Cisco SD-WAN Service Setup Tasks (Final Draft - Cisco Internal)

Revised: February 14, 2022

Postdeployment Tasks for SD-WAN Control Plane

This section details various tasks that must be performed after attaching or creating the Control Plane (vManage) on MSX for Cisco SD-WAN.

Table 1: Post Control Plane Deployment Tasks

Task	Description	Reference
1. Log in to the SD-WAN Control Plane	Log in to the Control Plane from MSX Portal or using the URL sent in an email after the control plane is created.	For more information, see Logging in to the Cisco SD-WAN Control Plane.
2. Create a new user on the Control Plane.	Create an additional user as soon as the Control Plane is set up.	For more information, see Creating a New User on the Control Plane.
3. Update Smart Account details on the Control Plane.	Update the smart account credentials including the certificate retrieval interval and validity period.	For more information, see Updating Smart Account Details.
4. Generate the PKI certificates.	Generate PKI certificates for all controllers on the Control Plane.	For more information, see Generating PKI Certificates on the Control Plane.
5. Synchronize your Smart Account (SA) to get the device details associated with your smart account on the control plane.	Synchronize your SA to upload the device list on your Control Plane.	For more information, see Synchronizing Smart Accounts from the Control Plane.
6. (Optional) Manage SSL certificates.	Generate and upload the SSL certificate after changing the domain name of the Control Plane.	For more information, see Managing SSL Certificates.
7. (Optional) Enable Single-Sign On for Cisco MSX	Enable Single-Sign On for Cisco MSX with SD-WAN Control Plane on both AWS and OpenStack.	For information on configuring SSO, see the Configuring Single Sign-On.
8. Add Device templates on the Control Plane.	• Use out-of-the-box device templates available within MSX. OR • Import the device templates that are already available within the particular tenant's Control Plane into MSX.	For more information, see Importing and Exporting Cisco SD-WAN Device Template.
9. Add tenant source IP address to the Control Planes.	To allow MSX tenant users to access the control plane, add tenant users IP subnet to the allowed list on SD-WAN Orchestration Stack for HTTPS/443 port. To add the tenant subnet to the allowed list, contact Cisco TAC.	--

Logging in to the Cisco SD-WAN Control Plane

SD-WAN Control Plane web interface access is required for:

- Upgrading control and management components (vManage, vSmart, vBond)
- Upgrading data plane components (vEdges)

You can access SD-WAN Control Plane web interface in one of the following ways:

- Access Control Plane using the URL: The URL is sent through email that was provided during the control plane creation process. This email is sent after the Control Plane is created.

  https://<vManage server-ip>

  Where :

  <vManage server-ip>: Is the IP address or fully qualified domain name (FQDN) name of the SD-WAN Control Plane server.

- Access Control Plane from the MSX Portal: If the SSO is enabled between MSX and SD-WAN Control Plane, you can directly access the Control Plane by clicking the View Control Plane Portal option on the MSX SD-WAN home page > Control Plane Status window.

Note Use the default admin user and the system-generated password to login to the Control Plane web interface. You can view this password by editing the control plane details. For more information, see Editing an SD-WAN Control Plane.

Creating a New User on the Control Plane

A user, including admin, can be locked out from the Control Plane web interface after several failed attempts, so as a best practice, Cisco recommends creating an additional user as soon as the Control Plane is set up.

Procedure

Step 1 Log in to the SD-WAN Control Plane web interface as the admin user. For more information, see Logging in to the Cisco SD-WAN Control Plane.

Step 2 Create an additional user with netadmin user role privilege on the Control Plane. For more information on creating users on the control plane, see Cisco SD-WAN Documentation.

Note Use quotes when creating passwords with special characters. For example: “Password!234”.

Step 3 Verify the newly created user can successfully login.

What to do next

To use the new username and password for accessing the Control Plane web interface, do the following:

- Change the passwords for SD-WAN controllers (vBond and vSmart) from the Control Plane console. For more information, see Change SD-WAN Controllers Password.
- Optionally, edit the control plane details from the MSX Portal. For more information, see Editing an SD-WAN Control Plane.

Updating Smart Account Details

Use this procedure to configure the smart account details such as smart account username, password, certificate validity period, and so on.

Procedure

Step 1 Log in to the SD-WAN Control Plane web interface. For more information, see Logging in to the Cisco SD-WAN Control Plane.

Step 2 In SD-WAN Control Plane console, choose Administration > Settings.

Step 3 Under the Controller Certificate Authorization section, do the following:

- Select the certificate signing authority.
- Set the validity period you want the certificate to be valid for.
- Set the certificate retrieval interval.

Step 4 Under the Smart Account Credentials section, edit the username and password.

Step 5 Click Save.

Generating PKI Certificates on the Control Plane

Use this procedure to generate the certificates for all controllers on the Control Plane.

Before you begin

Configuring Smart Account details. For more information, see Updating Smart Account Details.

Procedure

Step 1 Log in to Cisco SD-WAN Control Plane web interface. For more information, see Logging in to the Cisco SD-WAN Control Plane.

Step 2 In SD-WAN Control Plane web interface, choose Configuration > Certificates. The Configure | Certificates screen appears.

Step 3 In the Controllers tab, the list of controllers will be shown with a Public IP and “No certificate installed” in the Certificate Serial column. Click on the ellipsis (...) and click Generate CSR.

Note First generate the CSRs for vManage, then vBonds, and finally the vSmarts.

After a few seconds, a confirmation message is displayed with the IP of the corresponding device. The operation status of the vManage is changed to 'vBond Updated' after the certificate signing is completed, and the Certificate Serial field is populated with a string.

Step 4 Repeat the previous step for generating CSR for vBond and vSmart controllers.

The signed certificates are securely pulled from the PnP portal and installed. Once this process is complete, all the controller spinners turn green in the MSX Portal, indicating that all controllers are up without any alarms. For more information on viewing control plane status in the MSX Portal, see Monitoring SD-WAN Control Plane Status.

What to do next

Synchronize your Smart Account to upload the device list on your Control Plane. For more information, see Synchronizing Smart Accounts from the Control Plane.

Synchronizing Smart Accounts from the Control Plane

After the Control Plane instances are created, you can sync your Smart Accounts from the SD-WAN Control Plane Portal to download the device list information for device onboarding.

Note Ensure the devices are associated with the virtual account before synchronizing the details into the Control Plane.

To download device list on tenant's Control Plane:

Procedure

Step 1 Log in to Cisco SD-WAN Control Plane (vManage). For more information, see Logging in to the Cisco SD-WAN Control Plane.

Step 2 In vManage Portal, choose Configuration > Devices.The Configure | Devices screen appears.

Step 3 Enter the username and password information for the Control Plane Overlay.

Step 4 Under the WAN Edge List, choose Sync Smart Account > Sync.

All devices assigned to this virtual account will appear under the WAN Edge List tab.

Managing SSL Certificates

Use this procedure to generate and upload the SSL certificate after changing the domain name of the Control Plane.

Procedure

Step 1 Generate a web SSL certificate for your domain name and upload it on the Control Plane (vManage). For more information, see the ***Cisco SD-WAN documentation***, or contact Cisco Technical Assistant Centre (TAC).

Note Ensure the new domain name points to the MSX-generated domain name of the control plane.

Step 2 Edit the control plane details from the MSX Portal to use the new URL of the Control Plane. For more information, see Editing an SD-WAN Control Plane.

Change SD-WAN Controllers Password

After creating a new user with netadmin privilege on the Control Plane, use this procedure only if you want the controllers to use the new credential.

Before you begin

Generate the certificates and ensure the controllers are configured.

Procedure

Step 1 Log in to the SD-WAN Control Plane console as the admin user. For more information, see Logging in to the Cisco SD-WAN Control Plane.

Step 2 In SD-WAN Control Plane console, click Tools > SSH Terminal.

Step 3 SSH to one of the controller.

All the controllers associated with your smart account appears in the Controllers tab. Access your controllers using the IP addresses listed in the Controllers window.

Step 4 Use the following command to change the password of a controller:

```
conf
system aaa user MyNewUsername password MyNewPassword
group netadmin
commit
end
```

Step 5 Repeat Step 3 and 4 for other controllers.

Step 6 Verify that you can login to each of these controllers with the newly created username and password.

Importing and Exporting Cisco SD-WAN Device Template

For running the Cisco SD-WAN-managed devices in an overlay network, you must apply appropriate network topologies and configurations. These configurations can be applied to a device using device template. These device templates must be created on vManage every time a new Cisco SD-WAN system is set up for a new tenant. For more information on how to create the device templates, see Cisco SD-WAN documentation.

To avoid creating a new device template on vManage system, every time a new tenant is onboarded, you can do one of the following through Cisco MSX:

- Use out-of-the-box device templates provided in MSX. There are seven out-of-the-box device templates, which you can modify as per your requirements. Export these out-of-the-box device templates to your tenant's control plane and use them as it is or modify them as per your requirements. For details on attributes available in each of these templates, see Out-of-the-Box Cisco SD-WAN Device Templates Available Within MSX.

- Use a tenant's device templates. If you want to use the device templates that are already created within the particular tenant's Cisco SD-WAN control plane, the import functionality in Cisco MSX allows you to import these templates into the centralized Cisco MSX library. After the import, you can push these templates to the new tenant's SD-WAN control plane.

Import and Export of Device Templates Containing Security Policies

MSX also supports the import and export of the device templates that contain security policies. MSX supports the following security policies:

- URL Filtering

- Intrusion Protection Service (IPS)

- Advanced Malware Protection (AMP)

The following are the limitations of importing and exporting device templates that include security policies:

- If the device template consists of security policy other than the supported policies, then the import process would fail.

  The version of the control plane where you plan to export the device template (For example: 20.3.2) must be the same or later than the version of the control plane from where you originally imported it (For example: 19.2.3).

  Note Exporting device template to an older version of the control plane might result in failure if some of the feature templates are not supported on the older control plane.

- While exporting the device templates, you might notice the following behaviour:
  - During validation, if there is a connectivity or control plane issue, the export process may be interrupted, and the security policies are not created. In such scenario, export the device templates again.
  - During export, if there is a connectivity or control plane issue, the export process may be interrupted, and some security policies are not created. In such scenario, consider exporting the device template again. Only the missing policies from the previous export are created.

- Cisco MSX does not import or export the Threat Grid API key associated with the AMP security policy. For the AMP security policy to work successfully, enter a valid key in the destination control plane. For more information, see "Configure Threat Grid API Key" section in the "Advanced Malware Protection" chapter of the Cisco SD-WAN Security Configuration Guide.

For information on Cisco platform that supports SD-WAN security, see Cisco SD-WAN documentation.

To import and export the device templates, see the procedures below.

Importing Device Templates from a Tenant Cisco SD-WAN System to the MSX Library

Before You Begin

- Subscribe to the SD-WAN service for a specific tenant, set up a Control Plane, and ensure that the Control plane is up and running. For more information, see Setting Up Control Plane for Cisco SD-WAN.
- Ensure that the device templates are available on vManage . For more information on creating device templates on vManage, see Cisco SD-WAN documentation.
- Use Tenant Admin role or create or edit an existing role with the permissions listed below and then assign the role to a user. To create or modify a new role, from the MSX main menu, click Roles > Add Roles or edit role option (Edit icon), and assign the following permissions to the roles:
  - From the Services, Configurations, and Devices category, assign the following permissions:
    - Service Configurations (View/Manage)
    - Service Configuration Assignments (View/Manage)
    - Service Configuration Audit (View)
  - From the Users, Roles, and Tenants category, assign the 'All Tenants' permission.
  - From the Bulk Import Sites/Devices/Tenants/Users category, assign Bulk Import (Manage) permission.

Note For the Tenant Admin role or any new role, it is necessary to apply the Bulk Import (Manage) permission for the device template functionality.

To import the existing device templates from SD-WAN vManage to the MSX Library:

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left hand pane, choose Settings > Template Management.

Step 3 Select the SD-WAN tile to display the Template Management window.

Step 4 To import a device template into the MSX library:

a) On the Template Management window, click the + icon to display the Template Import Wizard.
b) Click > and select a tenant from the drop-down list from where the template has to be imported.
c) Click >. The window displays the list of available templates for the selected tenant.
d) Select a template and click > to start the import process.
e) Track the progress in the Template Activity window. You can access the Template Activity screen in one of the following ways:

   - During the import process, click View Template Activity option from the Import window.
   - After the import process, click the History icon from the SD-WAN Template Management window.

   If the import process fails, hover the mouse pointer over the failed status on the Template Activity window to view detailed information.

   You can also delete a template by selecting a template you want to delete, and click (...)> Delete option.

Exporting Device Templates from the MSX Library to a Tenant Cisco SD-WAN System

To reuse an existing device template from one tenant system to another tenant, you must first import these templates into MSX. After the import, you can select the templates from the MSX library and export it to another tenant's system.

Before You Begin

1. Ensure that the device templates are available in the MSX library. If there are no templates available, import the templates from an existing tenant's SD-WAN system (vManage) to the MSX library. For more information, see Importing Device Templates from a Tenant Cisco SD-WAN System to the MSX Library.

2. Use Tenant Admin role or create or edit an existing role with the permissions listed below and then assign the role to a user. To create/modify a new role, from the MSX main menu, click Roles > Add Roles or edit role option (Edit icon), and assign the following permissions to the role from the Services, Configurations, and Devices category.

   - Service Configurations (View/Manage)
   - Service Configuration Assignments (View/Manage)
   - Service Configuration Audit (View)

- From the Bulk Import Sites/Devices/Tenants/Users category, assign Bulk Import (Manage) permission.

Note For the Tenant Admin role or any new role, it is necessary to apply the Bulk Import (Manage) permission for the device template functionality.

Use the below procedure to push the device templates available in the MSX library to the new tenant's SD-WAN control plane.

Procedure

Step 1 Log in to the Cisco MSX portal.

Step 2 From the left hand pane, choose Settings > Template Management.

Step 3 Select the SD-WAN tile to see the list of available templates on the Template Management window. The SD-WAN Template Management window lists templates that are currently available in the MSX library. If you do not see any templates on this screen, first import templates into MSX library. See the procedure Importing Device Templates from a Tenant Cisco SD-WAN System to the MSX Library.

Step 4 Select one or more templates and click (…) > Assign Tenants option to display the wizard.

- You can also expand the template, and click Assign Tenants option to display the wizard.
- You can do a bulk export of the device templates from the MSX Library to a new tenant’s SD-WAN system by selecting all the templates, and click (...)> Assign Tenants option.

Step 5 Choose one or more tenants from the drop-down list and click > to start the export process.

Step 6 Click Confirm Assignment to save and apply the changes.

Step 7 Track the progress in the Template Activity window. You can access the Template Activity window in one of the following ways:

- During the export process, click View Template Activity option from the Begin Assignment window.
- After the export process, click the History icon to track the status from the SD-WAN Template Management window.

If the export process fails, hover the mouse pointer over the failed status on the Template Activity window to view detailed information.

Deleting or Unassigning a Template Assigned to a Tenant:

You can delete or unassign one or more templates assigned to a tenant using the following Service Configuration Assignment APIs:

a. GET /api/v1/serviceconfigurations/assign/all : Use this API to determine the ID for Template Name and the Tenant Name you want to unassign. From the JSON response, search for the Service Config name and assignedTenantName that match to your template name and tenant name. Get the serviceConfigId and assignedTenantId.

b. DELETE /api/v1/serviceconfigurations/assign/{serviceConfigId}: Use this API to unassign tenant from service configuration. Enter the serviceConfigId and assignedTenantId that was from the payload in the previous step.

For more information on these APIs, refer the Swagger documentation that can be accessed from MSX portal > Account Settings > Swagger > Service Configuration Microservice API.

Deploying a Device for Cisco SD-WAN

Deploying a device on Cisco SD-WAN is a two-step process.

Procedure

	Command or Action	Purpose
Step 1	Adding a Device (vEdge Cloud or vEdge SP Cloud).	For more information, see one of the procedures: • Adding a vEdge Cloud Device • Adding a vEdge SP Cloud Device
Step 2	Provisioning a Device (vEdge Cloud or vEdge SP Cloud).	For more information, see Provisioning a Device. • If you have mulitple sites, you can use bulk import option in MSX to import their details into MSX and provision one device at a time. For more information, see Importing Multiple Site Data from Cisco SD-WAN into MSX. • If you have to provision a physical vEdges or IOS XE, see Adding a Physical Device.

Adding a vEdge Cloud Device

Before You Begin

The following is the list of prerequisites for this task:

- A tenant and a tenant user is created, see Managing Tenants and Managing User Roles.
- Subscribe SD-WAN service and set up a Control Plane for the tenant. Control plane should be up and running. For more information, see Setting Up Control Plane for Cisco SD-WAN.
- Under SD-WAN Service category, select SD-WAN Data Plane manage permission to allow a user to provision a device.

The service chain template is defined and is available for the tenant user, see Managing Cisco SD-WAN vEdge Cloud TDE Templates.

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left hand pane, click Tenant Workspace > Services.

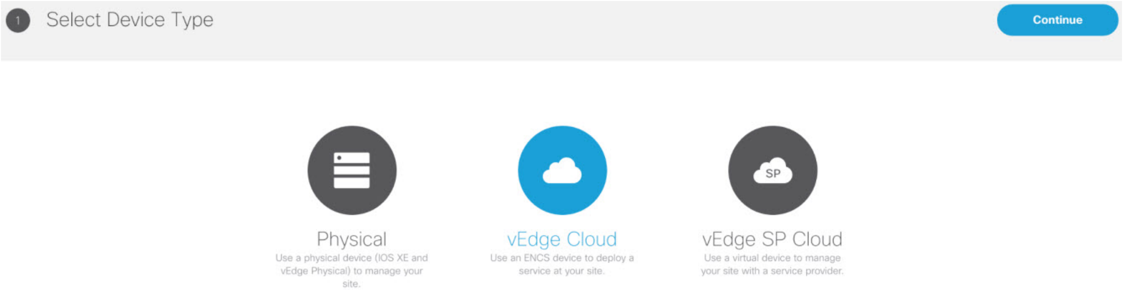
Step 3 In the SD-WAN service panel, click the + icon and click Add Device.

The SD-WAN home page appears and displays the device summary page for the selected tenant.

Step 4 Click Add Device. The figure below shows the add device information for single link and dual link cloud.

Note The Add Device button is enabled only if the control plane is provisioned for the tenant and tenant has SD-WAN Data Plane permission enabled, see Setting Up Control Plane for Cisco SD-WAN.

Figure 1: Selecting the Device Type



Use a physical device (IOS XE and vEdge Physical) to manage your site.

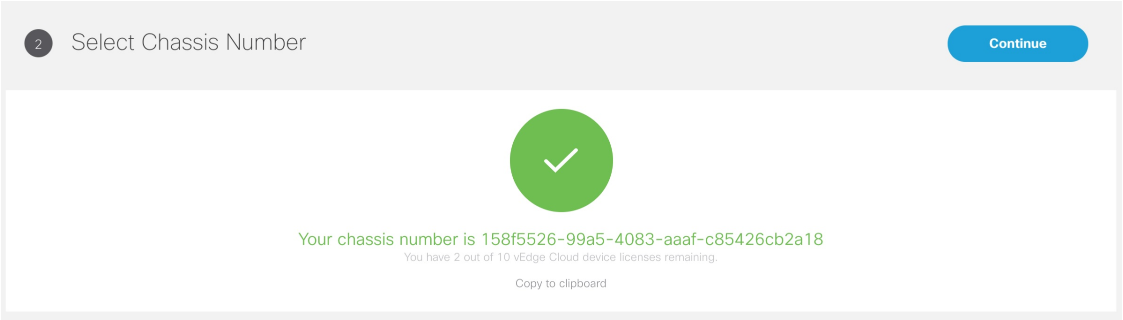
Use an ENCS device to deploy a service at your site.

Use a virtual device to manage your site with a service provider.

Step 5 Select vEdge Cloud to provision the vEdge cloud device.

Step 6 Click Continue. The chassis ID is pre-filled based on availability. If no chassis ID is available, then an error message is displayed.

Figure 2: Selecting the Chassis Number



Your chassis number is 158f5526-99a5-4083-aaaf-c85426cb2a18

You have 2 out of 10 vEdge Cloud device licenses remaining.

Step 7 Review the vEdge device chassis ID and click Continue.

Note The chassis ID is prepopulated based on the devices allowed list that was uploaded in the control plane associated to your smart account. For more information, see Synchronizing Smart Accounts from the Control Plane.

Step 8 Enter the location of the device, map coordinates, and the support details.

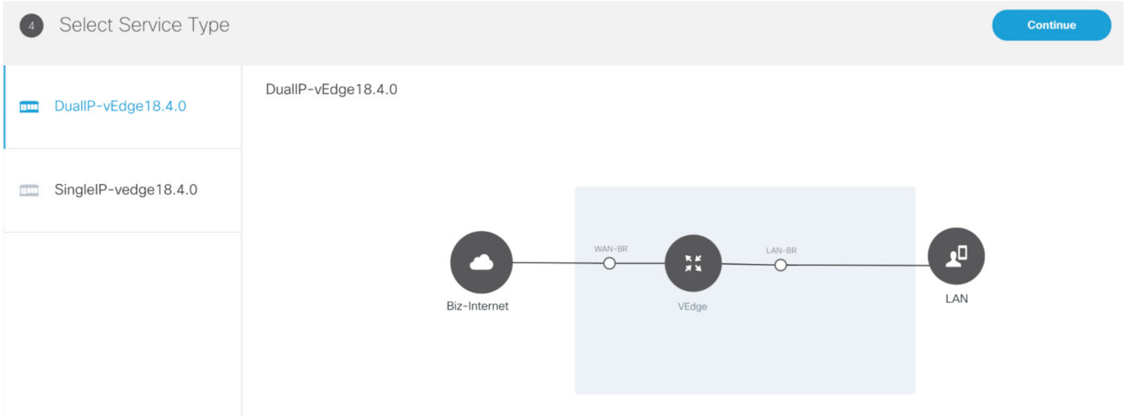
Step 9 Click Continue.

Step 10 Select a service topology. Choose single or dual link topology that you want to deploy. vEdge templates visible in this screen is assigned to a tenant through SD-Branch template setting.

Note
- The SingleIP template supports only singleIP onboarding, that is, only a single IP is used by ENCS for deployment.
- The DualIP template supports dualIP onboarding, that is, two IPs are used by ENCS for deployment with or without a secure tunnel.

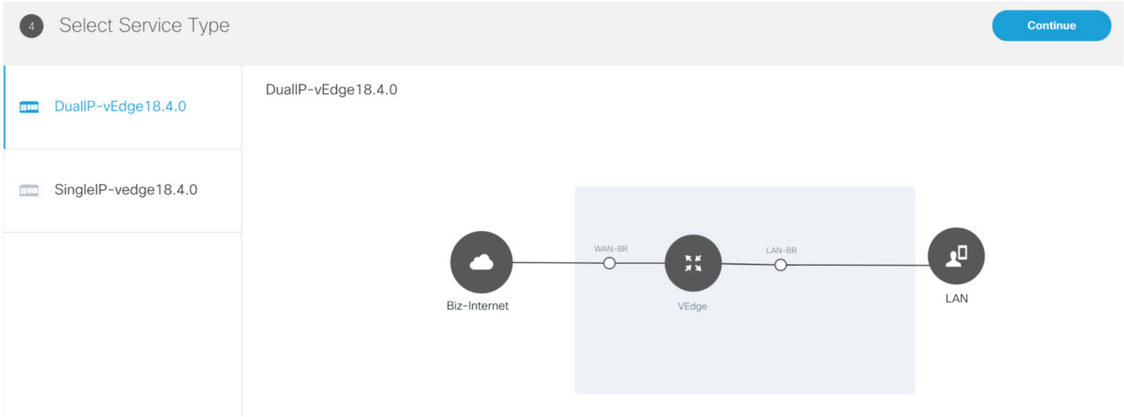
These onboarding types are described in the Step 15.

Figure 3: Selecting the Service Type



Step 11 Click Continue and enter values for the selected template.

Figure 4: Entering the Service Details



Note If you are using the templates from DevNet without customizations, the OTP, Organization, UUID, and VBOND fields are pre-filled for the site. If the names of TDE variables are customized, you must enter these manually.

Cisco MSX system does not validate these manually edited fields and may throw errors later during the Add device flow if the values are incorrect. To get the correct values for these fields, access the Control Plane (vManage) Configuration > Devices page > select a *free* / unassigned vEdge Cloud Device (In Token generated State) > Generate Bootstrap Configuration, and choose Cloud-init option to see the values for the four variables.

Step 12 Continue to Service Infrastructure and select the device type, and the serial number for that device type.

Depending on the service topology selected for your site in Step 14, one of the following onboarding types is shown.

- Single Public IP addresses: Requires only one public WAN IP address that is shared between the NFVIS and VNF. This onboarding type also uses IPsec Tunnel.

Note When using single IP:

- The ENCS's public IP is moved to the vEdge's VPN0 on interface ge0/0 (biz-internet).
- Interface ge0/2 on VPN 2 is configured for NFVIS internal management, which is used by NFVIS to transit the vEdge in order to setup the secure tunnel with Cisco MSX.
- NAT is enabled on VPN 0 for the preceding set up to work.

- 2 Public IP addresses: Requires two public WAN IP addresses, one IP for VNF and one for NFVIS IP. This onboarding type uses IPsec Tunnel.

Note 2 Public IP Addresses and Single Public IP onboarding types require secure tunnel between Cisco MSX and NFVIS. This tunnel is used for all communications from Cisco MSX to the site. If you are selecting these onboarding types, make sure to configure SD-Branch's IP subnet pool for ENCS NFVIS internal management. For more information, see Configuring Subnet Pools. If there are issues establishing VPN tunnel, see IPsec Tunnel Cannot be Established.

- Open Network Policy: Requires two WAN IP addresses for deployment and no IPsec Tunnel support. If the device is deployed behind NAT, the NAT device must support port forwarding. Open the ports to communicate with the Cisco MSX SD-WAN Orchestration system. For information on the Cisco SD-WAN-specific ports required for Cisco MSX SD-WAN Orchestration system, see Cisco SD-WAN document.

Step 13 Click Continue.

Step 14 In the Review Device Order screen review all entries. Review and edit the entires, if necessary.

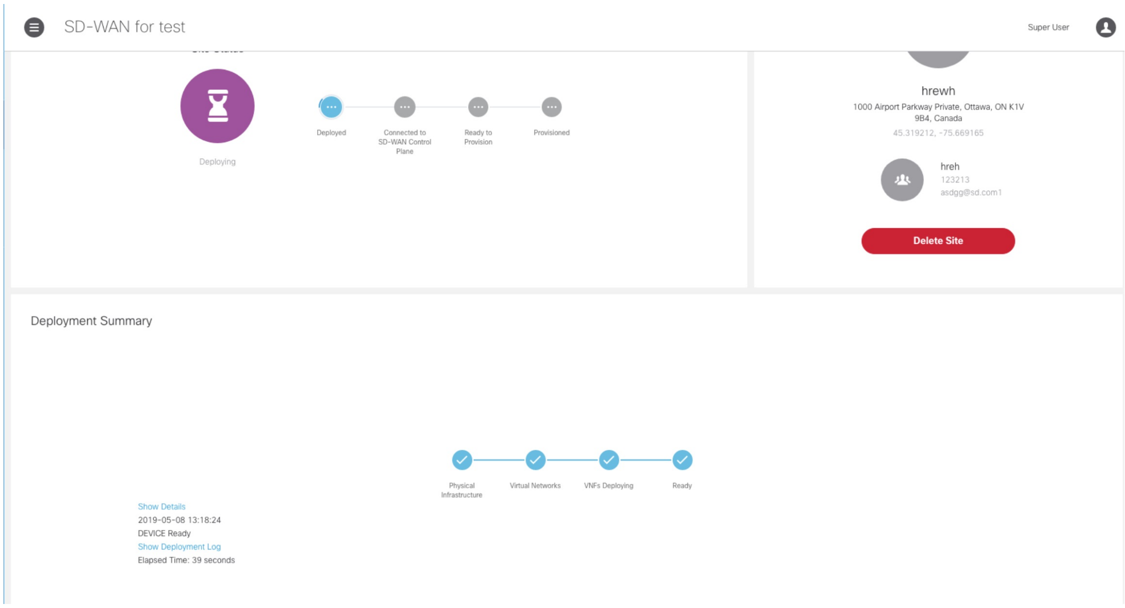
Step 15 Click Submit to display the Device and Deployment Summary on the screen. This screen shows the values that were configured for this device.

The deployment summary is displayed on the screen and disappears once the device is deployed. At this time, you will also see the device that is being deployed on the map for the location you have selected. Status of the device will change its color based on the deployment and connectivity status. To understand statuses of vEdge Cloud deployment, seeDevice Statuses for vEdge Cloud.

Note A tenant cannot create a site using this wizard. To create a site, choose Tenant Workspace > Services/Sites/Devices, click the + icon on the top right corner and select Add Site.

To assign the device to a specific site in Cisco MSX, choose Tenant Workspace > Devices, select the device and click Assign to Site. For more information, see Assigning a Device to a Site.

Figure 5: Deployment Summary



hrewh
1000 Airport Parkway Private, Ottawa, ON K1V 9B4, Canada
45.319212, -75.669165

hreh
123213
asdgg@sd.com1

2019-05-08 13:18:24
DEVICE Ready
Elapsed Time: 39 seconds

What to do next

- Connect the device and set up initial configurations. For more information, see Setting Up Initial Configuration on the ENCS CPE (First-Time Use Only).
- Provision a device to push the configurations to the device. For more information on attaching these templates to the device, see Provisioning a Device.

Setting Up Initial Configuration on the ENCS CPE (First-Time Use Only)

After the order is placed, the SD-WAN service is set up and the ENCS is shipped to your device location by the service provider.

After the device is installed on premises, connect the device to the respective corporate LAN, the PnP management interface, and so on, depending upon the service template you had selected for the service order. The device is identified based on UDI or serial number that was provided for the service during the Add Site flow.

ENCS devices that are shipped to the customer premises have a preconfigured Day-1 configuration. When the device is powered on for the first time, the Day-1 discovery configuration wakes up in the absence of the startup configuration file and attempts to discover the address of the PnP server. The Day -1 configuration uses HTTPS (with Crypt/Cert) to connect to the PnP Server. If you are setting up the ENCS for the first time, there are a few other configuration details that need to be specified for ENCS. Specify the following additional configuration details (first time use only) on the ENCS CPE:

- PNP server IP address
- PNP server port
- Transport as HTTPS
- Upload the cacert.pem file
- DNS Sever or IP address of Cisco MSX

To configure these parameters on individual CPEs:

Procedure

Step 1 Log in to the NFVIS portal for the CPE.

Step 2 In the main menu, choose Host, Plug-n-Play. The Plug-n-Play screen appears.

Step 3 Click Edit.

Step 4 Enter the PNP server IP address.

Step 5 Set the PNP server port to 8443.

Step 6 Select HTTPS for the transport.

Step 7 To upload the cacert.pem file, click the Choose File and select the file.

The certificates (ca.pem and ca-key.pem) are located at /etc/ssl/vms-certs on the Inception and kube-master nodes.

Step 8 Click Save.

Step 9 In the main menu, choose Host, Settings.

Step 10 Enter or update the IP addresses of the DNS servers.

Step 11 Click Save.

Adding a vEdge SP Cloud Device

Before You Begin

The following is the list of prerequisites for this task:

- A tenant and a tenant user is created, see Managing Tenants and Managing User Roles.
- Subscribe SD-WAN service and set up a Control Plane for the tenant. Control plane should be up and running. For more information, see Setting Up Control Plane for Cisco SD-WAN.

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left hand pane, click Tenant Workspace > Services.

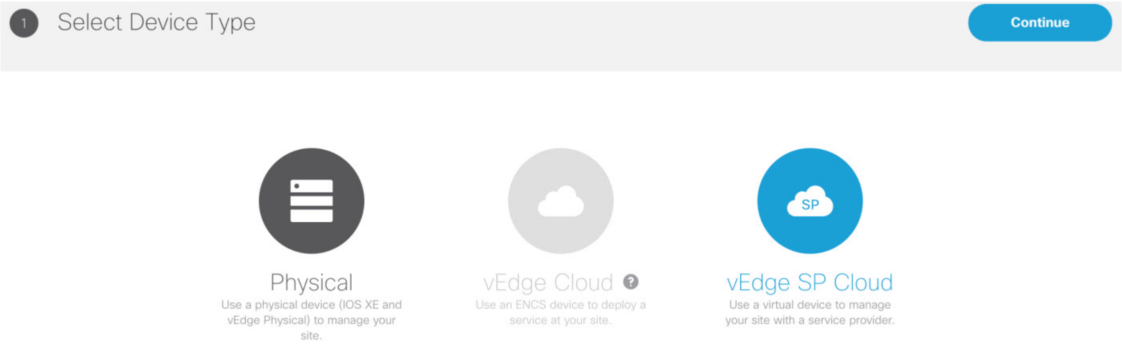
Step 3 In the SD-WAN service panel, click the + icon and click Add Device.

The SD-WAN home page appears and displays the device summary page for the selected tenant.

Step 4 Click Add Device.

Note The Add Device button is enabled only if the control plane is provisioned for the tenant, see Setting Up Control Plane for Cisco SD-WAN.

Figure 6: Selecting the Device Type



Use a physical device (IOS XE and vEdge Physical) to manage your site.

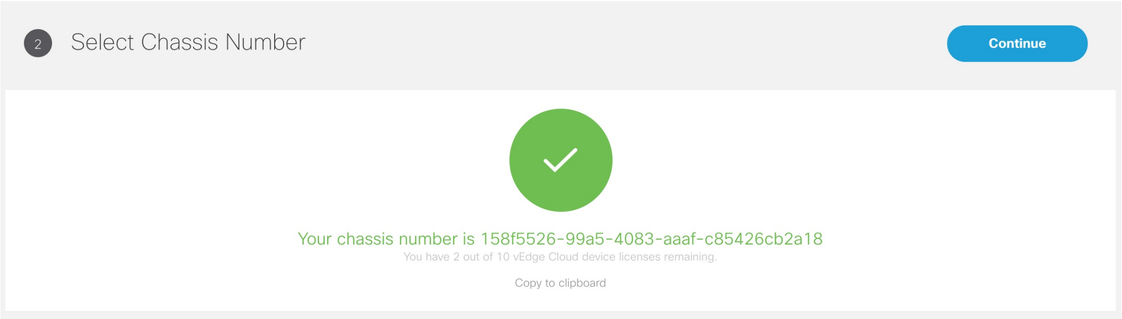
Use an ENCS device to deploy a service at your site.

Use a virtual device to manage your site with a service provider.

Step 5 Select vEdge SP Cloud to provision the vEdge cloud device on the service provider cloud. Click Continue.

Step 6 In the Select Chassis Number section, the chassis ID is pre-filled based on availability. If no chassis ID is available, then an error message is displayed.

Figure 7: Selecting the Chassis Number



Your chassis number is 158f5526-99a5-4083-aaaf-c85426cb2a18

You have 2 out of 10 vEdge Cloud device licenses remaining.

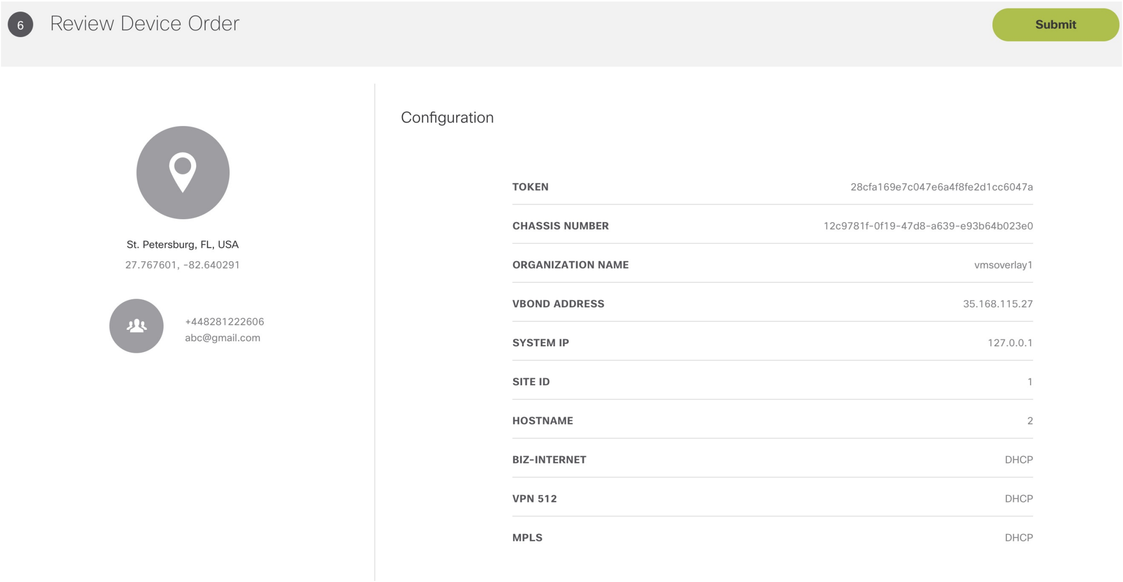
Step 7 Review the vEdge device chassis ID and click Continue.

Step 8 In the Device Information section, enter the location of the device, map coordinates, and the support details. Click Continue.

Step 9 In the Service Details section, enter the information for the fields that can be modified, and click Continue. Select the single link or dual link and based on this selection you can assign static IP to Biz-Internet, VPN 512 and MPLS or go with the default which is DHCP.

> **Note** System IP should be unique in that Control Plane which means two same system IP cannot be chosen for two different sites in the same Control Plane.

Step 10 In the Review Device Order section, review all entries.



St. Petersburg, FL, USA
27.767601, -82.640291

+448281222606
abc@gmail.com

Configuration

TOKEN	28cfa169e7c047e6a4f8fe2d1cc6047a
CHASSIS NUMBER	12c9781f-0f19-47d8-a639-e93b64b023e0
ORGANIZATION NAME	vmsoverlay1
VBOND ADDRESS	35.168.115.27
SYSTEM IP	127.0.0.1
SITE ID	1
HOSTNAME	2
BIZ-INTERNET	DHCP
VPN 512	DHCP
MPLS	DHCP

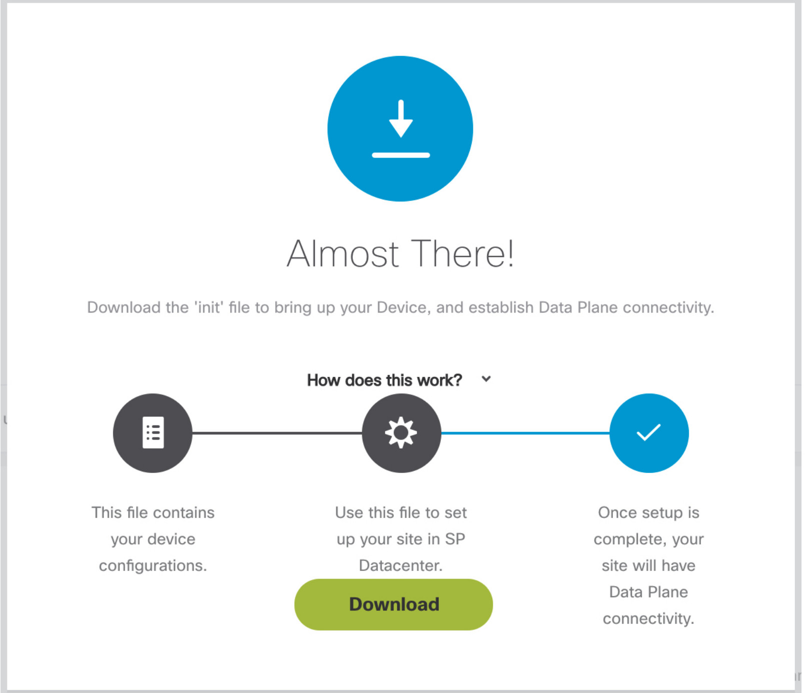
Step 11 To confirm the order, click Submit.

After you click Submit, you will get a pop-up to download the SP Cloud file that is used for the private cloud and can be used to deploy a site.

Step 12 Click Download to download your device config file.

The customer device details are saved in Cisco MSX and the vEdge SP cloud customer device configuration file download option appears. When you download the file, by default this file will be placed in the 'Download' folder. Deploy these configuration files on the vEdge. Ensure you have the vEdge image available on the Service Provider cloud infrastructure. Download the vEdge latest image and vEdge templates here .

Figure 8: Downloading the Device Config File



Almost There!

Download the 'init' file to bring up your Device, and establish Data Plane connectivity.

How does this work?

This file contains your device configurations.

Use this file to set up your site in SP Datacenter.

Once setup is complete, your site will have Data Plane connectivity.

Note A tenant cannot create a site using this wizard. To create a site, choose Tenant Workspace > Services/Sites/Devices, click the + icon on the top right corner and select Add Site.

To assign the device to a specific site in Cisco MSX, choose Tenant Workspace > Devices, select the device and click Assign to Site. For more information, see Assigning a Device to a Site.

After the configuration is deployed and the vEdge is able to connect to SD-WAN Control Plane, you can view the provisioning statuses for vEdge SP Cloud. For more information see Device Statuses for vEdge SP Cloud and External Sites

.

What to do next

- Provision a device to push the configurations to the device. For more information on attaching these templates to the device, see Provisioning a Device.

Adding a Physical Device

Use this procedure to add a physical device (vEdges and IOS XE) for your SD-WAN network. Cisco MSX collects the details required to provision this device. Once the data is submitted, the details are sent to vManage, and the specific device is provisioned.

Note If a physical device was added from the Control Plane web interface (vManage dashboard), the Cisco MSX portal lists this device with the status as 'UP' on the device summary page for the tenant. MSX portal will also reflect the device templates changes that were applied or removed from the Control Plane web interface.

Before You Begin

Assign the following permissions to a user who can add physical device and provision the device:

- Under Bulk Import Sites/Devices/Tenants/Users category, select Bulk Import (Manage) permission.
- Under SD-WAN Service category, select SD-WAN Data Plane manage permission to allow a user to provision a device.

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left hand pane, click Tenant Workspace > Services.

Step 3 In the SD-WAN service panel, click the + icon and click Add Device.

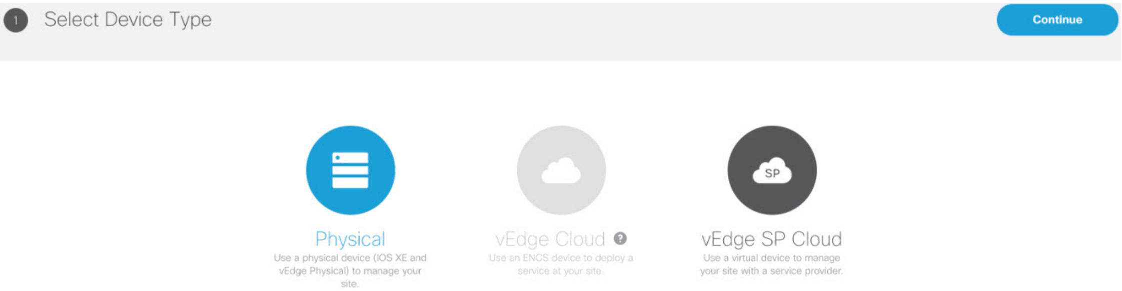
The SD-WAN home page appears and displays the device summary page for the selected tenant.

Step 4 Click Add Device to add a new vEdge or an IOS XE device.

Note The Add Device button is enabled only if the control plane is provisioned for the tenant, see Setting Up Control Plane for Cisco SD-WAN.

Step 5 Select Physical to provision vEdge or IOX XE device. Click Continue.

Figure 9: Selecting the Device Type



Physical
Use a physical device (IOS XE and vEdge Physical) to manage your site.

vEdge Cloud
Use an ENCS device to deploy a service at your site.

vEdge SP Cloud
Use a virtual device to manage your site with a service provider.

Step 6 Select a device type and provide the serial number for that device type.

Step 7 Enter the location of the device, map coordinates, and the support details.

Step 8 Select a device template to be used for provisioning the device and click Continue. The templates are listed based on the selected device type in the previous step.

Step 9 Enter the device details, such as ID, Chassis Number, System IP, and so on. Only ‘Required’ fields are populated in this form. Click Submit to initiate the provisioning process and push the configuration data into the Control Plane. During this time, Cisco MSX validates if the device details match with the information on the Control Plane. If the device data on Cisco MSX is same as the data on the Control Plane, the provisioning process proceeds, and device status changes to ‘Provisioning’. During this process, if there are any errors, device status changes to ‘Provisioning Failed’.

Note While getting chassis ID for a specific device using the data-plane-controller APIs, Cisco MSX translates the forward slash in the chassis ID as %2F to avoid bad API request. For more information on the SD-WAN Service API, refer to the Swagger documentation that can be accessed from Cisco MSX portal > Account Settings > Developer Settings > API Documentation > Swagger UI > SD-WAN Microservice API.

Step 10 Edit and update the device details on the Cisco MSX. Under the Provisioning Details section, if the device details are incomplete or incorrect, you can click Edit Details to edit the device details and click Provision Device to push the updated configurations to the device.

Note A tenant cannot create a site using this wizard. To create a site, choose Tenant Workspace > Services/Sites/Devices, click the + icon on the top right corner and select Add Site.

To assign the device to a specific site in Cisco MSX, choose Tenant Workspace > Devices, select the device and click Assign to Site. For more information, see Assigning a Device to a Site.

To view provisioning statuses, see Monitoring Cisco SD-WAN Device Status.

Assigning a Device to a Site

A tenant can assign one or more devices to a site. Use this procedure to assign a device to a site.

Before you begin

1. Create or attach a Cisco SD-WAN control plane. For more information, see Setting Up Control Plane for Cisco SD-WAN.

Procedure

Step 1 Log in to the Cisco MSX portal.

Step 2 From the left pane, click Tenant Workspace > Devices.

Step 3 Select a device, click on the ellipsis (...) and click Assign to Site.

The Assign Device to Site wizard appears.

Step 4 Click Get Started to launch the wizard.

Step 5 In the Select Site section:

Click the Assign to Existing Site radio button to assign the device to an existing site. Enter the site name.

Or

Click the Create New Site radio button to add a new site. Enter the site name, site address, supplemental location, and description of the site. Check the Add Site Contact check box to provide the contact details.

Step 6 Click >. A notification appears after the device is assigned to the new site.

Step 7 Click View Site to view the status of the site.

Importing Multiple Site Data from Cisco SD-WAN into MSX

Cisco MSX allows you to import details of multiple sites from Cisco SD-WAN and provision one site at a time on Cisco SD-WAN. After performing bulk import, you can validate the data imported for each site, view each site, and provision one site at a time from the Cisco MSX Portal.

You can provision the following types of devices after importing data from multiple sites:

- Physical (vEdge, IOS XE)

- vEdge Cloud
- vEdge SP Cloud
- Any site that was added outside of SD-WAN

Sites that were added outside of SD-WAN are displayed as External Sites in the map or the list view on the SD-WAN home page in the Cisco MSX portal. Like any other sites, Cisco MSX also lists site details for the external sites, such as Site ID, System IP, statuses, and so on in the List view.

Before You Begin

1. Subscribe to SD-WAN service and set up a Control Plane. Control plane must be up and running. For more information, see Setting Up Control Plane for Cisco SD-WAN.

   .
2. Assign the following permissions to a user who can download the site template file and perform a bulk import of the site details into Cisco MSX:
   - Under SD-WAN Service category, select SD-WAN Bulk Site (View) permission to allow a user to download the template to their local machine and to view the template.
   - Under Bulk Import Sites/Devices/Tenants/Users category, select Bulk Import (Manage) permission to allow a user to import the data into Cisco MSX.
   - Under SD-WAN Service category, select SD-WAN Data Plane (Manage) permission to allow a user to provision a site.
3. Perform the following tasks on SD-WAN Control Plane (vManage):
   - Add devices to Smart/Virtual Account. Once the Control Plane instances are created, synchronize with Smart Accounts from the SD-WAN Control Plane Portal to download the device list information for device onboarding. For more information on how to upload device allowed list manually or synchronizing device information using smart account, see Synchronizing Smart Accounts from the Control Plane.
   - Create Device Templates on SD-WAN Control Plane based on your tenant deployment. For more information on creating these templates on the Control Plane, see Cisco SD-WAN documentation.
4. Deploy a customer site on Cisco MSX. For more information, see Deploying a Site or Device for Cisco SD-WAN.
5. Depending on whether you are provisioning physical or vEdge Cloud devices, make sure that these devices are ordered and shipped to the tenant locations. At this point, devices may not be operational since they do not have configurations to define their role. These devices appear as ‘Unknown’ on the map or the list view on the SD-WAN Service screen.

Physical devices do not have any address configured for the sites to plot them on the map, so these devices appear as ‘Unmapped Sites’ on the map or the list view.

Procedure

Step 1 Download a Site Template File.

Using a site template file, you can enter data such as device information, site details, for multiple sites and import these details into Cisco MSX. The template file pulls active device templates available on the SD-WAN Control Plane. For each device model, the templates shows you the fields that are mandatory to provision this device on the SD-WAN Control Plane. To download a site template:

a. Log in to the Cisco MSX portal using your credentials.

b. From the left pane, choose Tenant Workspace > Service Controls.

c. Click the Bulk Import tile, then click Generate Site Template File option to download the Site template file.

Note The downloaded Site Template file includes previously provisioned sites and their details. You can update this file any number of times, if required.

Note Cisco MSX supports CSV and JSON file format for the site templates. JSON has information in the form of tool-tips, which show details such as, data type, allowed values for each field, and other useful metadata. You can download and import the JSON file only using the API. To get site template data in JSON format, use the data plane endpoint in the bulk-site-controller section of the SD-WAN Service API. For more information on the SD-WAN Service API, refer to the Swagger documentation that can be accessed from Cisco MSX portal > Account Settings > Developer Settings > API Documentation > Swagger UI > SD-WAN Microservice API.

Step 2 Prepare the Site Template file.

Before editing the Template file:

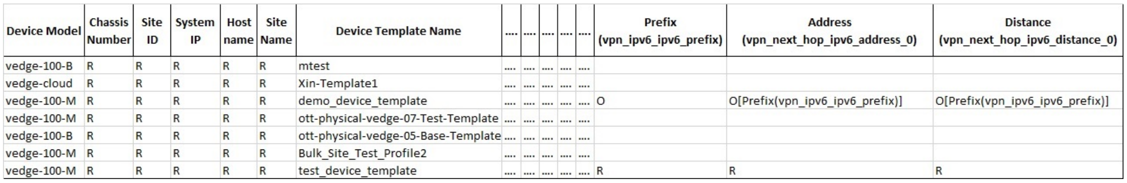
- Determine the sites for which you want to import the details for provisioning.
- For each site, identify the template that should be applied.

Step 3 Edit the downloaded Template file only after associating the sites with the device template. Enter the values in all the appropriate fields that are marked as required (R).

Note While entering data in this Template file you can use quotes, spaces, commas, and special characters.

A sample of a downloaded Site Template table is given here:

Figure 10: Site Template Table



Device Model	Chassis Number	Site ID	System IP	Host name	Site Name	Device Template Name	....	....	....	....	....	Prefix (vpn_ipv6_ipv6_prefix)	Address (vpn_next_hop_ipv6_address_0)	Distance (vpn_next_hop_ipv6_distance_0)
vedge-100-B	R	R	R	R	R	mtest	....	....	....	....	....			
vedge-cloud	R	R	R	R	R	Xin-Template1	....	....	....	....	....			
vedge-100-M	R	R	R	R	R	demo_device_template	....	....	....	....	....	O	O[Prefix(vpn_ipv6_ipv6_prefix)]	O[Prefix(vpn_ipv6_ipv6_prefix)]
vedge-100-M	R	R	R	R	R	ott-physical-vedge-07-Test-Template	....	....	....	....	....			
vedge-100-B	R	R	R	R	R	ott-physical-vedge-05-Base-Template	....	....	....	....	....			
vedge-100-M	R	R	R	R	R	Bulk_Site_Test_Profile2	....	....	....	....	....			
vedge-100-M	R	R	R	R	R	test_device_template	....	....	....	....	....	R	R	R

Legend

- R: Required field
- O: Optional field
- Blank Field: Not Applicable

From the above table, the demo_device_template (Device Template) are marked as optional (O). It has both primary optional and related optional fields.

- Prefix (vpn_ipv6_ipv6_prefix): Primary optional field
- Address (vpn_next_hop_ipv6_address_0): Related optional field
- Distance (vpn_next_hop_ipv6_distance_0): Related optional field

The downloaded Template file may have both primary and related fields, that are marked as optional (O). There can be more than one primary optional fields (for example, primary optional 1, primary optional 2).

- In the case of demo_device_template, if you enter data in the primary optional field, then you must also enter data in the related optional fields. If you do not enter any data in primary optional field, then it is not required to enter data in related optional field.
- In the case of test_device_template, all the fields are marked as required (R). Enter data in all the fields.

When you upload the Template file, it undergoes process validation. The related optional field variables are validated only when the primary optional field data is entered.

If the Template file is uploaded without any modifications, then the site status remains unchanged and retain its previous status.

Step 4 To import provisioning details for multiple sites:

a. On the left pane, choose Tenant Workspace > Service Controls.

b. Click the Bulk Import tile, then click Import Sites to import the site template that was edited in Step 3.Edit the downloaded Template file only after associating the sites with the device template. Enter the values in all the appropriate fields that are marked as required (R).

c. If the data filled in the Template file is correct, then site details are imported to Cisco MSX and the site is now ready for provisioning.

If the data filled was incorrect or incomplete, sites cannot be provisioned until the details are corrected, and the Template file is imported again in Cisco MSX. During this period, Cisco MSX displays various validation messages to validate the accuracy of the imported data.

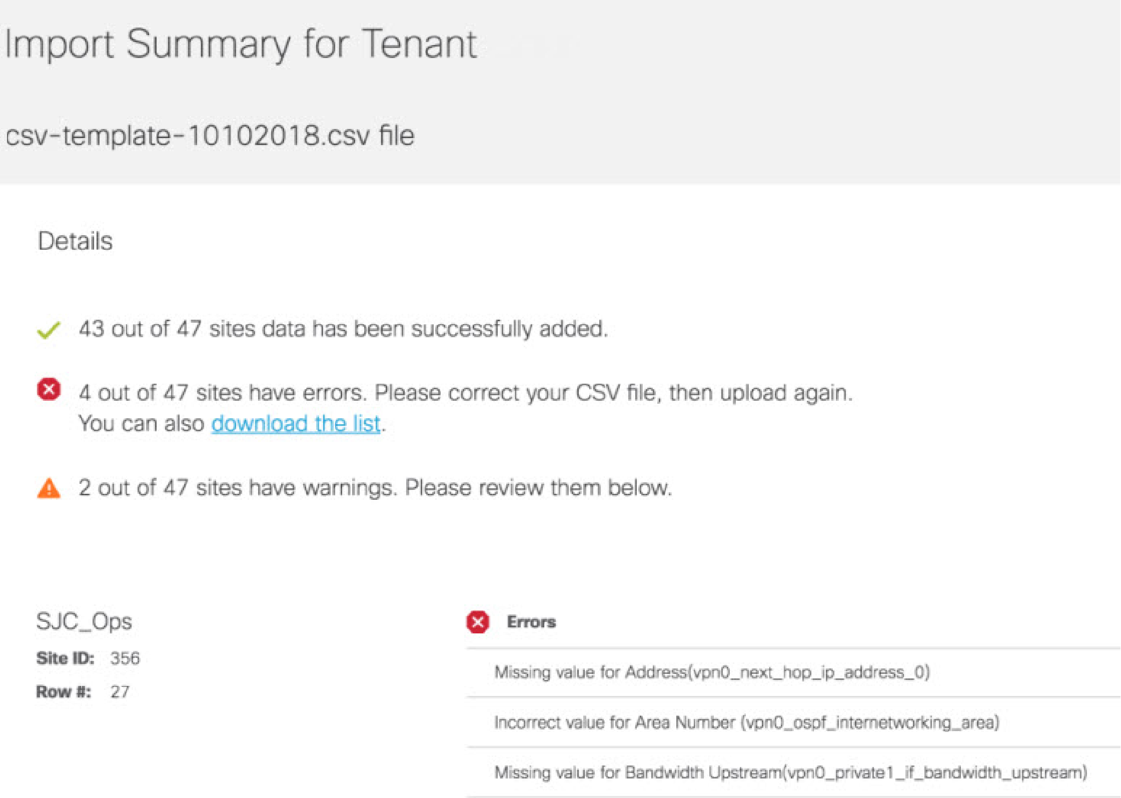
You can see the status of devices in Tenant Workspace > Devices. Select the device from device list for which you need to edit or update information. Click Device Details.

- Click Edit Details in the Provisioning Details page to edit directly from the portal instead of importing a new CSV file again.
- You can also edit the device template. Select the desired device template from the drop down, variable values of the previous device templates are automatically populated. Click the Save button to save the latest template changes. You can edit it any number of times, whenever required.

The figure below shows one of the validation scenario, where the errors are recorded on the Site Details window for a tenant.

Note We recommend that you download the error list as the information on this screen is temporary and disappears after you exit this page

Figure 11: Validation Message



Import Summary for Tenant

csv-template-10102018.csv file

Details

✓ 43 out of 47 sites data has been successfully added.

✖ 4 out of 47 sites have errors. Please correct your CSV file, then upload again.
You can also download the list.

⚠ 2 out of 47 sites have warnings. Please review them below.

SJC_Ops

Site ID: 356

Row #: 27

✖ **Errors**

Missing value for Address(vpn0_next_hop_ip_address_0)

Incorrect value for Area Number (vpn0_ospf_internetworking_area)

Missing value for Bandwidth Upstream(vpn0_private1_if_bandwidth_upstream)

What to do Next?

After importing multiple site data, you can now provision a site to configure the device. For more information on attaching these templates to the device, see Provisioning a Device.

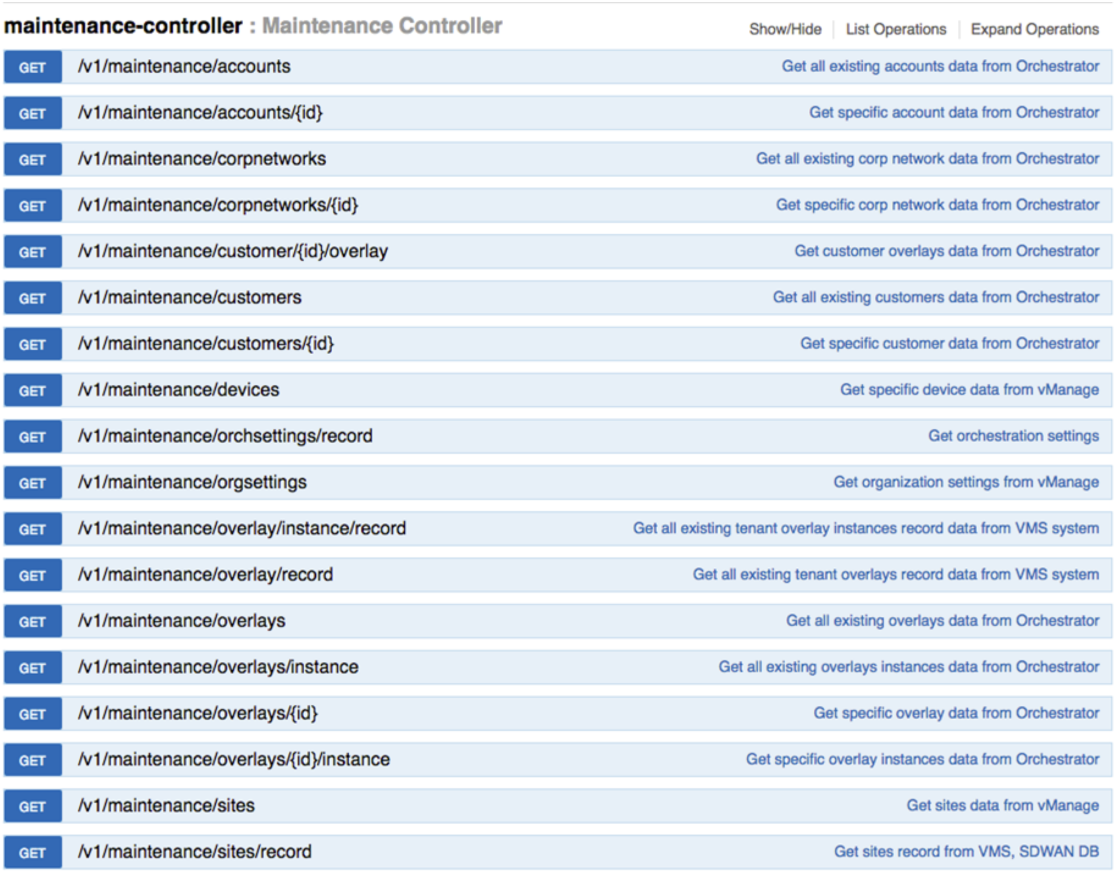
Check the Status of Various SD-WAN Components

To check on various SD-WAN components, use the GET APIs to query the SD-WAN database. For more information on the SD-WAN services APIs, refer to the Swagger documentation that can be accessed from MSX portal > Account Settings > Developer Settings > API Documentation > Swagger UI > SD-WAN Microservice API.

Note You should have SD-WAN maintenance authorization to access these APIs.

The figure below shows the list of Get APIs that can be used to query the database.

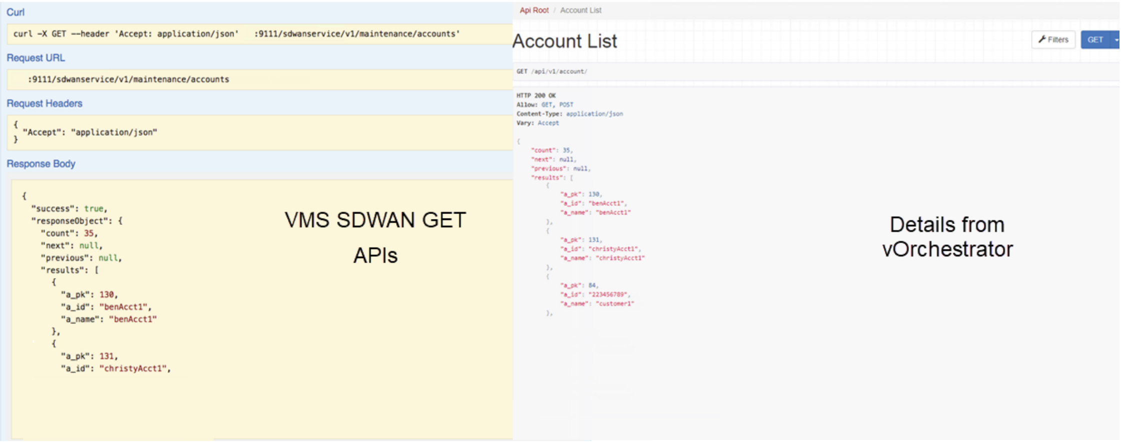
Figure 12: List of Get API for Querying the Database



GET	/v1/maintenance/accounts	Get all existing accounts data from Orchestrator
GET	/v1/maintenance/accounts/{id}	Get specific account data from Orchestrator
GET	/v1/maintenance/corpnetworks	Get all existing corp network data from Orchestrator
GET	/v1/maintenance/corpnetworks/{id}	Get specific corp network data from Orchestrator
GET	/v1/maintenance/customer/{id}/overlay	Get customer overlays data from Orchestrator
GET	/v1/maintenance/customers	Get all existing customers data from Orchestrator
GET	/v1/maintenance/customers/{id}	Get specific customer data from Orchestrator
GET	/v1/maintenance/devices	Get specific device data from vManage
GET	/v1/maintenance/orchsettings/record	Get orchestration settings
GET	/v1/maintenance/orgsettings	Get organization settings from vManage
GET	/v1/maintenance/overlay/instance/record	Get all existing tenant overlay instances record data from VMS system
GET	/v1/maintenance/overlay/record	Get all existing tenant overlays record data from VMS system
GET	/v1/maintenance/overlays	Get all existing overlays data from Orchestrator
GET	/v1/maintenance/overlays/instance	Get all existing overlays instances data from Orchestrator
GET	/v1/maintenance/overlays/{id}	Get specific overlay data from Orchestrator
GET	/v1/maintenance/overlays/{id}/instance	Get specific overlay instances data from Orchestrator
GET	/v1/maintenance/sites	Get sites data from vManage
GET	/v1/maintenance/sites/record	Get sites record from VMS, SDWAN DB

The figure below shows a sample query to access the list of accounts from vOrchestrator using the GET APIs.

Figure 13: Accessing the List of Accounts from vOrchestrator



Curl

```
curl -X GET --header 'Accept: application/json'   :9111/sdwanservice/v1/maintenance/accounts'
```

Request URL

```
   :9111/sdwanservice/v1/maintenance/accounts
```

Request Headers

```
{
  "Accept": "application/json"
}
```

Response Body

```
{
  "success": true,
  "responseObject": {
    "count": 35,
    "next": null,
    "previous": null,
    "results": [
      {
        "a_pk": 130,
        "a_id": "benAcct1",
        "a_name": "benAcct1"
      },
      {
        "a_pk": 131,
        "a_id": "christyAcct1",
```

VMS SDWAN GET APIs

Account List

```
GET /api/v1/account/
```

```
HTTP 200 OK
Allow: GET, POST
Content-Type: application/json
Vary: Accept

{
    "count": 35,
    "next": null,
    "previous": null,
    "results": [
        {
            "a_pk": 130,
            "a_id": "benAcct1",
            "a_name": "benAcct1"
        },
        {
            "a_pk": 131,
            "a_id": "christyAcct1",
            "a_name": "christyAcct1"
        },
        {
            "a_pk": 84,
            "a_id": "223456789",
            "a_name": "customer1"
        },
```

Details from vOrchestrator

Provisioning a Device

Do one of the following:

- Bulk import device details that are required for provisioning. For more information, see Importing Multiple Site Data from Cisco SD-WAN into MSX.
- Collect the device details for individual devices using the Add Device procedure. For more information, see Deploying a Site or Device for Cisco SD-WAN.

Use the provisioning process to push the data on the device into the Control Plane. This process sets the device for day one configurations. To provision a device:

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left pane, choose Tenant Workspace > Devices.

The Devices window is displayed with the list of devices associated to the tenant.

Step 3 From the list of devices, select the device that is ready to be provisioned.

Step 4 Click Device Details.

The Device Summary page is displayed. You will see Device Template and Provisioning Details section in the Device Summary page.

Step 5 Click Provision Device under the Provisioning Details section to initiate the provisioning process.

The provisioning process on the Control Plane takes approximately 5 to 10 minutes. During this time, Cisco MSX displays various validation messages to validate if the device template variables match with the information on the Control Plane. Depending on the device synchronization status and the validity of template variables passed by the user, site status changes to 'Provisioned' to 'Provisioning Failed'.

- Provisioning: If the device template variables imported in Cisco MSX are same as the variables on the Control Plane, the provisioning process proceeds, and site status changes to ‘Provisioning.’
- Provisioning Failed: If there are any errors, site status changes to ‘Provisioning Failed’, and Cisco MSX system records these errors on the Cisco MSX Portal or in the Event Log.
- Provisioned: If there are no errors, and device remain in Sync after changes are applied, site status changes to ‘Provisioned’.

You can also edit a provisioned site using Edit Details options. Click the Provision Device to deploy the template values to device. Enter values in all the fields, if values are not entered then it displays an error or warning message, it indicates status as 'Incomplete'.

Configuring Traffic Policies

Cisco SD-WAN traffic policies dynamically control data packet forwarding decisions by looking at the applications type, tunnel performance, available paths status and forwarding rules. These policies monitor the network performance—jitter, packet loss, and delay—and forward critical applications over the best-performing path.

The traffic policies when applied uses vManage centralized policies capability that applies the rules to all available vSmart controllers, and the vSmart controller automatically pushes it to the available vEdge or cEdge (IOS-XE) routers. Because of these centralized policies, the traffic policy changes that you perform on Cisco MSX are automatically pushed to vManage, and changes directly done on vManage for the policies supported by Cisco MSX will be visible in Cisco MSX.

- Configure Path Preference settings. For more information, see Configuring Path Preference Settings.
- Configure Application Relevance settings. For more information, see Configuring Application Relevance Settings.

Before You Begin

- Create or attach Control Plane, see Setting Up Control Plane for Cisco SD-WAN.
- Ensure you have the following permissions to configure traffic policies:
  - SD-WAN Traffic Policy: Users with manage permission can add and modify Application Relevance policy or Path Preference policy to the SD-WAN fabric.
  - View Event Log: Users with this permission can view the status of the policies in the event log.

For information on how to associate these permissions to a role, see Managing Roles in Cisco MSX.

- Ensure vSmart controller is up and running. If a vSmart controller is down the policy changes are not applied.

Configuring Path Preference Settings

Traffic transport path settings forward applications over the best-performing path based on the defined application policy. These settings help to load-balance the traffic efficiently by using the available bandwidth.

Use the procedure described in this section to customize the data traffic to the specific transport preference for each of the traffic classes. (Traffic classes are categories of traffic [packets] that are grouped on the basis of similarity). The following are the categories of traffic classes available in Cisco MSX:

- Voice class refers to VoIP bearer traffic only.
- Network Control Management class is intended for network management protocols, such as SNMP, syslog, domain name system, and IP routing protocols such as Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), and so on.
- Interactive video refers to IP video conferencing.
- Streaming video is either unicast or multicast unidirectional video.
- Call Signaling class is intended for voice and video signaling traffic, such as Skinny Client Control Protocol (SCCP), SIP, H.323, and so on.
- Bulk data class is intended for background and foreground operations, such as large file transfers, database synchronization, email, database access, and interactive messaging.
- Scavenger class defines a less-than-best effort service. In the event of link congestion, this class is dropped most aggressively.
- Default class is also the best-effort class. Unless an application has been assigned for preferential or deferential service, it will remain in this default class.
- Unmatched Traffic category applies to applications that do not match other specified categories.

Perform this procedure to configure path preference settings:

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left pane, choose Tenant Workspace > Service Controls.

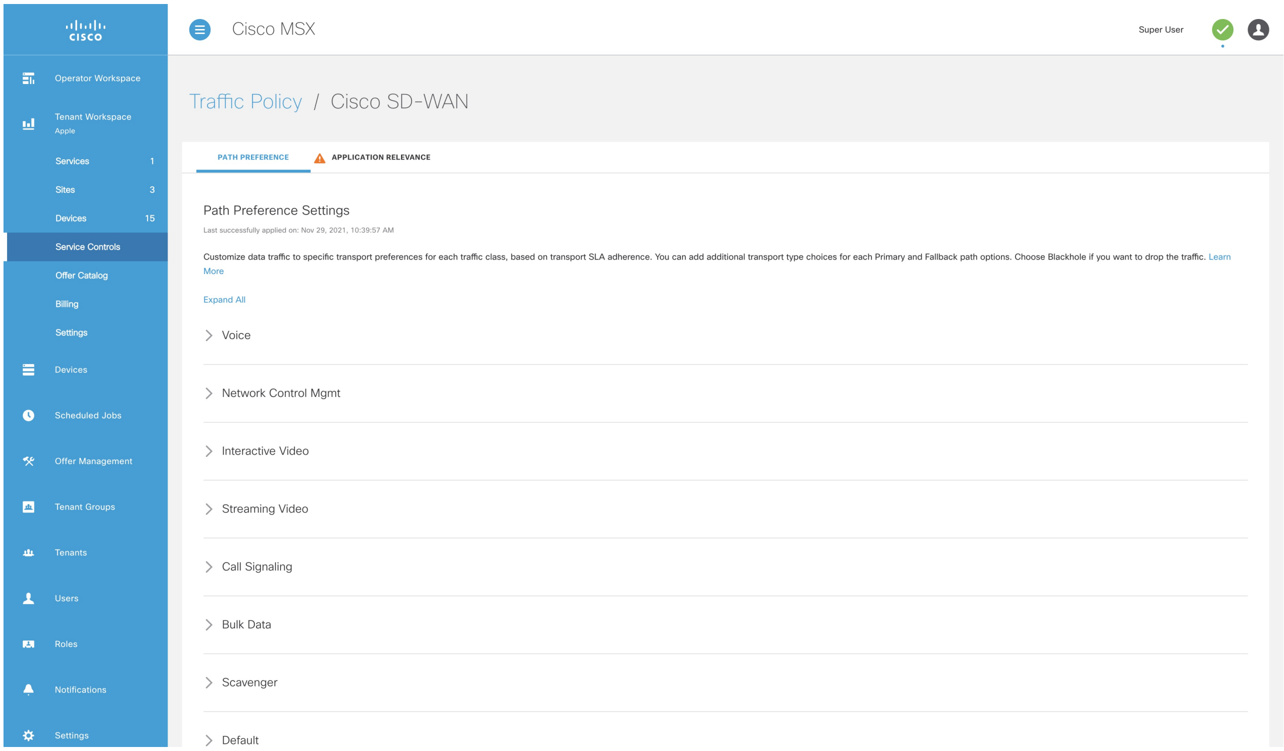
The Service Controls page with the relevant controls for the subscribed services is displayed.

Step 3 Select the Traffic Policy tile to configure the path preference settings.

Note The traffic policy can be configured only when the control plane has been created or attached for the tenants.

Step 4 Click the Path Preference tab, and expand each of the traffic class.

Figure 14: Configuring Path Preference



Path Preference Settings

Last successfully applied on: Nov 29, 2021, 10:39:57 AM

Customize data traffic to specific transport preferences for each traffic class, based on transport SLA adherence. You can add additional transport type choices for each Primary and Fallback path options. Choose Blackhole if you want to drop the traffic. Learn More

Step 5 Select the primary and the fallback routing path for a selected traffic class.

Step 6 Review or modify the routing policy path, and fallback preference. Choose Blackhole, if you do not want to set up a backup path.

Step 7 Click Apply.

The policy takes approximately about 3 to 4 minutes to apply. To see the status of the applied policy, see the event logs.

If the settings fail to apply, click Retry to try again with the same setting or click Cancel to use the previous settings.

What to do next

Configure Application Relevance settings. For more information, see Configuring Application Relevance Settings.

Configuring Application Relevance Settings

An application-aware routing policy matches applications with the data plane tunnel performance characteristics that are necessary to transmit the applications data traffic. The primary purpose of application-aware routing policy is to optimize the path for data traffic. Using this policy, network architects can clearly identify which applications are relevant to their business and which are not.

Note You can configure the Application Relevance settings only if the Cisco SD-WAN version is 18.2 or later.

To configure Application Relevance Settings:

Procedure

Step 1 Log in to the Cisco MSX portal using your credentials.

Step 2 From the left pane, choose Tenant Workspace > Service Controls.

The Service Controls page with the relevant controls for the subscribed services is displayed.

Step 3 Select the Traffic Policy tile to configure the path preference settings.

Note The traffic policy can be configured only when the control plane has been created or attached for the tenants.

Step 4 Click the Application Relevance tab to apply the business relevance for the listed applications.

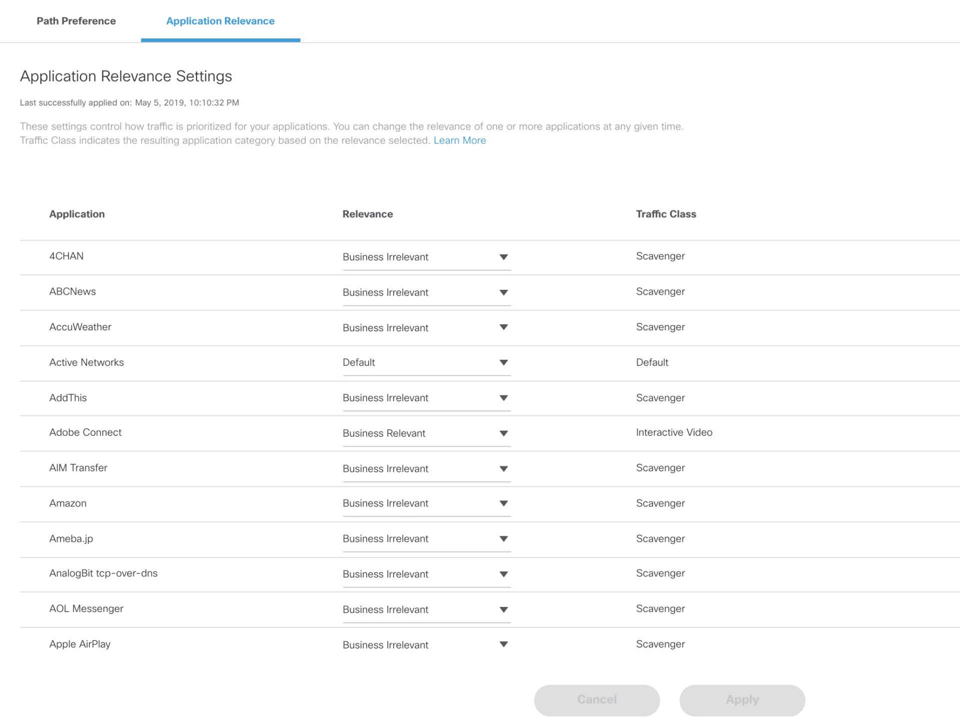
Note The first time you set up applications, you cannot edit the relevance as, by default, the relevance is applied. Only after the default is saved, you can edit the existing relevance.

Step 5 Filter from the available applications using the search bar available on the right side of the web interface. For information on the out-of-box applications available with Cisco MSX, see Applications Available with Cisco MSX SD-WAN.

Step 6 Select the Application type and edit the business relevance of the selected application by selecting the relevance from the drop-down list. The Cisco MSX web interface shows the relevance of the selected application type in the Traffic Class column. Business relevance can have one of the following settings:

- Business Relevant: These applications are known to contribute to business objectives of the organization and may include voice, multimedia applications, collaborative applications, database applications, email applications, file/content transfer applications, backup applications, and so on., as well as control plane, signaling, and network management protocols.
- Business Irrelevant: These applications do not support business objectives and are typically consumer-oriented. These applications are known to have no contribution to business-objectives and are often personal or entertainment-oriented in nature. Such applications may include video-on-demand (for example, Netflix, YouTube, and so on), gaming traffic, peer-to-peer file-sharing applications, and other applications.
- Default: These applications may or may not contribute to business objectives. For example, HTTP/HTTPS at times may be used for work or for personal reasons. As such, it may not always be possible to assign a static business-relevant designation to such applications. Such applications should be marked as default.

Figure 15: Configuring Application Relevance



Application Relevance Settings

Last successfully applied on: May 5, 2019, 10:10:32 PM

These settings control how traffic is prioritized for your applications. You can change the relevance of one or more applications at any given time. Traffic Class indicates the resulting application category based on the relevance selected. Learn More

Application	Relevance	Traffic Class
4CHAN	Business Irrelevant	Scavenger
ABCNews	Business Irrelevant	Scavenger
AccuWeather	Business Irrelevant	Scavenger
Active Networks	Default	Default
AddThis	Business Irrelevant	Scavenger
Adobe Connect	Business Relevant	Interactive Video
AIM Transfer	Business Irrelevant	Scavenger
Amazon	Business Irrelevant	Scavenger
Ameba.jp	Business Irrelevant	Scavenger
AnalogBit tcp-over-dns	Business Irrelevant	Scavenger
AOL Messenger	Business Irrelevant	Scavenger
Apple AirPlay	Business Irrelevant	Scavenger

Step 7 Review or modify the Application relevance settings and click Apply.

A Turquoises mark beside an application indicates that the application relevance is being applied and new settings cannot be applied until the current process is completed.

Important Notes:

- If application policy is changed on vManage by moving applications from one category to other that does not match the SD-WAN Application Relevance and Traffic Class rules, then it leads to Application Mismatch. If the settings fail to apply, click Retry to try again with the same setting or click Cancel to use the previous settings.
- MSX 4.2 supports additional applications compared to MSX 4.1. Hence, if you upgrade from 4.1, there will be an application mismatch between Cisco MSX and Cisco SD-WAN. In this case, we recommend that you synchronize these applications on Cisco SD-WAN by using the Apply MSX Settings option on the Mismatched Applications window.

What to Do Next

Monitor the traffic path and the application queues. For more information, see Monitoring the Traffic Policy.

Deactivate a Traffic Policy

An operator can deactivate a traffic policy only from Cisco SD-WAN control plane (vManage).

To deactivate the traffic policy:

Procedure

Step 1 Log in to SD-WAN Control Plane.

Step 2 In the main menu, click Configurations > Policies.

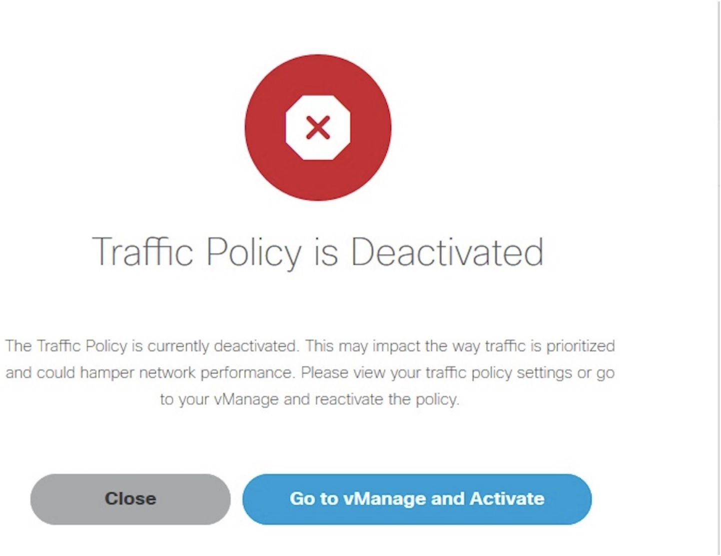
Step 3 Select the policy that you want to deactivate, click the ⋯ icon

Step 4 Choose Deactivate. Status of the deactivated policy will be indicated.

The SD-WAN provides information to the Cisco MSX users about the policy deactivation in the form of error messages. If the policies are deactivated on vManage, you cannot configure traffic policy from the Cisco MSX portal. You must first activate the centralized policy on the vManage to configure traffic policy from the Cisco MSX portal.

The following is an error message that is displayed on the Cisco MSX portal for the deactivated policy.

Figure 16: Deactivating the Traffic Policy



Traffic Policy is Deactivated

The Traffic Policy is currently deactivated. This may impact the way traffic is prioritized and could hamper network performance. Please view your traffic policy settings or go to your vManage and reactivate the policy.

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