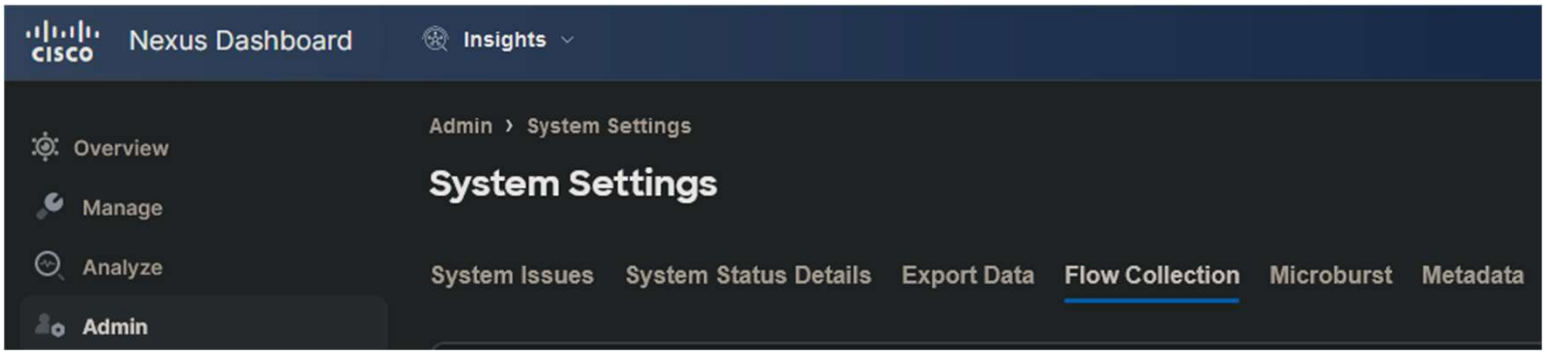


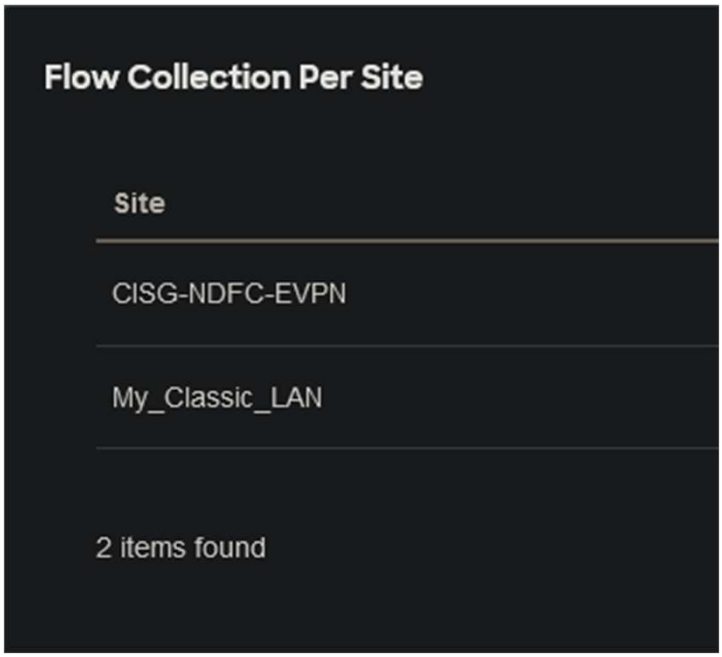
40. Ensure that Connectivity to Nexus Dashboard, and Telemetry Collection Status are **OK**

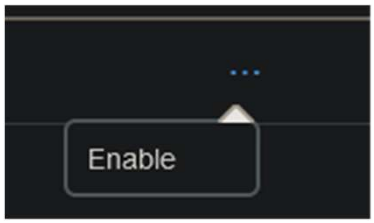


41. To enable Traffic Analytics, navigate to Admin → System Settings → Flow Collection → Flow Collection Per Site → Ellipsis icon next to your site → Enable

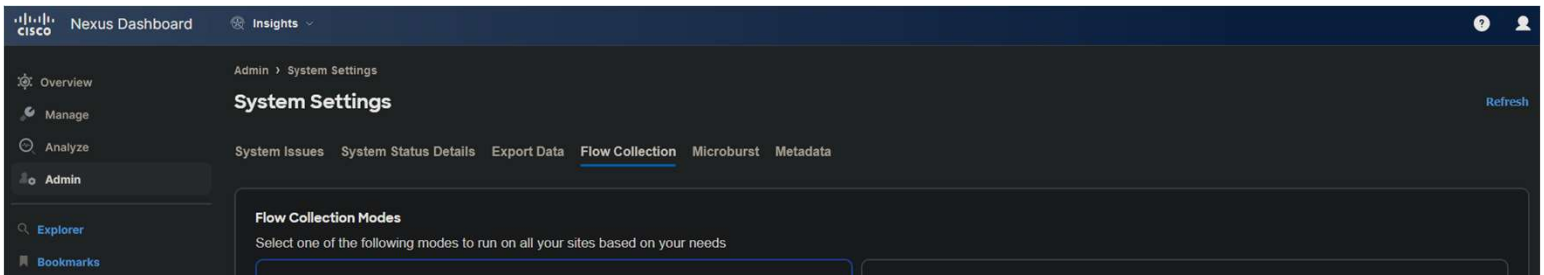


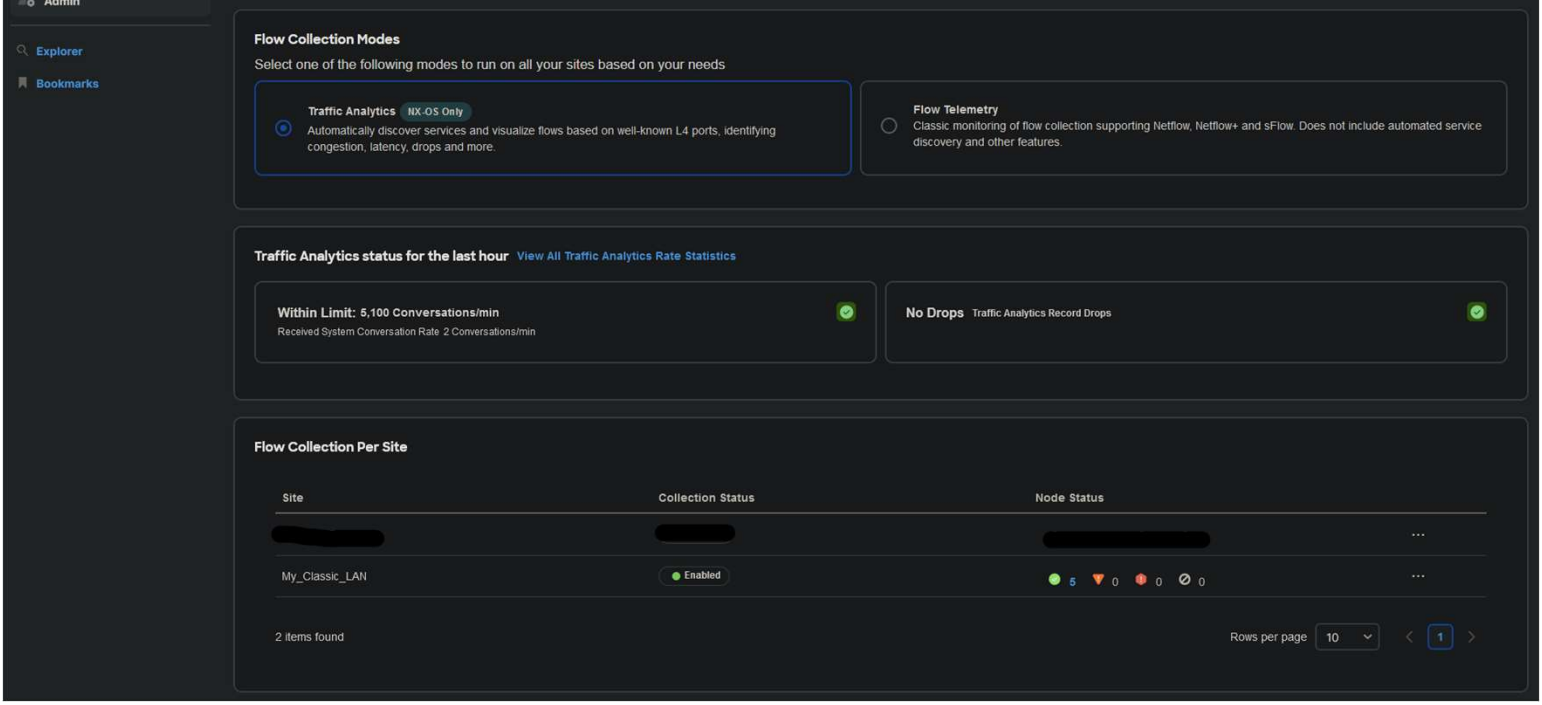


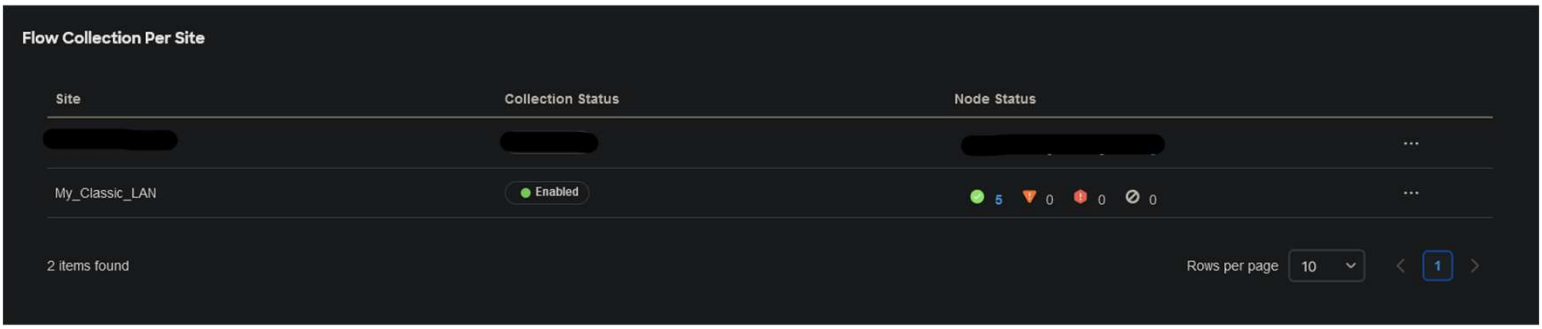




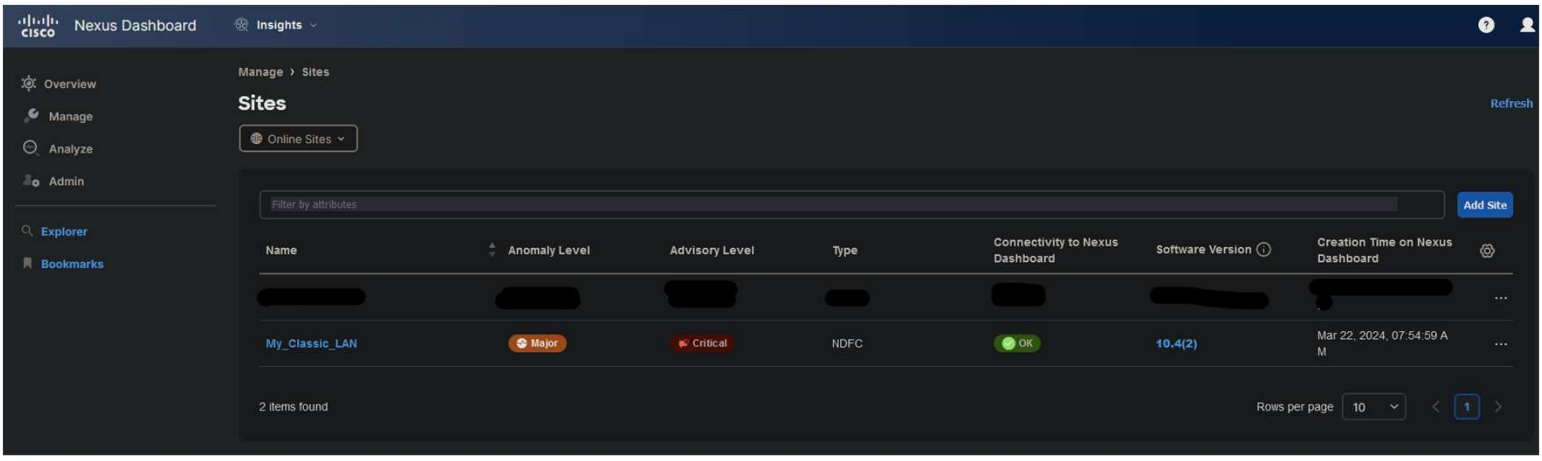
42. Ensure that your site shows **Enabled** in the Collection Status column



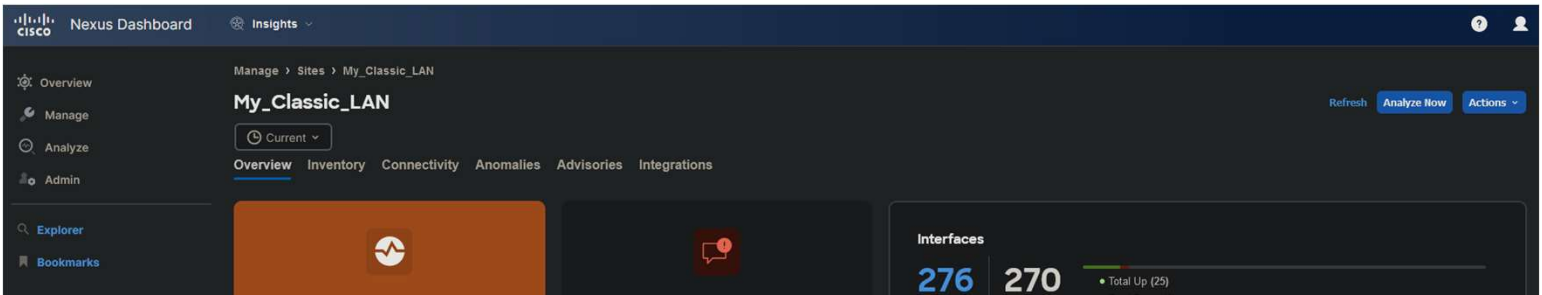


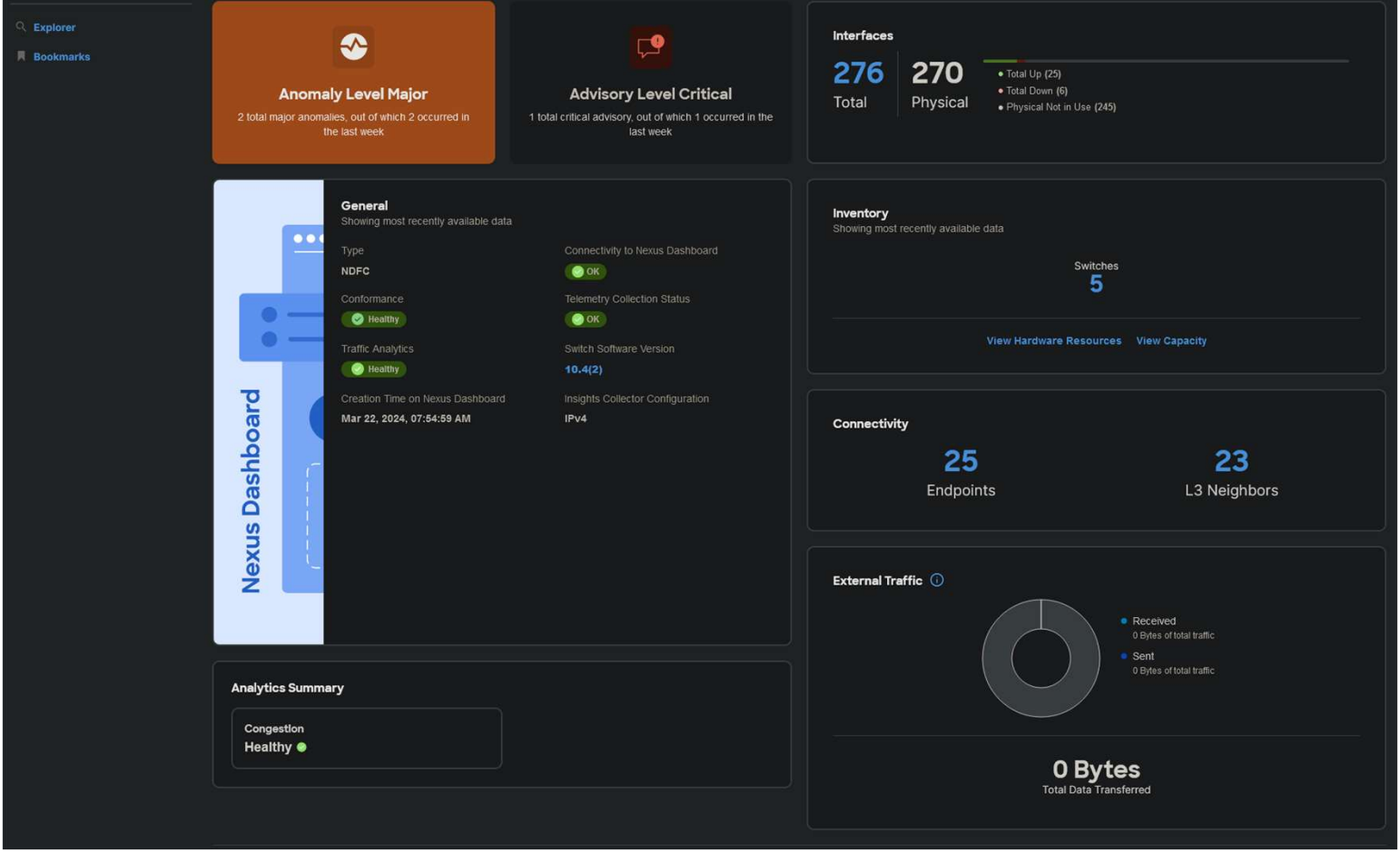


43. Navigate back to Manage → Sites, and click on your site



44. In the General field, ensure that Traffic Analytics shows as **Healthy**; by this time Conformance should also show as **Healthy**





Congratulations! You have now created an NDFC-managed Classic LAN site and added it to NDI!

*Special thanks to Chris Merkel, SE, Cisco Systems, Inc. for providing the solution here ☺

®Created by Matthew Rich, SE, Cisco Systems, Inc.