Migrate Shared Templates to Cisco IOS XE SD-WAN Templates

Overview

In Cisco IOS XE Release Amsterdam 17.2.1r with Cisco vManage 20.1.1, Cisco vManage adds support for additional feature templates exclusively for Cisco IOS XE SD-WAN devices.

In releases before Cisco IOS XE Release Amsterdam 17.2.1r, when you created a template for both Cisco vEdge and Cisco IOS XE SD-WAN devices, the same template is shared for both device types. For these templates, the configuration is specified using Cisco vEdge commands. If the template is then used with a Cisco IOS XE device, the configuration was converted for Cisco IOS XE devices. Due to this conversion of Cisco vEdge commands, some functionality was not unavailable for Cisco IOS XE SD-WAN devices. For example, NAT DIA.

In these releases, there are two types of shared templates:

- Shared feature templates: If you specify a Cisco IOS XE SD-WAN device when creating a feature template, a shared feature template is created.
- Shared device templates: A device template that contains a shared feature template.

In Cisco IOS XE Release Amsterdam 17.2.1r and onwards, feature templates have been separated for Cisco vEdge devices and Cisco IOS XE SD-WAN devices. These feature templates that are exclusively for Cisco IOS XE SD-WAN devices enable support for additional features. To use these feature templates, you can migrate your shared feature templates to the exclusive templates.

List of Migrated Templates

The following table lists the shared templates and their corresponding exclusive templates for Cisco IOS XE SD-WAN devices available in Cisco vManage 20.1.1 and onwards.
The AAA feature template is not supported with the exclusive Cisco IOS XE SD-WAN device feature templates.

If your existing template contains an AAA feature template, you can replace it as follows:

- Before migration: Replace it with the AAA-Cisco template that was introduced in 19.1.
- After migration: After the migration is complete, manually create a Cisco AAA template and attach it to your device template.

<table>
<thead>
<tr>
<th>Shared Feature Template</th>
<th>Shared Template Type</th>
<th>Exclusive Cisco IOS XE SD-WAN Device Feature Template</th>
<th>Exclusive Cisco IOS XE SD-WAN Device Feature Template Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banner</td>
<td>banner</td>
<td>Cisco Banner</td>
<td>cisco_banner</td>
</tr>
<tr>
<td>BFD</td>
<td>bfd-vedge</td>
<td>Cisco BFD</td>
<td>cisco_bfd</td>
</tr>
<tr>
<td>BGP</td>
<td>bgp</td>
<td>Cisco BGP</td>
<td>cisco_bgp</td>
</tr>
<tr>
<td>DHCP Server</td>
<td>dhcp-server</td>
<td>Cisco DHCP Server</td>
<td>cisco_dhcp_server</td>
</tr>
<tr>
<td>Logging</td>
<td>logging</td>
<td>Cisco Logging</td>
<td>cisco_logging</td>
</tr>
<tr>
<td>NTP</td>
<td>ntp</td>
<td>Cisco NTP</td>
<td>cisco_ntp</td>
</tr>
<tr>
<td>OMP</td>
<td>omp-vedge</td>
<td>Cisco OMP</td>
<td>cisco_omp</td>
</tr>
<tr>
<td>OSPF</td>
<td>ospf</td>
<td>Cisco OSPF</td>
<td>cisco_ospf</td>
</tr>
<tr>
<td>Security</td>
<td>security-vedge</td>
<td>Cisco Security</td>
<td>cisco_security</td>
</tr>
<tr>
<td>SNMP</td>
<td>snmp</td>
<td>Cisco SNMP</td>
<td>cisco_snmp</td>
</tr>
<tr>
<td>System</td>
<td>system-vedge</td>
<td>Cisco System</td>
<td>cisco_system</td>
</tr>
<tr>
<td>VPN Interface GRE</td>
<td>vpn-vedge-interface-gre</td>
<td>Cisco VPN Interface GRE</td>
<td>cisco_vpn_interface_gre</td>
</tr>
<tr>
<td>VPN Interface IPsec</td>
<td>vpn-vedge-interface-ipsec</td>
<td>Cisco VPN Interface IPsec</td>
<td>cisco_vpn_interface_ipsec</td>
</tr>
<tr>
<td>VPN Interface Ethernet</td>
<td>vpn-vedge-interface</td>
<td>Cisco VPN Interface Ethernet</td>
<td>cisco_vpn_interface</td>
</tr>
<tr>
<td>VPN</td>
<td>vpn-vedge</td>
<td>Cisco VPN</td>
<td>cisco_vpn</td>
</tr>
</tbody>
</table>

**Migrate Shared Templates**

You can continue using the older shared templates, however the shared templates may not have access to the latest features. We recommend migrating existing templates to enable access to the latest features. For example, if you are using the VPN Interface Ethernet Shared template, the template still continues to work. However to use new features, such as NAT DIA, you must migrate to the exclusive feature template called Cisco VPN Interface Ethernet.

You can migrate shared templates in one of the following ways:

- Using the migration script.
• Using the Cisco vManage Migration Tool (beta).

**Migrate Shared Templates Using the Migration Script**

**Prerequisites**

- Ensure that you have upgraded to Cisco vManage 20.1.1.
- MacOS running 10.15.3 or higher.
- Python 2.7. You can verify your installation of Python by running the following in Terminal:
  ```bash
tenor python -c "import sys;assert sys.version_info>(2,7)" && echo "Python 2.7 is installed"
```
  If "Python 2.7 is installed" is not displayed, you must download and install the latest 2.x version of Python from [https://www.python.org/downloads/](https://www.python.org/downloads/).
- Ensure that the following Python packages are installed: os, json, argparse, requests, pathlibs, subprocess, sys, datetime, and random.

  **Note** Note that some of these packages are pre-installed with Python.

**Set Up the Script**

3. Extract the `vmanage_template_migration.zip` to a directory such as `/home/admin`. This creates a directory called `/home/admin/migration`.
4. Navigate to the directory:
   ```bash
cd /home/admin/migration
```

**Run the Script**

The script has the following syntax:

```
python templatemigrations.py -ip vmanage_IP -port vmanage_PORT -fv from_vmanage_VERSION -tv to_vmanage_VERSION [-prefix template_name_PREFIX]
```

You must specify the following parameters:

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ip</td>
<td>IP address of Cisco vManage</td>
</tr>
<tr>
<td>port</td>
<td>TCP port to access Cisco vManage. This is typically 9912 or 8443.</td>
</tr>
<tr>
<td>fv</td>
<td>From Version. The version of Cisco vManage before you upgraded.</td>
</tr>
<tr>
<td>tv</td>
<td>To Version. The version of Cisco vManage that you are currently running</td>
</tr>
</tbody>
</table>
### Argument Table

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>prefix</td>
<td>(Optional) Template name prefix to identify migrated templates. By default, the prefix is <code>cisco_</code></td>
</tr>
</tbody>
</table>

### Example

```python
templatemigrations.py -ip 10.0.0.1 -port 9912 -fv 19.2 -tv 20.1 -prefix updated_
```

In this example, Cisco vManage is accessible from the URL `https://10.0.0.1:9912`. Cisco vManage was also upgraded from 19.2 to 20.1. Finally, the name of all migrated templates are prefixed with `updated_`. For example, if your old BGP template was called `Common_BGP_Template`, after migration, the template will be called `updated_Common_BGP_Template`.

After you execute the script, it performs the following steps:

1. Prompts you for your username and password.
2. Verifies that the versions of Cisco vManage are supported.
3. Verifies if the following files are in the correct directories:
   - `session.py`
   - `migration.py`
   - `Input/supported_cedge_templates.json`
   - `Input/JSONInputs.json`
4. Checks for authorization and authenticates.
5. Verifies if the device and/or feature template names are supported by the template naming conventions (such as the maximum of 128 characters, unsupported symbols, and so on). This also checks if the prefix conflicts with other template names in Cisco vManage.
6. Downloads the device templates and associated feature templates. The feature templates and device templates are saved to the `Data/feature` and `Data/master` directories respectively.
7. Identifies the shared feature templates to migrate.
8. Migrates the identified feature templates using the `migration.py` script.
9. Saves the migrated templates in the directory you specified. Migrated device templates are created with the prefix appended. These device templates are associated with their corresponding migrated feature templates.
10. Uploads all migrated device templates and feature templates to Cisco vManage. After upload, you must manually attach the devices to the migrated templates.

### Migrate Shared Templates Using the Cisco vManage Migration Tool (Beta)

To migrate existing shared templates using Cisco vManage, perform the following steps:

1. Navigate to **Tools > Template Migration (Beta)**
2. Click **Migrate All Templates**.
3. Enter a prefix for the new migrated templates. For example Migrated_. All migrated templates are prefixed with this identifier.

4. Click OK to migrate the templates.

5. Once the migration begins, you can track the status of the migration by clicking the Tasks button in the top-right side of the interface.

6. Once the migration is complete, you must manually attach the migrated templates to your devices using the following steps:
   a. For each of the migrated templates, click the More Actions button on the right-side of the templates table.
   b. Click Attach Devices to Migrated Template.