



## CHAPTER 9

# Managing a FlexUNI/EVC Ethernet Service Request

This chapter provides information on how to provision a FlexUNI/EVC Ethernet service request. It contains the following sections:

- [Introducing FlexUNI/EVC Service Requests, page 9-1](#)
- [Creating a FlexUNI/EVC Service Request, page 9-2](#)
- [Setting the Service Request Details, page 9-2](#)
- [Modifying the FlexUNI/EVC Service Request, page 9-18](#)
- [Using Templates and Data Files with a FlexUNI/EVC Ethernet Service Request, page 9-19](#)
- [Saving the FlexUNI/EVC Service Request, page 9-19](#)

## Introducing FlexUNI/EVC Service Requests

A FlexUNI/EVC Ethernet service request allows you to configure interfaces on an N-PE to support the FlexUNI/EVC features described in [Chapter 8, “Creating a FlexUNI/EVC Ethernet Policy.”](#) To create a FlexUNI/EVC service request, a FlexUNI/EVC service policy must already be defined. Based on the predefined FlexUNI/EVC policy, an operator creates a FlexUNI/EVC service request and deploys the service. One or more templates can also be associated to the N-PE as part of the service request.

Creating a FlexUNI/EVC Ethernet service request involves the following steps:

- Choose an existing FlexUNI/EVC Ethernet policy.
- Choose a VPN.



**Note** When working with VPN objects in the context of FlexUNI/EVC Ethernet policies and service requests, only the VPN name and customer attributes are relevant. Other VPN attributes related to MPLS and VPLS are ignored.

- Specify a bridge domain configuration (if applicable).
- Specify a service request description.
- Specify automatic or manual allocation of the VC ID or VPLS VPN ID.
- Add direct connect links (if applicable).
- Add links with L2 access nodes (if applicable).

- Choose the N-PE and UNI interface for links.
- For links with L2 access nodes, choose a Named Physical Circuit (NPC) if more than one NPC exists from the N-PE or the UNI interface.
- Edit the link attributes.
- Modify the service request.
- Save the service request.

For sample configlets for FlexUNI/EVC Ethernet scenarios, see [Chapter 18, “Sample Configlets.”](#)

## Creating a FlexUNI/EVC Service Request

To create a FlexUNI/EVC Ethernet service request, perform the following steps.

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**Step 1** Choose **Operate > Service Requests > Service Request Manager**.

The Service Request Manager window appears.

**Step 2** Click **Create**.

**Step 3** Choose **FlexUNI (EVC)** from the drop-down list.

The EVC Policy Selection window appears.

If more than one FlexUNI/EVC policy exists, a list of FlexUNI/EVC policies appears. FlexUNI/EVC service requests must be associated with a FlexUNI/EVC policy. You choose a FlexUNI/EVC policy from the policies previously created (see [Chapter 8, “Creating a FlexUNI/EVC Ethernet Policy”](#)).

**Step 4** Choose a FlexUNI/EVC Ethernet policy from the list.

**Step 5** Click **OK**.

The EVC Service Request Editor window appears.

The new service request inherits all the properties of the chosen FlexUNI/EVC policy, such as all the editable and non-editable features and pre-set parameters.

**Step 6** Continue with the steps contained in the next section, [Setting the Service Request Details, page 9-2](#).

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## Setting the Service Request Details

After you have selected the FlexUNI/EVC Ethernet policy to be used as the basis of the service request, the EVC Service Request Editor window appears. It is divided into three main sections:

- Link Page
- Direct Connect Links (no NPCs)
- Links with L2 Access Nodes (involves NPCs)

This window enables you to specify options for the service request, as well as configure directly connected links and links with L2 access nodes. The options displayed in first section of the window change, depending on the MPLS Core Connectivity Type that was specified in the policy (pseudowire, VPLS, or local). For clarity, each of these scenarios is presented in a separate section below, to highlight the different window configurations and behavior of the displayed options.

Proceed to the appropriate section, as determined by the MPLS Core Connectivity Type for the policy:

- [Pseudowire Core Connectivity, page 9-3](#)
- [VPLS Core Connectivity, page 9-5](#)
- [Local Core Connectivity, page 9-6](#)

Instructions for setting up direct connect links and links with L2 access nodes are presented in later sections.

## Pseudowire Core Connectivity

This sections covers the case in which the MPLS Core Connectivity Type for the FlexUNI/EVC Ethernet policy is PSEUDOWIRE.

To set the attributes in the first section of the Link Page window, perform the following steps.



### Note

The **Job ID** and **SR ID** fields are read-only. When the service request is being created for the first time, the fields display a value of NEW. When an existing service request is being modified, the values of the fields indicate the respective IDs that the Prime Fulfillment database holds within the editing flow of the service request.



### Note

The **Policy** field is read-only. It displays the name of the policy on which the service request is based. Clicking on the read-only policy name displays a list of all the attribute values set within the policy.

**Step 1** Click **Select VPN** to choose a VPN for use with this service request.

The Select VPN window appears with the VPNs defined in the system.



### Note

The same VPN can be used by service requests with LOCAL and PSEUDOWIRE core types. If a VPN for a service request is used with VPLS core type, the same VPN cannot be used for service requests with LOCAL or PSEUDOWIRE core type.

**Step 2** Choose a **VPN Name** in the Select column.

**Step 3** Click **Select**.

The EVC Service Request Editor window appears with the VPN name displayed.

**Step 4** Check the **AutoPick VC ID** check box if you want Prime Fulfillment to choose a VC ID.

If you do not check this check box, you will be prompted to provide the ID in the VC ID field, as covered in the next step.

When AutoPick VC ID is checked, Prime Fulfillment allocates a VC ID for pseudowires from the Prime Fulfillment-managed VC ID resource pool. In this case, the text field for the VC ID option is non-editable.

**Step 5** If AutoPick VC ID was unchecked, enter a VC ID in the **VC ID** field.

Usage notes:

- The VC ID value must be an integer value corresponding to a VC ID.

- When a VC ID is manually allocated, Prime Fulfillment verifies the VC ID to see if it lies within Prime Fulfillment's VC ID pool. If the VC ID is in the pool but not allocated, the VC ID is allocated to the service request. If the VC ID is in the pool and is already in use, Prime Fulfillment prompts you to allocate a different VC ID. If the VC ID lies outside of the Prime Fulfillment VC ID pool, Prime Fulfillment does not perform any verification about whether or not the VC ID allocated. The operator must ensure the VC ID is available.
- The VC ID can be entered only while creating a service. If you are editing the service request, the VC ID field is not editable.

**Step 6** Check the **Enable PseudoWire Redundancy** check box to enable pseudowire redundancy (alternative termination device) under certain conditions.

See [Appendix E, "Terminating an Access Ring on Two N-PEs"](#) and, specifically, the section [Using N-PE Redundancy in FlexUNI/EVC Service Requests, page E-3](#), for notes on how this option can be used.

**Step 7** If the AutoPick VC ID attribute was unchecked, enter a VC ID for the backup pseudowire in the **Backup PW VC ID** field.

See the usage notes for the AutoPick VC ID attribute in Step 7, above. The backup VC ID behaves the same as the VC ID of the primary pseudowire.

**Step 8** Check the **Configure Bridge Domain** check box to determine bridge domain characteristics.

The behavior of the Configure Bridge Domain option works in tandem with the choice you selected in the MPLS Core Connectivity Type option in the FlexUNI/EVC policy, which in this case is pseudowire core connectivity. There are two cases:

- With FlexUNI:
  - If **Configure With Bridge Domain** is checked, the policy will configure pseudowires under SVIs associated to the bridge domain.
  - If **Configure With Bridge Domain** is unchecked, the policy will configure pseudowires directly under the service instance. This will conserve the global VLAN.
- Without FlexUNI:
  - If **Configure With Bridge Domain** is checked, the policy will configure pseudowires under SVIs.
  - If **Configure With Bridge Domain** is unchecked, the policy will configure pseudowires directly under subinterfaces.

Pseudowires can be configured either directly under service instance of the corresponding FlexUNI-capable interface or under SVIs associated to the bridge domain.

**Step 9** Check the **Use Split Horizon** check box to enable split horizon with bridge domain.

Usage notes:

- The Use Split Horizon attribute is disabled by default.
- The Use Split Horizon attribute can be used only when the Configure Bridge Domain check box is checked (enabled).
- When Use Split Horizon is enabled, the **bridge domain** command in the CLI will be generated with split horizon. When it is disabled, the **bridge domain** command will be generated without split horizon.

**Step 10** Click the "Click here" link of the **Description** attribute to enter a description label for the service request.

This is useful for searching the Prime Fulfillment database for the particular service request.

A dialogue appears in which you can enter a description.

- Step 11** To set up direct connect links, see the section [Setting Direct Connect Links, page 9-8](#).
- Step 12** To set up links with L2 access nodes, see the section [Setting Links with L2 Access Nodes, page 9-17](#).

## VPLS Core Connectivity

This section covers the case in which the MPLS Core Connectivity Type for the FlexUNI/EVC Ethernet policy is VPLS.

To set the attributes in the first section of the Link Page window, perform the following steps.

- Step 1** The **Job ID** and **SR ID** fields are read-only.
- When the service request is being created for the first time, the fields display a value of NEW. When an existing service request is being modified, the values of the fields indicate the respective IDs that the Prime Fulfillment database holds within the editing flow of the service request.
- Step 2** The **Policy** field is read-only. It displays the name of the policy on which the service request is based.
- Step 3** Click **Select VPN** to choose a VPN for use with this service request.
- The Select VPN window appears with the VPNs defined in the system.



**Note** The same VPN can be used by service requests with LOCAL and PSEUDOWIRE core types. If a VPN for a service request is used with VPLS core type, the same VPN cannot be used for service requests with LOCAL or PSEUDOWIRE core type.



**Note** If the same VPN is used among multiple service requests, all having VPLS core type, then all these service requests participate in the same VPLS service.

- Step 4** Choose a **VPN Name** in the Select column.
- Step 5** Click **Select**.
- The EVC Service Request Editor window appears with the VPN name displayed.
- Step 6** Check the **AutoPick VPLS VPN ID** check box if you want Prime Fulfillment to choose a VPLS VPN ID.
- If you do not check this check box, you will be prompted to provide the VPN ID in the VPLS VPN ID field, as covered in the next step.
- When AutoPick VPLS VPN ID is checked, Prime Fulfillment allocates a VPLS VPN ID from the Prime Fulfillment-managed VC ID resource pool. In this case, the text field for the VPLS VPN ID option is non-editable.
  - If AutoPick VPLS VPN ID is checked and a service request already exists that refers to same VPN object, the VPLS VPN ID of the existing service request is allocated to the new service request.
- Step 7** If AutoPick VPLS VPN ID was unchecked, enter a VPLS VPN ID in the **VPLS VPN ID** field.

Usage notes:

- The VPLS VPN ID value must be an integer value corresponding to a VPN ID.

- When a VPLS VPN ID is manually allocated, Prime Fulfillment verifies the VPLS VPN ID to see if it lies within Prime Fulfillment's VC ID pool. If the VPLS VPN ID is in the pool but not allocated, the VPLS VPN ID is allocated to the service request. If the VPLS VPN ID is in the pool and is already in use, Prime Fulfillment prompts you to allocate a different VPLS VPN ID. If the VPLS VPN ID lies outside of the VC ID pool, Prime Fulfillment does not perform any verification about whether the VPLS VPN ID allocated. The operator must ensure the VPLS VPN ID is available.
- The VPLS VPN ID can be entered only while creating a service. If you are editing the service request, the VPLS VPN ID field is not editable.

**Step 8** The **Configure Bridge Domain** check box is checked by default and cannot be changed.

Usage notes:

- For VPLS, all configurations are under the SVI.
- When the FlexUNI feature is used, all configurations are under the SVI and also associated to a bridge domain.

**Step 9** Check the **Use Split Horizon** check box to enable split horizon with bridge domain.

Usage notes:

- The Use Split Horizon attribute is disabled by default.
- The Use Split Horizon attribute can be used only when the Configure Bridge Domain check box is checked (enabled).
- When Use Split Horizon is enabled, the **bridge domain** command in the CLI will be generated with split horizon. When it is disabled, the **bridge domain** command will be generated without split horizon.

**Step 10** Click the "Click here" link of the **Description** attribute to enter a description label for the service request.

A dialogue appears in which you can enter a description.

**Step 11** To set up direct connect links, see the section [Setting Direct Connect Links, page 9-8](#).

**Step 12** To set up links with L2 access nodes, see the section [Setting Links with L2 Access Nodes, page 9-17](#).

## Local Core Connectivity

This section covers the case in which the MPLS Core Connectivity Type for the FlexUNI/EVC Ethernet policy is LOCAL.

To set the attributes in the first section of the Link Page window, perform the following steps.

**Step 1** The **Job ID** and **SR ID** fields are read-only.

When the service request is being created for the first time, the fields display a value of NEW. When an existing service request is being modified, the values of the fields indicate the respective IDs that the Prime Fulfillment database holds within the editing flow of the service request.

**Step 2** The **Policy** field is read-only.

It displays the name of the policy on which the service request is based.

**Step 3** Click **Select VPN** to choose a VPN for use with this service request.

The Select VPN window appears with the VPNs defined in the system.



**Note** The same VPN can be used by service requests with LOCAL and PSEUDOWIRE core types. If a VPN for a service request is used with VPLS core type, the same VPN cannot be used for service requests with LOCAL or PSEUDOWIRE core type.

**Step 4** Choose a **VPN Name** in the Select column.

**Step 5** Click **Select**.

The EVC Service Request Editor window appears with the VPN name displayed.

**Step 6** Check the **Configure Bridge Domain** check box to determine bridge domain characteristics.

Usage notes:

- If Configure Bridge Domain is checked, all links will have the same bridge domain ID allocated from the VLAN pool on the N-PE. All non-FlexUNI links will have the Service Provider VLAN as the bridge domain ID. On the other hand, if no FlexUNI links are added, the Service Provider VLAN will be allocated first and this will be used as the bridge domain ID when FlexUNI links are added.
- If Configure Bridge Domain is unchecked, a maximum of two links that terminate on the same N-PE can be added. (This uses the **connect** command available in the EVC infrastructure.)



**Note** See the following comments for details on how Prime Fulfillment autogenerated the connect name.

Because the device only accepts a maximum of 15 characters for the connect name, the connect name is generated using the following format:

*CustomerNameTruncatedToMaxPossibleCharacters\_ServiceRequestJobID*

For example, if the customer name is NorthAmericanCustomer and the service request job ID is 56345, the autogenerated connect name would be NorthAmer\_56345.

The CLI generated would be:

```
connect NorthAmer_56345 GigabitEthernet7/0/5 11 GigabitEthernet7/0/4 18
```

In this case, 11 and 18 are service instance IDs.

- If the policy setting for Configure Bridge Domain is non-editable, the option in the service request will be read-only.

**Step 7** Check the **Use Split Horizon** check box to enable split horizon with bridge domain.

Usage notes:

- The Use Split Horizon attribute is disabled by default.
- The Use Split Horizon attribute can be used only when the Configure Bridge Domain check box is checked (enabled).
- When Use Split Horizon is enabled, the **bridge domain** command in the CLI will be generated with split horizon. When it is disabled, the **bridge domain** command will be generated without split horizon.

**Step 8** Click the “Click here” link of the **Description** attribute to enter a description label for the service request.

A dialogue appears in which you can enter a description.

**Step 9** To set up direct connect links, see the section [Setting Direct Connect Links, page 9-8](#).

**Step 10** To set up links with L2 access nodes, see the section [Setting Links with L2 Access Nodes, page 9-17](#).

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## Setting up Links to the N-PE

The lower two sections of the EVC Service Request Editor window allow you to set up links to the N-PE. For direct connect links, the CE is directly connected to the N-PE, with no intermediate L2 access nodes. For links with L2 access nodes, there are intermediate devices present between the CE and NPE requiring NPCs to be created in Prime Fulfillment.

The Direct Connect Links section of the window is where you set up links that directly connect to the N-PE. No NPC are involved. The Links with L2 Access Nodes section is where you set up links with L2 (Ethernet) access nodes. NPCs are involved.

See the appropriate section, depending on which type of link you are setting up:

- [Setting Direct Connect Links, page 9-8](#)
- [Setting Links with L2 Access Nodes, page 9-17](#)



### Note

Many of steps for setting up the two link types are the same. The basic workflow for setting up links, as well as the attributes to be set, are presented in the section [Setting Direct Connect Links, page 9-8](#). Even if you are setting up links with L2 access nodes, it will be helpful to refer to the information presented in that section, as the section on L2 access nodes only covers the unique steps for such links.

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## Setting Direct Connect Links

To set up the direct connect links, perform the following steps. Most of these steps apply to links with L2 access nodes also.

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**Step 1** Click **Add** to add a link.

A new numbered row for the link attributes appears.

**Step 2** Click **Select NPE** in N-PE column.

The Select PE Device window appears. This window displays the list of currently defined PEs.

- The **Show PEs with** drop-down list shows PEs by Provider, PE Region Name, or by Device Name.
- The **Find** button allows a search for a specific PE or a refresh of the window.
- The **Rows per page** drop-down list allows the user to configure the number of entries displayed on the screen at one time.

**Step 3** In the **Select** column, choose the PE device name for the link.

**Step 4** Click **Select**.

The EVC Service Request Editor window reappears displaying the name of the selected PE in the N-PE column.

**Step 5** Choose the UNI interface from the drop-down list in the UNI column.



**Note**

Prime Fulfillment only displays the available interfaces for the service, based on the configuration of the underlying interfaces, existing service requests that might be using the interface, and the customer associated with the service request. You can click the **Detail** button to display a pop-up window with information on the available interfaces, such as interface name, customer name, VPN name, job ID, service request ID, service request type, translation type, and VLAN ID information.

**Note**

When the UNI is configured on an N-PE device running IOS XR, the Standard UNI Port attribute is not supported. All the CLIs related to Standard UNI Port and UNI Port Security are ignored in this case.

**Step 6**

Check the **FlexUNI(EVC)** check box to mark the link for configuring service instance for the links.

**Note**

The FlexUNI(EVC) check box is mentioned at this stage because the setting of the check box alters the behavior of the link editing function available in the Link Attributes column. This is covered in the next steps.

**Editing the Link Attributes**

The next steps document the use of the **Edit** link in the Link Attributes column. (In the case where the link attributes have already been set, this link changes from **Edit** to **Change**.) The link editing workflow changes depending on the status of the FlexUNI(EVC) check box for the link. If the FlexUNI(EVC) check box is checked, the editing workflow involves setting attributes in two windows, for two sets of link attributes:

- The FlexUNI(EVC) Details
- Standard UNI Details

If the FlexUNI(EVC) check box for the link is not checked, only the Standard UNI Details window is presented.

In the steps that follow, both scenarios covered.

**Step 7**

Click **Edit** in the Link Attributes column to specify the UNI attributes.

**FlexUNI(EVC) Details Window**

If the FlexUNI(EVC) check box is checked, the FlexUNI(EVC) Details window appears.

All of the fields in the FlexUNI(EVC) Details screen are enabled based on the policy settings. For example, if Both Tags is selected in the policy and is editable, then the Match Inner and Outer Tags check box will be selected and editable in this window. The behavior is similar for the other attributes in the FlexUNI(EVC) Details window

**Step 8**

Check the **AutoPick Service Instance ID** check box to specify that the service instance ID will be autogenerated and allocated to the link during service request creation.

If the check box is unchecked, you must specify the service instance ID (see the next step).

Usage notes:

- The service instance ID represents an Ethernet Flow Point (EFP) on an interface in the EVC infrastructure. The service instance ID is locally significant to the interface. This ID has to be unique only at the interface level. The ID must be a value from 1 to 8000.
- There are no resource pools available in Prime Fulfillment from which to allocate the service instance IDs.

- In the case of a manually provided service instance ID, it is the responsibility of the operator to maintain the uniqueness of the ID at the interface level.
- This attribute is not displayed for IOS XR devices.

**Step 9** If the AutoPick Service Instance ID check box is not checked, enter an appropriate value for the service instance ID in the **Service Instance ID** field.

This attribute is not displayed for IOS XR devices.

**Step 10** Check the **AutoPick Service Instance Name** check box to specify that the service instance name will be autogenerated.

If the check box is unchecked, you can specify the service instance name (see the next step).

Usage notes:

- If the check box is checked, the Service Instance Name text field is disabled.
- The service instance name is autogenerated in the following pattern:  
*CustomerName\_ServiceRequestJobID.*
- For example configlets, see [FlexUNI/EVC \(AutoPick Service Instance Name\)](#), page 18-41, [FlexUNI/EVC \(User-Provided Service Instance Name, Pseudowire Core Connectivity\)](#), page 18-43, and [FlexUNI/EVC \(User-Provided Service Instance Name, Local Core Connectivity\)](#), page 18-44.
- This attribute is not displayed for IOS XR devices.

**Step 11** If the AutoPick Service Instance Name check box is not checked, enter an appropriate value for the service instance ID in the **Service Instance Name** field.

Usage notes:

- The text string representing the service instance name must be 40 characters or less and contain no spaces. Other special characters are allowed.
- If AutoPick Service Instance Name is unchecked and no service instance name is entered in the text field, then Prime Fulfillment does not generate the global **ethernet evc evcname** command in the device configuration generated by the service request.

**Step 12** Check the **AutoPick Bridge Domain/VLAN ID** check box to have Prime Fulfillment autopick the VLAN ID for the service request during service request creation.

If this check box is unchecked, the you must specify a bridge domain VLAN ID (see the next step).

Usage notes:

- AutoPick Bridge Domain/VLAN ID consumes a global VLAN ID on the device.
- The bridge domain VLAN ID is picked from the existing Prime Fulfillment VLAN pool.

**Step 13** If the AutoPick Bridge Domain/VLAN ID check box is unchecked, enter an appropriate value in the **Bridge Domain/VLAN ID** field.




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**Note** This configuration applies in conjunction with the Configure Bridge Domain option in the EVC Service Request Editor window. If the option is not enabled in that window, then AutoPick Bridge Domain/VLAN ID check box is redundant and not required.

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When a VLAN ID is manually allocated, Prime Fulfillment verifies the VLAN ID to see if it lies within Prime Fulfillment's VLAN ID pool. If the VLAN ID is in the pool but not allocated, the VLAN ID is allocated to the service request. If the VLAN ID is in the pool and is already in use, Prime Fulfillment prompts you to allocate a different VLAN ID. If the VLAN ID lies outside of the Prime Fulfillment VLAN ID pool, Prime Fulfillment does not perform any verification about whether the VLAN ID allocated. The operator must ensure the VLAN ID is available.

**Step 14** Check the **Match Inner and Outer Tags** check box to enable service requests created with the policy to match both the inner and outer VLAN tags of the incoming frames.

If you do not check this check box, service requests created with the policy will match only the outer VLAN tag of the incoming frames.

Checking the Match Inner and Outer Tags attribute causes the Inner VLAN ID and Outer VLAN ID fields (covered in the next steps) to appear.

**Step 15** If the Match Inner and Outer Tags check box is checked, enter the inner and outer VLAN tags in the **Inner VLAN ID** and **Outer VLAN ID** fields.

Usage notes:

- You can specify single values, single ranges, multiples values, multiple ranges, or combinations of these. Examples:
  - 10
  - 10, 15,17
  - 10-15
  - 10-15,17-20
  - 10,20-25
- If the Inner VLAN Ranges attribute is set to true in the policy, the Inner VLAN ID field can take a range of inner VLAN tags.
- If the Outer VLAN Ranges attribute is set to true in the policy, the Outer VLAN ID field can take a range of Outer VLAN tags.

**Step 16** If the Match Inner and Outer Tags check box is unchecked, enter the outer VLAN tag in the **Outer VLAN ID** field.



**Note**

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The VLAN specified in Outer VLAN ID will be provisioned on the rest of the L2 access nodes (if the link has any), including the customer-facing UNI.

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**Step 17** In the VLAN Rewrite section of the window, choose a **Rewrite Type** from the drop-down list.

The choices are:

- **Pop**
- **Push**
- **Translate**

The subsequent attributes in the GUI change depending on the choice of Rewrite Type, as covered in the next steps.

**Step 18** If Pop is the Rewrite Type, two check boxes appear:

- a. Check the **Pop Outer Tag** check box to pop the outer VLAN ID tag of the incoming frames that fulfill the match criteria. If this check box is unchecked, the outer tag of the incoming traffic will not be popped.
- b. Check the **Pop Inner Tag** check box to pop the inner VLAN ID tag of the incoming frames that fulfill the match-criteria. If this check box is unchecked, the inner tag will not be changed.

Note that if Pop Inner Tag is checked, Pop Outer Tag is automatically checked.

- Step 19** If Push is the Rewrite Type, two text boxes appear:
- In the text box **Outer VLAN ID**, enter an outer VLAN ID tag that will be imposed on the incoming frames that fulfill the match criteria. All service requests created with this setting push a dot1q outer tag on the incoming frames matching the match criteria. If a value is not provided, the push operation is ignored and not configured on the device.
  - In the text box **Inner VLAN ID**, enter an inner VLAN ID tag that will be imposed on the incoming frames that fulfill the match criteria. All service requests created with this setting push a dot1q inner tag on the incoming frames matching the match criteria. The Inner VLAN tag cannot be pushed without an Outer VLAN tag. That is, when pushing an Inner VLAN tag, the Outer VLAN tag also must be defined.
- Step 20** If Translate is the Rewrite Type, a **Translation Type** drop-down list appears.
- The choices available in this list vary depending on the setting of the Match Inner and Outer Tags attribute (set in a previous step).
- If the Match Inner and Outer Tags check box is checked (true), choose a translation type of **1:1**, **1:2**, **2:1**, or **2:2** from the Translation Type drop-down list.
    - If you choose 1:1 or 2:1, enter a value in the **Outer VLAN ID** text box that appears. The outer tag of all the incoming frames that fulfill the match criteria will be translated to this ID.
    - If you choose 1:2 or 2:2, enter values in the **Outer VLAN ID** and **Inner VLAN ID** text boxes that appear. The outer and inner tags of all the incoming frames that fulfill the match criteria will be translated to these IDs.
  - If the Match Inner and Outer Tags check box is unchecked (false), choose a translation type of **1:1** or **1:2** from the Translation Type drop-down list.
    - If you choose 1:1, enter a value in the **Outer VLAN ID** text box that appears. The outer tag of all the incoming frames that fulfill the match criteria will be translated to this ID.
    - If you choose 1:2, enter values in the **Outer VLAN ID** and **Inner VLAN ID** text boxes that appear. The outer and inner tags of all the incoming frames that fulfill the match criteria will be translated to these IDs.
- Step 21** Clicked **Next** to save the settings in the FlexUNI(EVC) Details window.
- The Standard UNI Details window appears.
- Step 22** Continue with setting the standard UNI link attributes in the next steps.

#### Editing the Standard UNI Attributes

The following steps cover setting the attributes in the Standard UNI Details window. In the case of a link which is not set as a FlexUNI link (by not checking the FlexUNI(EVC) check box in the EVC Service Request Editor window), editing the link attributes begins with this window.



#### Note

The attributes that appear in the Standard UNI Details window are dynamically configured by Prime Fulfillment. Some of the attributes covered in the steps below might not appear in the window, depending on the policy and service request settings or the link type. For example, if the MPLS core connectivity type of the FlexUNI/EVC policy is VPLS or local, the pseudowire-related attributes will not appear. Also, setting the link as FlexUNI or non-FlexUNI will change the attributes that appear in the window. In addition, attributes are filtered based on device type (IOS or IOS XR). These and other cases are noted in the steps, for reference.

- Step 23** The **N-PE/U-PE Information** and **Interface Name** fields display the PE device and interface name selected in previous steps.

These fields are read-only.

**Step 24** Choose an **Encapsulation** type from the drop-down list.

The choices are:

- **DOT1QTRUNK**—Configures the UNI as a trunk with 802.1q encapsulation. If the UNI belongs to a directly connected and FlexUNI link, this setting signifies that the incoming frames are 802.1q encapsulated and that they match the VLAN ID configured for the link. This specific topology does not involve a trunk UNI as such.
- **DOT1QTUNNEL**—Configures the UNI as an 802.1q tunnel (also known as a dot1q tunnel or Q-in-Q) port.
- **ACCESS**—Configures the UNI as an access port.

This attribute allows you to deploy different types of UNI encapsulation on different links of a service.

Usage notes:

- When a U-PE running with IOS is added in the same circuit terminating on an ASR 9000 (functioning in an N-PE role), the all three encapsulation types values will be visible in the drop-down list of the Encapsulation attribute.
- DOT1QTUNNEL is not directly supported for ASR 9000 devices.
- In the case of direct connect links for which FlexUNI(EVC) is enabled (by checking the FlexUNI(EVC) check box in the EVC Service Request Editor window), the choices for the Encapsulation type are DOT1Q and DEFAULT.

**Step 25** In the **PE/UNI Interface Description** field, enter a description for the interface, if desired.

**Step 26** Check the **UNI Shutdown** check box if you want to leave the UNI port shut during service activation (for example, when the service provider wants to deploy a service in the network but wants to activate it at a later time).

**Step 27** Specify the type of **VLAN Translation** for the service request by clicking the appropriate radio button.

The choices are:

- **No**—No VLAN translation is performed. (This is the default.)
- **1:1**—1:1 VLAN translation.
- **2:1**—2:1 VLAN translation.



**Note** For detailed coverage of setting up VLAN translation, see [Chapter 19, “Setting Up VLAN Translation.”](#)

This attribute is not displayed for IOS XR devices.

**Step 28** Check the **N-PE Pseudo-wire on SVI** check box to have Prime Fulfillment generate forwarding commands under SVIs (switch virtual interfaces).

By default, this check box is not checked. In this case, Prime Fulfillment generates forwarding commands under the service instance.

For a FlexUNI link, the attribute N-PE Pseudo-wire on SVI is dependent on the value of the attribute Configure with Bridge Domain (this is available in the service request workflow in the EVC Service Request Editor window). N-PE Pseudo-wire on SVI, if enabled, will be reflected only when Configure with Bridge Domain is set to true. Otherwise, the service request will not be created with xconnect under SVI, even if N-PE Pseudo-wire on SVI is enabled.

Usage notes:

- For a FlexUNI link, the attribute N-PE Pseudo-wire on SVI is dependent on the value of the attribute Configure with Bridge Domain (in the EVC Service Request Editor window). N-PE Pseudo-wire on SVI, if enabled, will be reflected only when Configure with Bridge Domain is set to true. Otherwise, the service request will not be created with xconnect under SVI, even if N-PE pseudo-wire on SVI is enabled.
- Prime Fulfillment supports a hybrid configuration for FlexUNI/EVC service requests. In a hybrid configuration, the forwarding commands (such as xconnect) for one side of an attachment circuit can be configured under a service instance, and the xconnect configuration for the other side of the attachment circuit can be configured under a switch virtual interface (SVI).
- N-PE Pseudo-wire on SVI is applicable for all connectivity types (PSEUDOWIRE, VPLS, and LOCAL), but a hybrid SVI configuration is possible only for pseudowire connectivity.
- When MPLS Core Connectivity Type is set as VPLS, the N-PE Pseudo-wire on SVI attribute is always enabled in the policy and service request.
- When MPLS Core Connectivity Type is set as LOCAL connectivity type, the N-PE Pseudo-wire on SVI attribute is always disabled in the policy and service request.
- For examples of these cases, see configlet examples [FlexUNI/EVC \(Pseudowire Core Connectivity, Bridge Domain, Pseudowire on SVI\)](#), page 18-39 and [FlexUNI/EVC \(Pseudowire Core Connectivity, no Bridge Domain, no Pseudowire on SVI\)](#), page 18-40.
- For additional information on the N-PE Pseudo-wire on SVI attribute, see the corresponding coverage in the FlexUNI/EVC policy chapter in the section [Setting the Interface Attributes](#), page 8-10.
- The N-PE Pseudo-wire on SVI attribute is not supported for IOS XR devices. All the xconnect commands are configured on L2 subinterfaces.

**Step 29** Check the **PW Tunnel Selection** check box if you want to be able to manually select the Traffic Engineering (TE) tunnel for the pseudowire connecting point-to-point N-PEs.

Usage notes:

- Checking the PW Tunnel Selection check box activates the Interface Tunnel attribute field (see the next step).
- This attribute only appears if the MPLS core connectivity type is set as pseudowire in the FlexUNI/EVC policy.
- The PW Tunnel Selection attribute is not supported for IOS XR devices.

**Step 30** If you checked the PW Tunnel Selection check box, enter the TE tunnel ID in the **Interface Tunnel** text field.

Usage notes:

- Prime Fulfillment uses the tunnel information to create and provision a pseudowire class that describes the pseudowire connection between two N-PEs. This pseudowire class can be shared by more than one pseudowire, as long as the pseudowires share the same tunnel ID and remote loopback address. During service request creation, Prime Fulfillment does not check the validity of the tunnel ID number. That is, Prime Fulfillment does not verify the existence of the tunnel.
- The Interface Tunnel attribute is not supported for IOS XR devices.

**Step 31** Check the **AutoPick Bridge Group Name** check box to have Prime Fulfillment autopick the bridge group name during service request creation.

If this check box is unchecked, you are prompted to specify a bridge group name during service request creation (see the next step).

Usage notes:

- This attribute only displays for IOS XR devices.
- If the AutoPick Bridge Group Name check box is unchecked, enter an bridge group name in the **Bridge Group Name** text field.
- The AutoPick Bridge Group Name and Bridge Group Name attributes only appear if Configure Bridge Domain was enabled in the EVC Service Request Editor window earlier in the service request workflow.

**Step 32** Check the **AutoPick Bridge Domain/VLAN ID** check box to have Prime Fulfillment autopick the VLAN ID during service request creation.

If this check box is unchecked, you are prompted to specify a VLAN ID during service request creation (see the next step).

Usage notes:

- AutoPick Bridge Domain/VLAN ID consumes a global VLAN ID on the device.
- The bridge domain VLAN ID is picked from the existing Prime Fulfillment VLAN pool.
- The AutoPick Bridge Domain/VLAN ID attribute appears for both Cisco 7600 and ASR 9000 devices. It will be displayed only for non-FlexUNI links.

**Step 33** If the AutoPick Bridge Domain/VLAN ID check box is unchecked, enter an ID number in the **Bridge Domain/VLAN ID** text field.

Usage notes:

- If AutoPick Bridge Domain/VLAN ID is checked, this field is non-editable.
- When a VLAN ID is manually allocated, Prime Fulfillment verifies the VLAN ID to see if it lies within Prime Fulfillment's VLAN ID pool. If the VLAN ID is in the pool but not allocated, the VLAN ID is allocated to the service request. If the VLAN ID is in the pool and is already in use, Prime Fulfillment prompts you to allocate a different VLAN ID. If the VLAN ID lies outside of the Prime Fulfillment VLAN ID pool, Prime Fulfillment does not perform any verification about whether the VLAN ID allocated. The operator must ensure the VLAN ID is available.
- The Bridge Domain/VLAN ID text field appears for both Cisco 7600 and ASR 9000 devices. It will be displayed only for non-FlexUNI links.

**Step 34** Check the **AutoPick Bridge Domain Name** check box to have Prime Fulfillment autopick the bridge domain name during service request creation.

If this check box is unchecked, you are prompted to specify a bridge domain name during service request creation (see the next step).

Usage notes:

- The AutoPick Bridge Domain Name attribute appears only for Cisco ASR 9000 devices.
- The AutoPick Bridge Domain Name attribute only appears if Configure Bridge Domain was enabled in the EVC Service Request Editor window earlier in the service request workflow.

**Step 35** If the AutoPick Bridge Domain Name check box is unchecked, enter a bridge domain name in the **Bridge Domain Name** text field.

Usage notes:

- Bridge Domain Name field appears only for Cisco ASR 9000 devices.
- The Bridge Domain Name attribute only appears if Configure Bridge Domain was enabled in the EVC Service Request Editor window earlier in the service request workflow.

**Step 36** Check the **Use PseudoWireClass** check box to enable the selection of a pseudowire class.

This attribute is unchecked by default.

Usage notes:

- The pseudowire class name is used for provisioning pw-class commands on IOS XR devices. See [Creating and Modifying Pseudowire Classes for IOS XR Devices, page 7-10](#) for additional information on pseudowire class support for IOS XR devices.
- If Use PseudoWireClass is checked, an additional attribute, **PseudoWireClass**, appears in the GUI. Click the **Select** button of PseudoWireClass attribute to choose a pseudowire class previously created in Prime Fulfillment.
- The Use PseudoWireClass attribute is only available if the MPLS core connectivity type was set as PSEUDOWIRE in the Service Options window (see [Setting the Service Options, page 8-3](#)).
- Use PseudoWireClass is only applicable for IOS XR devices.
- The Use PseudoWireClass and PseudoWireClass attributes only appear if Configure Bridge Domain was not enabled in the EVC Service Request Editor window earlier in the service request workflow.

**Step 37** For **L2VPN Group Name** choose one of the following from the drop-down list:

- **ISC**
- **VPNSC**

Usage notes:

- This attribute is used for provisioning the L2VPN group name on IOS XR devices.




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**Note** The choices in the drop-down list are derived from a configurable DCPL property. For information about how to define the L2VPN Group Name choices available in the drop-down list, see [Defining L2VPN Group Names for IOS XR Devices, page 7-13](#).

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- The L2VPN Group Name attribute is not available if the MPLS core connectivity type was set as VPLS in the Service Options window (see [Setting the Service Options, page 8-3](#)).
- L2VPN Group Name is only applicable for IOS XR devices.
- The L2VPN Group Name attribute only appears if Configure Bridge Domain was not enabled in the EVC Service Request Editor window earlier in the service request workflow.

**Step 38** Enter an **E-Line Name** to specify the point-to-point (p2p) E-line name.

Usage notes:

- If no value is specified for the **E-Line Name**, Prime Fulfillment autogenerates a default name as follows:
  - For PSEUDOWIRE core connectivity type, the format is:  
*DeviceName--VC\_ID*
  - For LOCAL core connectivity type, the format is:  
*DeviceName--VLAN\_ID*

If the default name is more than 32 characters, the device names are truncated.

- The E-Line Name attribute is not available if the MPLS core connectivity type was set as VPLS in the Service Options window (see [Setting the Service Options, page 8-3](#)).
- E-Line Name is only applicable for IOS XR devices.
- The E-Line Name attribute only appears if Configure Bridge Domain was not enabled in the EVC Service Request Editor window earlier in the service request workflow.



- Step 39** Click **OK** to save the Standard UNI settings and return to the EVC SR window.
- The value in the Link Attributes column now displays as “Changed,” signifying that the link settings have been updated. You can edit the link attributes now or at a future time by clicking on the Changed link and modifying the settings in the Standard UNI Details window.
- See [Modifying the FlexUNI/EVC Service Request, page 9-18](#) for details on editing the link attributes.
- Step 40** To add another link click the **Add** button and set the attributes for the new link as in the previous steps in this section.
- Step 41** To delete a link, check the check box in the first column of the row for that link and click the **Delete** button.
- Step 42** If you want to set up links with L2 access nodes for this service request, see [Setting Links with L2 Access Nodes, page 9-17](#).
- Step 43** When you have completed setting the attributes in the EVC Service Request Editor window, click the **Save** button at the bottom of the window to save the settings and create the FlexUNI/EVC service request.
- If any attributes are missing or incorrectly set, Prime Fulfillment displays a warning in the lower left of the window. Make any corrections or updates needed (based on the information provided by Prime Fulfillment), and click the **Save** button.
- For information on modifying a FlexUNI/EVC service request see the section [Modifying the FlexUNI/EVC Service Request, page 9-18](#). For additional information about saving a FlexUNI/EVC service request, see [Saving the FlexUNI/EVC Service Request, page 9-19](#).
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## Setting Links with L2 Access Nodes

The Links with L2 Access Nodes section of the EVC Service Request Editor window allows you to set up links with L2 (Ethernet) access nodes. These are similar to direct connect links, except that they have L2/Ethernet access nodes beyond the N-PE (towards the CE). Therefore, NPCs are involved. The steps for setting up links with L2 access nodes are similar to those covered in the section [Setting Direct Connect Links, page 9-8](#). See that section for detailed steps on the following common operations:

- Adding and deleting links.
- Selecting the N-PE.
- Choosing the UNI interface.
- Setting the link as a FlexUNI link.
- Editing the standard and FlexUNI link attributes.

The main difference in setting up links with L2 access does is specifying the NPC details.

To set the NPC details for links with L2 access nodes, perform the following steps.

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- Step 1** The first step in the process of adding a link using NPCs is selecting the U-PE/PE-AGG device, rather than the N-PE.
- If only one NPC exists for the chosen interface, that NPC is autopopulated in the Circuit Details column, and you need not choose it explicitly.
- If more than one NPC is available, click **Select one circuit** in the Circuit Selection column. The NPC window appears, enabling you to choose the appropriate NPC.
- Step 2** Click **OK**.

Each time you choose a PE and its interface, the NPC that was set up from this PE and interface is automatically displayed under **Circuit Selection**. This means that you do not have to further specify the PE to complete the link.

If you want to review the details of this NPC, click **Circuit Details** in the Circuit Details column. The NPC Details window appears and lists the circuit details for this NPC.

**Step 3** For details about editing link attributes, adding or deleting links, or using the FlexUNI(EVC) check box, see the corresponding steps in the section [Setting Direct Connect Links, page 9-8](#).

**Step 4** When you have completed setting the attributes in the EVC Service Request Editor window, click the **Save** button at the bottom of the window to save the settings and create the FlexUNI/EVC service request.

If any attributes are missing or incorrectly set, Prime Fulfillment displays a warning in the lower left of the window. Make any corrections or updates needed (based on the information provided by Prime Fulfillment), and click the **Save** button.

For information on modifying a FlexUNI/EVC service request see the section [Modifying the FlexUNI/EVC Service Request, page 9-18](#). For additional information about saving a FlexUNI/EVC service request, see [Saving the FlexUNI/EVC Service Request, page 9-19](#).

## Modifying the FlexUNI/EVC Service Request

You can modify a FlexUNI/EVC service request if you must change or modify the links or other settings of the service request.

To modify a FlexUNI/EVC service request, perform the following steps.

**Step 1** Choose **Operate > Service Requests > Service Request Manager**.

The Service Request Manager window appears, showing service requests available in Prime Fulfillment.

**Step 2** Check a check box for a service request.

**Step 3** Click **Edit**.

EVC Service Request Editor window appears.

**Step 4** Modify any of the attributes, as desired.

See the sections start with “[Setting the Service Request Details](#)” section on page 9-2 for detailed coverage of setting attributes in this window.



**Note** Once the VC ID, VPLS VPN ID, and VLAN ID have been set in a service request they cannot be modified.

**Step 5** To add a template/data file to an attachment circuit, see the section [Using Templates and Data Files with a FlexUNI/EVC Ethernet Service Request, page 9-19](#).

**Step 6** When you are finished editing the FlexUNI/EVC service request, click **Save**.

For additional information about saving a FlexUNI/EVC service request, see [Saving the FlexUNI/EVC Service Request, page 9-19](#).

# Using Templates and Data Files with a FlexUNI/EVC Ethernet Service Request

Prime Fulfillment does not support configuration of all the available CLI commands on a device being managed by the application. In order to configure such commands on the devices, you can use Prime Fulfillment Template Manager functionality. Templates can be associated at the policy level on a per-device role basis. Templates can be overridden at service request level, if the policy-level setting permits the operator to do so.

To associate templates and data files in a service request select any link in the Service Request Editor window and click the **Template** button at the bottom of the window.

**Note**

If the template feature has not been enabled in the associated policy then the Template button will not be available for selection.

The SR Template Association window appears. In this window, you can associate templates at a per-device level. The SR Template Association window lists the devices comprising the link, the device roles, and the template(s)/data file(s) associated with the devices. In this case, the template(s)/data file(s) have not yet been set up.

For further instructions on how to associate templates and data files with a service request, see [Chapter 49, “Using Templates and Data Files with Policies and Service Requests,”](#) especially the section [Using Templates with Service Requests, page 49-8.](#)

## Saving the FlexUNI/EVC Service Request

To save a FlexUNI/EVC Ethernet service request, perform the following steps.

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- Step 1** When you have finished setting the attributes for the FlexUNI/EVC Ethernet service request, click **Save** to create the service request.
- If the FlexUNI/EVC service request is successfully created, you will see the Service Request Manager window. The newly created FlexUNI/EVC Ethernet service request is added with the state of REQUESTED.
- Step 2** If, however, the FlexUNI Ethernet service request creation failed for some reason (for example, a value chosen is out of bounds), you are warned with an error message.
- In such a case, you should correct the error and save the service request again.
- Step 3** If you are ready to deploy the FlexUNI/EVC Ethernet service request, see [Deploying Service Requests, page 47-11.](#)
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