



## Using the GUI

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## Deploying the Layer 4 to Layer 7 Services Using the GUI

You can deploy the Layer 4 to Layer 7 services using GUI. Perform the procedures in the following order:

- 1 Import a device package.  
See [Importing a Device Package Using the GUI, on page 2](#).
- 2 Create a function profile.  
See [Creating a Function Profile Using the GUI, on page 2](#).
- 3 Create a service graph template.  
See [Creating a Layer 4 to Layer 7 Service Graph Template Using the GUI, on page 4](#).
- 4 Create a device.  
See [Creating a Layer 4 to Layer 7 Device Using the GUI](#).  
(Optional) Modify a device.  
See [Modifying a Device, on page 6](#).
- 5 Apply a service graph template to endpoint groups (EPGs).  
See [Applying a Service Graph Template to Endpoint Groups Using the GUI, on page 8](#).

## Importing a Device Package Using the GUI

Before performing any configuration based on service graphs, you must download and install the appropriate device package in the Application Policy Infrastructure Controller (APIC). A device package specifies to the APIC what devices you have and what the devices can do.

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- Step 1** Download an appropriate device package. You can find the list of partners at the following URL: <http://www.cisco.com/c/en/us/solutions/data-center-virtualization/ecosystem.html>
- This URL is the Partner Ecosystem page, where you can download the appropriate device package.
- Step 2** Log in to the APIC as the provider administrator.
- Step 3** On the menu bar, choose **L4-L7 Services > Packages**.
- Step 4** In the **Navigation** pane, choose **L4-L7 Service Device Types**.
- Step 5** In the **Work** pane, choose **Actions > Import Device Package**. The **Import Device Package** dialog box appears.
- Step 6** Click **Browse...** and browse to the device package that you want to use.  
For information about creating device packages, see the *Cisco APIC Layer 4 to Layer 7 Device Package Development Guide*.
- Step 7** Click **Open**.
- Step 8** Click **Submit**.
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## Creating a Function Profile Using the GUI

A Function Profile provides the default values for your service graph template. The following procedure explains how to create a new function profile.

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- Step 1** On the menu bar, choose **Tenants > All Tenants**.
- Step 2** In the **Work** pane, double click the tenant's name.
- Step 3** In the **Navigation** pane, choose **Tenant *tenant\_name* > L4-L7 Services > Function Profiles**.
- Step 4** Right click **Function Profiles** and choose **Create L4-L7 Services Function Profile**.
- Step 5** In the **Create L4-L7 Services Function Profile** dialog box, fill in the fields as required, except as specified below:
- In the **Profile Group** drop-down list, choose **Create Function Profile Group**.  
A profile group is a mechanism that allows you to group your profiles together for organizational purposes. For example, you may want to create a profile for your Web, legacy, or e-mail applications. You can create groups and then you can put your profiles into those groups. You may see that you already have an existing group available, but if you do not, then you can create a new one by naming it and providing a description in the **Create L4-L7 Services Function Profile Group** window.
- Step 6** In the **Create L4-L7 Services Function Profile Group** dialog box, fill in the fields as required.
- Step 7** Click **Submit**.

Now you have successfully completed and saved a profile group, which now appears in the **Create L4-L7 Services Function Profile** dialog box.

A profile is created for a particular service function. What you choose from the **Device Function** drop-down list in the **Create L4-L7 Services Function Profile** is the function for which you are writing a profile. From the drop-down list, you will see a list of device packages with service functions available in the Application Policy Infrastructure Controller (APIC) after you have imported the device packages.

- Step 8** Back in the **Create L4-L7 Services Function Profile** dialog box, remove the check from the **Copy Existing Profile Parameters** check box.
- Step 9** In the **Device Function** drop-down list, choose a device package that has a function. Options are displayed with the various parameters that are part of that function. The purpose of the profile is to provide the default values for the parameters.
- Note** At this point none of these parameters have any values, but you can add them, which are then used as the default values. The function profiles can be used by the graph templates after you provide these values. These values are applied to the graph template as default values, which means that if you use the graph templates and you do not provide a value for that particular parameter, then the APIC looks up the profile and see if the value is there. If it is there, then the APIC uses that.
- Step 10** Add values in the **Features and Parameters** section at the bottom of the **Create L4-L7 Services Function Profile** window. There are two tabs, **Basic Parameters** and **All Parameters**. The **Basic Parameters** tab includes a list of parameters that are marked as mandatory (required) in the package. The **All Parameters** tab includes a list of the basic parameters as well as some additional / optional ones for advanced configurations. The reason we expose the **Basic Parameters** is because these are part of the basic configuration and the administrator is expected to fill these out. **All Parameters** are optional so unless you want to customize the functionality, these parameters can be left out.
- Step 11** Click **Submit**.  
Now you have completed and saved your function profile.
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## Using an Existing Function Profile to Create a New Function Profile Using the GUI

This procedure uses an existing function profile to create a new function profile.

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- Step 1** On the menu bar, choose **Tenants > All Tenants**.
- Step 2** In the Work pane, double click the tenant's name.
- Step 3** In the Navigation pane, choose **Tenant *tenant\_name* > L4-L7 Services > Function Profiles**.
- Step 4** Right click **Function Profiles** and choose **Create L4-L7 Services Function Profile**.
- Step 5** In the **Create L4-L7 Services Function Profile** dialog box, fill in the fields as required, except as specified below:
- In the **Profile** drop-down list, choose an existing profile that is supplied by the vendor.  
The parameters are populated for your new profile based on the profile that you chose.
  - Change or add parameters to this existing profile as necessary.
- Step 6** Click **Submit**.
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# Creating a Layer 4 to Layer 7 Service Graph Template Using the GUI

A service graph template is a sequence of Layer 4 to Layer 7 functions, Layer 4 to Layer 7 devices, or copy devices and their associated configuration, which can be provided by using function profiles. The service graph template must be associated with a contract to be "rendered"—or configured—on the Layer 4 to Layer 7 device or copy device, and on the fabric.

## Before You Begin

You must have configured a tenant.

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- Step 1** On the menu bar, choose **Tenants > All Tenants**.
- Step 2** In the Work pane, double click the tenant's name.
- Step 3** In the Navigation pane, choose **Tenant *tenant\_name* > L4-L7 Services > L4-L7 Service Graph Templates**.
- Step 4** In the Work pane, choose **Actions > Create a L4-L7 Service Graph Template**.
- Step 5** In the **Create a L4-L7 Service Graph Template** dialog box, in the **Device Clusters** section, if necessary create one or more Layer 4 to Layer 7 devices or copy devices. To create a device, click the +, choose **Create L4-L7 Devices** or **Create Copy Devices**, and follow the dialog.
- Step 6** Complete the following fields:

Name	Description
Graph Name field	Enter the name of the service graph template.
Graph Type radio buttons	Choose to create a new service graph template or clone an existing service graph template.
Existing Graphs drop-down list	(Only for cloning an existing service graph template) Choose an existing service graph template to clone. The remaining sections of this dialog become populated with the information from the cloned service graph template.

- Step 7** (Optional) (Only for cloning an existing service graph template) If you want to remove any of the nodes from the cloned service graph template, right click a node that you want to remove and choose **Remove Node**.
- Step 8** To create a service node, drag a Layer 4 to Layer 7 device from the **Device Clusters** section and drop it between the consumer endpoint group and provider endpoint group. To create a copy node, drag and drop a copy device. This step is optional if you cloned an existing service graph template and the service graph template has all of the nodes that you want to use.
- You can drag and drop multiple devices to create multiple nodes. The maximum number of service nodes is 3, although you can drag and drop greater numbers of other devices.
- The location where you drop a copy device becomes the point in the data flow from where the copy device copies the traffic.

- Step 9** If you created one or more service nodes, in the *device\_name* **Information** section for each Layer 4 to Layer 7 device, complete the fields. The fields vary depending on the device type.
- Step 10** Click **Submit**.
- Step 11** (Optional) In the **Navigation** pane, click the service graph template.  
The work pane displays a graphic topology of the service graph template.

## Creating a Layer 4 to Layer 7 Service Graph Template (Advanced)

You can create an advanced service graph template. You do this when none of the eight listed use cases in the regular L4-L7 service graph template apply to your situation. In this case, you will need to create an advanced service graph template to set up the functions and connectors for your use case.

### Before You Begin

- You must have a tenant configured.

- Step 1** On the menu bar, click the **TENANTS** tab. The **Tenant** window appears.
- Step 2** In the **Navigation** pane, click **L4-L7 Services**.  
The menu expands to display other choices.
- Step 3** Click **L4-L7 Service Graph Templates**.
- Step 4** In the **Work** pane, choose **Create a Graph Template (Advanced)** under the **Action** drop-down list on the right-hand side.  
The **Create a L4-L7 Service Graph Template** window appears.  
The **Devices** section displays a list of the vendors and the functions for the device packages you have imported.
- Step 5** In the **Create a L4-L7 Service Graph Template** section, complete the following fields:

Field	Description
Name	Enter the name of the service graph template you are creating.
Description	(Optional) Enter a description of the service graph template, for example, for the use case you are creating it for.

- Step 6** Drag the service function that you want to use from the **Devices** section into the main window.  
The **Config Function Profile** window appears. You see a slightly different **Config Function Profile** depending on whether you are working with the ACD function or the firewall function. When you are working with both functions, you will see areas to configure both.
- For the ADC function, select the function profile you want to use from the drop-down list, and click **OK**.
  - For the firewall function, select the function profile you want to use from the drop-down list and click the radio button for **GoThrough** or **GoTo** function type, and click **OK**.
- (Optional) When you click the box next to the **Profile** field the **Parameters** window appears. This window displays the features and the associated values that are contained in the profile. You cannot edit these values.

A graphic view of the template you are creating appears in the main window.

**Step 7** Click on the graphic depiction of the end point and pull the resulting line to connect to the function. The **Config Connection** window appears.

**Step 8** Specify the properties by completing the following fields:

Name	Description
Adjacency Type radio button	Click the button for Layer 2 or for Layer 3.
Unicast Route	Click the box if you want to use unicast routing.

**Step 9** Click **OK**.

**Step 10** Repeat Steps 7, 8, and 9 for all the connection points on the graph. The graph in the **Work** pane shows the connections you configured.

**Step 11** Click **Submit**. The service graph template appears under the **L4-L7 Service Graph Templates** in the **Navigation** pane.

**Step 12** In the **Navigation** pane under the **L4-L7 Service Graph Templates** tab, click the service graph template that you created. A window appears in the **Work** pane that shows the graph topology for this service graph template, with the **Topology** tab selected at the top right.

**Step 13** (Optional) Expand the Function Node you want to work with under the service graph template name in the **Navigation** pane under the **L4-L7 Service Graph Templates** tab. The **external** and **internal** tabs appear.

**Step 14** (Optional) To modify the connector information, click the **external** and **internal** tab and complete the following fields:

Field	Description
Attachment Notification box	Click if you want an attachment notification.
Filters drop-down list	Click the filter you want to use.
CTX Terms drop-down list	Click the CTX terms you want to use.
Meta Connector drop-down list	Click the metaconnector you want to use.

**Step 15** Click **Submit**.

## Modifying a Device

After you create a device, you can modify the device.



**Note** To create a device or to add a device to an existing cluster, you must use the "Creating a Device" procedure.

- Step 1** On the menu bar, click the **TENANTS** tab. The **Tenant** window appears.
- Step 2** In the **Navigation** pane, expand the **Tenant** branch, expand the **L4-L7 Services** branch, and click **L4-L7 Devices**. The **L4-L7 Devices** window expands and displays the devices.
- Step 3** Click the main device group you want to modify. The **L4-L7 Devices** window appears, showing the **General** page, which displays general information as well as connections and credentials for this device. In addition, you view the configuration state of the device.
- Step 4** You can change many of the parameters in the sections of this **General** window. You can change the path for the interfaces in this window, but you cannot add interfaces here.
- To change the path, double-click on the path you want to change. The **Properties** window appears.
  - Complete the following fields:

Name	Description
Path drop-down list	Click the path you want to use.
Logical Interface drop-down list	Click <b>external</b> or <b>internal</b> , depending on the connector you are working with.

- Click **Submit**.

- Step 5** Return to the **General** window.
- Step 6** Click the **Parameters** tab at the top of the **General** page. The screen the features and parameters available with this package and this device group. You see a tab with the **Basic** parameters displayed and another tab **All Parameters** that displays all the available parameters with your device package. (The basic parameters are included under all parameters.)
- Step 7** In the **Features** section, click on the set of features for which you want to modify the parameters. The screen displays the parameters and features. The set of parameters changes depending on the specific package you are using and the specific feature you select.
- Step 8** Supply or modify the values for the desired features as follows:
- Note** You must update the parent folder first.
- Double-click in the field you want to modify.
  - Enter the required information in the fields that appear.
  - Click the **Update** button.
- Note** Click **Reset** to return these values to the previous values.
- Step 9** To display or modify the parameters for a single device, expand the **Tenant** branch in the **Navigation** pane, expand the **L4-L7 Services** branch, and click **L4-L7 Devices**. The **L4-L7 Devices** window expands and displays the devices.
- Step 10** Click the main device group to which the specific device belongs:

- The **Navigation** pane displays the devices in the main device group.
- Step 11** Click the device for which you want to display or modify the parameters. The screen both displays a graphic topology for the specified device.
- Step 12** Click the **Parameters** tab. The screen both displays the current features and parameters and allows you to change the values. You see a tab with the **Basic** parameters displayed and another tab **All Parameters** that displays all the available parameters with your device package. (The basic parameters are included under all parameters.)
- Step 13** In the **Features** section, click on the set of features for which you want to modify the parameters. The screen displays the parameters and features for the single device. The set of parameters changes depending on the specific package you are using and the specific feature you select.
- Step 14** Supply or modify the values for the desired features as follows:
- Double-click in the field you want to modify.
  - Enter the required information in the fields that appear.
  - Click the **Update** button.
- Note** Click **Reset** to return these values to the previous values.
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## Applying a Service Graph Template to Endpoint Groups Using the GUI

The following procedure explains how to apply a service graph template to endpoint groups:

### Before You Begin

You must have created the following things:

- Application endpoint groups
- A service graph template

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- Step 1** On the menu bar, choose **Tenants > All Tenants**.
- Step 2** In the Work pane, double click the tenant's name.
- Step 3** In the Navigation pane, choose **Tenant *tenant\_name* > L4-L7 Services > L4-L7 Service Graph Templates > *template\_name***.
- Step 4** In the Work pane, choose **Actions > Apply L4-L7 Service Graph Template**. You will be associating a Layer 4 to Layer 7 service graph template to your consumer and provider endpoint groups.
- Step 5** In the **Apply L4-L7 Service Graph Template To EPGs** dialog, in the **EPG Information** section, complete the following fields:



Name	Description
<b>Consumer EPG/External Network</b> drop-down list	Choose a consumer endpoint group.
<b>Provider EPG/External Network</b> drop-down list	Choose a provider endpoint group.

**Step 6**

In the **Contract Information** section, complete the following fields:

Name	Description
<b>Contract</b> radio buttons	Choose to create a contract or choose an existing contract.
<b>Contract Name</b> field	(Only for creating a contract) Enter the name of the contract.
<b>No Filter (Allow All Traffic)</b> check box	(Only for creating a contract) Put a check in the box to allow all traffic, or remove the check from the box to filter traffic.
<b>Filter Entries</b>	(Only for filtering traffic) Click + and enter the filter information, then click <b>Update</b> .
<b>Existing Contract With Subjects</b> drop-down list	(Only for choosing an existing contract) Choose an existing contract.

**Step 7**

Click **Next**.

**Step 8**

In the **Graph Template** drop-down list, choose a service graph template.

**Step 9**

(Only for a Layer 4 to Layer 7 device) In the **L4L7\_device\_name Information** section for each Layer 4 to Layer 7 device, complete the following fields:

Name	Description
<b>Router Config</b> drop-down list	(Only if you chose <b>Route Peering</b> for the consumer type or provider type) The router configuration to use for policy-based redirect.

**Consumer Connector**

Name	Description
<b>Type</b> radio buttons	The connector type. The type can be: <ul style="list-style-type: none"> <li>• <b>General</b></li> <li>• <b>Route Peering</b>—Enables route peering on the device.</li> </ul>
<b>BD</b> drop-down list	(Only if you chose <b>General</b> for the type) Choose or create a bridge domain for the consumer connector. The bridge domain is used for the data path traffic.

Name	Description
<b>L3 Ext Network</b> drop-down list	(Only if you chose <b>Route Peering</b> for the type) Choose a Layer 3 external (outside) network for the consumer connector.
<b>Cluster Interface</b> drop-down list	Choose or create an interface for the consumer connector.

### Provider Connector

Name	Description
<b>Type</b> radio buttons	The connector type. The type can be: <ul style="list-style-type: none"> <li>• <b>General</b></li> <li>• <b>Route Peering</b>—Enables route peering on the device.</li> </ul>
<b>BD</b> drop-down list	(Only if you chose <b>General</b> for the type) Choose or create a bridge domain for the provider connector. The bridge domain is used for the data path traffic.
<b>L3 Ext Network</b> drop-down list	(Only if you chose <b>Route Peering</b> for the type) Choose a Layer 3 external (outside) network for the provider connector.
<b>Cluster Interface</b> drop-down list	Choose or create an interface for the provider connector.

The Application Policy Infrastructure Controller (APIC) uses the chosen bridge domains for data path traffic between function nodes as required by the chosen service graph template. Refer to the online help for the service graph templates to learn more about how this bridge domain is used.

- Step 10** (Only for a copy device) In the *copy\_device\_name* **Information** section for each copy device, in the **Cluster Interface** drop-down list, choose the cluster interface that you defined for that copy device.
- Step 11** (Only for a managed Layer 4 to Layer 7 device) Click **Next**.
- Step 12** (Only for a managed Layer 4 to Layer 7 device) In the **Parameters** screen, in the **Required Parameters** tab, enter the names and values, as appropriate, for all of the required parameters.
- Step 13** Click **Finish**.  
You now have an active service graph template. The APIC populates the Layer 4 to Layer 7 parameters based on the chosen function profile and colors the mandatory parameters in green if they are configured correctly.
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