



CHAPTER 6

Getting Started with L2VPN Services

This chapter provides a road map to help you get started using the L2VPN component in Cisco Prime Fulfillment 6.1. It contains the following sections:

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Overview

Before you can use the L2VPN component to provision Layer 2 services (L2VPN or VPLS), you must complete several installation and configuration steps, as outlined in this chapter. In addition, you should be familiar with basic concepts for Prime Fulfillment and L2VPN services. The following sections provide a summary of the key tasks you must accomplish to be able to provision L2VPN or VPLS services using Prime Fulfillment. You can use the information in this chapter as a checklist. Where appropriate, references to other sections in this guide or to other guides in the Prime Fulfillment documentation set are provided. See the referenced documentation for more detailed information. After the basic installation and configuration steps are completed for both Prime Fulfillment and the L2VPN component, see the subsequent chapters of this guide to create and provision L2VPN or VPLS services.

Installing Prime Fulfillment and Configuring the Network

Before you can use the L2VPN module in Prime Fulfillment to provision L2VPN or VPLS services, you must first install Prime Fulfillment and do the basic network configuration required to support Prime Fulfillment. Details on these steps are provided in the chapters in *Part 3, Setting Up Services*. See that section for information about Prime Fulfillment installation and general network configuration requirements.



Note

To use the L2VPN component within Prime Fulfillment, you must purchase and activate the L2VPN license.

Configuring the Network to Support Layer 2 Services

In addition to basic network configuration required for Prime Fulfillment, you must perform the following network configuration steps to support Layer 2 services. Information on doing these steps is not provided in the Prime Fulfillment documentation. See the documentation for your devices for information on how to perform these steps.

1. Enable MPLS on the core-facing interfaces of the N-PE devices attached to the provider core.
2. Set up /32 loopback addresses on N-PE devices. These loopback addresses should be the termination of the LDP connection(s).
3. Set all Layer 2 devices (switches) to VTP transparent mode. This ensures that none of the switches will operate as VLAN servers and will prevent VLAN information from automatically propagating through the network.

Setting Up Basic Prime Fulfillment Services

After the basic network configuration tasks are completed to support Prime Fulfillment and L2 services, you use Prime Fulfillment to define elements in the Prime Fulfillment repository, such as providers and regions, customers and sites, devices, VLAN and VC pools, NPCs, and other resources that are necessary to provision L2 services. Detailed steps to perform general Prime Fulfillment tasks are covered in the chapters contained in *Part 3, Setting Up Services*. You can also find a summary of some important Prime Fulfillment set up tasks in [Chapter 7, “Setting Up the Prime Fulfillment Services.”](#) The information below is a checklist of basic Prime Fulfillment services you must set up before provisioning L2 services.

Setting Up Providers, Customers, and Devices

Perform the following steps to set up providers, customers, and devices in the Prime Fulfillment repository. These are global resources that can be used by all Prime Fulfillment services.

1. **Set up service providers and regions.** The region is important because a single provider could have multiple networks. The region is used as a further level of differentiation to allow for such circumstances. To create a provider and a region, see [Chapter 5, “Setting Up Resources.”](#) See also [Defining a Service Provider and Its Regions, page 7-4.](#)
2. **Set up customers and customer sites.** A customer is a requestor of a VPN service from an ISP. Each customer can own many customer sites. Each customer site belongs to one and only one Customer and can own many CEs. For detailed steps to create customers and sites, see [Chapter 5, “Setting Up Resources.”](#) See also [Defining Customers and Their Sites, page 7-4.](#)
3. **Import or add raw devices.** Every network element that Prime Fulfillment manages must be defined as a device in the Prime Fulfillment repository. An element is any device from which Prime Fulfillment can collect information. In most cases, devices are Cisco IOS routers and switches. You can set up devices in Prime Fulfillment manually, through autodiscovery, or through importing device configuration files. For detailed steps for importing, adding, and collecting configurations for devices, see [Chapter 2, “Inventory - Discovery.”](#) See also [Chapter 17, “Using Autodiscovery for L2 Services.”](#)
4. **Assign devices roles as PE or CE.** After devices are created in Prime Fulfillment, you must define them as customer (CE) or provider (PE) devices. You do this by editing the device attributes on individual devices or in batch editing through the Prime Fulfillment inventory manager. To set device attributes, see [Chapter 4, “Setting Up Physical Inventory.”](#)

Setting Up the N-PE Loopback Address

Within Prime Fulfillment, you must set the loopback address on the N-PE device(s). For details about this procedure, see [Setting the Loopback Addresses on N-PE Devices, page 7-2](#).

Setting Up Prime Fulfillment Resources for L2VPN and VPLS Services

Some Prime Fulfillment resources, such as access domains, VLAN pools, and VC pools are set up to support Prime Fulfillment L2VPN and VPLS services only. To set up these resources, perform the following steps.

1. **Create access domain(s).** For L2VPN and VPLS, you create an access domain if you provision an Ethernet-based service and want Prime Fulfillment to automatically assign a VLAN for the link from the VLAN pool. For each Layer 2 access domain, you need a corresponding access domain object in Prime Fulfillment. During creation, you select all the N-PE devices that are associated with this domain. Later, one VLAN pool can be created for an access domain. For detailed steps to create access domains, see [Chapter 5, “Setting Up Resources.”](#) See also [Creating Access Domains, page 7-4](#).
2. **Create VLAN pool(s).** A VLAN pool is created for each access domain. For L2VPN and VPLS, you create a VLAN pool so that Prime Fulfillment can assign a VLAN to the links. VLAN ID pools are defined with a starting value and a size. For detailed steps to create VLAN pools, see [Chapter 5, “Setting Up Resources.”](#) See also [Creating VLAN Pools, page 7-5](#).
3. **Create VC pool(s).** VC ID pools are defined with a starting value and a size of the VC ID pool. A given VC ID pool is not attached to any inventory object (a provider or customer). Create one VC ID pool per network. For detailed steps to create VC pools, see [Chapter 5, “Setting Up Resources.”](#) See also [Creating a VC ID Pool, page 7-6](#).

Setting Up NPCs

Before creating an L2VPN or VPLS service request, you must predefine the physical links between CEs and PEs or between U-PEs and N-PEs. The Named Physical Circuit (NPC) represents a link going through a group of physical ports. Thus, more than one logical link can be provisioned on the same NPC. Therefore, the NPC is defined once but used by several L2VPN or VPLS service requests. For detailed steps to create NPCs, see [Chapter 3, “Setting Up Logical Inventory.”](#) See also [Creating Named Physical Circuits, page 7-7](#).

Setting Up VPNs

You must define VPNs before provisioning L2VPN or VPLS services. In L2VPN, one VPN can be shared by different service types. In VPLS, one VPN is required for each VPLS instance. To define VPNs, see [Chapter 3, “Setting Up Logical Inventory.”](#) See also [Defining VPNs, page 7-4](#).

Working with L2VPN and VPLS Policies and Service Requests

After you have set up providers, customers, devices, and resources in Prime Fulfillment, you are ready to create L2VPN or VPLS policies, provision service requests (SRs), and deploy the services. After the service requests are deployed you can monitor, audit and run reports on them. All of these tasks are covered in this guide. To accomplish these tasks, perform the following steps.

1. **Review overview information about L2 services concepts.** See the chapter “Prime Fulfillment Layer 2 VPN Concepts” in the *Cisco Prime Fulfillment Theory of Operations Guide 6.1*.
2. **Set up a FlexUNI, L2VPN, or VPLS policy.** See the appropriate chapter, depending on the type of policy you want to create:
 - Chapter 8, “Creating a FlexUNI/EVC Ethernet Policy.”
 - Chapter 10, “Creating a FlexUNI/EVC ATM-Ethernet Interworking Policy.”
 - Chapter 12, “Creating an L2VPN Policy.”
 - Chapter 14, “Creating a VPLS Policy.”
3. **Provision the FlexUNI, L2VPN, or VPLS service request.** See the appropriate chapter, depending on the type service request you want to provision:
 - Chapter 9, “Managing a FlexUNI/EVC Ethernet Service Request.”
 - Chapter 11, “Managing a FlexUNI/EVC ATM-Ethernet Interworking Service Request.”
 - Chapter 13, “Managing an L2VPN Service Request.”
 - Chapter 15, “Managing a VPLS Service Request.”
4. **Deploy the service request.** See Chapter 16, “Deploying, Monitoring, and Auditing Service Requests.”
5. **Check the status of deployed services.** You can use one or more of the following methods:
 - Monitor service requests. See Chapter 16, “Deploying, Monitoring, and Auditing Service Requests.”
 - Audit service requests. See Chapter 16, “Deploying, Monitoring, and Auditing Service Requests.”
 - Run L2 and VPLS reports. See Chapter 54, “Generating L2 and VPLS Reports.”

A Note on Terminology Conventions

The Prime Fulfillment GUI and this part of user guide use specific naming conventions for Ethernet services. These align closely with the early MEF conventions. This is expected to be updated in future releases of to conform with current MEF conventions. For reference, the equivalent terms used by the MEF forum are summarized in [Table 6-1](#).

See the chapter “Prime Fulfillment Layer 2 VPN Concepts,” in the *Cisco Prime Fulfillment Theory of Operations Guide 6.1*, for more information on terminology conventions and how these align with underlying network technologies.

Table 6-1 *Ethernet Service Terminology Mappings*

Term Used in GUI and This User Guide	Current MEF Equivalent Term
L2VPN over MPLS Core	
Ethernet Wire Service (EWS)	Ethernet Private Line (EPL)
Ethernet Relay Service (ERS)	Ethernet Virtual Private Line (EVPL)
ATM over MPLS (ATMoMPLS)	—
Frame Relay over MPLS (FRoMPLS)	—
VPLS Over MPLS Core	
Ethernet Wire Service (EWS) or Ethernet Multipoint Service (EMS)	Ethernet Private LAN (EP-LAN)
Ethernet Relay Service (ERS) or Ethernet Relay Multipoint Service (ERMS)	Ethernet Virtual Private LAN (EVP-LAN)
VPLS over Ethernet Core	
Ethernet Wire Service (EWS)	Ethernet Private LAN (EP-LAN)
Ethernet Relay Service (ERS)	Ethernet Virtual Private LAN (EVP-LAN)

