Working with Fabric Designer in Nexus Dashboard, Release 4.3.1

Table of Contents

New and changed information

The following table provides an overview of the significant changes up to this current release. The table does not provide an exhaustive list of all changes or of the new features up to this release.

Release Version	Feature	Description
Nexus Dashboard 4.3.1	There were no major changes from the previous release.	

Overview

The fabric designer feature in Nexus Dashboard allows you to plan and design your network fabric virtually before purchasing any physical equipment. You can create a virtual representation of your network topology, which streamlines the design and pre-provisioning process. This approach enables you to accurately plan physical components, cabling, and network configurations, reducing errors and ensuring seamless deployment when the physical devices arrive.

You can add any combination of spine, leaf, and border switches to your fabric. Nexus Dashboard automatically configures vPC peer links with built-in checks, simplifying the vPC setup. It also auto-generates topology views and guides you in connecting switches, making cabling setup easier and more accurate.

The fabric designer feature supports iBGP and eBGP variants for the Data Center VXLAN fabric type only.

Guidelines and Limitations

- Fabric designer is primarily intended for initial network setup and as a planning or sales tool. You can only enable the fabric designer when you create a new fabric. You cannot enable the fabric designer later through the edit fabric action. For detailed verified scalability guidelines, see Cisco Nexus Dashboard Verified Scalability Guide. These guidelines also apply to fabric designs.
- When you enable the fabric designer option for a fabric, Nexus Dashboard disables manual pre-provisioning of other devices to prevent unsupported configurations and unexpected behavior.
- When you modify a fabric design, Nexus Dashboard deletes the existing pre-provisioned switches, interfaces, and links, and then re-creates them based on the updated design parameters.
- Only IPv4 addresses are supported for pre-provisioned devices. IPv6 addresses and custom subnet ranges are not supported.
- After the fabric is moved from design mode to production mode, you cannot revert it back to design mode.

Create or onboard a fabric with fabric designer

Follow these steps to create fabric with fabric designer.

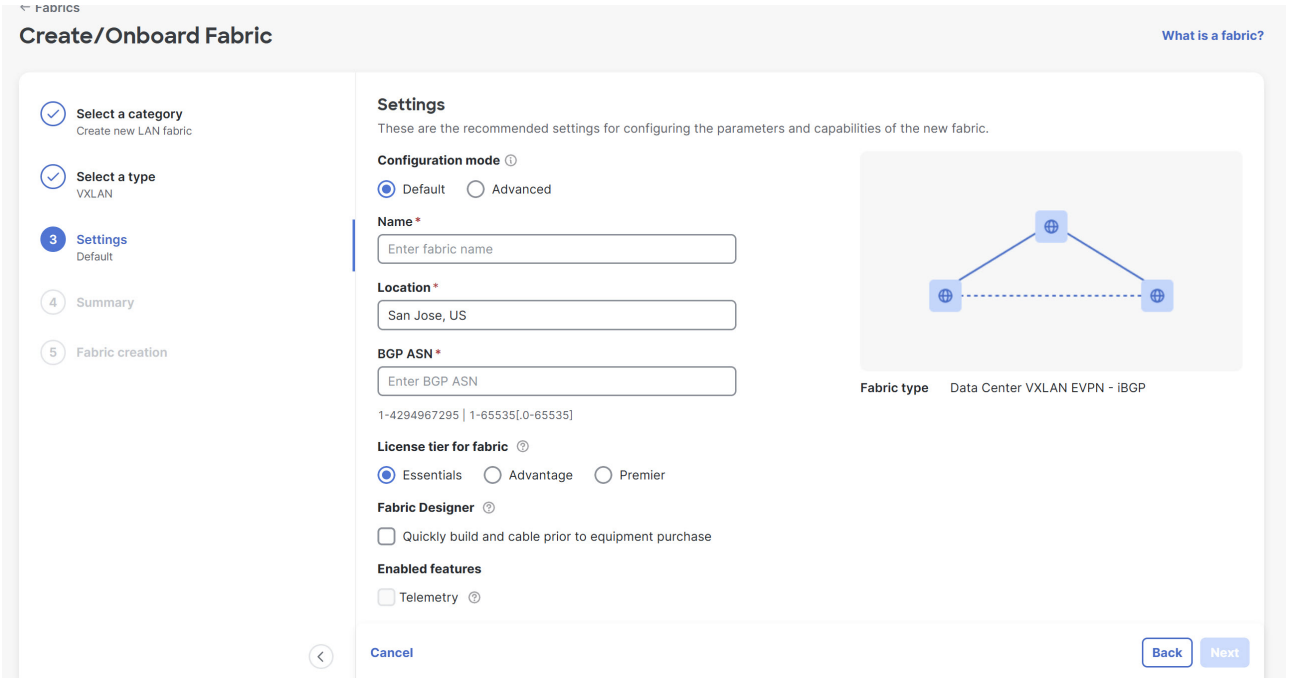
1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. Click the **Fabrics** tab.
3. From the **Actions** drop-down list, choose **Create fabric**.

   The **Create/Onboard Fabric** page displays.

4. Under **Select a category**, choose **Create new LAN fabric** and click **Next**.
5. Under **Select a type**, click **VXLAN** and choose **Data Center VXLAN EVPN**.
6. Click **Next**.



7. Under **Settings**, configure the fabric settings.

Field	Description
Configuration mode	Determine which type of configuration mode that you want to use to configure this fabric. You can choose one of the following options. • Default • Advanced
Name	Provide a unique name for the fabric.
Location	Choose the location for the fabric.

Field	Description
BGP ASN	Enter the BGP autonomous system number (ASN) for the fabric's spine switches. The following are the valid entries. 1-4294967295 | 1-65535[.0-65535] where: • 1-4294967295 denotes an integer (whole) value from 1 to 4294967295 (inclusive), or • 1-65535[.0-65535] denotes a decimal value, where the left side of the decimal is a number from 1 to 65535 (inclusive) and the right side of the decimal is a value from 0 to 65535 (inclusive). Following are examples of valid entries that would fall into either category above: • 1 • 31 • 7654321 • 1.1 • 1.65535 • 2.999 • 65535.1 Following are examples of *invalid* entries that would violate the guidelines shown above: • -5 • 1.300000 • 65536.1
License tier for fabric	Choose the licensing tier for the fabric. • Essentials • Advantage • Premier Click the information icon (**?**) next to **License tier** to see what functionality is enabled for each license tier.

Field	Description
Fabric designer	This option allows you to design and build your fabric before purchasing the equipment. To enable **Fabric Designer** option, check the **Quickly build a cable prior to equipment purchase** check box. Once you check the **Quickly build a cable prior to equipment purchase** check box, the **Fabric designer settings** option appears in the left navigation pane. Note that the **Fabric designer** option is applicable only for data center VXLAN EVPN fabrics.  The **Fabric designer settings** option appears after the **Settings** step in the left navigation pane, when you choose the **Default** configuration mode. If you choose **Advanced** configuration mode, this option appears after **Advanced settings** step.
Enabled features	Enabling the **Fabric designer** option automatically disables the **Telemetry** check box.  Fabric designer does not support telemetry.

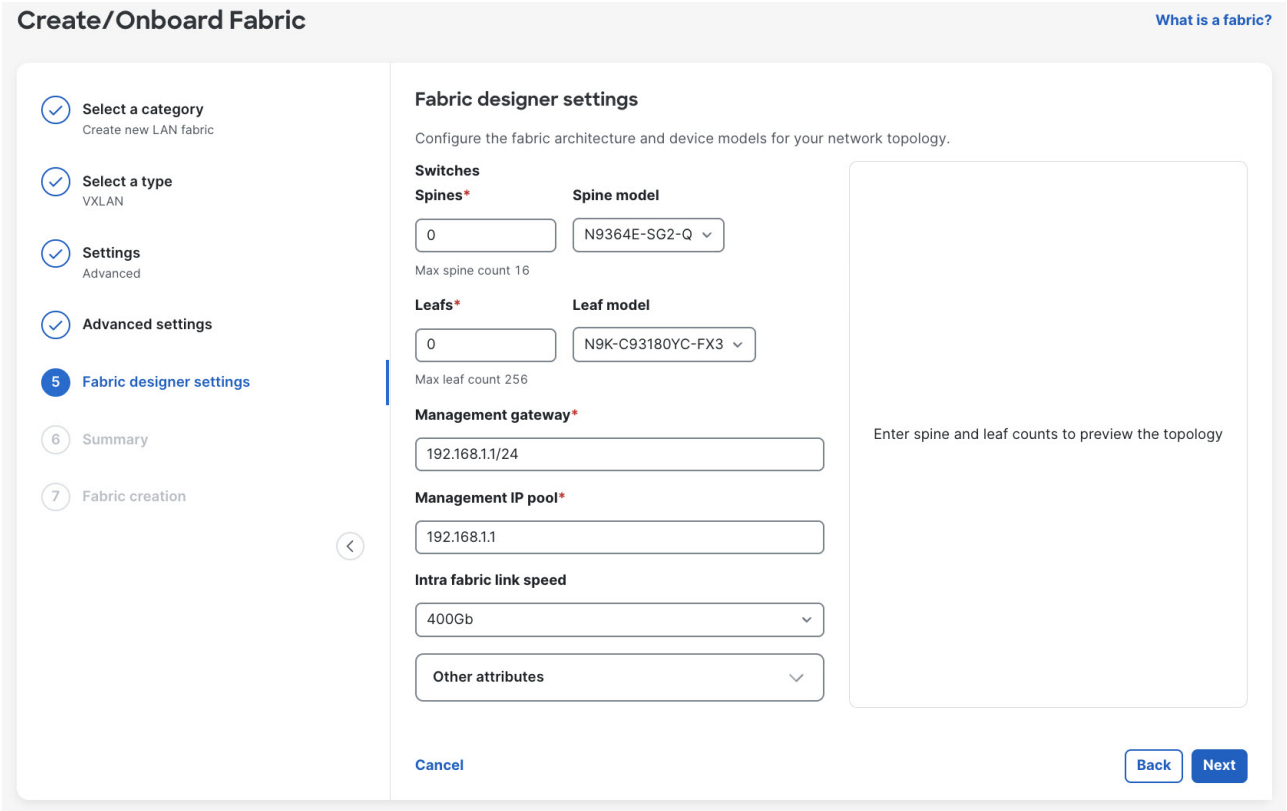
8. Click **Next**.
    - If you chose **Default** configuration mode, the next step in the **Create/Onboard Fabric** workflow is to configure Fabric designer settings. For more information, see Configure fabric designer settings.
    - If you chose **Advanced** configuration mode, the next step in the **Create/Onboard Fabric** workflow is **Advanced settings**. For more information, see the "Advanced settings" section in Creating LAN and ACI Fabrics and Fabric Groups.

Configure fabric designer settings

After enabling the **Quickly build a cable prior to equipment purchase** option, proceed to the **Fabric designer settings** section to define your desired fabric architecture and specify device models for your network topology.

Follow these steps to configure fabric designer settings.

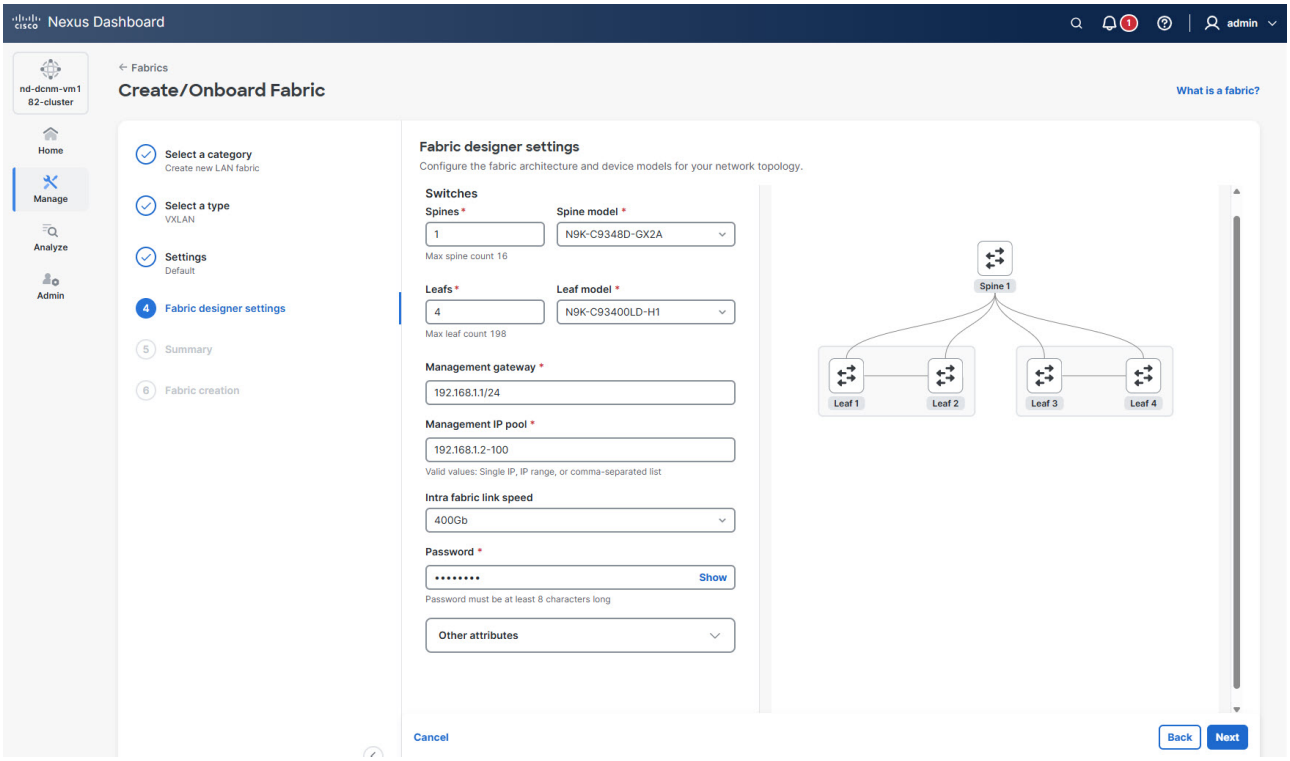
1. Under **Fabric designer settings**, configure the fabric architecture and device models for your network topology.



Configure the following parameters.

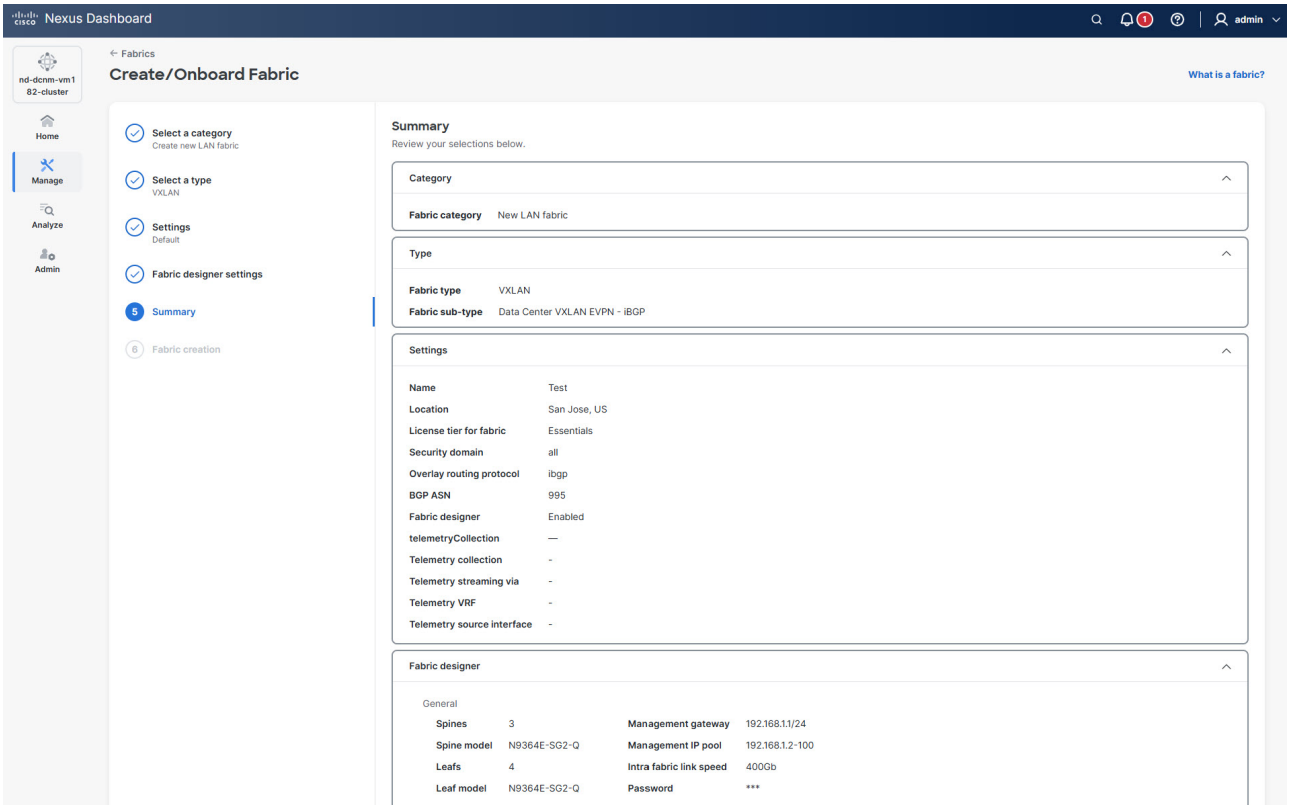
Field	Description
Spines	Provide the number of spine switches.
Spine model	Choose the desired model for your spine switches.
Leafs	Provide the number of leaf switches. As you provide the spine and leaf counts, a visual preview of fabric topology appears on the right side of the page.
Leaf model	Choose the desired model for your leaf switches.
Management gateway	Enter the IP address of the gateway used for managing your network devices.
Management IP pool	Specify the range of IP addresses to be allocated for management interfaces of the switches.
Intra fabric link speed	Choose the speed for connections between spine and leaf switches.
Password	Set a password for device access and configuration.
Other attributes	Add any additional attributes or custom settings relevant to your network deployment. For more information, see Configure other attributes.

If the configuration is non-viable (for example, insufficient ports for requested link capacity or unsupported model), Nexus Dashboard provides real time feedback and reasons.



2. Click **Next**.

   The **Summary** page displays



3. Verify all of the information that is shown in the **Summary** page is correct.
4. Click **Submit**.

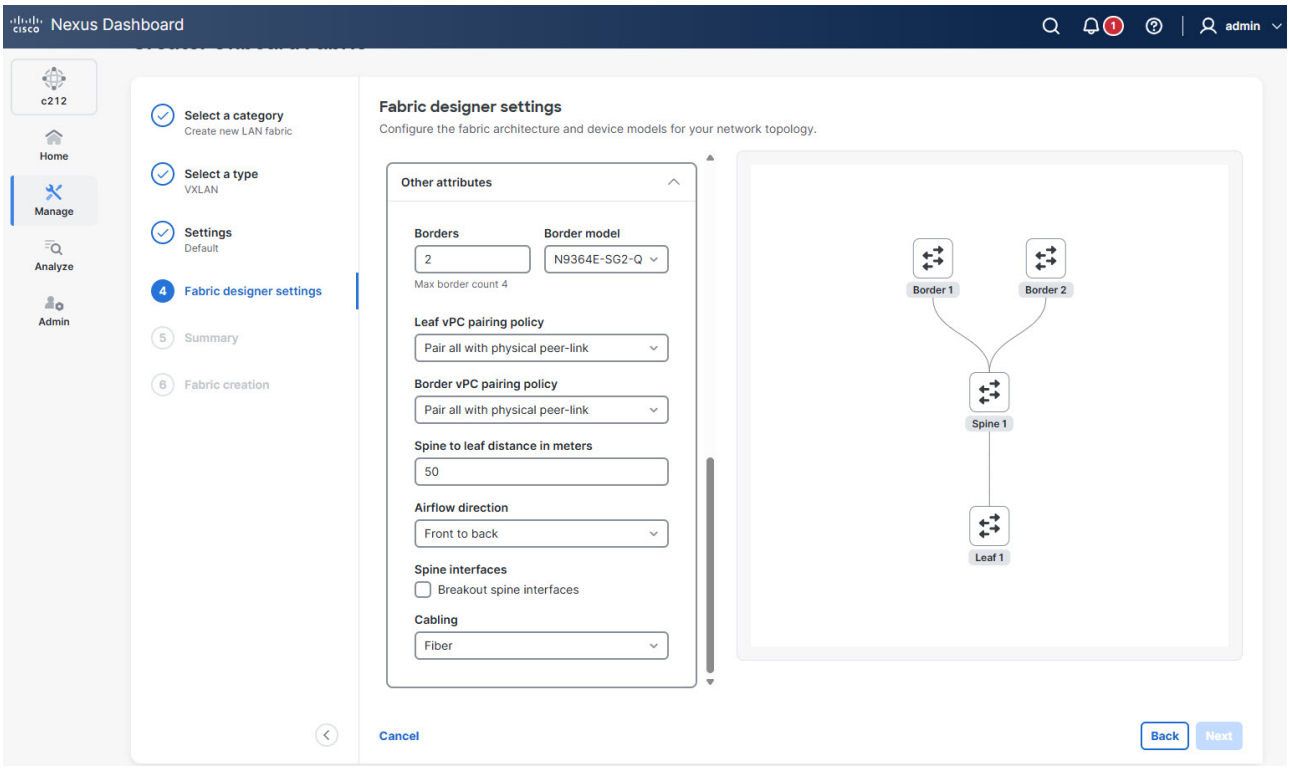
Configure other attributes

You can define additional attributes and custom settings relevant to your network deployment.

Follow these steps to configure the additional attributes.

1. Click the arrow in the **Other attributes** field to expand the section.

   The following attributes display.



2. Provide the necessary details for each field.

Field	Description
Borders	Specify the number of border devices in the network design. The value is set to 0, by default. You can configure a maximum of 4 border devices.
Border model	Allows you to choose a specific model or type for the border devices.
Leaf vPC pairing policy	Allows you to define how vPC pairings are handled for leaf switches. Choose one of the following options. • **Pair all with physical peer-link**—indicates that this option configures all leaf vPCs to use a physical peer-link. This is the default and recommended option. • **Pair over fabric link**—indicates that this option configures all leaf vPCs to use the existing network fabric links. • **None**—indicates that this option does not configure any vPC pairing for the leaf switches.

Field	Description
Border vPC pairing policy	Allows you to define how vPC pairings are handled for border switches. Choose one of the following options. • **Pair all with physical peer-link**—indicates that this option configures all border vPCs to use a physical peer-link. This is the default and recommended option. • **Pair over fabric link**—indicates that this option configures all border vPCs to use the existing network fabric links. • **None**—indicates that this option does not configure any vPC pairing for the border switches.
Spine to leaf distance in meters	Specifies the physical distance (in meters) between the spine and leaf switches in the network fabric. The default value is 50 meters.
Airflow direction	Specifies the direction of airflow for the network equipment. Proper airflow management is essential for efficient cooling and maintaining optimal operating temperatures. By default, it is set to **Front to back**.  Some devices support only certain airflow directions. For example, the N9364E-SG2-Q has air intake only on the port side.
Spine interfaces	Check the **Breakout spine interfaces** check box to break out a high-speed spine port into multiple lower-speed interfaces that match the chosen intra-fabric link speed, where applicable.
Cabling	Allows you to choose the type of cabling used for network connections. By default, **Fiber** cable type is chosen.

Edit designer fabric

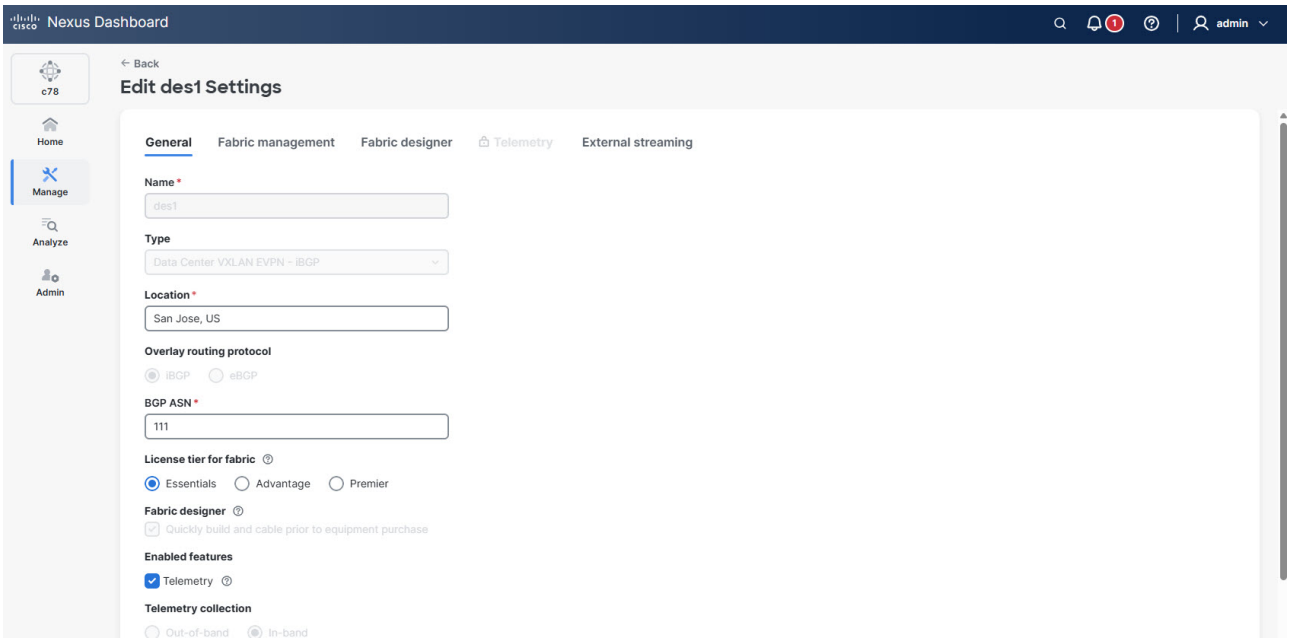
Follow these steps to edit your designer fabric.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. Choose the designer fabric that you want to edit.
3. From the Actions drop-down list, choose Edit fabric settings.

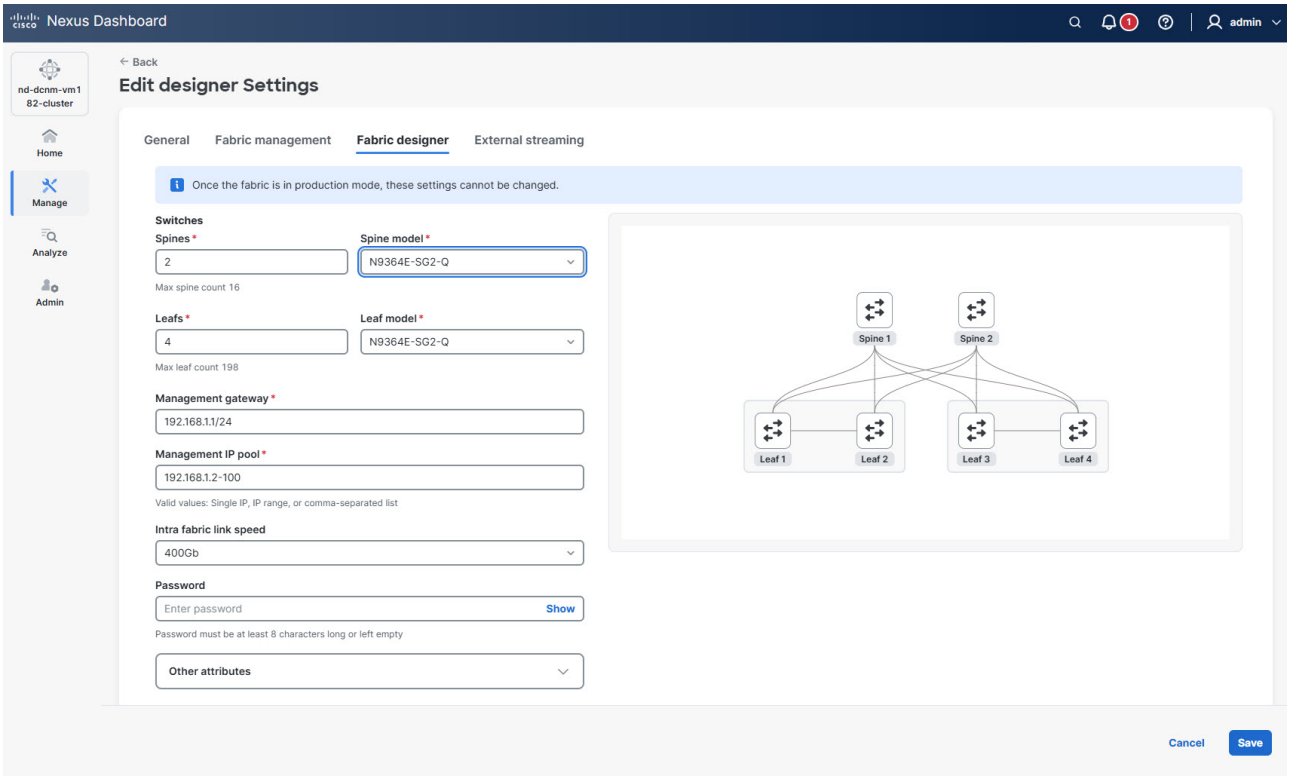
   The **Edit *fabric-name* settings** page displays.



You can also access the **Edit *fabric-name* settings** page for a fabric from the **Fabric Overview** page. In the **Fabric Overview** page, click the **Actions** drop-down list and choose **Edit fabric settings**.

4. In the **Edit *fabric-name* settings** page, click the **Fabric designer** tab.

The **Fabric designer** tab is visible only for fabrics in the designer phase. Once you set a fabric to production mode, this tab no longer appears.



5. Update the required settings as needed.

As you update the border, spine and leaf counts, a visual preview of fabric topology appears on the right side of the page.

6. Click **Save**.

When you edit the parameters of a designer fabric, Nexus Dashboard removes all existing switches, interfaces, links, and their associated policies in the fabric before it re-generates the design based on the new set of parameters.

View and validate designer fabric details

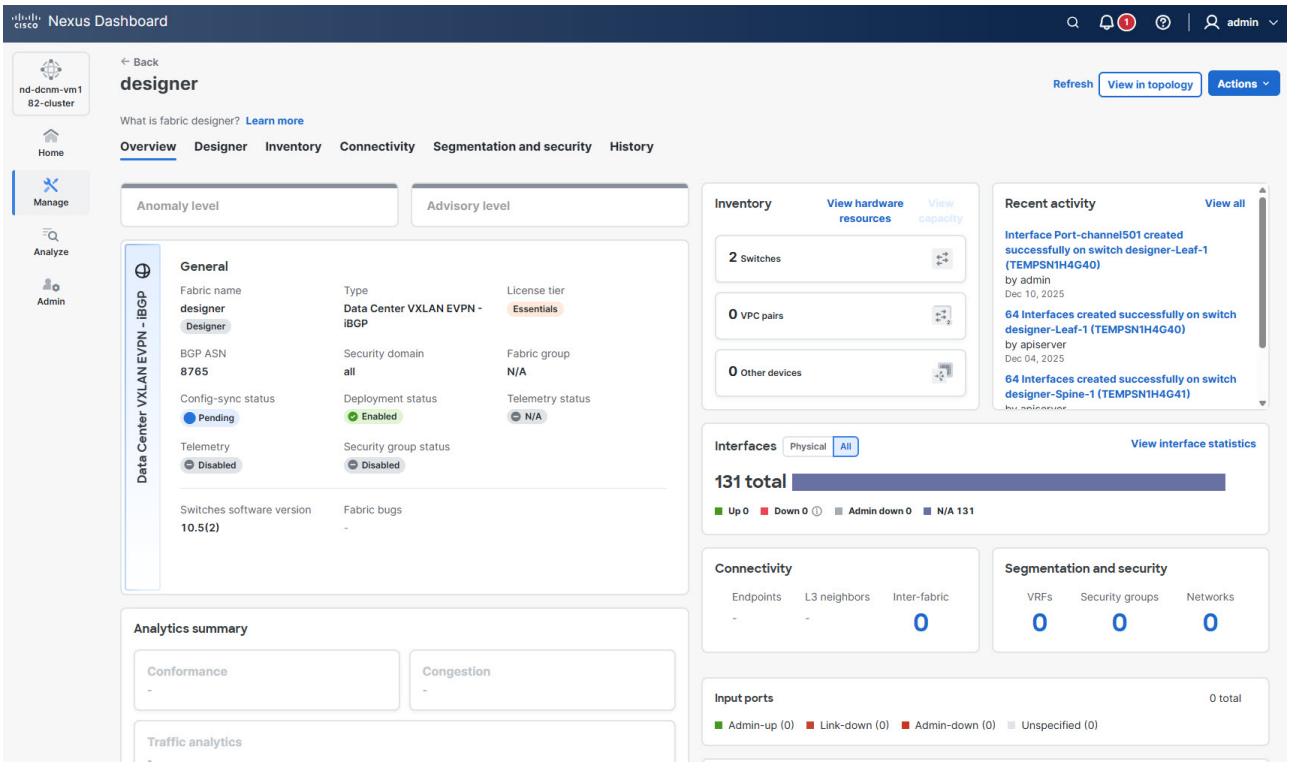
Follow these steps to view and validate designer fabric details.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. Click the designer fabric.

   The **Fabric Overview** page displays.



3. Click the **Designer** tab.

   > The **Designer** tab appears only for the designer fabrics

   Under the **Designer** tab, you can review and download the following options for your designer fabric.

   You can see these options.

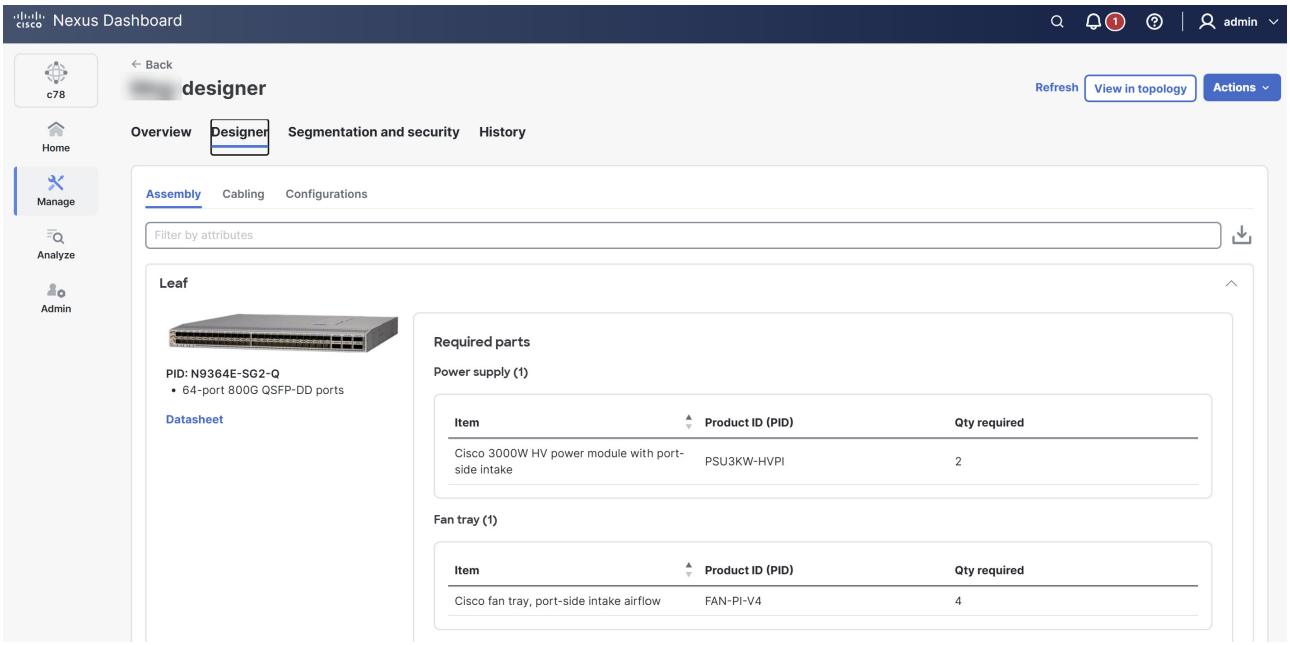
   - Assembly—Details on the fabric's assembly components.
   - Cabling—Information on cabling layouts and requirements.
   - Configurations—Review available configuration options for the designer fabric.

Review and download assembly details

Follow these steps to review and download assembly information for a designer fabric.

1. Navigate to the **Designer** tab.
2. Click **Assembly**.

   You can view the information about the fabric's components, structure, and layout.



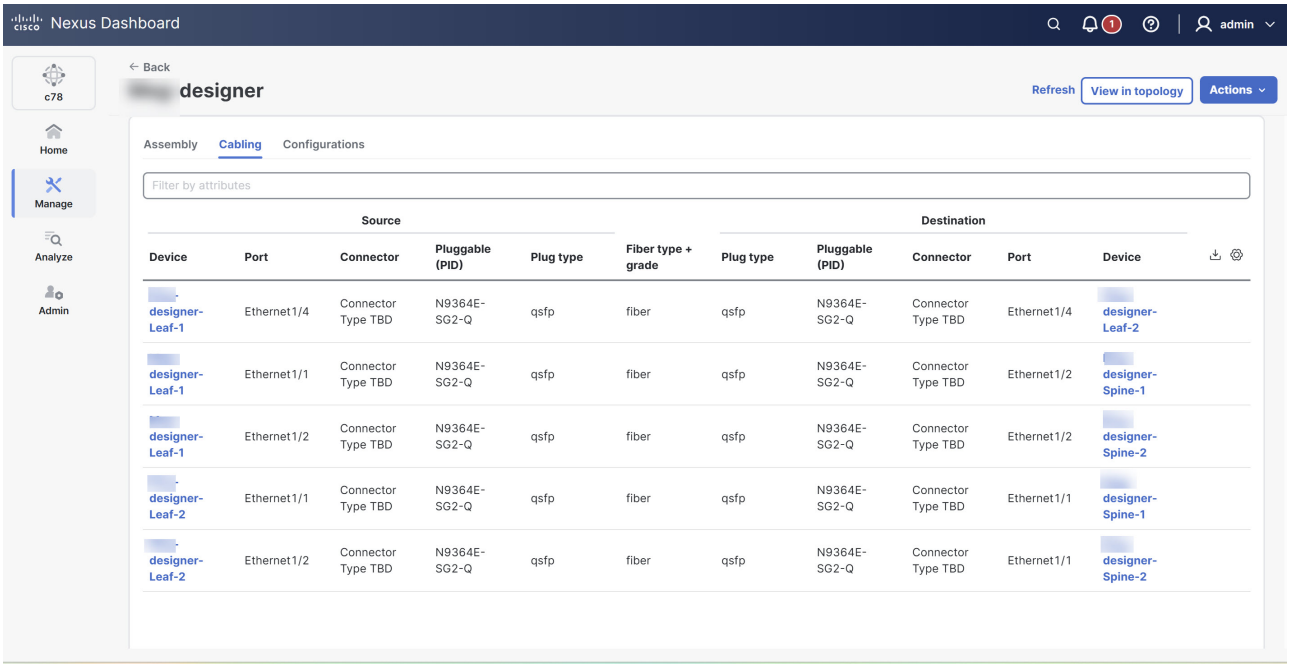
3. Click the download icon (located on the right side of the **Assembly** section) to download a PDF file containing detailed assembly information for the designer fabric.

Review and download cabling details

Follow these steps to review and download cabling information for a designer fabric.

1. Navigate to the **Designer** tab.
2. Click **Cabling**.

   The cabling details include information such as source and destination devices, ports, connector types, plug types, and fiber types used within the network fabric.



3. Click the download icon (located on the right side of the **Cabling** section) to download a CSV file containing detailed cabling information for the designer fabric.

Review and download configuration details

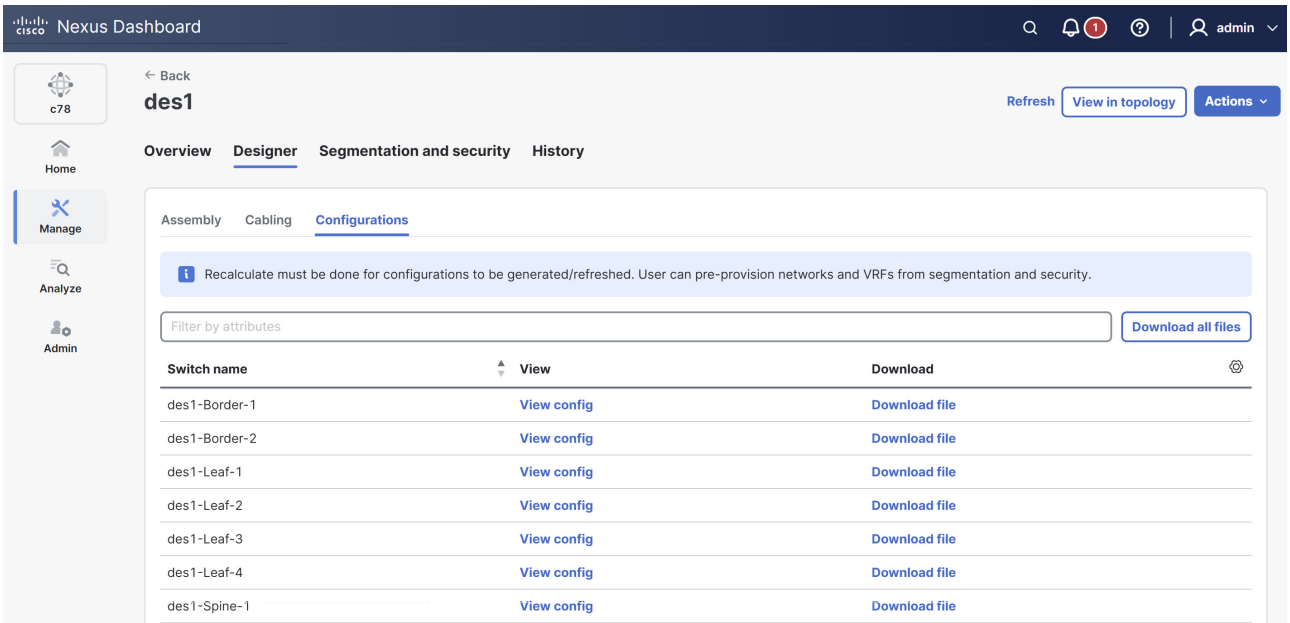
Follow these steps to review and download configuration details for a designer fabric.

1. Navigate to the **Designer** tab.
2. Click **Configurations**.

   The **Config text** dialog box opens which displays detailed switch information and configuration settings.

3. Click **Download file** next to the desired switch.

   The **Download fabric details** dialog box opens. Click the **Download** button to download the config.txt file containing configuration details of the switch.



4. Click the **Download** icon (located on the right side of the **Configurations** section) to download configuration details for all switches in the designer fabric. This allows you to download a ZIP file that contains detailed configuration information for the entire designer fabric.

View designer fabric topology

After you create the designer fabric, you can view the design in the topology view of Nexus Dashboard. This view displays a graphical representation of your planned network and enables you to review switch placements, connections, and the overall fabric layout before deployment.

Follow these steps to view the topology of the designer fabric.

1. Navigate to the Fabrics page.

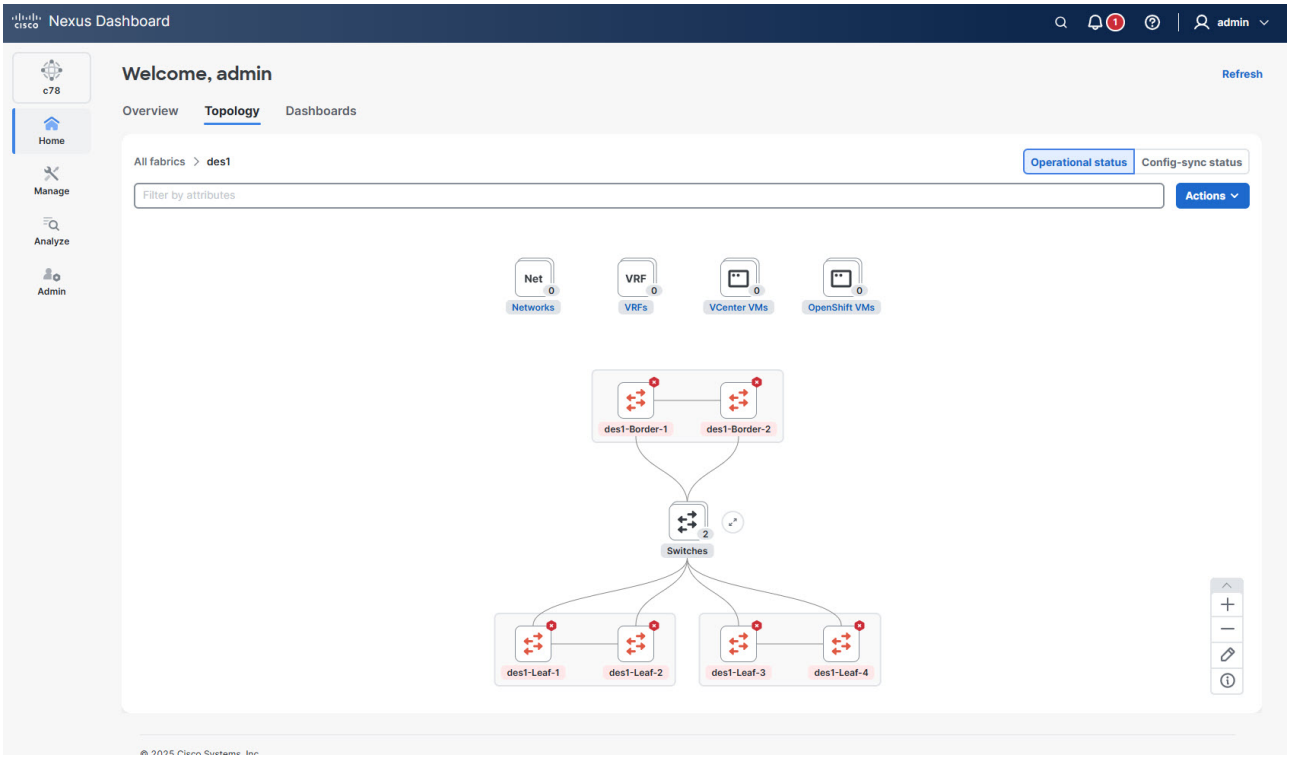
   Go to **Manage > Fabrics**.

2. Click the designer fabric for which you want to view topology.

   The **Fabric Overview** page displays.

3. Click the **View in topology** button.

   The **Topology** page opens which displays the topology view of the designer fabric including switch placements, device connections, fabric layout and hierarchy.



Download fabric details

After you have created, defined, and validated your designer fabric, you can download the associated fabric assets.

Follow these steps to download the fabric assets.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. Click the designer fabric for which you wish to download assets.

   The **Fabric Overview** page displays.

3. From the **Actions** drop-down list, choose **Designer > Download fabric details**.

   The **Download files** dialog box opens showing the list of assembly, cable, and configuration details.

4. Click **Download all** to download all available asset files.

To access the previous downloads, go to **History > Specifications** from the **Fabric Overview** page.

Modify designer fabric configuration

You can update interfaces, links, networks, or virtual routing and forwarding instances (VRFs) of the designer fabric under the Connectivity tab and Segmentation and Security tab for the designer fabric.

Follow these steps to modify the designer fabric.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. Click the designer fabric you wish to update.

   The **Fabric Overview** page displays.

3. Navigate to the **Connectivity** tab or the **Segmentation and Security** tab for your designer fabric to update the configuration as needed.

Verify inventory

After modifying your designer fabric, it is important to verify that all switches and vPC virtual port channel pairs are correctly configured and present in the system inventory. This ensures that your network infrastructure is accurately reflected in the management interface and helps identify any discrepancies or issues.

Follow these steps to verify the inventory.

1. Navigate to the Inventory page.

   Go to **Manage > Inventory**.

   The **Inventory** page displays a comprehensive list of all devices and components managed within your Nexus Dashboard.

2. Locate the switches and vPC pairs associated with your specific designer fabric.
3. Review the list of switches to ensure all expected devices are present.

Bulk swap switch details

The bulk swap switch details feature enables you to efficiently update multiple switch configurations at once as you move the designer fabric to production mode. You can update the serial numbers when actual device serial numbers become available, assign production management IP addresses, and modify hostnames if you prefer alternatives to the default <fabricName>-<role>-<count> naming convention. The bulk swap process does not support gateway changes. After making these modifications, Nexus Dashboard automatically recalculates and generates new configuration files and then makes them available for you to download.

When you use the bulk swap feature, you cannot change certain fields, such as Model, vPC parameters, and Serial Number. However, you can edit the Requested Serial Number, Name, and IP Address fields.

Follow these steps to bulk swap serial numbers.

1. Navigate to the **Fabrics** page.

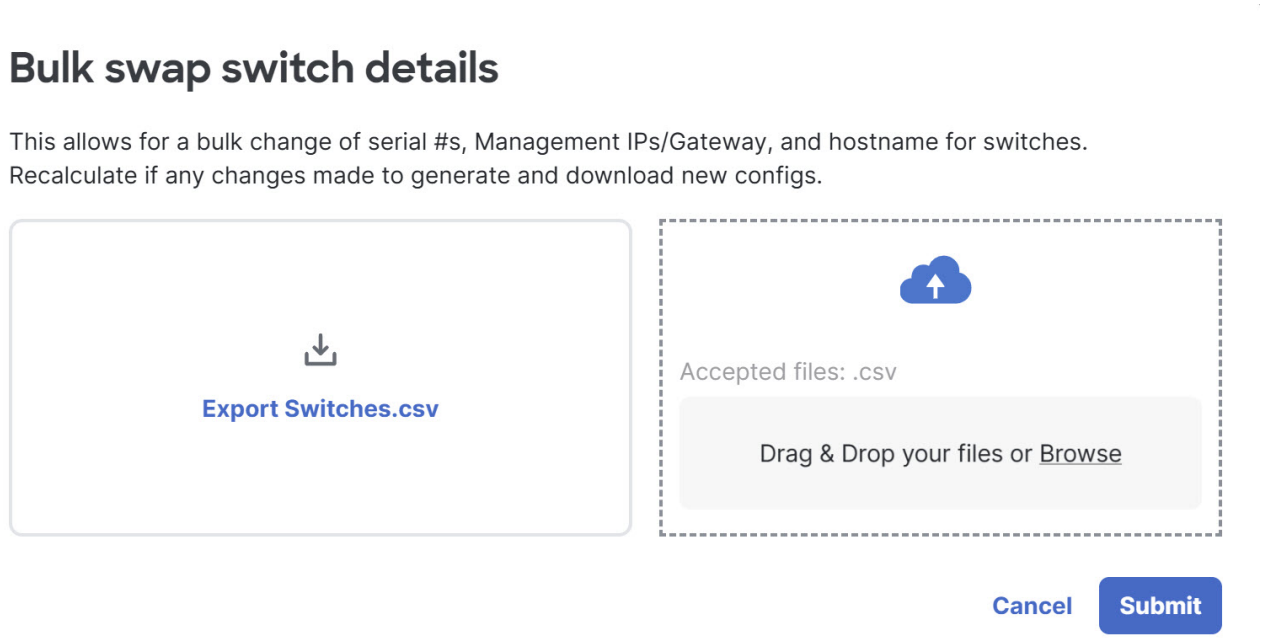
   Go to **Manage > Fabrics**.

2. Click the designer fabric.

   The **Fabric Overview** page displays.

3. From the **Actions** drop-down list, choose **Designer > Bulk swap switch details**.

   The **Bulk swap switch details** dialog box opens.



4. You can either export the current switch details as a CSV file for reference or editing or upload your own CSV file containing the updated switch details.
5. Click **Submit**.

If you changed any information other than the switch serial numbers, recalculate

again and download the new configuration files to deploy to the switches as needed.

Move to production mode

After you verify all configuration details and are confident that your designer fabric is ready for deployment, you can transition it to production mode. Moving a fabric to production mode is a critical step, as it finalizes the design and prepares the fabric for operational use. Note that after this transition, further design modifications are not permitted.

Follow these steps to move the fabric to production mode.

1. Navigate to the **Fabrics** page.

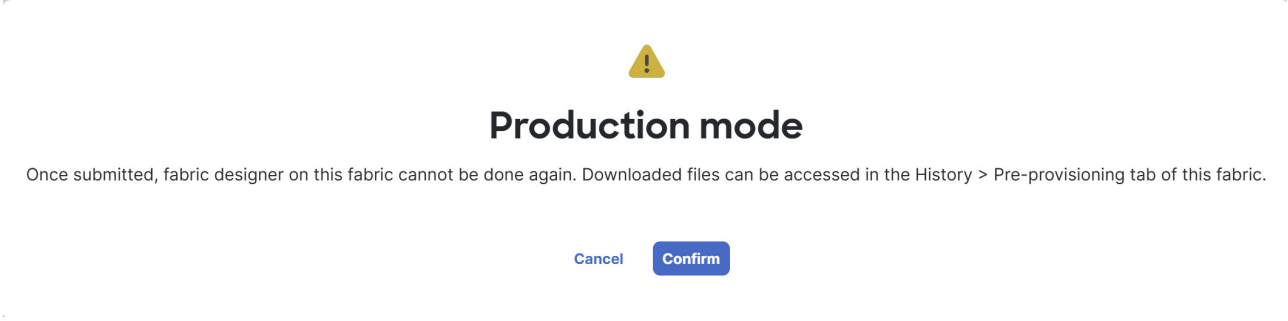
   Go to **Manage > Fabrics**.

2. Click the designer fabric.

   The **Fabric Overview** page displays.

3. From the **Actions** drop-down list, choose **Designer > Production mode**.

   The **Production mode** dialog box opens.



4. Click **Confirm** to transition the designer fabric to production mode.

> Once you submit the designer fabric to production mode, you cannot make further design changes to this fabric. However, you can still access previously generated downloads by navigating to **History > Pre-provisioning** within the **Fabric Overview** page.

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