Fabric Manager User Guide
Version 8.3

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       ATTN: General Counsel

Table of Contents

Fabric Manager Installation

Install the Fabric Manager virtual machine (VM) to enable Fabric Manager in Extreme Management Center.

Pre-Installation

The Fabric Manager is distributed in a deployable VMware-based .OVA template, which is similar to the other ZTP+ (Zero Touch Provisioning Plus)-based engines (for example,ExtremeControl).

The Fabric Manager supports two initial configuration modes for Extreme Management Center discovery and registration:

- DHCP Mode
- Static Mode

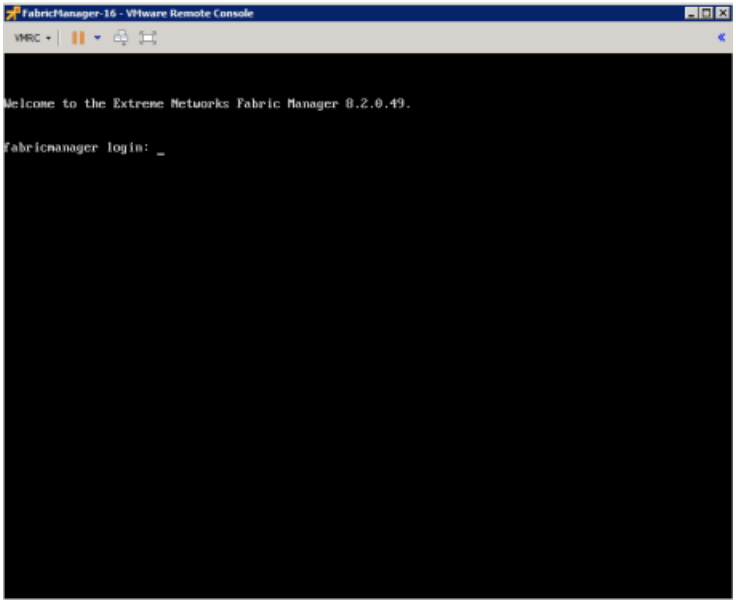
The DHCP mode is the default configuration mode during the Fabric Manager VM's initial startup. Use the static mode when providing a predefined set of networking configurations.

Fabric Manager Installation Static Mode

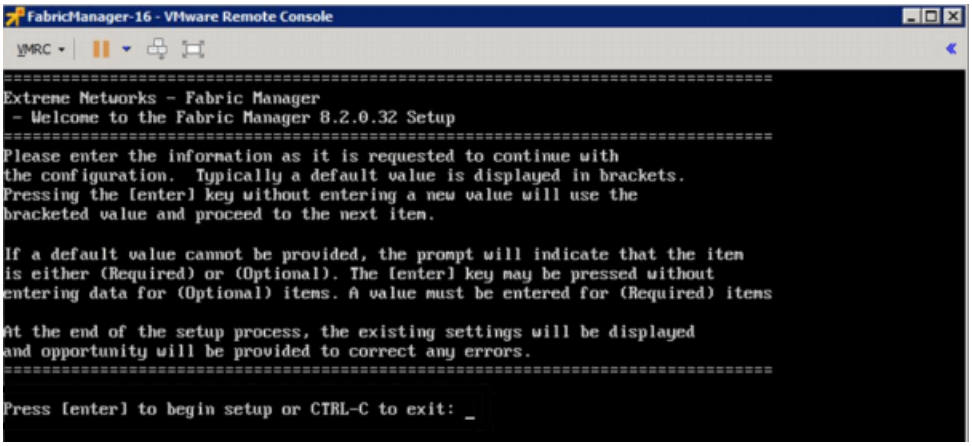
Fabric Manager begins installation in DHCP mode by default. Switch to static mode at any time during the initial installation by pressing the ENTER key.

Use the following instructions to install Fabric Manager in static mode:

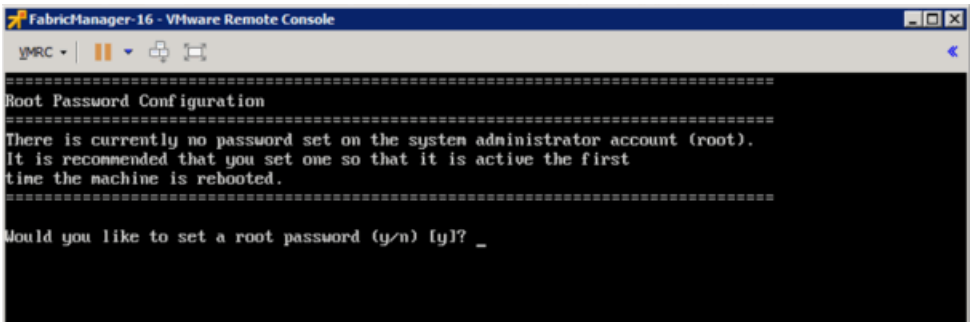
1. In the Console tab of the vSphere client, login as root with no password and press Enter.



2. Follow the installation process to complete installation of static mode:
    a. Begin the set-up.

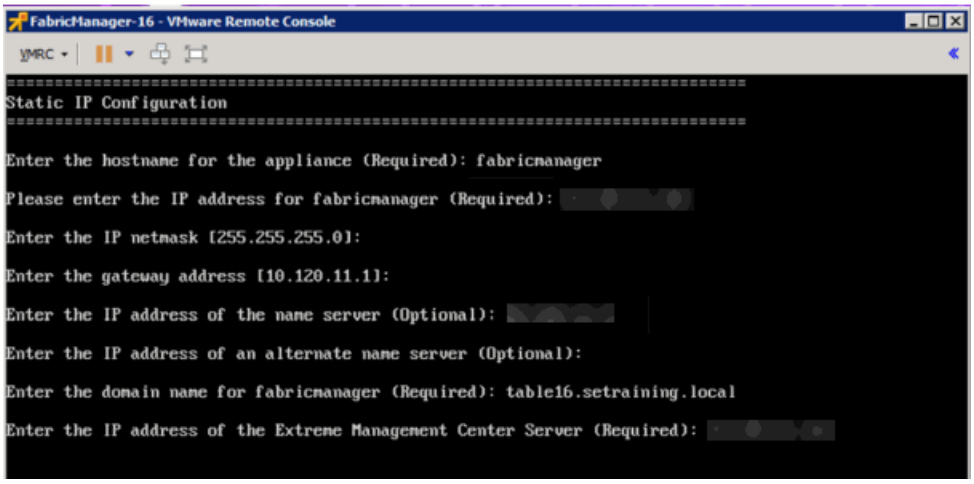


b. Set a root password by entering `y`.



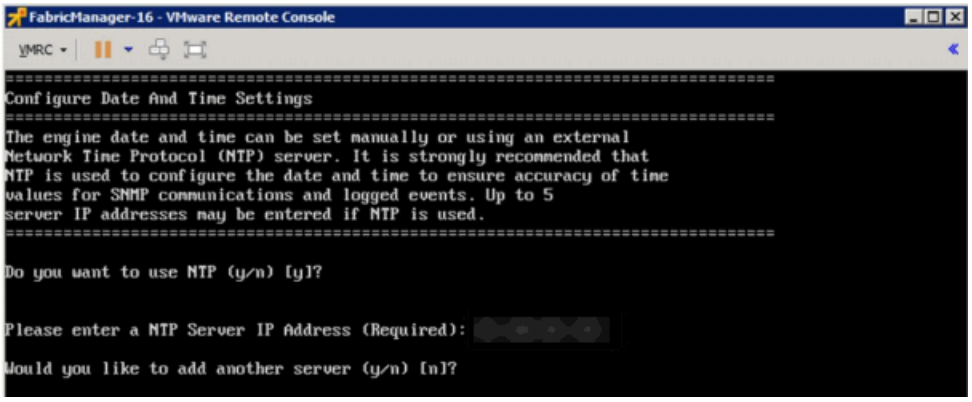
c. Enter and re-type a UNIX password at the next prompt.

The Static Configuration screen opens.



d. Enter a hostname.
e. Enter the IP address for the VM engine.
f. Enter the default IP Network netmask address.
g. Enter the default Gateway address.
h. Enter the IP address of the name server.
i. Enter the domain name specific to the table.
j. Enter the Extreme Management Center server IP address.

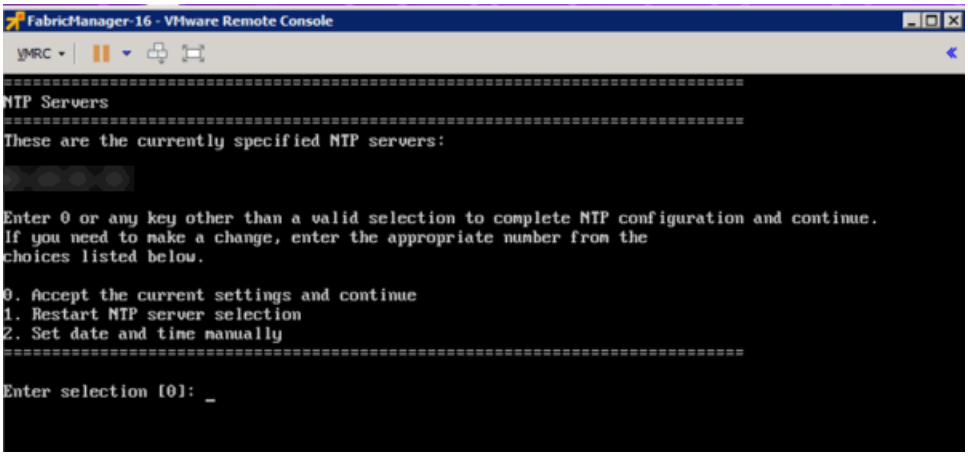
The Date and Time Configuration screen opens.



k. Enter `y` at the next prompt to use NTP (Network Time Protocol).

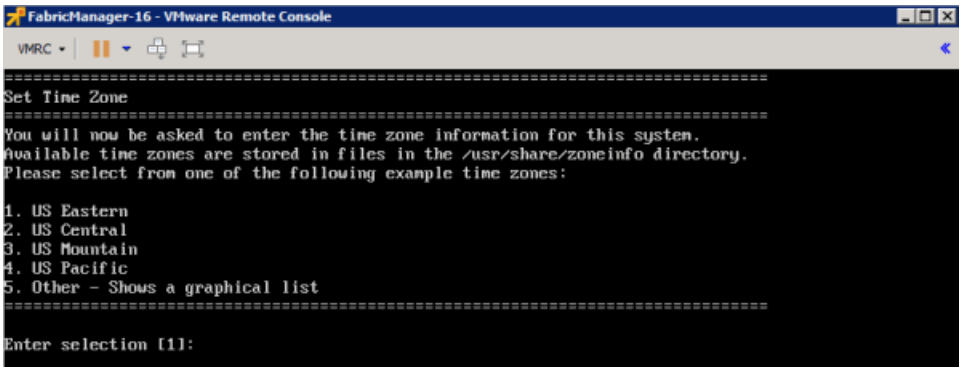
l. Enter the NTP Server IP Address.

m. Enter `n`at the next prompt to skip adding another NTP server. This is optional.



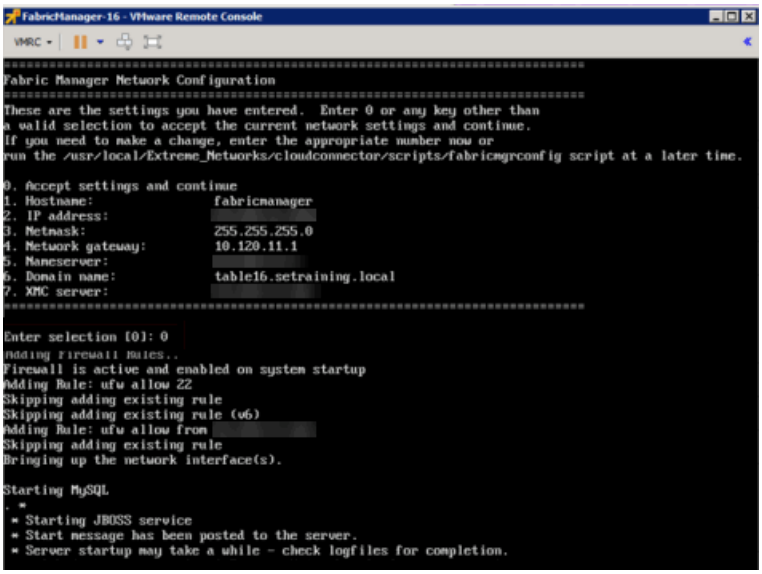
n. Enter the default `0` and accept the current settings and continue.

o. Select the correct Time Zone for your network.



p. Enter the number that corresponds to your time zone.

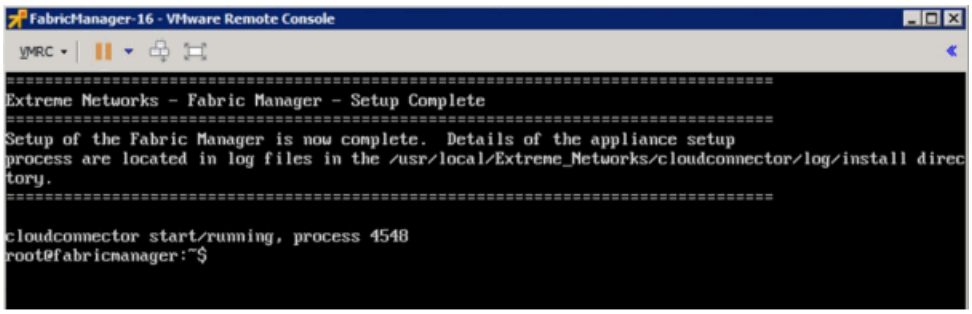
The Fabric Manager Network Configuration screen displays a summary of the configuration options you selected.



q. Enter `0` to confirm all the selections displayed are correct.

To modify any selection, enter the corresponding number of the item you want to change.

r. A Setup Complete message displays once installation is complete.



Adding Fabric Manager to Extreme Management Center

Once you install the Fabric Manager virtual machine (VM), you can add it to Extreme Management Center and enable it via ZTP+ (Zero Touch Provisioning Plus) functionality.

NOTE: You need to upgrade the firmware in Extreme Management Center to add and launch the Fabric Manager engine.

Related Information

For information on related tabs:

- How to Upgrade Firmware in Extreme Management Center
- Fabric Manager ZTP+ Configuration in Extreme Management Center
- Extreme Management Center Fabric

Getting Started

This topic provides information to help you get started using Extreme Management Center to view network data. It includes information on configuring Extreme Management Center access requirements, including several different access scenarios. It also provides steps for enabling the statistics and flow collection that provides Extreme Management Center reporting data, and information on Extreme Management Center scalability.

Requirements

This section provides information on access requirements, browser requirements, and screen resolution requirements.

Extreme Management Center Access Requirements

Access to the Extreme Management Center application and its features is determined by the user's membership in an Extreme Management Center authorization group and the group's assigned capabilities. The following table lists the different Extreme Management Center access options and features, and their corresponding capabilities. For more information on how to configure capabilities and authorization group membership, see the Extreme Management Center Help topic "How to Configure User Access to Extreme Management Center Applications," located in the Extreme Management Center Suite-Wide Tools user guide in the "Authorization Device Access" section.

To have full read/write access to all Extreme Management Center functionality, a user must be a member of an authorization group with the capabilities shown in the following table. Optionally, users can be configured to have read-only and limited read-only access to Extreme Management Center functionality by selecting a combination of capabilities.

Extreme Management Center Access Options and Features	Required Capabilities
Launch Extreme Management Center. Allows the ability to launch the Extreme Management Center application.	NetSight OneView > Access OneView
View Extreme Management Center Reports. Adds the ability to view reporting data.	NetSight OneView > Access OneView Reports
View Extreme Management Center Maps. Adds the ability to view maps.	NetSight OneView > Maps > Maps Read Access
View and Configure Extreme Management Center Maps. Adds the ability to view and configure maps.	NetSight OneView > Maps > Maps Read/Write Access
View Extreme Management Center Wireless. Adds the ability to view wireless data.	NetSight Console > Wireless Manager > Launch
View Extreme Management Center Administration. Adds access to the Extreme Management Center administration tools and the ability to enable data collection.	NetSight OneView > Access OneView Administration
View Extreme Management Center Search. Adds the ability to use the Extreme Management Center Search functionality.	NetSight OneView > Access OneView Search
View Extreme Management Center Network and Alarms and Events. Adds the ability to view device information and event log details.	NetSight OneView > Events and Alarms > OneView Event Log Access
View Extreme Management Center alarms. Adds the ability to view current alarms in the Alarms and Events page.	NetSight OneView > Events and Alarms > OneView Alarms Read Access

Extreme Management Center Access Options and Features	Required Capabilities
View and clear Extreme Management Center alarms. Adds the ability to view and clear alarms in the Alarms and Events page.	NetSight OneView > Events and Alarms > OneView Alarms Read/Write Access
View Extreme Management Center Control. Adds the ability to view Dashboard, System, Health, and Data Center reports under the **Control** tab.	NetSight OneView > Identity and Access > Access OneView Identity and Access Reports
View Extreme Management Center Control end-systems table. Adds the ability to view end-system information under the **Control** tab.	NetSight OneView > Identity and Access > OneView End-Systems Read Access
View and modify Extreme Management Center Control end-systems table. Adds the ability to perform actions in the end-systems table, such as forcing reauthentication and changing an end-system's group membership.	NetSight OneView > Identity and Access > OneView End-Systems Read/Write Access
View Extreme Management Center Control Group Information. Adds the ability to launch the Group Editor tool from the **Control** tab > End-Systems view, and view group information.	NetSight OneView > Identity and Access > OneView Group Read Access
View and Edit Extreme Management Center Control tab Group Information. Adds the ability to launch the Group Editor tool from the **Control** tab > End-Systems view, and add, edit, and delete groups.	NetSight OneView > Identity and Access > OneView Group Read/Write Access
View Extreme Management Center Flows. Adds the ability to view NetFlow data for devices in the network.	NetSight OneView > NetFlow Read Access
View Extreme Management Center Flows and allow NetFlow Sensor Write access. Adds the ability to view NetFlow data and configure the Console NetFlow Sensor Configuration view.	NetSight OneView > NetFlow Read/Write Access
Allow Web FlexView read access. Adds the ability to launch a FlexView from the Extreme Management Center **Network** tab.	NetSight OneView > FlexView > OneView FlexView Read Access
Allow Web FlexView Write access. Adds the ability to launch and edit a FlexView from the Extreme Management Center **Network** tab.	NetSight OneView > FlexView > OneView FlexView Read/Write Access
Allow Wireless Controller Automatic WebView Login ability. Adds the ability to launch local management for wireless controllers without requiring a login, as long as the user's credentials are good. Users who do not have this capability are required to log in.	NetSight Suite > Device Local Management WebView > Auto Login to Web Local Management for ExtremeWireless Wireless Controllers
Allow Check for Firmware Updates ability. Adds the ability to check for firmware updates from the Extreme Management Center **Network** tab.	NetSight Suite > NetSight All User Options > Request and Configure ExtremeNetworks.com Support
Allow Create Policy Rule ability. Adds the ability to create a policy rule in NetFlow tables.	NetSight Policy Manager > Read/Write capabilities for Policy Enforcement and Management
Add Devices. Adds the ability to add devices in the Extreme Management Center **Network** tab.	NetSight Suite > Devices > Add, Discover and Import
Delete Devices. Adds the ability to delete devices in the Extreme Management Center **Network** tab.	NetSight Suite > Devices > Delete
Compare Configurations. Adds the ability to compare archived device configurations in either the Extreme Management Center **Network** tab or the Archive Details Report available in the Extreme Management Center **Reports** tab.	Inventory Manager > Configuration Archive Management > View/Compare Configurations

Here are several scenarios that show how different Extreme Management Center user access levels can be configured based on assigned capabilities.

Use Case 1: Full Read/Write Access

To provide full read/write access to all Extreme Management Center functionality, configure user membership in an authorization group assigned the following capabilities:

- NetSight OneView > Access OneView
- NetSight OneView > Access OneView Reports
- NetSight OneView > Access OneView Search
- NetSight OneView > Access OneView Administration
- NetSight OneView > NetFlow Read/Write Access
- NetSight OneView > Maps > Maps Read/Write Access
- NetSight Console > Wireless Manager > Launch
- NetSight OneView > Events and Alarms > OneView Event Log Access
- NetSight OneView > Events and Alarms > OneView Alarms Read/Write Access
- NetSight OneView > FlexView > OneView FlexView Read/Write Access
- NetSight OneView > Identity and Access > Access OneView Identity and Access Reports
- NetSight OneView > Identity and Access > OneView End-Systems Read/Write Access
- NetSight OneView > Identity and Access > OneView Group Read/Write Access
- NetSight Policy Manager > Read/Write capabilities for Policy Enforcement and Management
- NetSight Suite > Device Local Management WebView > Auto Login to Web Local Management for ExtremeWireless Wireless Controllers
- NetSight Suite > NetSight All User Options > Request and Configure ExtremeNetworks.com Support
- NetSight Suite > Devices > Add, Discover and Import
- NetSight Suite > Devices > Delete
- Inventory Manager > Configuration Archive Management > View/Compare Configurations

Use Case 2: Read-Only Access

To provide read-only access to all Extreme Management Center reports and FlexViews, configure user membership in an authorization group assigned the following capabilities:

- NetSight OneView > Access OneView
- NetSight OneView > Access OneView Reports
- NetSight OneView > Access OneView Search
- NetSight OneView > NetFlow Read Access
- NetSight OneView > Maps > Maps Read Access
- NetSight Console > Wireless Manager > Launch
- NetSight OneView > Events and Alarms > OneView Event Log Access
- NetSight OneView > Events and Alarms > OneView Alarms Read Access
- NetSight OneView > FlexView > OneView FlexView Read Access
- NetSight OneView > Identity and Access > Access OneView Identity and Access Reports
- NetSight OneView > Identity and Access > OneView End-Systems Read Access
- NetSight OneView > Identity and Access > OneView Group Read Access

Use Case 3: Limited Read-Only Access

To provide limited read-only access to only Extreme Management Center reporting and wireless data, configure user membership in an authorization group assigned the following capabilities:

- NetSight OneView > Access OneView
- NetSight OneView > Access OneView Reports
- NetSight Console > Wireless Manager > Launch

Use Case 4: End-System Information, Read-Only Access

To provide read-only access to Extreme Management Center end-system information, configure user membership in an authorization group assigned the following capabilities:

- NetSight OneView > Access OneView
- NetSight OneView > Identity and Access > OneView End-Systems Read Access

Use Case 5: End-System Information, Read/Write Access

To provide read/write access to Extreme Management Center end-system information, configure user membership in an authorization group assigned the following capabilities:

- NetSight OneView > Access OneView
- NetSight OneView > Identity and Access > OneView End-Systems Read/Write Access

Browser Requirements

The following web browsers are supported:

- Microsoft Edge and Internet Explorer version 11
- Mozilla Firefox 34 and later
- Google Chrome 33.0 and later

Browsers must have JavaScript enabled in order for the web-based views to function.

While it is not required that cookies are enabled, impaired functionality results if they are not. This includes (but is not limited to) the ability to generate PDFs and persist table configurations such as filters, sorting, and column selections.

Screen Resolution

For optimum display of graphs and tables, Extreme Management Center is best viewed on a system with a minimum screen resolution of 1280x1024.

Enable Report Data Collection

To view Extreme Management Center reporting data, you must enable statistics collection for your network devices. You must be a member of an authorization group that has been assigned the NetSight OneView > Access NetSight OneView and Administration capability to enable data collection. Data collection is only available with the NMS license and above.

Enable Device Statistics Collection

To view Extreme Management Center device reports, you must enable statistics collection for your network devices from either Extreme Management Center Devices, or the Console device tree or **Device Properties** tab. Statistics can be collected in a historical collection mode or a monitor collection mode.

- Historical Mode — Device and physical port statistics are saved to the database and aggregated over time, and are then used in Extreme Management Center reports. The device statistics are also used for active threshold alarms configured in the Console Alarms Manager.

  NOTE: Enabling Historical Device Statistics Collection may use substantial disk space.

- Monitor Mode — Device statistics are saved to a Monitor cache for one hour and then dropped. These statistics are used for active threshold alarms, configured in the Console Alarms Manager, but not for Extreme Management Center reporting.

  NOTE: The Monitor mode option is not available if you have disabled Monitor Collection in the OneView Collector Advanced Settings window in Administration > Options.

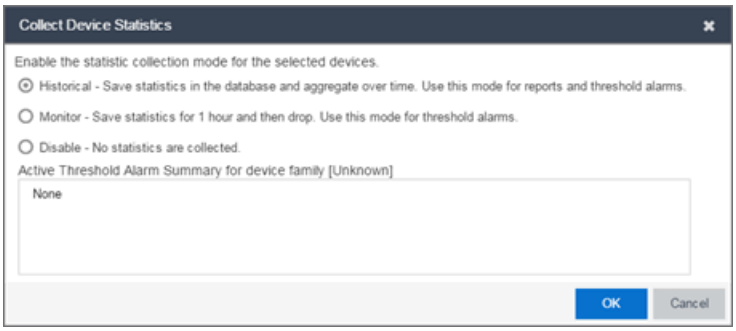
If you are enabling statistics collection on an ExtremeControl engine, Application Detection engine, or ExtremeWireless Controller, read through the following notes:

- ExtremeControl Engine
  When collecting statistics on an ExtremeControl engine, the engine must be added to Extreme Management Center to collect all engine statistics. In addition, Monitor mode is not supported on ExtremeControl engines.
- Application Detection Engine
  When collecting statistics on an Application Detection engine, the engine must be added to the Analytics > Configuration > ExtremeAnalytics Engines table in order for Extreme Management Center to collect all Application Detection statistics. In addition, Monitor mode is not supported on Application Detection engines.
- ExtremeWireless Controller
  Wireless Controller statistics collection is configured separately from other devices.

Enabling Device Statistics Collection

Use the following steps to enable device statistics collection.

1. You can enable statistics collection from either Extreme Management Center or Console:
   - In the **Network** tab, right-click one or more devices (multiple devices must be in the same device family) and select **Device > Collect Device Statistics**. You can also click the **Menu** icon (≡) in the upper left corner of the **Network** tab and select **Device > Collect Device Statistics**.
   - In the Console device tree or **Device Properties** tab, right-click one or more devices (multiple devices must be in the same device family) and select OneView > Collect Device Statistics.
2. From the Collect Device Statistics window, select the statistic collection mode you want to use: **Historical** or **Monitor**.



   All active threshold alarms configured in the Extreme Management Center **Alarms and Events** tab (for the selected device family) that use the collected statistics display in the Active Threshold Alarm Summary box. If the selected devices do not match any active threshold alarms, this box is blank. To reduce unnecessary statistic collection, do not enable Monitor mode on devices that do not match any active threshold alarms.

   TIP: A summary event is generated daily in the **Alarms and Events** > **Events** tab that shows the number of device with statistic collection enabled where corresponding threshold alarms are not configured.

3. Click **OK**. Extreme Management Center begins collecting statistics for the selected devices.

Enable Interface Statistics Collection

To view Extreme Management Center interface reports, you must enable statistics collection for your device interfaces from either the Extreme Management Center **Network** tab, or the **Console Port Properties** tab or Interface

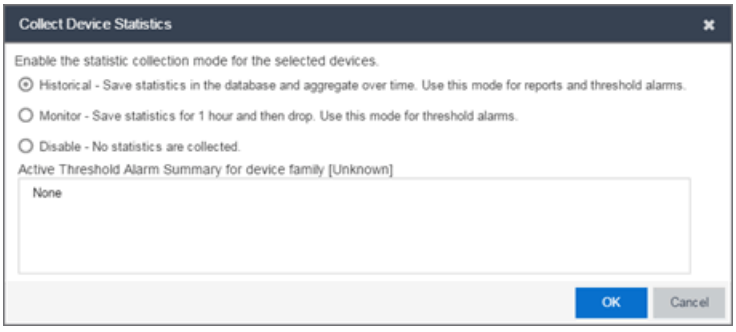
Summary FlexView. Statistics can be collected in a historical collection mode or a monitored collection mode.

- Historical Mode — Interface statistics are saved to the database and aggregated over time, used in Extreme Management Center reports. The interface statistics are also used for active threshold alarms configured in the **Alarms and Events** tab.
- Monitor Mode — Interface statistics are saved to a Monitor cache for one hour and then dropped. These statistics are used for active threshold alarms configured in the Console Alarms Manager, but not for Extreme Management Center reporting. (Note that the Monitor mode option is not available if you have disabled Monitor Collection in the OneView Collector Advanced Settings window in the **Administration** > **Options** tab.)

Enabling Interface Statistics Collection

Use the following steps to enable interface statistics collection.

1. You can enable statistics collection from either Extreme Management Center or Console:
   - On the **Network** tab, click on the device name link to open the Interface Summary FlexView. In the FlexView, right-click on one or more interfaces and select Collect Interface Statistics.
   - On the **Network** tab, right-click on a device and select Port Tree. In the Port Tree, select an interface, right-click and select **Collect Interface Statistics**.
   - In the **Console Port Properties** tab or Interface Summary FlexView, right-click one or more interfaces and select the OneView > Collect Interface Statistics.
2. From the Collect Device Statistics window, select the statistic collection mode you want to use: **Historical** or **Monitor**.



All active threshold alarms configured in the Extreme Management Center **Alarms and Events** tab (for the selected device family) that use the collected statistics display in the Active Threshold Alarm Summary box. If the selected devices do not

match any active threshold alarms, this box is blank. To reduce unnecessary statistic collection, do not enable Monitor mode on devices that do not match any active threshold alarms.

TIP: A summary event is generated daily in the Alarms and Events > Events tab that shows the number of device with statistic collection enabled where corresponding threshold alarms are not configured.

3. Click OK. Extreme Management Center begins collecting statistics for the selected interfaces.

Enable Wireless Controller Statistics Collection

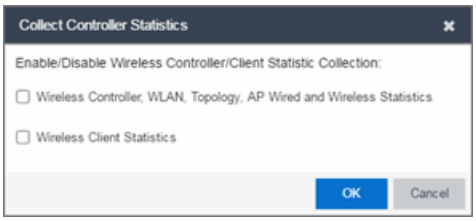
Wireless Controller statistics collection is configured separately from other devices. When you enable Wireless Controller statistics collection, it includes Wireless Controller, WLAN, Topology, and AP wired and wireless statistics, and you also have the option to collect wireless client statistics.

You can enable statistics collection for multiple controllers, however the group cannot contain a mix of devices and wireless controllers. The group must include only controllers.

Enabling Wireless Controller Statistics Collection

Use the following steps to enable wireless controller statistics collection.

1. You can enable statistics collection from either Extreme Management Center or Console:
   - On the Network tab, right-click one or more wireless controllers and select Device > Collect Device Statistics. You can also click the menu icon (≡) in the upper left corner of the Network tab and select Device > Collect Device Statistics.
   - In the Console device tree or Device Properties tab, right-click one or more wireless controllers and select OneView > Collect Device Statistics.
2. From the Collect Controller Statistics window, select the statistics you want to collect.



3. Click OK. Extreme Management Center begins collecting statistics for the selected controllers.

Enable Flow Collection

To view Extreme Management Center Flow and Application reports, you must enable NetFlow or application telemetry on the device and enable flow collection for the device interfaces. N-Series, S-Series, and K-Series devices support NetFlow flow collection and ExtremeXOS devices support application telemetry flow collection. You must be a member of an authorization group assigned the NetSight OneView > NetFlow Read/Write Access capability to view NetFlow data or the NetSight OneView > Application Telemetry Read/Write Access capability to view application telemetry data and enable flow collection in Extreme Management Center. Flow collection is only available with the NMS-ADV license.

Enable Flow Collection on a Device

In Extreme Management Center, open the Advanced Configuration panel. Select an ExtremeAnalytics engine and use the Flow Collection Type drop-down to select the type of flow collection supported by your device. Use the Flow Sources or Application Telemetry Sources section of the window (depending on the Flow Collection Type selected) to add a device as a flow collection source.

Enable Flow Collection on an Interface

In PortView, you can enable flow collection from the Configure Collection State section of the Interface Details tab.

Extreme Management Center Scalability

Extreme Management Center supports reporting on 20,000 objects as determined by the number of devices and interfaces being monitored, along with polling interval and data storage periods. Below are two example network configurations resulting in collected objects under 20,000. For additional information on tuning your deployment, please contact Extreme Networks Support.

Variables		Scenario 1	Scenario 2
Data Retention	Raw Data	7 Days	7 Days
	Hourly Rollups	8 Weeks	8 Weeks
	Daily Rollups	6 Months	6 Months
Polling Interval		15 Minutes	15 Minutes
Devices	Wireless Controllers	5	10
	Wireless APs	1000	2000
	Advanced Switch/Routers	150	50
	Advanced Interfaces	1000	200
	Servers	150	50
Collected Objects		19,450	18,630

Extreme Management Center Timeout

Extreme Management Center automatically times out after a specified amount of time, specified in the HTTP Session Timeout section of the Web Server view in the Administration > Options tab. A dialog box appears to warn you when you are two minutes from timing out of an Extreme Management Center web page. For additional information, see the Web Server Options Help topic.

How to Obtain and Apply a Governance License

To use the Governance tab in Extreme Management Center, an additional license is required.

To obtain and apply the license in Extreme Management Center:

1. Contact your sales representative to purchase an IGE (Information Governance Engine) license.

   An email voucher is generated and sent to you with instructions.
2. Create an Extreme Networks Support Portal account, if necessary.
   a. Open a browser and go to https://secure.extremenetworks.com/.
   b. Enter your information and click **Create An Account**.

      An email is sent to you with instructions to activate your account.
   c. Click the link in your email.

      The Portal - Account Activation web page displays.
   d. Enter your **Email Address** and the **Activation Code** included in your activation email, if they do not automatically populate.
   e. Click **Activate**.
3. Access the Extreme Networks Support Portal at https://extremeportal.force.com/ExtrLicenseLanding.
4. Enter your **Email** and **Password** and click **Log In**.
5. Click **Generate License**.

   The Generate License window displays.
6. Enter your **Voucher ID** from the email voucher sent to you and click **Next**.
7. Select the **Terms and Conditions** checkbox and click **Submit**.

   A window displays with your software license key.
8. Copy the license key from the window.
9. Open Extreme Management Center.
10. Access the **Administration** > **Diagnostics** tab.
11. Select **Server** > **Server Licenses** in the left-panel.

    The **Server Licenses** panel displays.

12. Click **Add**.

    The **Add License** window displays.
13. Paste the license key you copied in Step 9 and click **OK**.
14. Restart Extreme Management Center.
15. The **Governance** tab is now available in the menu, allowing you to use governance audit functionality.

Related Information

For information on related tabs:

- Governance Overview
- Diagnostics

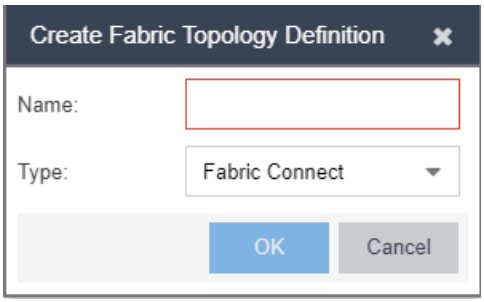
How to Create a Fabric Topology Definition

You can create a Topology Definition and a LAG (link aggregation group) Topology Definition on the **Sites** tab in Extreme Management Center. Once you create topology definitions, you can add them to sites in your network to build a fabric topology map.

Create a Topology Definition

To create a topology definition:

1. Access the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Navigate to **Topology Definitions** in the left-panel tree.
4. Right-click **Topology Definitions**.
5. Click **Create Topology Definition**.



The **Create Topology Definition** window opens.

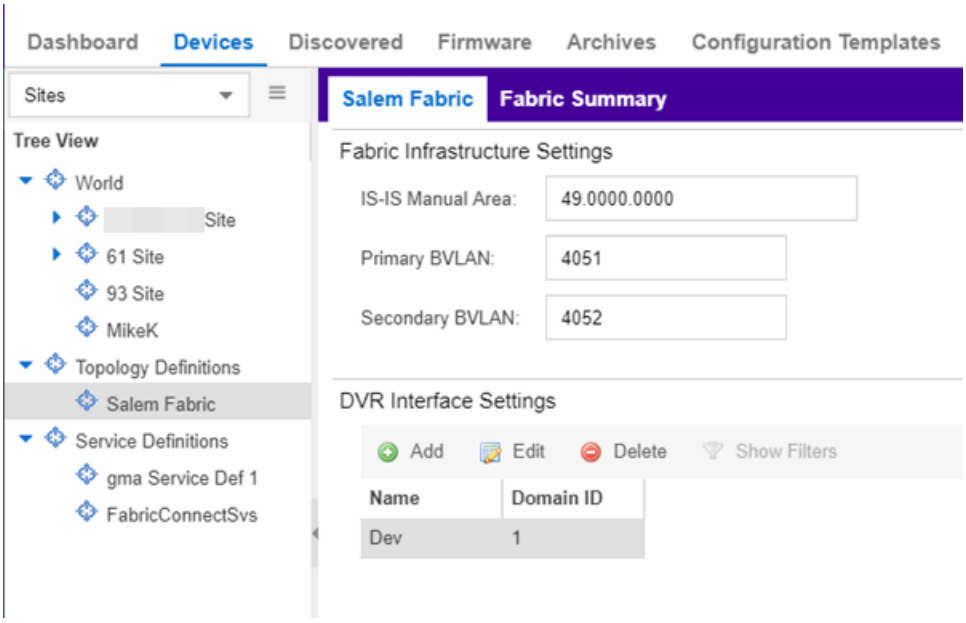
6. Enter a name in the **Name** field.
7. Select **Fabric Connect** from the **Fabric Type** drop-down.
8. Click **OK** to create the topology definition.

Configure a Topology Definition

Once the topology definition is created, it is available in the Sites tab left-panel tree. Click it to open a new right panel that includes the Fabric Name tab and a Fabric Summary tab.

Fabric Name Tab

Use the **Fabric Name** tab to configure the topology definition.



To configure the topology definition:

1. Enter the IS-IS Manual Area. Use a xx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx format (1-13 bytes).
2. Enter the Primary Backbone VLAN (BVLAN).
3. Enter the **Secondary BVLAN**.
4. Click the **Add** button (Add) in the DVR Interface Settings section.
5. Enter a DVR Domain name in the **Name** Field.
6. Enter an ID number in the **Domain ID** field.
7. Click **Update**.
8. Click **Save**

Once the topology definition is created and configured, you can apply it to a site within your network. Once fabric topologies have been assigned to a site, they cannot be deleted.

Fabric Summary tab

The Fabric Summary tab lists any fabric topologies you have created and the sites to which they are assigned.

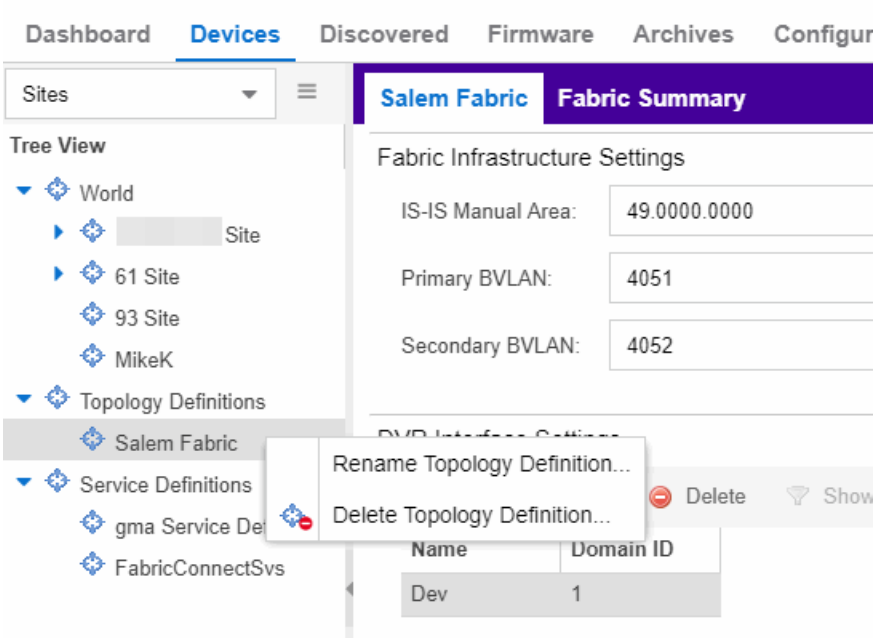
Rename a Topology Definition

Once a topology definition has been created and configured, you can change or modify its name.

To rename a topology definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Expand **Topology Definitions** in the left-panel.

4. Right-click the topology definition you are renaming.



5. Click Rename Topology Definition.
6. Enter a new name in the Name field.
7. Click OK to change the topology name.

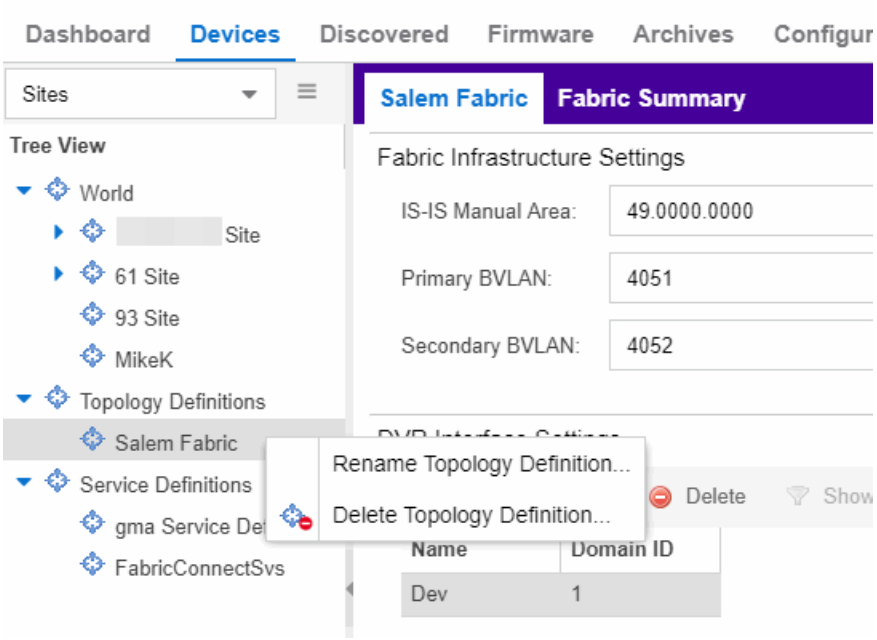
Delete a Topology Definition

Once a topology definition has been created and configured, you can delete it; however, a topology definition cannot be deleted once it has been assigned to a site.

To delete a topology definition:

1. Open the Devices tab.
2. Select Sites from the left-panel tree drop-down list.
3. Expand the Topology Definitions in the left-panel.

4. Right-click the topology definition you are deleting.



5. Click **Delete Topology Definition**.
6. Click **Yes** to delete the topology definition you selected.

Related Information

For information on related topics:

- Services
- Fabric
- Sites
- Devices

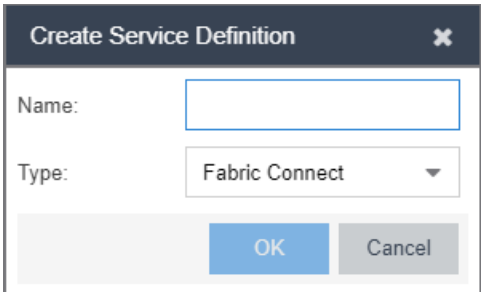
How to Create a Fabric Service Definition

You can create a service definition in the **Sites tab** in Extreme Management Center. Service definitions display information configured in service applications definitions. Once created, service definitions are added to sites in your network and are used to build a fabric topology map.

Create a Service Definition

To create a service definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Select **Service Definitions** in the left-panel.
4. Right-click **Service Definitions**.
5. Click **Create Service Definition**.



   The **Create Service Definition** window opens.
6. Enter a name in the **Name** field.
7. Select **Fabric Connect** from the **Type** drop-down list.
8. Click **OK** to create the service definition.

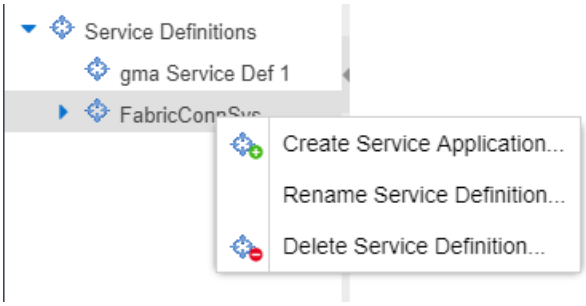
Once the service definition is created and configured, you can apply it to a site within your network. Once fabric services have been assigned to a site, they cannot be deleted.

Service Definition Panel

Once the service definition is created, it is available in the left-panel tree. Click it to open a new right panel that includes a **Services** tab and a **Service Summary** tab.

Rename a Service Definition

Once a service definition has been created and configured, you can change or modify its name.

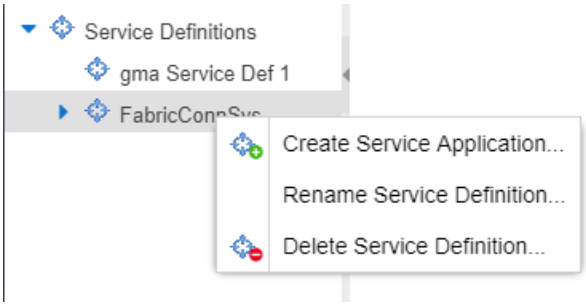


To rename a service definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Expand **Service Definitions** in the left-panel.
4. Right-click the service definition you are renaming.
5. Click **Rename Service Definition**.
6. Enter a new name in the **Name** field.
7. Click **OK** to rename the service definition.

Delete a Service Definition

Once a service definition has been created and configured, you can delete it; however, a service definition or any of its associated service applications cannot be deleted once it has been assigned to a site.



To delete a service definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Expand **Service Definitions** in the left-panel.

4. Right-click the service definition you are deleting.
5. Click **Delete Service Definition**.
6. Click **Yes** to delete a service definition.

Related Information

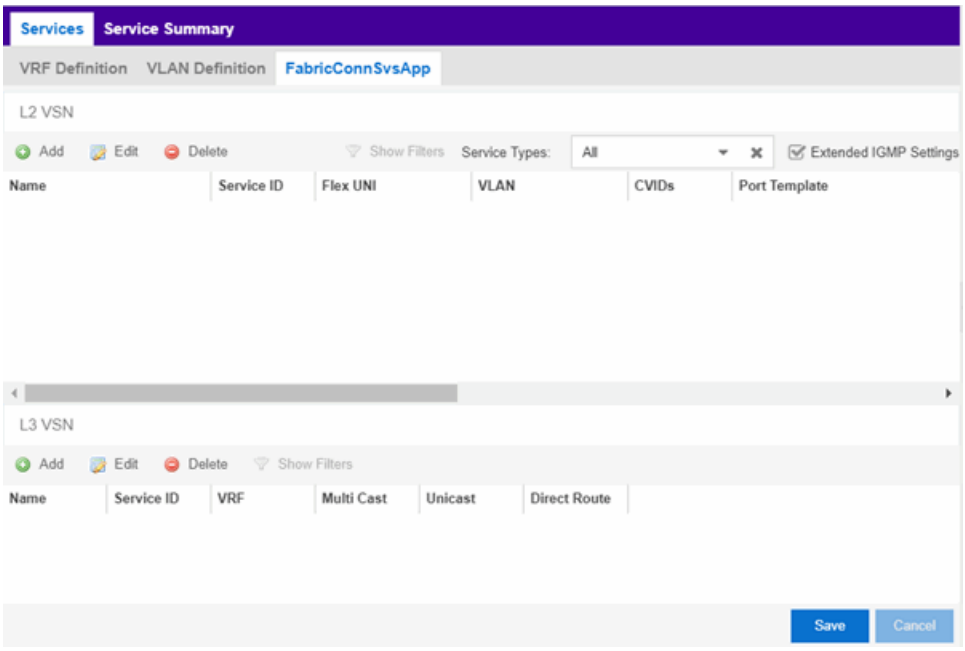
For information on related topics:

- Services
- Fabric
- Sites
- Devices

Services

The **Services** tab displays virtual routing and forwarding functionality configured as part of a service application, the virtual local area networks defined for the service application, as well as all of the services included in a service application or all of the services included in a service definition, depending if you select a service application or a service definition in the left-panel, respectively.

The **Services** tab is included in the **Sites** tab.

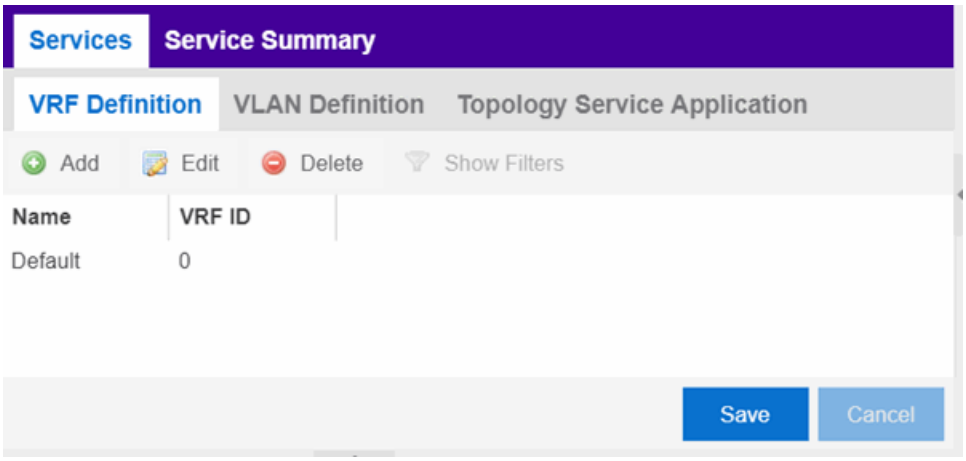


The Services tab includes three tabs:

- VRF Definition — Create and configure VRF (Virtual Routing and Forwarding) definitions for the service application. VRFs allow for networking paths to be segmented without using multiple devices.
- VLAN Definition — Create and configure VLAN (Virtual Local Area Network) definitions for the service application.
- Service Application Name — Configure the L2 and L3 Virtual Services Networks (VSNs). The Service Application Name tab is divided into L2 VPN and L3 VSN tables.

VRF Definition

The VRF Definition tab allows you to configure virtual routing and forwarding definitions included as part of the service.



Name

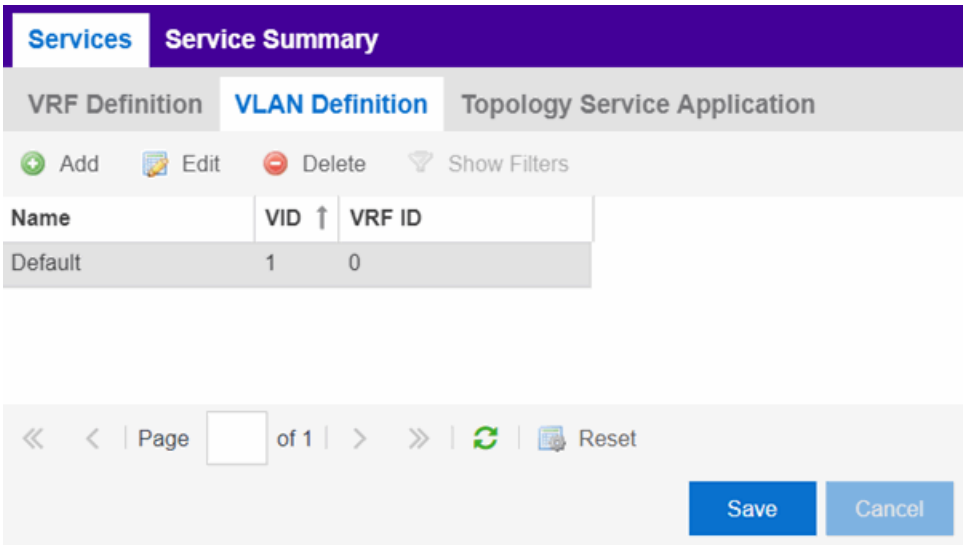
The name of the VRF definition.

VRF ID

The ID number assigned to the VRF definition.

VLAN Definition

The VLAN Definition tab allows you to configure virtual local area network definitions included as part of the service.



Name

The name of the VLAN definition.

VID

The ID number assigned to the VLAN.

VRF ID

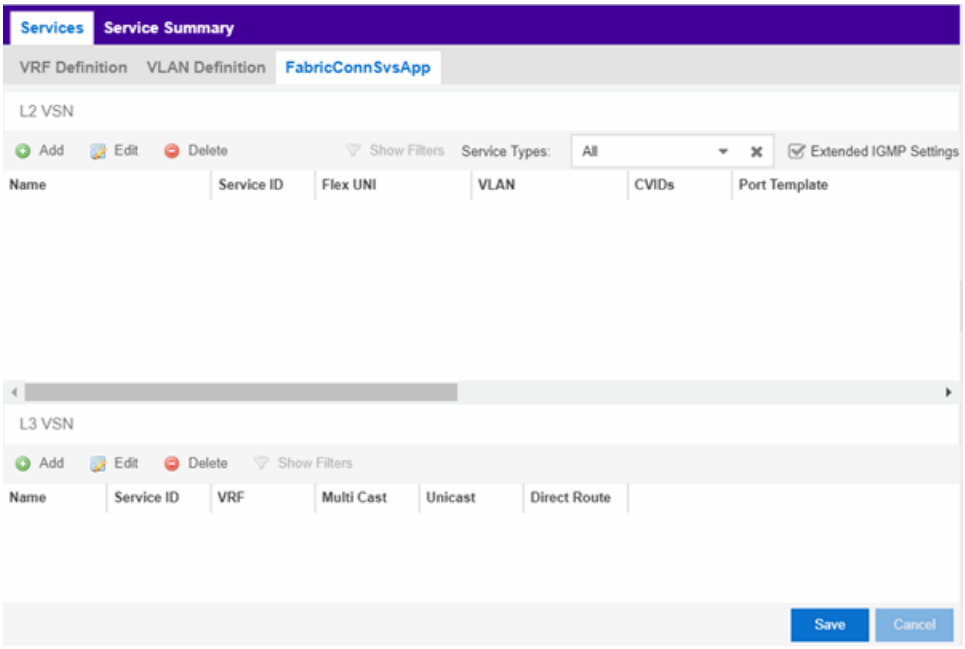
The ID number assigned to the VRF definition.

Service Application Name

The Service Application Name tab displays all of the services included in a service application or all of the services included in a service definition, depending if you select a service application or a service definition in the left-panel, respectively. The Services tab is included in the Sites tab.

Services are created within service applications. You can include multiple services within an application. Service applications are then included within service definitions. You can also include multiple service applications within a service definition. A service definition that includes a complete set of services is then assigned to a site, which configures the fabric-enabled devices within that site.

The Services tab is only configurable when you select a service application. The services displayed when selecting a service definition are read-only.



L2 VSN

Name
The name of the Layer 2 service.

Service ID
The I-SID, which is the system-defined ID number assigned to the fabric service.

Flex UNI
Indicates that the fabric service is using the User-Network-Interface (UNI).

The following interface types are available:

- Switched — A VLAN-ID and a given port (VID, port) maps to a Layer 2 VSN I-SID. With this UNI type, VLAN-IDs can be reused on other ports and therefore mapped to different ISIDs.
- Transparent —A physical port maps to a Layer 2 VSN I-SID (all traffic through that port, 802.1Q tagged or untagged, ingress and egress is mapped to the I-SID). Note: All VLANs on a Transparent Port UNI interface now share the same single MAC learning table of the Transparent Port UNI I-SID.

VLAN
The VLAN assigned to the fabric service.

CVIDs
Specifies the customer VLAN ID of the associated switched UNI port.

Port Template
Use the drop-down list to determine the purpose of the port:

- Access — Select this option if the port connects to user end-systems.
- Interswitch — You can also manually select this option if the port is used to connect to other switches. This option is selected by default if the port detects neighboring switches that are configurable.
- Management — Select this option if the port is used to manage network traffic with Extreme Management Center.
- AP — Select this option if the port is used to connect with a networking device that allows a Wi-Fi device to connect to a wired network.
- Phone — Select this option if the port is used to connect to a telephone.
- Router — Select this option if the port is used to connect to a router.

- Printer — Select this option if the port is used to connect to a printer.
- Security — Select this option if the port is used to connect to a device or devices that have been configured with security or advanced security settings.
- IoT — Select this option if the port is used to connect to an additional wireless "smart" device.
- Other — Select this option if the port is used to connect to any other device.

DVR Enable
Select to enable distributed virtual routing.

DVR Gateway
Enter the gateway address of the DVR device.

Multicast Snooping
Select to configure the service to listen to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts and routers.

Multicast Routing
Select to configure the service to distribute data to multiple recipients. Using multicast, a source can send a single copy of data to a single multicast address, which is then distributed to an entire group of recipients.

IGMP Version
The version of IGMP the service is using: Version 1, 2, or 3.

IGMP Querier
Enter the address of the IGMP Querier. Use this feature when there is no multicast router in the VLAN to originate the queries.

L3 VSN

Name
The name of the Layer 3 service.

Service ID
The I-SID, which is the system-defined ID number assigned to the service.

VRF
Select the virtual routing and forwarding definition included as part of the service.

Multi Cast
Select to indicate that the service sends IP packets to a group of hosts on the network.

Unicast
Select to indicate that the service sends IP packets to a single recipient on the network.

Direct Route
Select to indicate that the service sends IP packets directly to another device without going through a third device.

Related Information

For information on related topics:

- Service Summary
- Fabric
- Sites

Fabric

Extreme Management Center's Fabric technology allows you to manage your domains seamlessly and interdependently across both physical and virtual servers, storage, and networks. Fabric technology is designed to be highly efficient, flexible enough to adapt to your network's varying traffic volume, and easily maintained with minimal intervention. You can provision Fabric functionality on the Sites tab in Extreme Management Center.

For additional information about Fabric functionality, see the *Configuring Fabric Basics and Layer 2 Services on VSP Operating System Software VSP 8600* guide for the latest VSP 8600 release.

Extreme Management Center's fabric solution consists of two major components:

- Fabric Manager — A virtual engine that provides Extreme Management Center with fabric topology information and allows you to configure fabric functionality on your fabric-enabled devices.
- Fabric Tab — The tab within Extreme Management Center that allows you to view and configure the fabric functionality on your devices.

NOTE: The Fabric Manager engine must be installed and running on your network for the Fabric tab in Extreme Management Center to receive and display fabric topology information.

Once the Fabric Manager engine is running in Extreme Management Center, the Fabric tab on the Devices tab displays information about the fabric topologies currently configured on your devices.

NOTES: The following device types support fabric functionality:

ERS35xx with firmware version 5.3.7 and later, ERS36xx with firmware version 6.2.0 and later, ERS48xx with firmware version 5.12.0 and later, ERS49xx with firmware version 7.6.0 and later, ERS59xx with firmware version 7.6.0 and later, VSP7024 with firmware version 10.4.6 and later, VSP4xxx with firmware version 6.1.3 and later, VSP7xxx with firmware version 6.1.3 and later,VSP8xxx with firmware version 6.1.3 and later

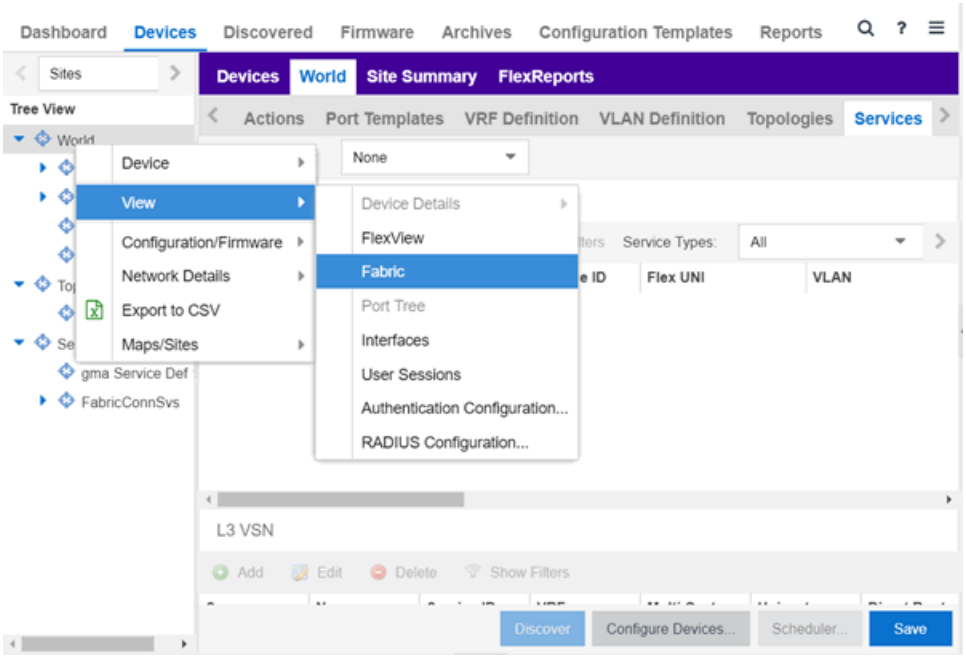
For minimum requirements, see Extreme Management Center Configuration and Requirements.

Accessing Fabric in Extreme Management Center

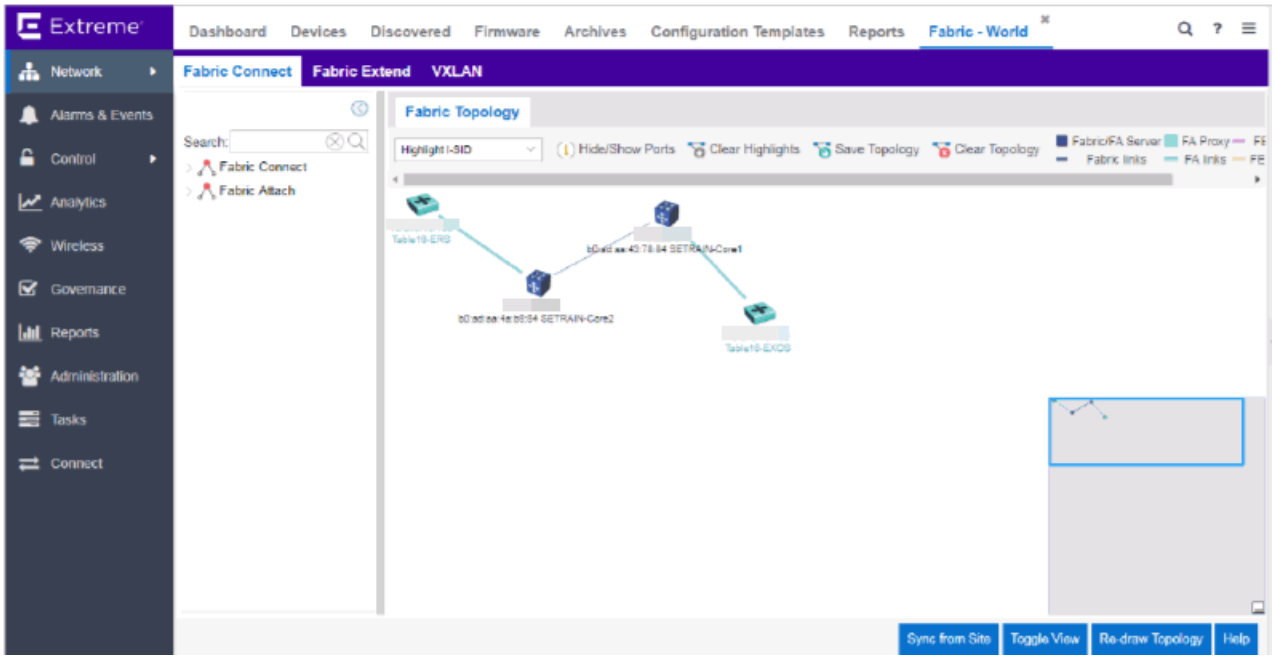
After adding the Fabric Manager engine in Extreme Management Center, view the fabric topologies configured on your devices on the Fabric tab.

To access the Fabric tab:

1. Open the Devices tab.
2. Select Sites from the left-panel drop-down list.
3. Right-click a site in the left-panel tree.
4. Select View > Fabric from the menu.



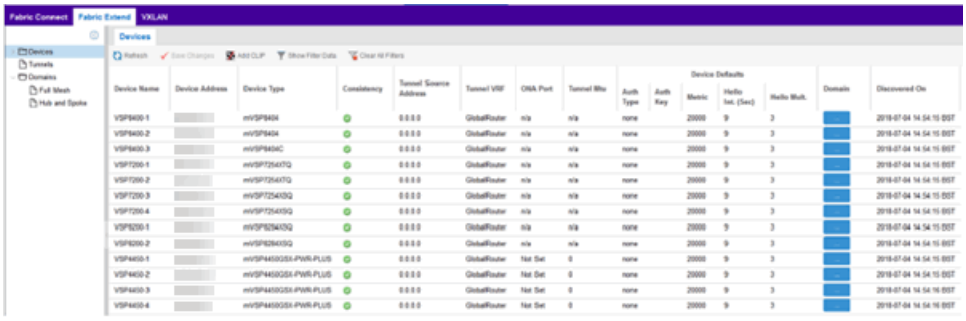
The Fabric tab opens.



Fabric Tab

The **Fabric** tab includes three sub-tabs:

- Fabric Connect — Displays the fabric topologies configured on your fabric-enabled devices.
- Fabric Extend — Allows you to extend fabric functionality to include Layer 2 and Layer 3 core networks.



- VXLAN — Allows you to configure a Virtual Extensible LAN (VXLAN) to tunnel Layer 2 traffic over a Layer 3 network in the fabric topologies you configure.

Related Information

For information on related topics:

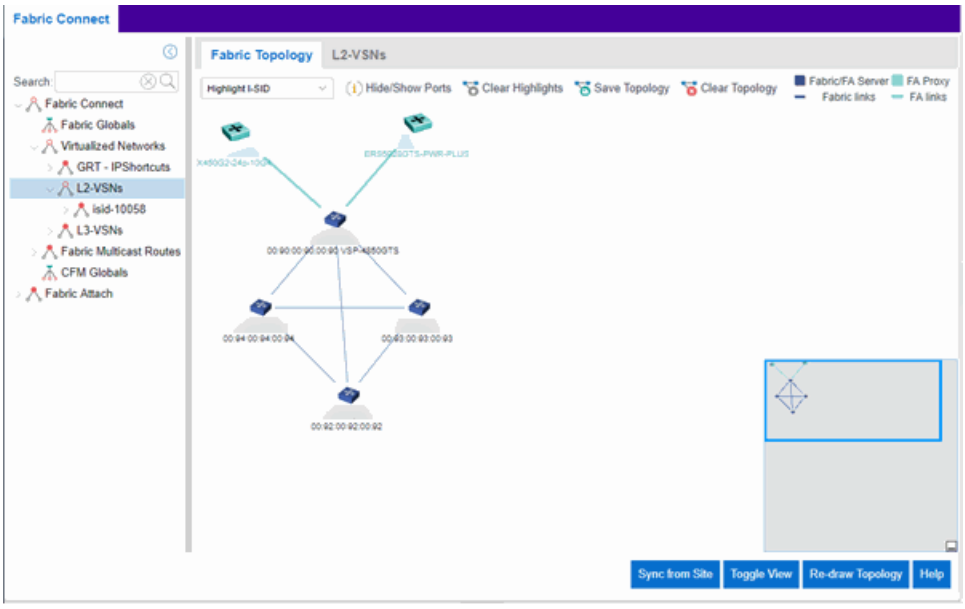
- Services
- Service Summary
- Fabric Connect
- Sites
- Devices

Fabric Connect

Extreme Management Center's **Fabric Connect** within the Fabric Manager engine displays your network's fabric technology and extended fabric functionality. Fabric Connect uses Fabric Topology templates that allow you to view and to configure SPBm (Shortest Path Bridging), based L2 and L3 Virtual Services Networks (VSNs), as well as IP-shortcut based VSNs. The Fabric Attach extends Fabric technology functionality to network elements or hosts that are not SPB-capable.

The Fabric Connect tab allows you to view and configure topologies with the fabric-enabled sites in your network. Click the **Toggle View** button to display fabric services for individual devices.

NOTE: Fabric Connect uses Fabric Topology templates that define the topologies, services and service applications that comprise the Fabric Topology. Create the topology and service definitions via the **Sites** tab before you assign the Fabric Connect Topology to a site and access the **Fabric Connect** tab.



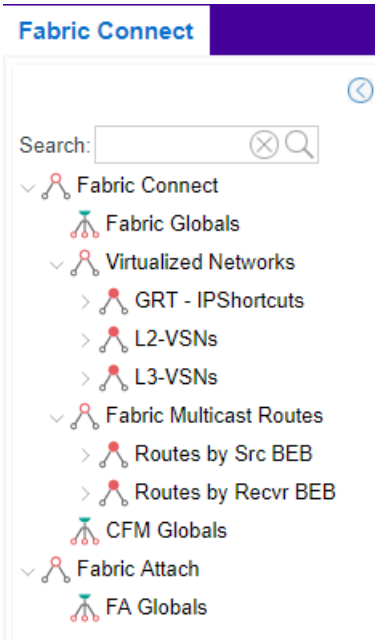
The Fabric Connect tab is divided into two sections: the left-panel tree view and a Fabric Topology right-panel map view.

Left-Panel Tree

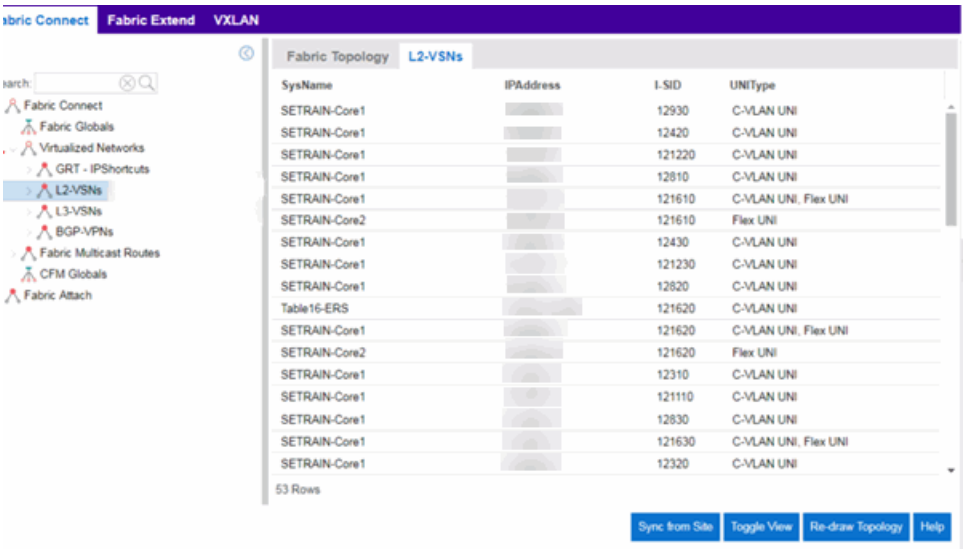
Beginning in version 8.3, Extreme Management Center supports two Fabric technology infrastructures: Fabric Connect and Fabric Attach (FA). The left-panel tree includes Fabric Connect and Fabric Attach folders that expand to display all fabric services you have configured in your network.

Fabric Connect Folder

Select the Fabric Connect tab to display the fabric topologies configured on the devices in the site.



Click a service in the Fabric Connect folder to open a fabric topology map and a service name tab in the right panel. The map displays the devices enabled with the services you selected and the service name tab displays a table with details about that service.



Click the **Toggle View** button to display Fabric Connect fabric services for individual devices.

Fabric Attach Folder

The Fabric Attach (FA) extends Fabric technology functionality to network devices that are not SPB-capable. The Fabric Attach tab displays global, server and proxy capable services for your network and devices.

NOTE: You can enable Fabric Attach on the following switches:

FA Server — for VOSS, ERS 49xx v5.9.2 and later, ERS 4850 v5.9.2 and later, and ERS 59xx series devices; FA Proxy (client proxy) — for ERS 35xx, ERS 48xx, ERS 49xx, ERS 55xx, ERS 56xx, ERS 59xx, and VSP 70xx series devices; FA Standalone Proxy (client proxy) — for ERS 35xx, ERS 48xx, ERS 55xx, ERS 56xx, ERS 59xx, and VSP 70xx series devices

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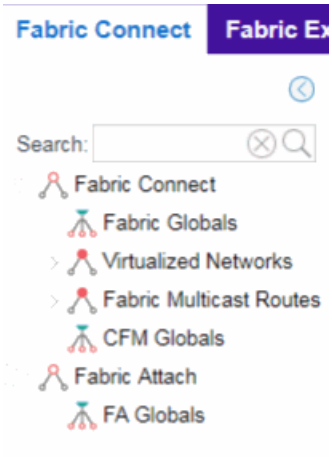
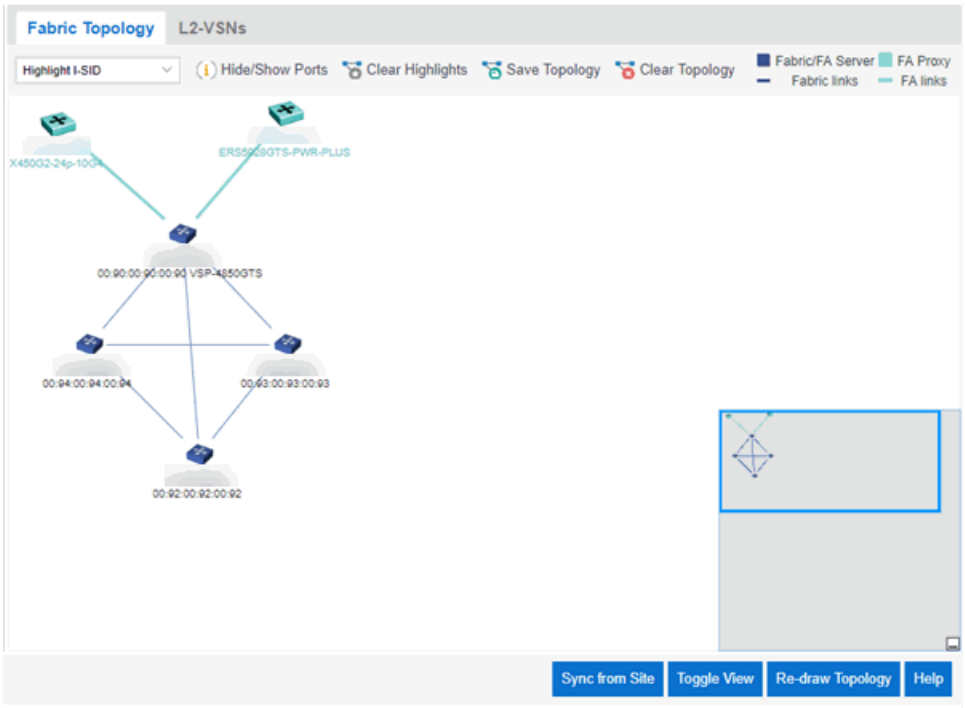


Click a service in the Fabric Attach folder to open a fabric topology map and a VSN tab in the right panel. The map displays the devices enabled with the service you selected and the VSN Home tab displays a table with details about the VSNs enabled on the site. Click the **Toggle View** button to display Fabric Attach services for individual devices.

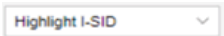
Right-Panel Topology Map

The Fabric Topology panel includes the **Fabric Topology** tab that displays a topology map of the fabric-enabled sites or devices in your network. You can use the topology map to gain a high-level view of your network, or to view detailed information about devices and links in the topology. Drag your device icons in the topology map to rearrange the map. Additionally, you can modify and save your map layouts in the Fabric Topology tab.



Topology Tab Tools

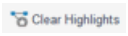
The Fabric Topology tab includes the following tools:

Fabric Service 

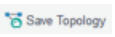
Lists fabric services in your network. Select a service from the drop-down list to display it in the topology map.

Hide/Show Ports

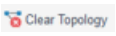
Use to hide or display fabric enabled ports in your network.

Clear Highlights 

Use to clear existing highlights on the topology map.

Save Topology 

Use to save your topology map.

Clear Topology 

Use to remove the devices in your topology map.

Color Legend 

The types of fabric services are coded by colors in the topology map.

Topology Tab Buttons

The Fabric Topology tab also includes the following buttons that allow you to further manipulate the fabric service and topology data:

Sync From Site

Use to copy the fabric service configuration for the site to all the devices in the map.

Toggle View

Click to display fabric topology, services and tables for individual devices.

Re-draw Topology

Click to display an alternate topology arrangement.

Help

Click to access Extreme Management Center help.

Related Information

For information on related topics:

- Services
- Service Summary
- Sites
- Devices

Fabric Manager ZTP+ Configuration

Fabric Manager is a resilient, scalable, and highly efficient network management application that allows your network domains to operate interdependently, efficiently, and with minimal intervention. Fabric Manager allows you to monitor the fabric topology and service applications on your network for several device types, and is accessed via the site to which you add it.

Fabric Manager is deployed as a separate virtual machine (VM) in Extreme Management Center, and is enabled via ZTP+ (Zero Touch Provisioning Plus) functionality.

NOTE: You need to upgrade the firmware in Extreme Management Center to launch Fabric Manager and add it to sites in your network.

General Network Configuration

In order for the engine to communicate with the Extreme Management Center server:

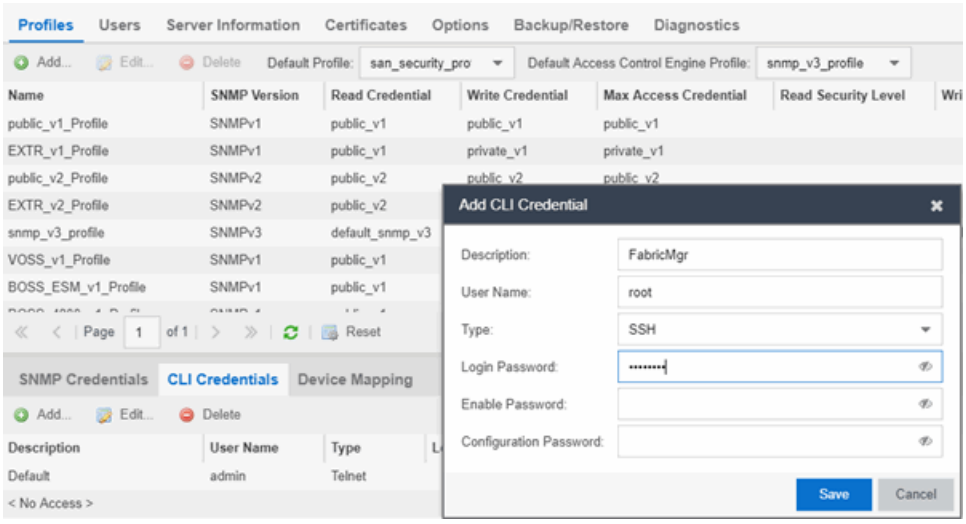
- The DHCP Server needs to return a DNS Server and Domain Name to the ZTP+ device. It is the default mode of configuration during the Fabric Manager VM's initial bootup cycle.
- The DNS Server needs to map the name extremecontrol.<*domain-name*> to the IP address of the Extreme Management Center server.

Once Extreme Management Center and the ZTP+ device are pre-configured, you can add the site definition to the Extreme Management Center database.

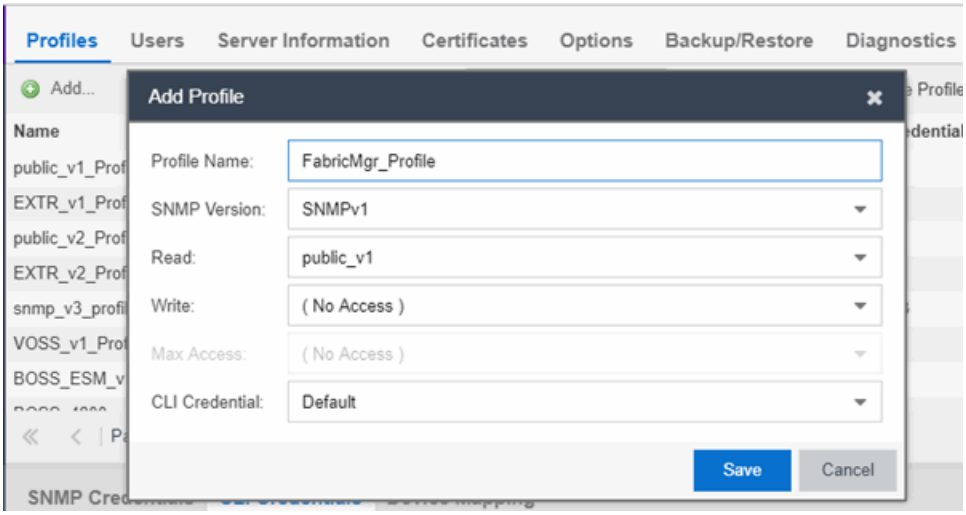
Prerequisite for Configuring Fabric Manager

Prior to configuring the Fabric Manager engine, you must create an Administration Profile for the Fabric Manager with CLI credentials. Fabric Manager uses the Administrator Profile as an additional user account.

1. Open the Administration > Profiles tab.
2. In the bottom panel, click the CLI Credentials tab.



3. Click the **Add** button (Add) to open the **Add CLI Credential** window.
4. Enter **FabricMgr** in the **Description** field.
5. Enter **root** in the **User Name** field.
6. Select **SSH** from the **Type** drop-down list.
7. Enter a password in the **Login Password** field.
8. Click **Save**.
9. Click the **Add** button (Add) at the top of the **Profiles** tab to open the **Add Profile** window.



10. Enter "FabricMgr_Profile" in the **Profile Name** field.

11. Click **Save**.

Adding the Device to the Extreme Management Center Database

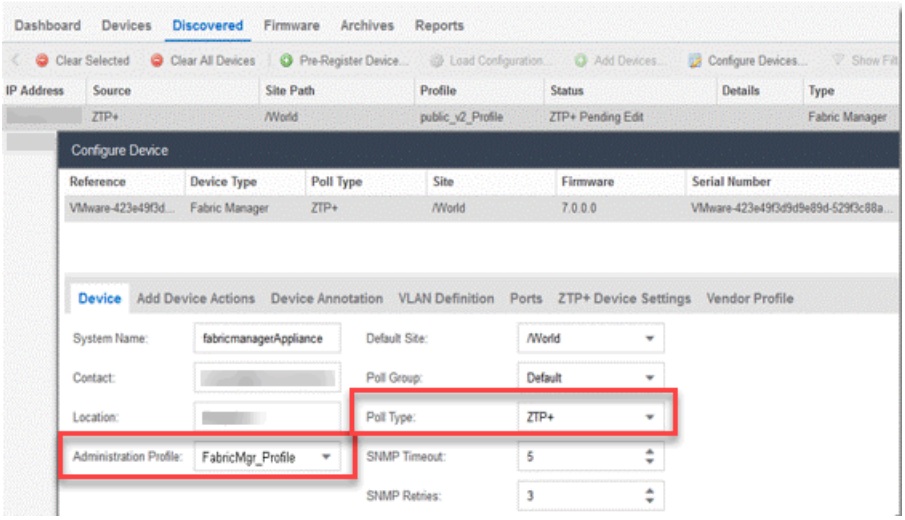
Now that the default criteria is configured for devices added to the World Site and you set up the DHCP and DNS servers allowing the device to communicate with the Extreme Management Center database, connect the device and add it to the **Discovered** tab.

1. Open the **Discovered** tab in Extreme Management Center.

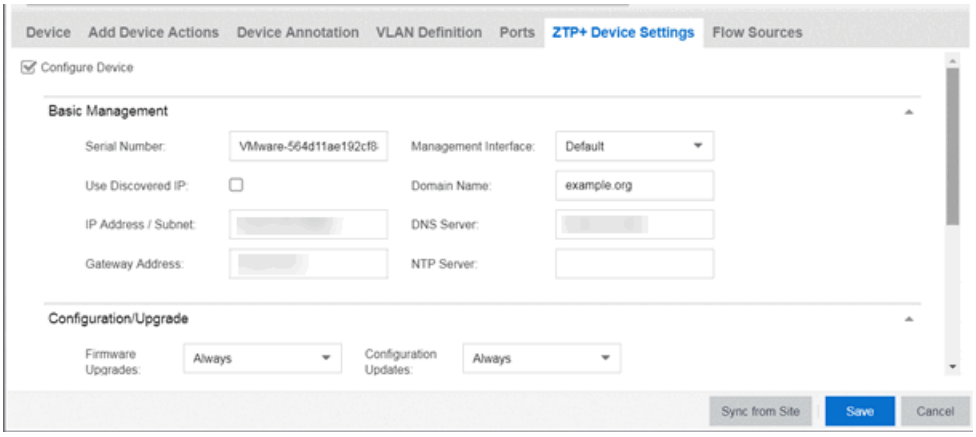
   The Fabric Manager-enabled device is listed with a **Status** of **ZTP+ Pending Edit**, indicating the device configuration needs to be edited before adding it to the Extreme Management Center server.

2. Right-click the device and select **Configure Devices** tab from the drop-down list.

   The **Configure Device** window opens.



3. Click the **ZTP+ Device Settings** tab.
4. Configure the fields on the **ZTP+ Device Settings** tab to determine how the Fabric Manager is managed by Extreme Management Center using ZTP+ functionality.
   a. Click the **Configure Device** checkbox.
   b. You can click the **Use Discovered IP** checkbox, or enter the ZTP+ Settings Basic Management information manually:



1. Enter an IP address and subnet in the **IP Address/Subnet** field.
2. Enter a **Gateway Address**.
3. Enter a **Domain Name**.
4. Enter a **DNS Server** or **NTP Server** address.

c. Click **Save**.

The **Status** (displayed on the **Discovered** tab) is now **ZTP+ Staged**, indicating Extreme Management Center pushes the configuration to the device the next time the device contacts Extreme Management Center.

Open the **Configuration** tab. The engine is configured with the Fabric Manager ZTP+ enabled device and is displayed in the **Overview** window.

Related Information

For information on related topics:

- Sites
- Profiles
- Add Device
- Edit Device
- Devices

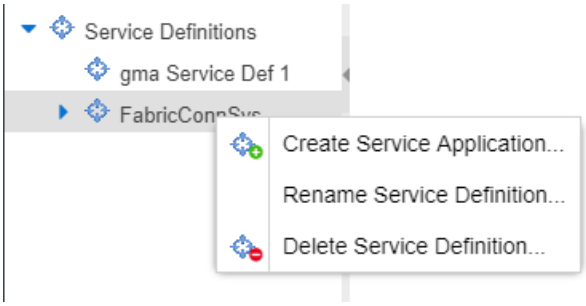
How to Create a Service Application

You can create a service application via the **Sites** tab in Extreme Management Center. Service definitions display information from service applications. Once created, service applications are added to sites in your network and are used to build a topology map.

Create a Service Application

To create a service application:

1. Access the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Expand **Service Definitions** in the left-panel.
4. Right-click the service definition in which you want to create the service application.



5. Click **Create Service Application**.

   The **Create Service Application** window opens.
6. Enter a name in the **Name** field.
7. Click **OK**.
8. Click the newly created service application.
9. Use the Services tab and a Service Summary tab to configure the service application.

The service application is created. Once the service application is created and configured, you can apply it to a site within your network. Once services have been assigned to a site, they cannot be deleted.

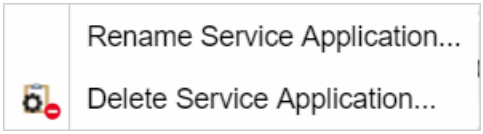
NOTE: A Service Application must have the same fabric type as its associated Service Definition. For example, if a Service Definition is created with Fabric Connect type, it can only have Service Applications of Fabric Connect type. Currently, Fabric Connect is the only fabric type available.

Once the service application is created, it is available in the left-panel tree and a new right panel opens that includes a Services tab and a Service Summary tab.

Rename a Service Application

To change the name of a service application:

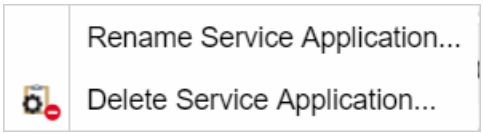
1. Open the **Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Expand **Service Definitions** in the left-panel.
4. Right-click the service application you are renaming.



5. Click **Rename Service Application**.
6. Enter a new name in the **Name** field.
7. Click **OK** to change the name of the service application.

Delete a Service Application

You can delete all user-defined service applications, unless the service application or any of its associated service definitions are assigned to a site.



To delete a service application:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Expand **Service Definitions** in the left-panel.

4. Right-click the service application you are deleting.
5. Click **Delete Service Application**.
6. Click **Yes** to delete the service application.

Related Information

For information on related topics:

- Services
- Fabric
- Sites
- Devices

How to Add Fabric Manager

Once you install the Fabric Manager virtual machine (VM), you can add it to Extreme Management Center and enable it via ZTP+ (Zero Touch Provisioning Plus) functionality.

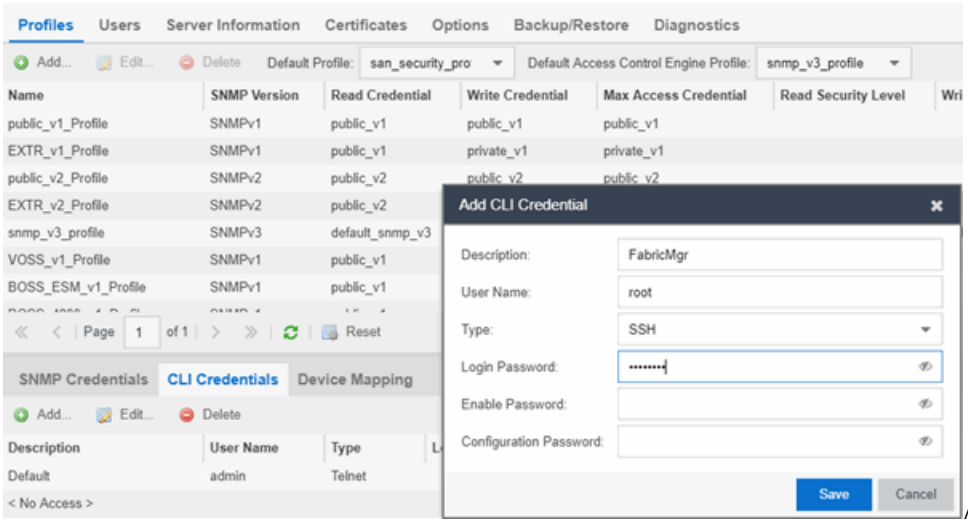
NOTE: You need to upgrade the firmware in Extreme Management Center to add and launch the Fabric Manager engine.

Adding Fabric Manager to Extreme Management Center

Prior to adding the Fabric Manager engine, you must create an Administration Profile for the Fabric Manager with CLI credentials. Fabric Manager uses the Administrator Profile as an additional user account.

Add CLI Credentials

1. Launch Extreme Management Center.
2. Open the **Administration > Profiles** tab.
3. In the bottom panel, click the **CLI Credentials** tab.

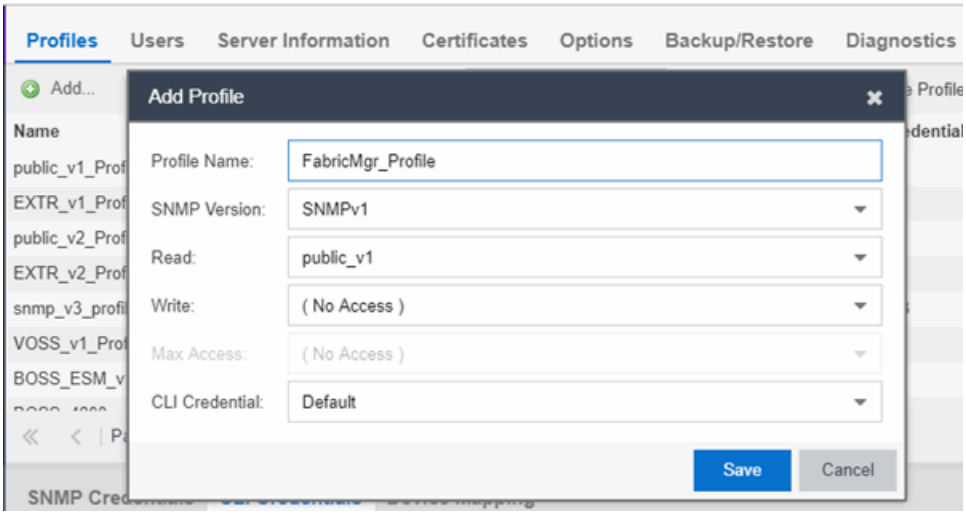


APP

4. Click the **Add** button (Add) to open the **Add CLI Credential** window.
5. Enter a name for the CLI Credential in the **Description** field.
6. Enter **root** in the **User Name** field.
7. Select **SSH** from the **Type** drop-down list.
8. Enter a password in the **Login Password** field.
9. Enter a password in the **Enable Password** field.
10. Enter a password in the **Configuration Password** field.
11. Click **Save**.

Create Administration Profile

1. Click the **Add** button (Add) at the top of the **Profiles** tab to open the **Add Profile** window.



2. Enter a name in the **Profile Name** field.
3. Select the CLI Credential you created from the **CLI Credential** drop-down list.
4. Click **Save**.

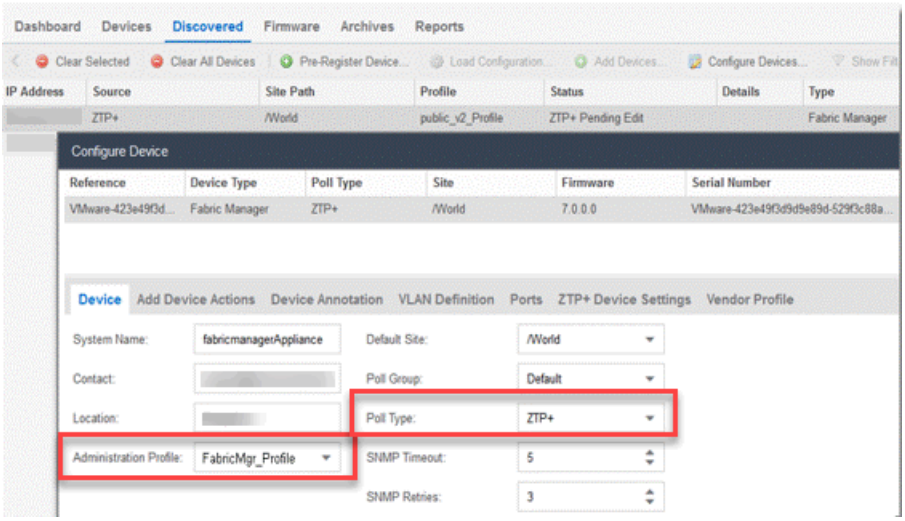
Add Administration Profile to the Fabric Manager engine

1. Open the **Network > Discovered** tab in Extreme Management Center.

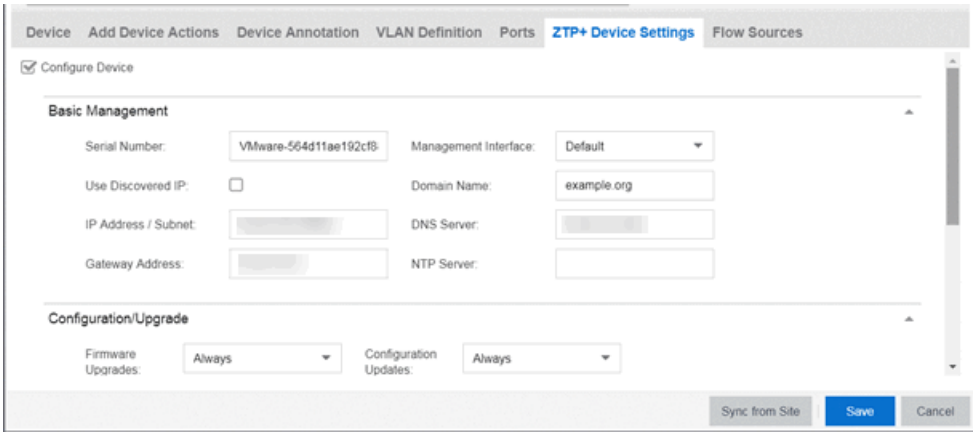
NOTE: The Fabric Manager appears as a device on the **Discovered** tab. It is listed with a **Status** of **ZTP+ Pending Edit**, indicating the configuration needs to be edited before adding it to the Extreme Management Center server.

2. Right-click the new Fabric Manager file and select **Configure Devices** tab from the drop-down list.

   The **Configure Device** window opens.



3. Select the profile you created from the **Administration Profile** drop-down list.
4. Select **ZTP+** from the **Poll Type** drop-down list.
5. Click the **ZTP+ Device Settings** tab in the **Configure Device** window.



6. Configure the fields on the **ZTP+ Device Settings** tab to determine how the Fabric Manager is managed by Extreme Management Center using ZTP+ functionality.
    a. Click the **Configure Device** checkbox.
    b. Click the **Use Discovered IP** checkbox to autofill the IP address and other information that you entered during installation. Or, you can also enter the ZTP+ Settings Basic Management information manually:
        1. Enter an IP address and subnet in the **IP Address/Subnet** field.
        2. Enter a **Gateway Address**.

3. Enter a **Domain Name**.
4. Enter a **DNS Server** or **NTP Server** address.

c. Click **Save**.

ZTP+ Discovery

Once the ZTP+ discovery process is complete, the Fabric Manager engine is added to the Extreme Management Center database and moves from the **Network** > **Discovered** tab to the **Network** > **Devices** tab. The ZTP+ discovery process may take up to five minutes to complete.

NOTES: If you did not select **Automatically Add Devices** on the **Site** tab, the Fabric Manager engine remains on the **Discovered** tab with a **Status** of **ZTP+ Complete**. Select the file, click the **Add Devices** button (the **Add Device** window appears), and click the **Add** button to add the device to the Extreme Management Center database.

In the event a configuration is not correctly transmitted to the switch or if connectivity is lost during any part of this process, the file resets and allows the process to restart.

The Fabric Manager engine **Status** (displayed on the **Discovered** tab) is now **ZTP+ Staged**, indicating Extreme Management Center will push the configuration to the device the next time the device contacts Extreme Management Center.

When Extreme Management Center pushes the configuration to the Fabric Manager engine, the **Status** is **ZTP+ Complete**.

Related Information

- Extreme Management Center Fabric
- Fabric Connect

Applying Fabric Services

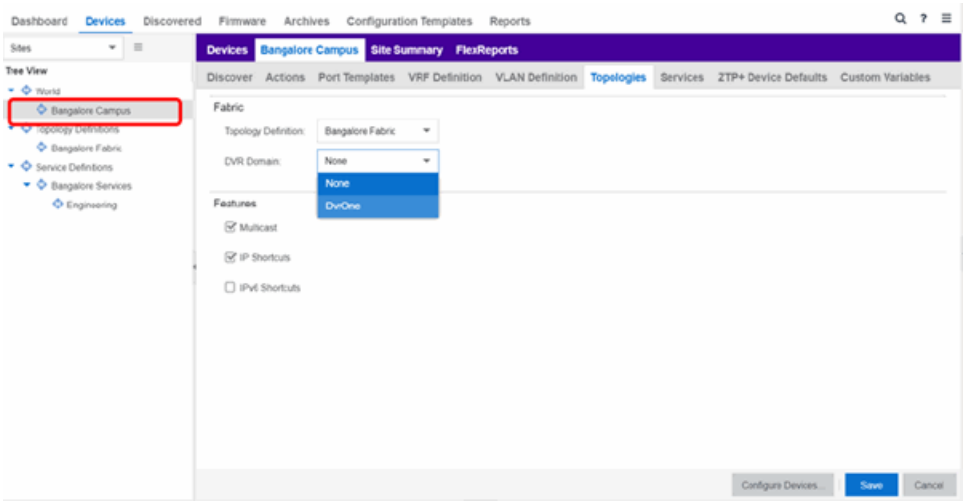
Once you have created and configured your fabric topology, service and service application services, you can apply them to sites within your network. Once

fabric topology and services have been assigned to a site, they cannot be deleted.

NOTE: Services not assigned to a service definition (where NONE has been selected) can be deleted from a site after they have been assigned to that site.

Applying a Fabric Topology to a Site

1. Open the **Network > Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Click a site in the left-panel tree.
4. Click the site name tab in the **Devices** sub-tab.

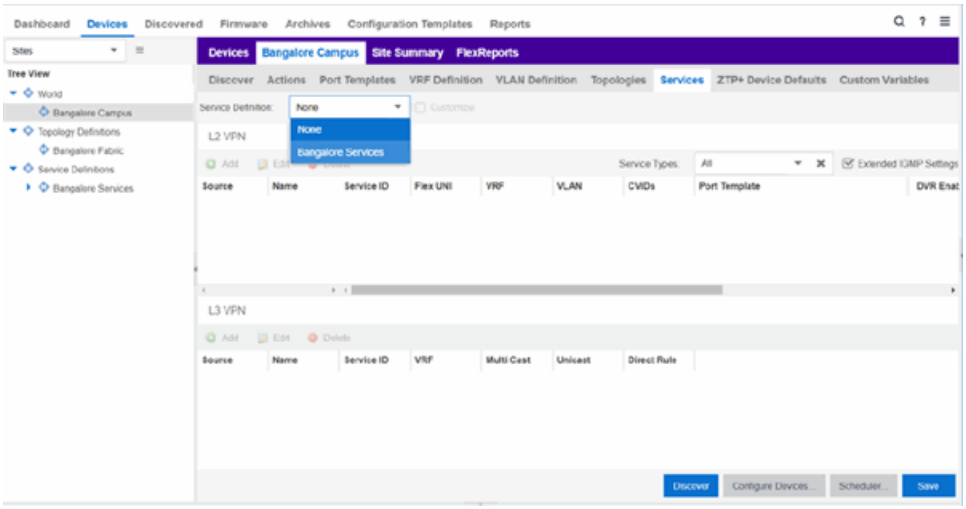


5. Click the **Topologies** tab.
6. Select the topology you want to apply to the site from the **Topology Definition** drop-down list.
7. Select the DVR Domain from the **DVR Domain** drop-down list.
8. Click the checkboxes in the **Features** section to include the features you want to assign to the topology.
9. Click **Save**.

NOTE: Only one Fabric Topology and one DVR Domain can be assigned a site in Extreme Management Center.

Applying a Service Application to a Site

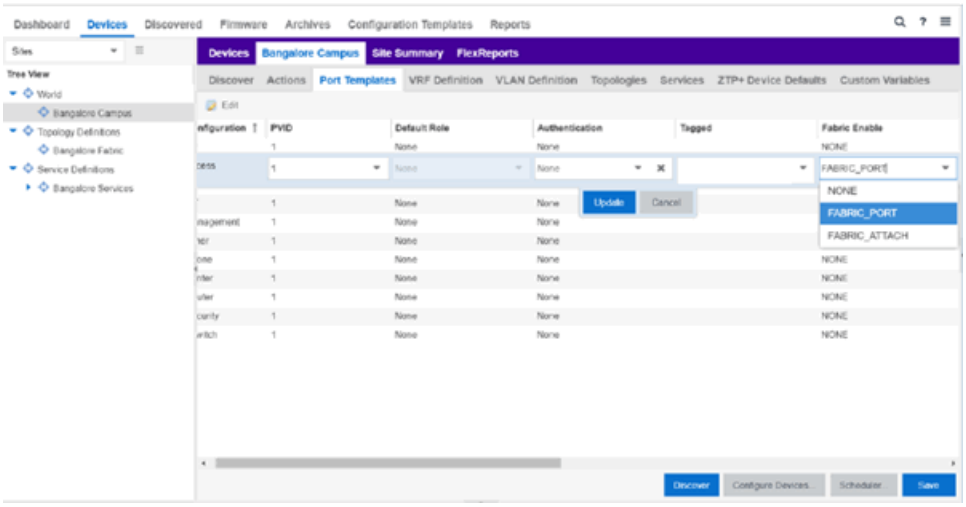
1. Open the Network > Devices tab.
2. Select Sites from the left-panel tree drop-down list.
3. Click a site in the left-panel tree.
4. Click the site name tab in the Devices sub-tab.



5. Click the Services tab.
6. Select the service definition you want to apply to the site from the Service Definition drop-down list. The service application details that you configured to the service definition display in the L2 VPN and L3 VPN tables.
7. Click Save to apply the services to the site.

Applying Fabric to Port Templates

The Port Templates Configuration screen allows ports to be configured with a Fabric role such as NNI or Fabric Attach (FA). Once complete, you can apply the Port Templates configuration to the device.

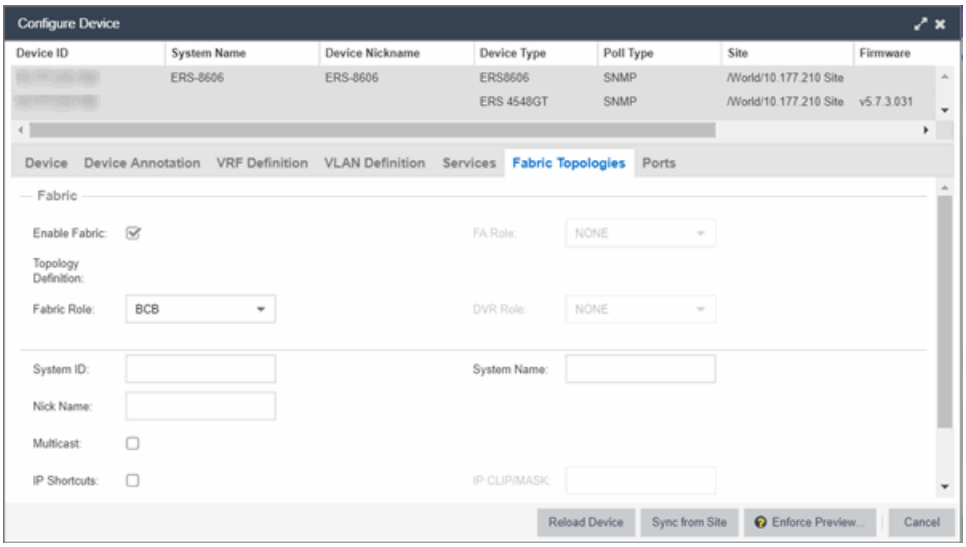


Applying Fabric Services to a Device

Once you have applied fabric topologies and services to a site, you can also apply the fabric services to devices assigned to that site.

Applying Fabric Topology to a Device

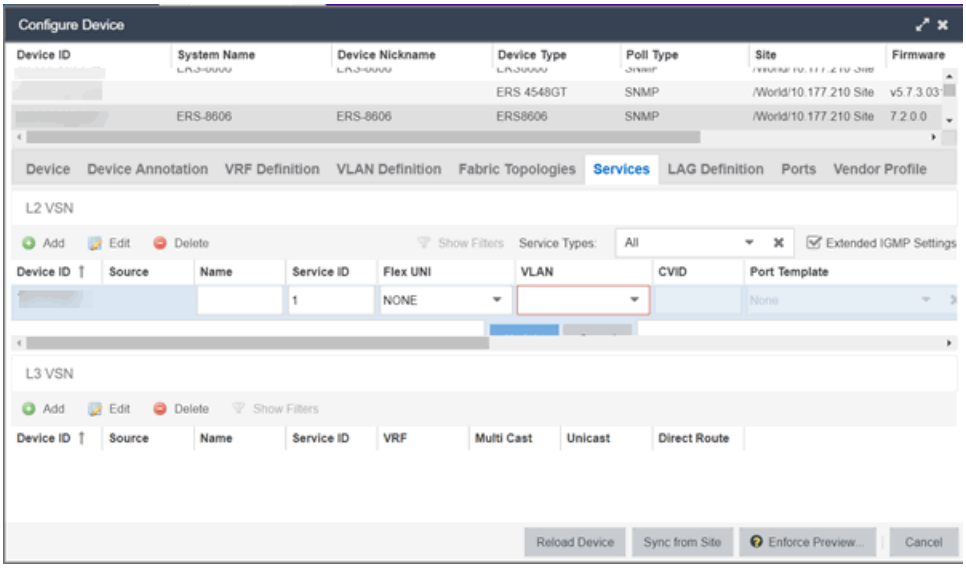
1. Open the **Network > Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Right-click a site in the left-panel tree.
4. Click **Configure Device** from the drop-down list. The **Configure Device** window opens.



5. Click the **Fabric Topologies** tab.
6. Click the **Sync from Site** button to populate the tab with the fabric topology details you applied to the site. The topology details you applied to the site will be applied to the device, as long as the device you have selected is assigned to the same site.
7. To populate the tab manually, click the **Enable Fabric** checkbox.
8. Select a **Fabric Role** from the drop-down list.
9. Enter a system ID number in the **System ID** field.
10. Enter a nickname in the **Nick Name** field.
11. Check the **Multicast** checkbox, if needed.
12. Check the **IP Shortcuts** checkbox, if needed.
13. Enter the system name in the **System Name** field.
14. Click the **Enforce Preview** button.

Applying Fabric Services to a Device

1. Open the **Network > Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Right-click a site in the left-panel tree.
4. Click **Configure Device** from the drop-down list. The **Configure Device** window opens.

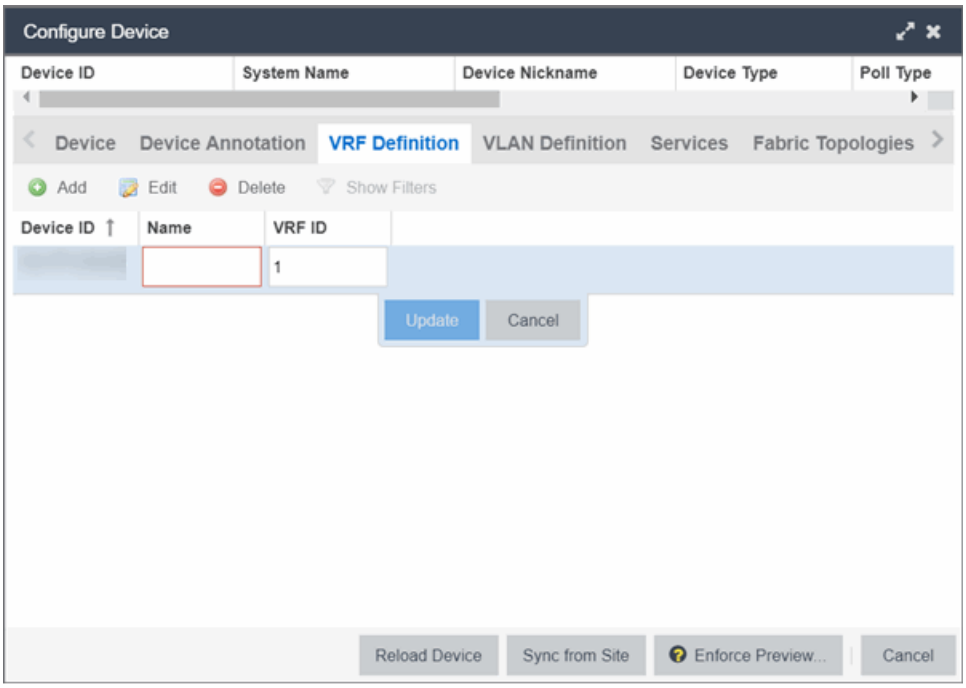


5. Click the **Services** tab. The service details that you configured to the site display in the L2 VPN and L3 VPN tables.
6. Click the **Sync from Site** button to populate the tab with the fabric service details you applied to the site. The service details you applied to the site will be applied to the device, as long as the device you have selected is assigned to the same site.
7. Click the Add (Add) button to add an L2 VSN or L3 VSN service to the device.
8. Click the Edit (Edit) button to edit service details that were populated from the site.
9. Click the **Enforce Preview** button.

NOTE: The L3VPN table is disabled when the device is set as a DVR Leaf node.

Adding and Deleting VRF Definitions

1. Open the **Network > Devices tab**.
2. Select **Sites** from the left-panel tree drop-down list.
3. Right-click a site in the left-panel tree.
4. Click **Configure Device** from the drop-down list. The **Configure Device** window opens.
5. Click the **VRF Definition** tab.



The **VRF Definition** tab in the **Configure Device** window displays read-only VRF details you applied to the site. You can add a new VRF to the device.

1. Click the Add (Add) button.
2. Enter the name of a VRF in the **Name** field.
3. Enter the ID number in the **VRF ID** field.
4. Click **Update** to add the VRF to the device.
5. Click the **Enforce Preview** button.

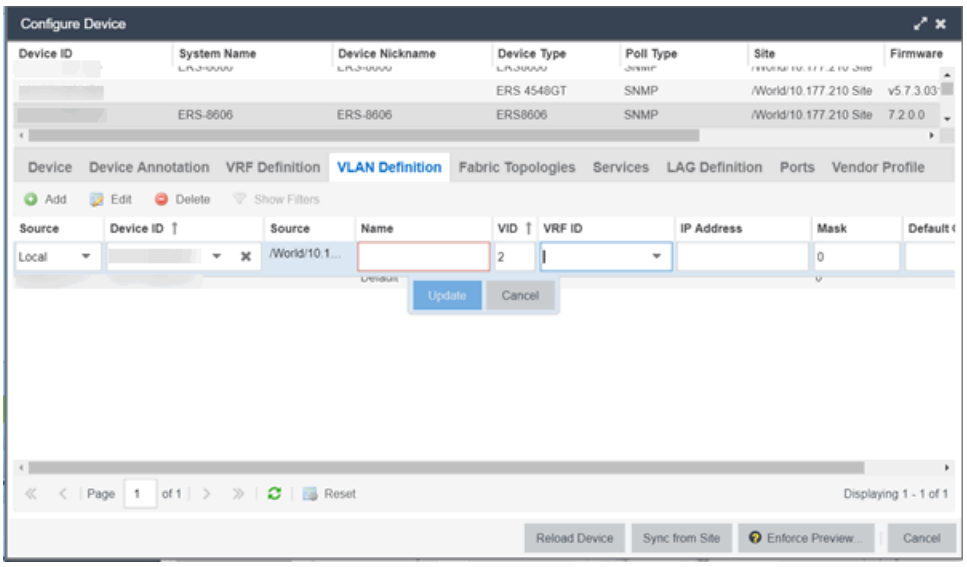
You can delete a VRF from the **VRF Definition** tab.

1. Select a VRF in the table.
2. Click the **Delete** (Delete) button.
3. Click **Yes** to remove the VRF.

Adding and Deleting VLAN Definitions

1. Open the **Network > Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Right-click a site in the left-panel tree.

4. Click **Configure Device** from the drop-down list. The **Configure Device** window opens.
5. Click the **VLAN Definition** tab.



The **VLAN Definition** tab in the Configure Device window displays read-only VLAN details you applied to the site. You can add a new VLAN to the device.

1. Click the Add (Add) button.
2. Enter the name of a VLAN in the **Name** field.
3. Enter the ID number in the **VLAN ID** field.
4. Click **Update** to add the VLAN to the device.
5. Click the **Enforce Preview** button.

You can delete a VLAN from the **VLAN Definition** tab.

1. Select a VLAN in the table.
2. Click the **Delete** (Delete) button.
3. Click **Yes** to remove the VLAN.

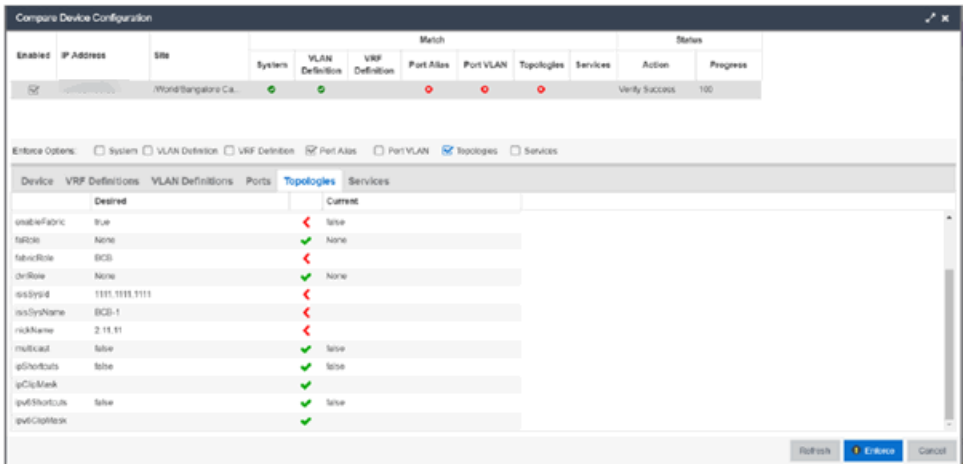
Enforcing the Fabric Configurations

Once you enforce previews on the **Topologies**, **Services**, and **VRF Definitions** tabs, use the **Compare Device Configuration** window to enforce the

configurations to the device. Additionally, the **VLAN Definition** tab allows you to enforce the **VLAN** and **Ports** fabric configurations.

Enforcing Fabric Topology

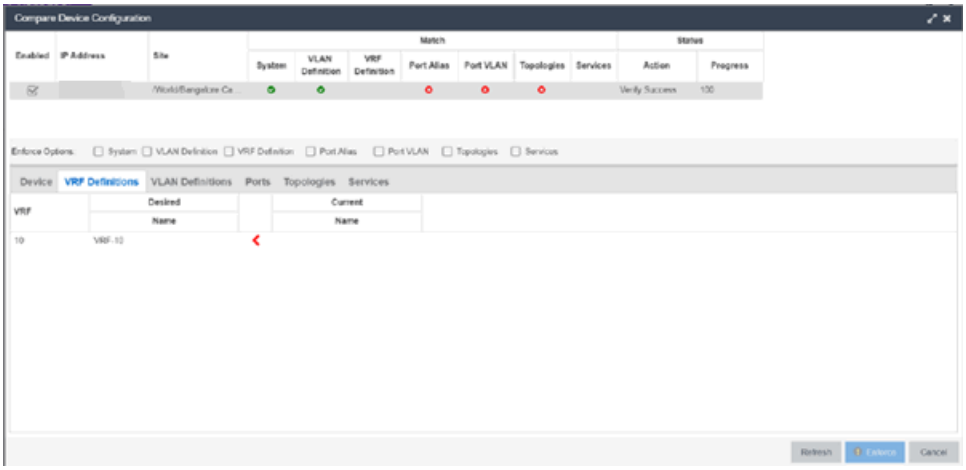
1. Click **Enforce Preview** on the **Topologies** tab in the **Configure Device** window.
2. The **Compare Device** window opens.



3. Click the Topologies Enforce Option.
4. Click **Enforce**.

Enforcing Fabric VRF

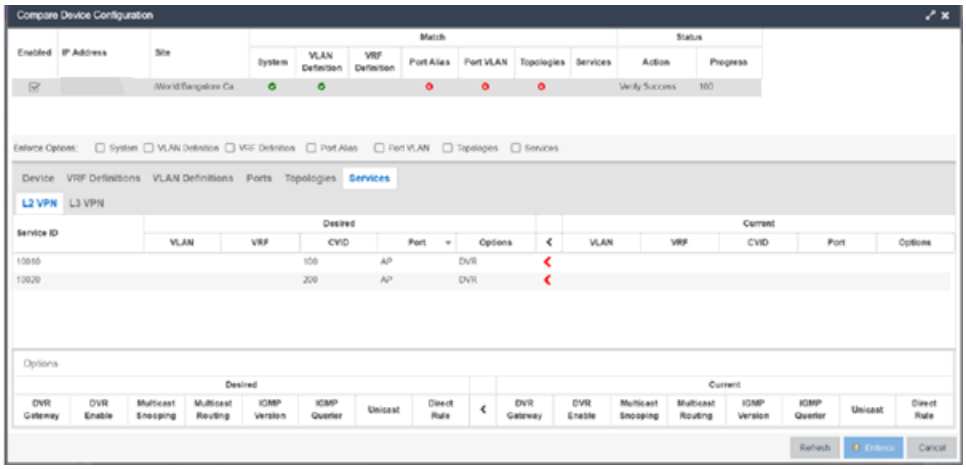
1. Click **Enforce Preview** on the **VRF** tab in the **Configure Device** window.
2. The **Compare Device** window opens.



3. Click the **VRF Definition** tab.
4. Click **Enforce**.

Enforcing Fabric Services

1. Click **Enforce Preview** on the **Services** tab in the **Configure Device** window.
2. The **Compare Device** window opens.

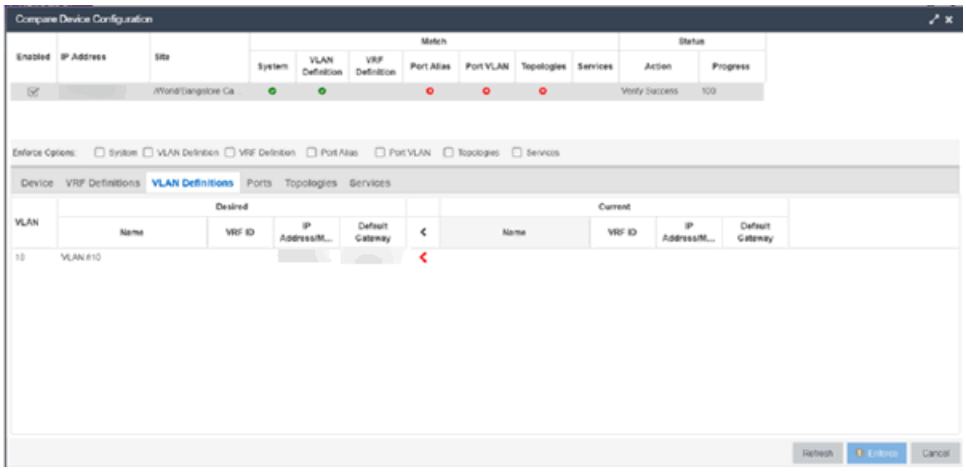


3. Click the Services Enforce Option.
4. Click the **L2 VPN** tab.
5. Click **Enforce**.
6. Click the **L3 VPN** tab.
7. Click **Enforce**.

Enforcing Fabric VLAN

1. Click **Enforce Preview** on the **VLAN** tab in the **Configure Device** window.

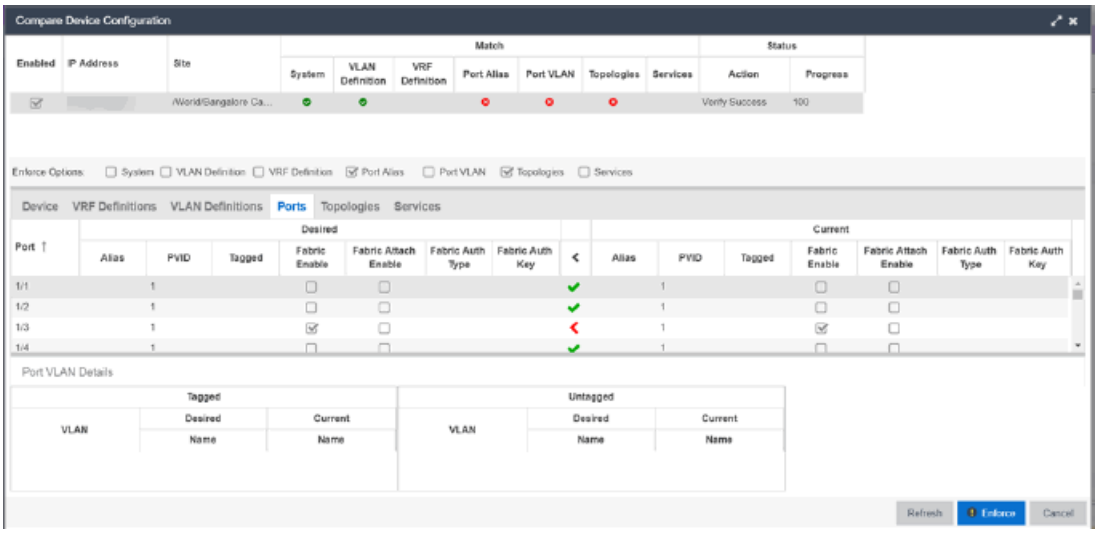
2. The **Compare Device** window opens.



3. Click the VLAN Definition Enforce Option.
4. Click **Enforce**.

Enforcing Fabric Port

1. Click **Enforce Preview** on the **Ports** tab in the **Configure Device** window.
2. The **Compare Device** window opens.



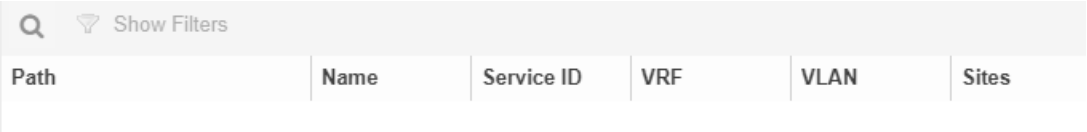
3. Click the Ports Enforce Option.
4. Click **Enforce**.

Related Information

- Services
- Fabric
- Sites
- Devices

Service Summary

The Service Summary tab displays a summary of the fabric services you create and the sites to which they are assigned.



Path
The path to the Service Application in which the service is located.

Name
The name of the fabric service included in the service application or definition.

Service ID
The I-SID, which is the system-defined ID number assigned to the service.

VRF
The ID number assigned to the VRF definition.

VLAN
The ID number assigned to the VLAN.

Sites
The site to which the fabric service is assigned.

Related Information

For information on related topics:

- Services
- Fabric
- Sites

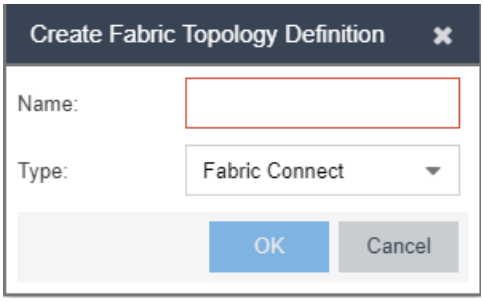
How to Create a Fabric Topology Definition

You can create a Topology Definition and a LAG (link aggregation group) Topology Definition on the **Sites** tab in Extreme Management Center. Once you create topology definitions, you can add them to sites in your network to build a fabric topology map.

Create a Topology Definition

To create a topology definition:

1. Access the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Navigate to **Topology Definitions** in the left-panel tree.
4. Right-click **Topology Definitions**.
5. Click **Create Topology Definition**.



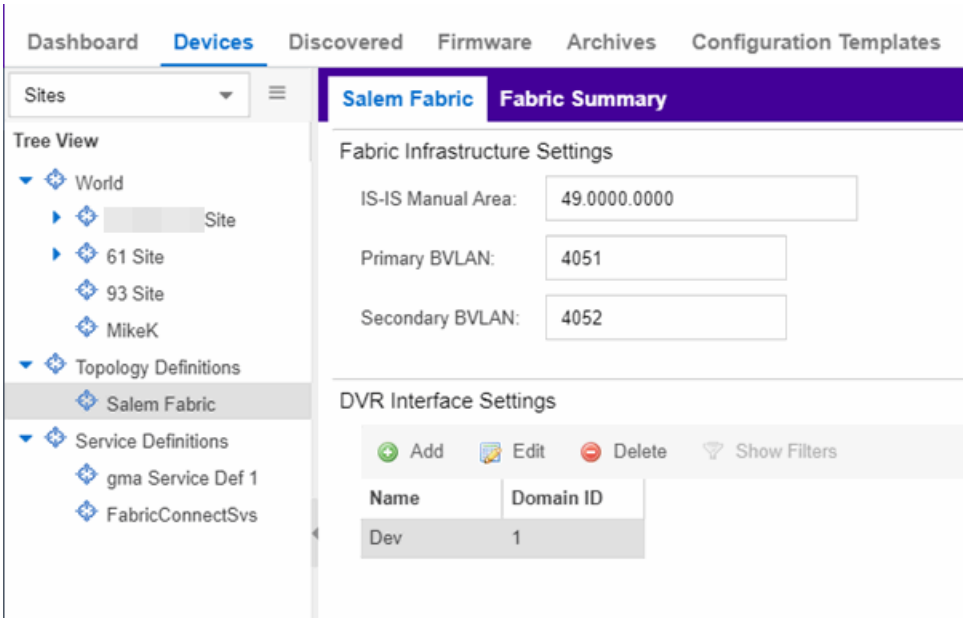
   The **Create Topology Definition** window opens.
6. Enter a name in the **Name** field.
7. Select **Fabric Connect** from the **Fabric Type** drop-down.
8. Click **OK** to create the topology definition.

Configure a Topology Definition

Once the topology definition is created, it is available in the Sites tab left-panel tree. Click it to open a new right panel that includes the Fabric Name tab and a Fabric Summary tab.

Fabric Name Tab

Use the **Fabric Name** tab to configure the topology definition.



To configure the topology definition:

1. Enter the IS-IS Manual Area. Use a xx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx format (1-13 bytes).
2. Enter the Primary Backbone VLAN (BVLAN).
3. Enter the **Secondary BVLAN**.
4. Click the **Add** button (Add) in the DVR Interface Settings section.
5. Enter a DVR Domain name in the **Name** Field.
6. Enter an ID number in the **Domain ID** field.
7. Click **Update**.
8. Click **Save**

Once the topology definition is created and configured, you can apply it to a site within your network. Once fabric topologies have been assigned to a site, they cannot be deleted.

Fabric Summary tab

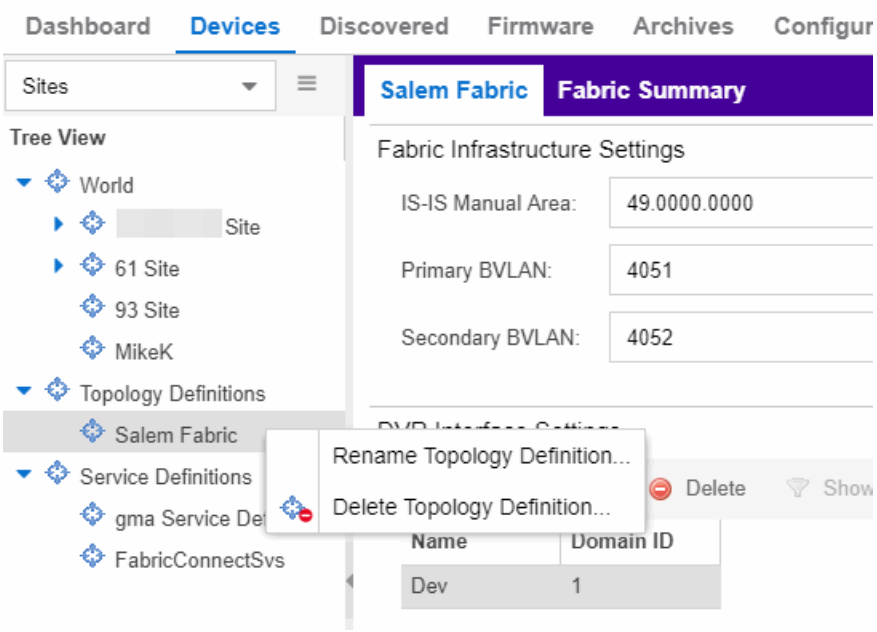
The Fabric Summary tab lists any fabric topologies you have created and the sites to which they are assigned.

Rename a Topology Definition

Once a topology definition has been created and configured, you can change or modify its name.

To rename a topology definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Expand **Topology Definitions** in the left-panel.
4. Right-click the topology definition you are renaming.



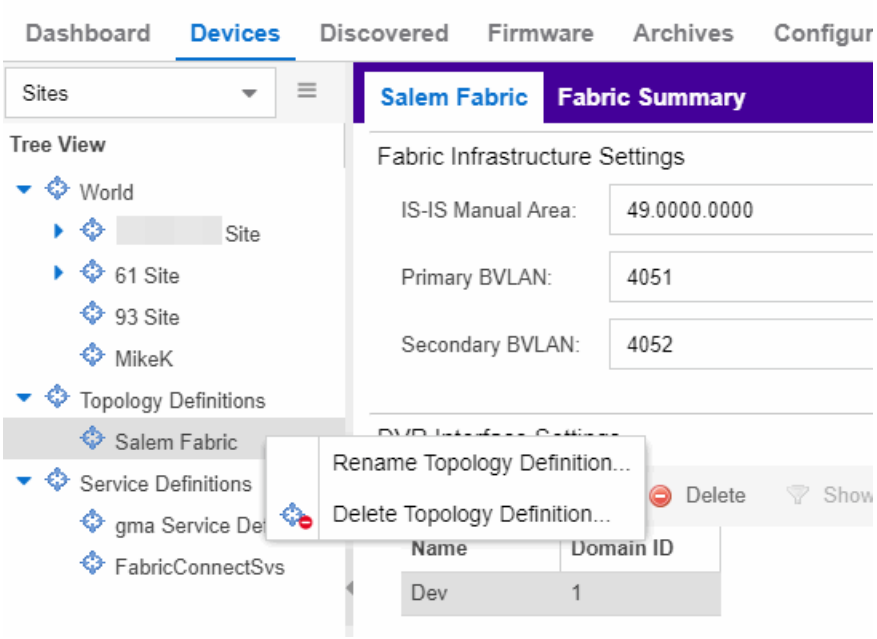
5. Click **Rename Topology Definition**.
6. Enter a new name in the **Name** field.
7. Click **OK** to change the topology name.

Delete a Topology Definition

Once a topology definition has been created and configured, you can delete it; however, a topology definition cannot be deleted once it has been assigned to a site.

To delete a topology definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel tree drop-down list.
3. Expand the **Topology Definitions** in the left-panel.
4. Right-click the topology definition you are deleting.



5. Click **Delete Topology Definition**.
6. Click **Yes** to delete the topology definition you selected.

Related Information

For information on related topics:

- Services
- Fabric

- Sites
- Devices

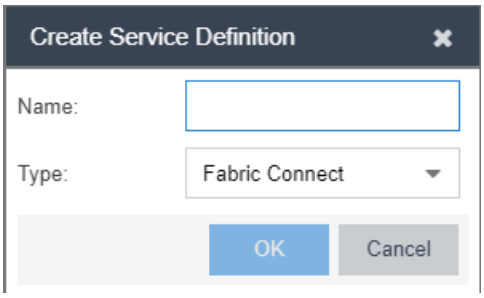
How to Create a Fabric Service Definition

You can create a service definition in the **Sites tab** in Extreme Management Center. Service definitions display information configured in service applications definitions. Once created, service definitions are added to sites in your network and are used to build a fabric topology map.

Create a Service Definition

To create a service definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Select **Service Definitions** in the left-panel.
4. Right-click **Service Definitions**.
5. Click **Create Service Definition**.



   The **Create Service Definition** window opens.
6. Enter a name in the **Name** field.
7. Select **Fabric Connect** from the **Type** drop-down list.
8. Click **OK** to create the service definition.

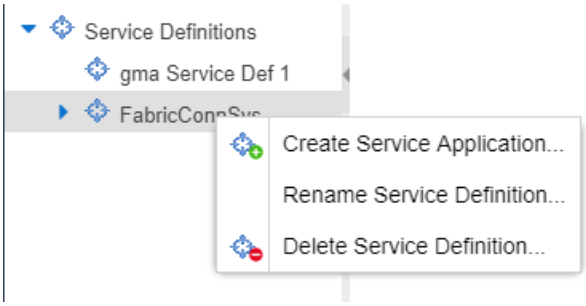
Once the service definition is created and configured, you can apply it to a site within your network. Once fabric services have been assigned to a site, they cannot be deleted.

Service Definition Panel

Once the service definition is created, it is available in the left-panel tree. Click it to open a new right panel that includes a Services tab and a Service Summary tab.

Rename a Service Definition

Once a service definition has been created and configured, you can change or modify its name.

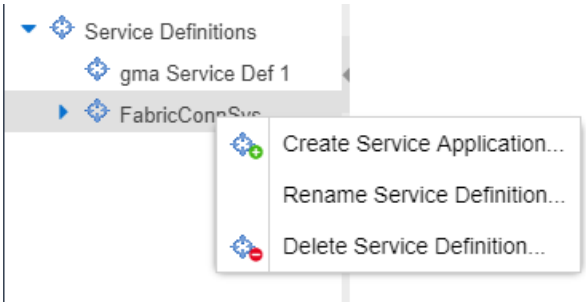


To rename a service definition:

1. Open the Devices tab.
2. Select Sites from the left-panel tree drop-down list.
3. Expand Service Definitions in the left-panel.
4. Right-click the service definition you are renaming.
5. Click Rename Service Definition.
6. Enter a new name in the Name field.
7. Click OK to rename the service definition.

Delete a Service Definition

Once a service definition has been created and configured, you can delete it; however, a service definition or any of its associated service applications cannot be deleted once it has been assigned to a site.



To delete a service definition:

1. Open the **Devices** tab.
2. Select **Sites** from the left-panel drop-down list.
3. Expand **Service Definitions** in the left-panel.
4. Right-click the service definition you are deleting.
5. Click **Delete Service Definition**.
6. Click **Yes** to delete a service definition.

Related Information

For information on related topics:

- Services
- Fabric
- Sites
- Devices

Upgrading Fabric Manager

Use the following procedure to upgrade your version Fabric Manager.

Prerequisites

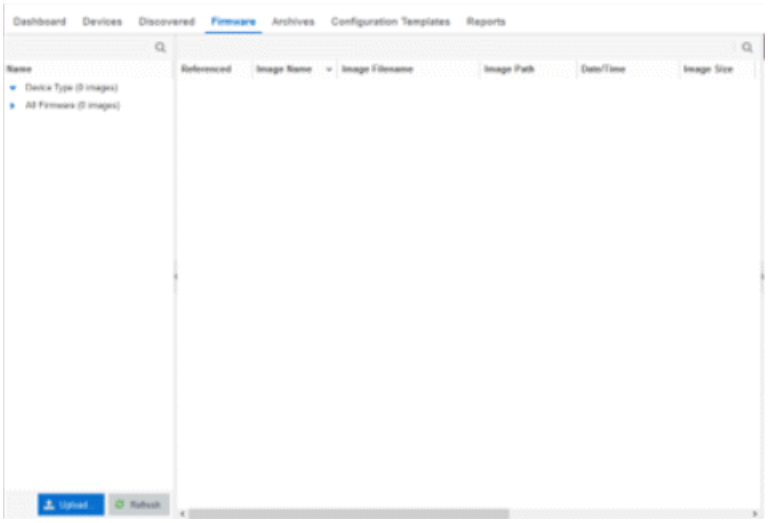
- Upgrade Extreme Management Center to the later version before you upgrade Fabric Manager to the corresponding build number.

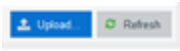
- Ensure that both the current and target Extreme Management Center and Fabric Manager build numbers are the same.
- Download the latest upgrade bundle from the Extreme Networks software download Portal.
- Change Login Information from Anonymous to appropriate SCP credentials in the SCP Server Properties section in the Administration > Options > Inventory Manager > File Transfer tab.

NOTE: After you deploy Fabric Manager and then register with Extreme Management Center, only the user credential associated with the Fabric Manager profile has SSH login access.

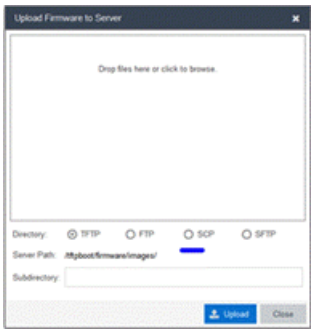
Upgrade Procedure

1. Open the Network tab in Extreme Management Center.
2. Click the Firmware tab.

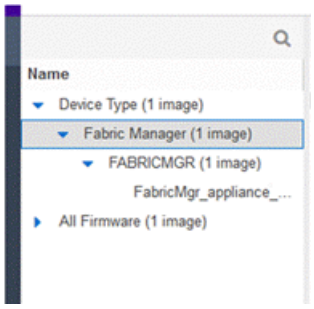


3. On the left panel, click Upload 

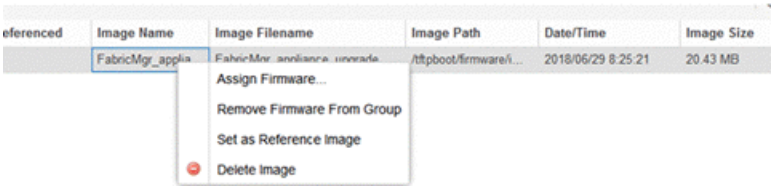
.
4. In the Directory field, select the SCP radio button and click Upload.



5. Click on **Drop files here or click to browse** and select the previously downloaded upgrade bundle.
6. Click the **Upload** button to initiate the bundle upload to the Extreme Management Center server.
   Once the upload is completed successfully, if not previously added after clicking on the **Refresh** button, a new entry appears under Device Type called Fabric Manager.

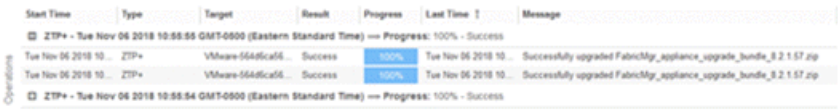


7. Navigate through the newly added Device type until you see the bundle image listed.
8. Right click on the bundle listed on the main panel and click on **Set as Reference Image**.

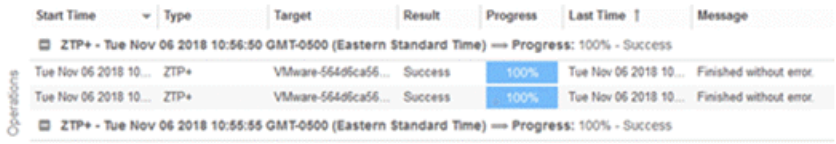


This step sets this image bundle as the Reference upgrade image for Fabric Manager. The upgrade process to get triggered by default can take **up to five minutes** depending on the poll interval set on Extreme Management Center.

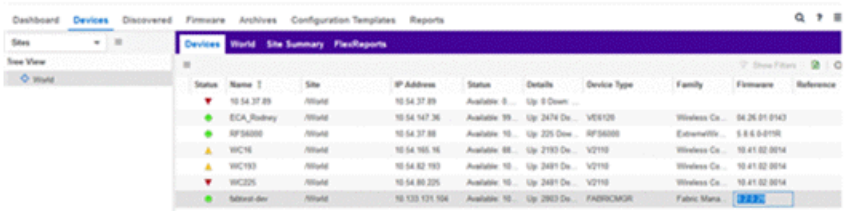
9. Open the **Operations** log on Extreme Management Center and wait until a log of type 'ZTP+' with the message `Successfully upgraded FabricMgr_appliance_upgrade_bundle_<version_number>.zip` appears.



This is followed by a message `Finished without error` to indicate the upgrade operation has been completed by the ZTP+.



10. When the upgrade is complete, the details on Fabric Manager are updated to the latest version.



Post Upgrade Steps

1. Ensure that the same user credential associated with the Fabric Manager profile has SSH login access.
2. Navigate to the previously added and referenced upgrade image and un-reference it by right clicking on the bundle and then clicking **Unset as Reference Image**.

Related Information

- Extreme Management Center Fabric
- Fabric Connect

Troubleshooting

This troubleshooting guide provides a list of items to check when Extreme Management Center functionality is failing to perform correctly. Locate a problem in the left column and then review the troubleshooting information in the right column.

Problem	Troubleshooting Steps
Error contacting a wireless controller. The controller shows a Warning icon. 	1. Verify that the Configuration password in the CLI Credential used for this device is properly configured. a. From Extreme Management Center, access **Administration** > **Profiles** tab. b. Select the **CLI Credentials** subtab. c. Select the CLI Credential being used by the controller's Profile, and click **Edit**. d. Verify the user name and password used in the credential. For wireless controllers, add the Login password to the Configuration password field instead of the Login password field. The username and Configuration password specified here must match the username and Login password configured on the controller. e. Verify the SSH connection type is selected. f. Click **OK**. g. Use this CLI Credential in the controller's Profile. **NOTE:** When configuring profiles for ExtremeWireless Controllers, you must ensure that controllers are discovered using an SNMPv2c or SNMPv3 profile. The profile must also contain SSH CLI credentials for the controller. Wireless Manager uses the controller's CLI to retrieve required information and to configure managed controllers. 2. Verify that the following ports are accessible through firewalls for the Extreme Management Center Server and Wireless Controllers to communicate: SSH: 22 SNMP: 161, 162 Langley: 20506