



## Provisioning an Unmanaged Multi-VRF CE

---

This chapter describes how to implement a new, Unmanaged Multi-VRF (MVRF) CE with all the required infrastructure data, define an MVRFCE PE-CE Service Policy, and create an MVRFCE PE-CE Service Request, using the Cisco IP Solution Center (ISC).

This chapter contains the following major sections:

- [Unmanaged MVRFCE Overview, page 2-1](#)
- [Adding a New Customer CPE, page 2-5](#)
- [Adding a New Provider PE, page 2-16](#)
- [Creating an Access Domain, page 2-27](#)
- [Creating Resource Pools, page 2-31](#)
- [Defining a VPN, page 2-45](#)
- [Defining an MVRFCE PE-CE Service Policy, page 2-48](#)
- [Creating an MVRFCE PE-CE Service Request, page 2-53](#)

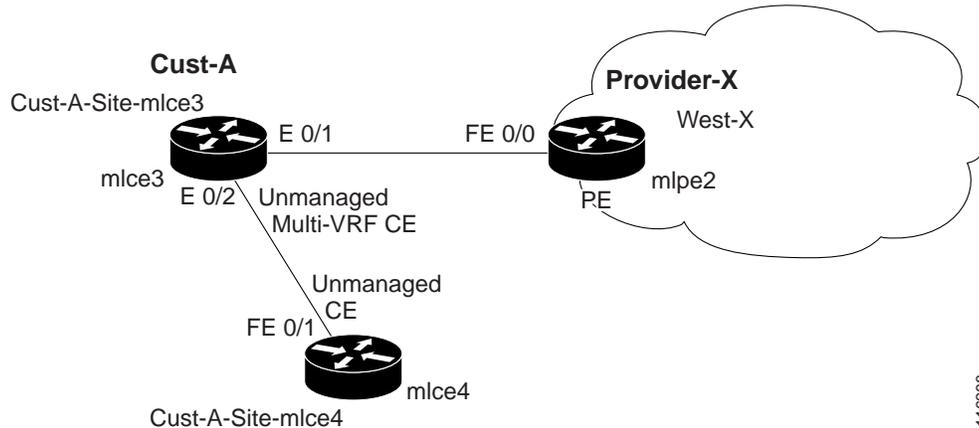
### Unmanaged MVRFCE Overview

The unmanaged MVRFCE feature is similar to the unmanaged CE feature in so far as the service provider does not use ISC to upload or download configurations to the CPE. This feature is similar to the managed MVRFCE feature in so far as ISC creates a link with three devices: a PE, an MVRFCE, and a CE.

In the unmanaged scenarios, the customer configures the CPE manually. To automate the process of configuring the unmanaged MVRFCE, the service provider can use ISC to generate the configuration and then send it to the customer for manual implementation.

[Figure 2-1](#) shows an overview of a network topology with MPLS VPN MVRFCE PE-CE links.

Figure 2-1 Unmanaged MVRFCE PE-CE Network Topology



The network topology in [Figure 2-1](#) shows a service provider (**Provider-X**) and a customer (**Cust-A**). The Provider contains one Region (**West-X**) and one PE (**mlpe2**). The Customer contains an MVRFCE (**mlce3**) and a CE (**mlce4**). Both of these CPEs are unmanaged.

This section contains the following sections:

- [Process Overview, page 2-2](#)
- [MVRFCE PE-CE Policy Type, page 2-4](#)
- [Infrastructure Data, page 2-4](#)

## Process Overview

To configure MPLS VPN services with ISC, you must understand three key concepts:

- [Network Inventory, page 2-2](#)
- [Service Policy, page 2-3](#)
- [Service Request, page 2-4](#)

## Network Inventory

The purpose of preparing network inventory in ISC is to populate the Repository with infrastructure data. If multiple devices are involved, you can use Inventory Manager for importing devices and creating PE or CPE. Otherwise, you can use Inventory and Connection Manager to create the devices and infrastructure data.

To create an MPLS VPN Service Request, you must create the following infrastructure data:

- Devices
 

A Device in ISC is a logical representation of a physical device in the network. You can import devices (configurations) into ISC by using Inventory Manager or the ISC GUI. You can also use the Auto Discovery feature of Inventory Manager to import devices into the Repository.
- Customers
 

A customer is typically an enterprise or large corporation that receives network services from a service provider. A Customer is also a key logical component of ISC.

- Sites
 

A Site is a logical component of ISC that connects a Customer with a CE. It can also represent a physical customer site.
- CPE/CE Devices
 

A CPE is “customer premises equipment,” typically a customer edge router (CE). It is also a logical component of ISC. You can create CPE in ISC by associating a device with a Customer Site.
- Providers
 

A provider is typically a “service provider” or large corporation that provides network services to a customer. A Provider is also a key logical component of ISC.

  - Regions
 

A Region is a logical component of ISC that connects a Provider with a PE. It can also represent a physical provider region.
  - PE Devices
 

A PE is a provider edge router or switch. It is also a logical component of ISC. You can create PE in ISC by associating a Device with a Provider Region. In ISC, a PE can be a “point of presence” router (POP) or a Layer 2 switch (CLE).
- Access Domains (for Layer 2 Access)
 

The Layer 2 Ethernet switching domain that connects a PE to a CE is called an Access Domain. All the switches attached to the PE-POP belong to this Access Domain. These switches belong to the Provider and are defined in ISC as PE-CLE.
- Resource Pools
  - IP Addresses
  - Multicast
  - Route Distinguisher
  - Route Target
  - VLANs (for Layer 2 Access)
- CE Routing Communities (CERC is optional)
- VPN
 

Before creating a Service Policy, a VPN name must be defined within ISC.

## Service Policy

To create an MVRFCE PE-CE Service Policy, you must set up the following items:

1. Policy Type
2. PE-MVRFCE Interface
3. MVRFCE-CE Interface
4. PE-MVRFCE IP Address Scheme
5. MVRFCE-CE IP Address Scheme
6. PE-MVRFCE Routing Information
7. MVRFCE-CE Routing Information

## 8. VRF and VPN Membership

## Service Request

To create an MVRFCE PE-CE Service Request, you must complete the following items:

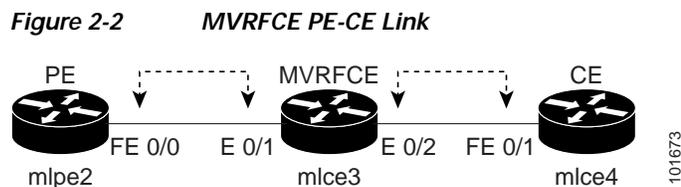
1. PE-MVRFCE Interface
2. MVRFCE-CE Interface
3. PE-MVRFCE IP Address Scheme
4. MVRFCE-CE IP Address Scheme
5. PE-MVRFCE Routing Information
6. MVRFCE-CE Routing Information
7. VRF and VPN Membership

## MVRFCE PE-CE Policy Type

An MVRFCE PE-CE Policy Type is a PE to CE link with three devices:

- PE
- MVRF CE
- CE

Figure 2-2 shows an example of an MVRFCE PE-CE link with three devices.



In an MVRFCE PE-CE Service Policy with CE Present enabled, interfaces FE 0/0, E 0/1, E 0/2 and FE 0/1 are configured as an MPLS VPN link in the Service Request process.

## Infrastructure Data

In this MVRFCE PE-CE scenario, the following infrastructure data is used:

- Provider: **Provider-X**
- Region: **West-X**
- AS#: **99**
- PE: **mlpe2**
- Device Role: **PE POP**
- Customer: **Cust-A**
- Site: **Cust-A-Site- mlce3**
- CE: **mlce3**

- Site: **Cust-A-Site- mlce4**
- CE: **mlce4**
- Device Role: **CPE**
- IP Address Pool:
  - Name: **Provider-X-West-X**
  - Type: **Region**
  - Start: **25.7.0.0**
  - Mask: **30**
  - Size: **16384**
- Route Distinguisher Pool:
  - Name: **99:PROVIDER-X**
  - Start: **50000**
  - Size: **10000**
- Route Target Pool:
  - Name: **99:PROVIDER-X**
  - Start: **50000**
  - Size: **10000**
- VPN
  - Definition: **west-xVPN**

## Adding a New Customer CPE

This section describes how to create a new CPE with an Unmanaged Multi-VRF management Type using the Cisco IP Solution Center (ISC) GUI. It contains the following sections:

- [Overview of an ISC Customer, page 2-5](#)
- [Creating a Device, page 2-6](#)
- [Creating a Customer, Site, and CPE, page 2-11](#)

## Overview of an ISC Customer

In ISC, a Customer is defined by the following three logical components:

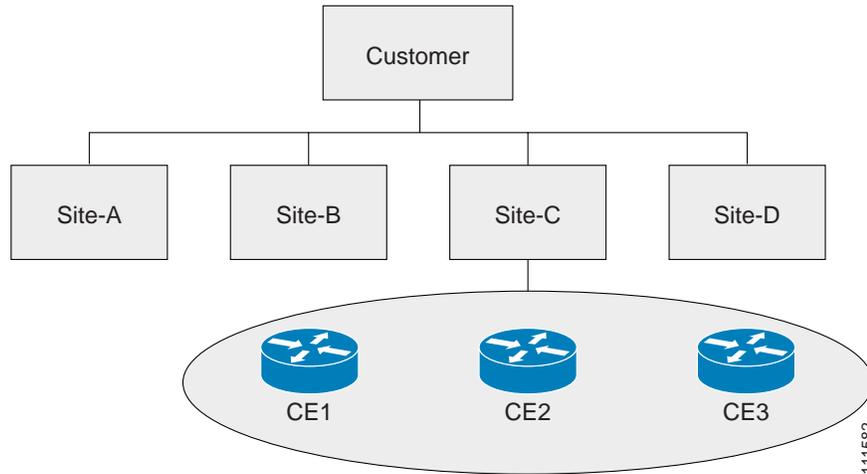
- Customer Name
- Customer Site
- Customer Device (CPE)

In ISC, a Customer is a logical container for Sites and CEs.

Within a Customer, there can be one or more Sites. Sites are logical entities that can be defined in any way that makes sense to a service provider.

[Figure 2-3](#) shows an overview of an ISC Customer.

Figure 2-3 Overview of an ISC Customer



## Creating a Device

This section describes how to create a Device with the ISC GUI, connect to a Cisco IOS router in the network, collect the live configuration, and populate the Repository. This section contains the following sections:

- [Create a Device, page 2-6](#)
- [Collect the Configuration, page 2-8](#)
- [Monitor Task Logs, page 2-10](#)

### Create a Device

This section describes how to create a logical Device with the ISC GUI. To create a Device with the ISC GUI, follow these steps:

- 
- Step 1** Log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager > Devices**.

The **Devices** window appears, as shown in [Figure 2-4](#).

Figure 2-4 Devices

111573

**Step 3** Click **Create**.

**Step 4** Select **Cisco IOS Device**.

The **Create Cisco IOS Device** window appears (not shown).

**Step 5** Enter the following information:

- General
  - *Device Host Name* (**mlce3**)
  - *Management IP Address* (**172.29.146.26**)
- Login and Password Information
  - *Login Password* (\*\*\*\*\*)
  - *Verify Login Password* (\*\*\*\*\*)
  - *Enable Password* (\*\*\*\*\*)
  - *Verify Enable Password* (\*\*\*\*\*)
- Device and Configuration Access Information
  - Terminal Session Protocol: **Default (Telnet)**
  - Config Access Protocol: **Default (Terminal)**
  - SNMP Version: **Default (SNMP v1/v2c)**
- SNMP v1/v2c
  - *Community String RO* (**Public**)
  - *Community String RW* (**Private**)

**Step 6** Click **Save**.



**Note** You have saved a Device in the Repository.

## Collect the Configuration

This section describes how to connect to the physical device in the network, collect the device information from the router, and populate the Repository.

To collect the configuration, follow these steps:

- Step 1** Select **Monitoring > Task Manager**.

The **Tasks** window appears, as shown in [Figure 2-5](#).

**Figure 2-5** Tasks

111574

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

- Step 3** Select **Collect Config** (not shown).

The **Create Task** window appears, as shown in [Figure 2-6](#).



### Note

You might want to change the default **Name** and **Description** for this task, so you can more easily identify it in the task log. For example, by adding: **mlce3DeviceCreation**.

**Figure 2-6** Create Task

111575

- Step 4** Click **Next** (not shown).

The **Collect Config Task** window appears, as shown in [Figure 2-7](#).

Figure 2-7 Collect Config Task

**Collect Config Task**

**Collect Config Task:Collect Config 2004-01-14 (mlce3DeviceCreation)**

**Devices:**

**Groups:**

**Options:**

- Retrieve device attributes
- Retrieve Interfaces

**Schedule:**

- Now
- Later
- None

**Task Owner:**

- Customer
- Provider
- None

Note: \* - Required Field

111576

- Step 5** Click **Select/De Select** at **Devices**.  
The **Select Device** window appears, as shown in [Figure 2-8](#).

Figure 2-8 Select Device

Select Device(s) - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Show Devices with  Matching

Showing 1 - 1 of 1 record

#	<input type="checkbox"/>	Device Name	Management IP Address	Type	Parent Device Name
1.	<input type="checkbox"/>	mlce3	172.29.146.26	Cisco IOS Device	

Rows per page:   Go to page:  of 1

111577

- Step 6** Select the device, which you created in the previous section, [Creating a Device, page 2-6](#), and then click **Select**. (**mlce3**)  
The **Collect Config Task** window appears (not shown).
- Step 7** Click **Submit**.  
The **Task** window appears, as shown in [Figure 2-9](#).

Figure 2-9 Tasks

Tasks

Show Tasks with Task Name matching  of Type

Showing 1 - 1 of 1 record

#	Task Name	Type	Schedule	Creator	Created on
1.	<input type="checkbox"/> <a href="#">Collect Config 2004-01-14 (mlce3DeviceCreation)</a>	Collect Config	Single run at 2004-01-14 16:53:00.0	admin	2004-01-14 16:51:11.943

Rows per page:

Auto Refresh:

111578

**Step 8** Select your task in the **Task Name** column and then click **Details** to view more information.



**Note** You have created a **Task** in the Repository.

## Monitor Task Logs

To monitor the logs for your task, follow these steps:

**Step 1** Select **Monitoring > Task Manager**.

The **Tasks** window appears (not shown).

**Step 2** Click **Logs** in the **Selection** window (not shown).

The **Task Runtime Actions** window appears, as shown in [Figure 2-10](#).

Figure 2-10 Task Runtime Actions

Task Runtime Actions

Show Runtime Tasks with Task Name matching  of Type

Showing 1 - 2 of 2 records

#	Runtime Task Name	Type	Start Time	End Time	Status
1.	<input type="checkbox"/> <a href="#">Collect Config 2004-01-14 (mlce3DeviceCreation)_Wed_Jan_14_16:53:37_PST_2004_6</a>	Collect Config	2004-01-14 16:53:37.969	2004-01-14 16:53:52.38	<input checked="" type="checkbox"/> Completed successfully
2.	<input type="checkbox"/> <a href="#">Collect Config 2004-01-14 11:23:26.63_Wed_Jan_14_11:23:35_PST_2004_4</a>	Collect Config	2004-01-14 11:23:36.361	2004-01-14 11:26:15.569	<input checked="" type="checkbox"/> Completed with 3 errors

Rows per page:

Auto Refresh:

111579

**Note**

The **Status** field shows the task has completed successfully. You have collected the configuration for a device and saved it in the Repository.

**Step 3** Select your task and then click **Instances** to view more information.

## Creating a Customer, Site, and CPE

This section describes how to create a Customer with the ISC GUI, create a Site for the Customer, and associate a Device with the Site. This section contains the following sections:

- [Create a Customer, page 2-11](#)
- [Create a Site, page 2-11](#)
- [Create a CPE, page 2-13](#)

### Create a Customer

To create a Customer with the ISC GUI, follow these steps:

**Step 1** Select **Service Inventory > Inventory and Connection Manager > Customers**.

The **Customers** window appears (not shown).

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

The **Create Customer** window appears (not shown).

**Step 3** Enter a *Customer Name* and then click **Save. (Cust-A)**

**Note**

You have saved a Customer in the Repository.

The **Customers** window appears (not shown).

### Create a Site

To create a Site, follow these steps:

**Step 1** Select **Service Inventory > Inventory and Connection Manager**.

**Step 2** Click **Customer Sites** in the **Selection** window.

The **Customer Site** window appears (not shown).

**Step 3** Click **Create**.

The **Create Customer Site** window appears, as shown in [Figure 2-11](#).

Figure 2-11 Create Customer Site

**Create Customer Site**

Name\*:

Customer\*:

Site Information:

Note: \* - Required Field

111581

Step 4 Enter a *Site Name*. (**Cust-A-Site-mlce3**)

Step 5 Click **Select**.

The **Select Customer** window appears, as shown in Figure 2-12.

Figure 2-12 Select Customer

Select Customer - Microsoft Internet Explorer provided by Cisco System...

Show Customers with Customer Name matching \*

Showing 1 - 1 of 1 record

#	Customer Name
1.	<input checked="" type="radio"/> Cust-A

Rows per page:

111566

Step 6 Select a Customer. (**Cust-A**)

Step 7 Click **Select**.

The **Create Customer Site** window appears.

Click **Save**.

**Note**

You have saved a Customer Site in the Repository.

## Create a CPE

To create a CPE, follow these steps:

- Step 1 Select **Service Inventory > Inventory and Connection Manager**.
- Step 2 Click **CPE Devices** in the **Selection** window.  
The **CPE Devices** window appears, as shown in [Figure 2-13](#).

**Figure 2-13** CPE Devices

**CPE Devices**

Show CPEs with  Matching

Showing 0 of 0 records

#	Device Name	Customer Name	Site Name	Management Type	Service Request
Rows per page: <input type="text" value="10"/> <input type="button" value="Go to page: 1 of 1"/> <input type="button" value="Go"/>					
<input type="button" value="Create"/> <input type="button" value="Edit"/> <input type="button" value="Deploy"/> <input type="button" value="Delete"/>					

111567

- Step 3 Click **Create**.  
The **Create CPE Device** window appears, as shown in [Figure 2-14](#).

**Figure 2-14** Create CPE Device

**Create CPE Device**

Device Name \*:

Site Name \*:

Customer Name:

Management Type:

Note: \* - Required Field

111568

- Step 4 Click **Select** to Select a Device.  
The **Select Device** window appears, as shown in [Figure 2-15](#).

Figure 2-15 Select Device

Showing 1 - 1 of 1 record

#	Device Name	Management IP Address	Type	Parent Device Name
1.	<input type="radio"/> mlce3	172.29.146.26	Cisco IOS Device	

Rows per page: 10

Go to page: 1 of 1

Select Cancel

11.1569

Step 5 Select a Device and then click **Select**. (mlce3)

The **Create CPE Device** window appears, as shown in [Figure 2-16](#).

Figure 2-16 Create CPE Device

**Create CPE Device**

Device Name\*: mlce3 Select

Site Name\*: Cust-A-Site-mlce3 Select

Customer Name: Cust-A

Management Type: Unmanaged Multi-VRF

Pre-shared Keys: Edit

IPsec High Availability Options:  None  Normal Failover  Stateful Failover

IPsec Public IP Address:

IP Address Ranges: Edit

Show Interfaces with Name Matching Ethernet\* Find

Showing 1 - 5 of 5 records

#	Interface Name	IP Address	IP Address Type	Encapsulation	Description	IPsec	Firewall	NAT	QoS Candidate
1.	Ethernet0/0	172.29.146.26/26	STATIC	ETHERNET		None	None	None	None
2.	Ethernet0/1		STATIC	ETHERNET	Link To MLPE2	None	None	None	None
3.	Ethernet0/1.101	10.10.10.6/30	STATIC	DOT1Q	Ethernet0/1.101 dot1q vlan id=101. By VPNSC: Job Id# = 2	None	None	None	None
4.	Ethernet0/2		STATIC	ETHERNET	Link To MLCE4	None	None	None	None
5.	Ethernet0/3	9.0.0.1/24	STATIC	ETHERNET	Link To MLCE5	None	None	None	None

Rows per page: 10 Go to page: 1 of 1 Go

Save Cancel

Note: \* - Required Field

111570

**Step 6** Select **Management Type. (Unmanaged Multi-VRF)**

**Step 7** Click **Save**.

The **Create CPE Device** window appears, as shown in [Figure 2-17](#).

Figure 2-17 CPE Devices

CPE Devices						
Show CPEs with <input type="text" value="Device Name"/> Matching <input type="text" value="*"/> <input type="button" value="Find"/>						
Showing 1 - 1 of 1 record						
#		Device Name	Customer Name	Site Name	Management Type	Service Request
1.	<input type="checkbox"/>	 mlce3	Cust-A	Cust-A-Site-mlce3	Unmanaged Multi-VRF	
Rows per page: <input type="text" value="10"/>		Go to page: <input type="text" value="1"/> of 1 <input type="button" value="Go"/>				
<input type="button" value="Create"/> <input type="button" value="Edit"/> <input type="button" value="Deploy"/> <input type="button" value="Delete"/>						

111572

**Note**

You have saved a CPE in the Repository.

## Adding a New Provider PE

This section describes how to use Cisco IP Solution Center (ISC) Inventory Manager to create a PE from a Device and configure a Provider in the process.

This section contains the following sections:

- [Overview of an ISC Provider, page 2-16](#)
- [Create a Device Group, page 2-17](#)
- [Import Configuration Files, page 2-18](#)
- [Open a Device, page 2-20](#)
- [Collect the Latest Configuration, page 2-21](#)
- [Create a Provider and a PE, page 2-23](#)
- [Create a Region for the PE, page 2-25](#)
- [Edit a PE with the ISC GUI, page 2-27](#)

## Overview of an ISC Provider

In ISC, a Provider is defined by the following three logical components:

- Provider Name and BGP Autonomous System (AS) number
- Provider Region
- Provider Device (PE)

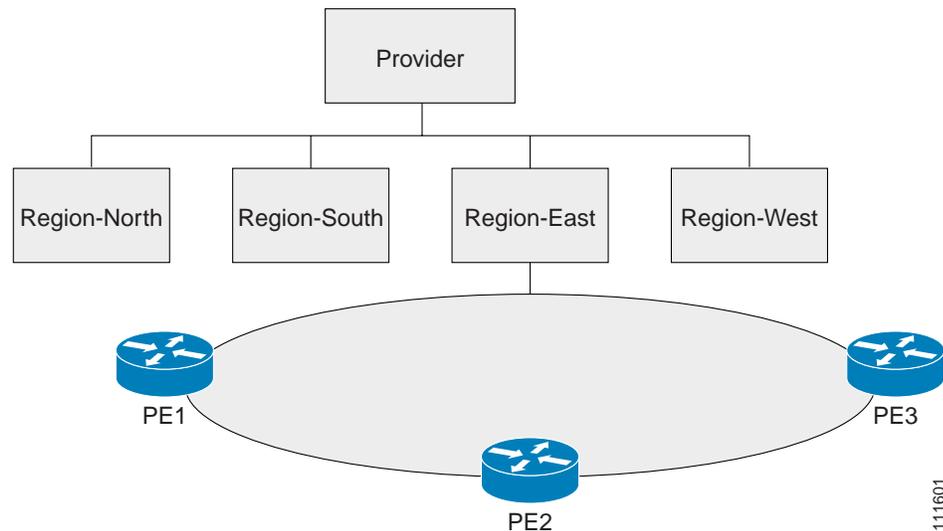
In ISC, a provider administrative domain (PAD) is a single AS. It is not a specific service provider, rather it is a logical container for Regions and PEs.

Within a single PAD, there must be one or more Regions. Regions are logical entities that can be defined in any way that makes sense to a service provider.

Within a Region, a Provider can contain one or more PEs. The PEs can be a PE-POP (“router”) or a PE-CLE (“switch”).

Figure 2-3 shows an overview of an ISC Provider.

**Figure 2-18** Overview of an ISC Provider



## Create a Device Group

This section describes how to create a Device Group with Inventory Manager. To create a Device Group, follow these steps:

- 
- Step 1** Log into ISC.
  - Step 2** Select **Service Inventory > Inventory and Connection Manager > Inventory Manager**.  
The **Inventory Manager** Java Web Start window appears (not shown).
  - Step 3** Click **Inventory Manager**.  
The **Inventory Manager** task bar appears, as shown in Figure 2-19.

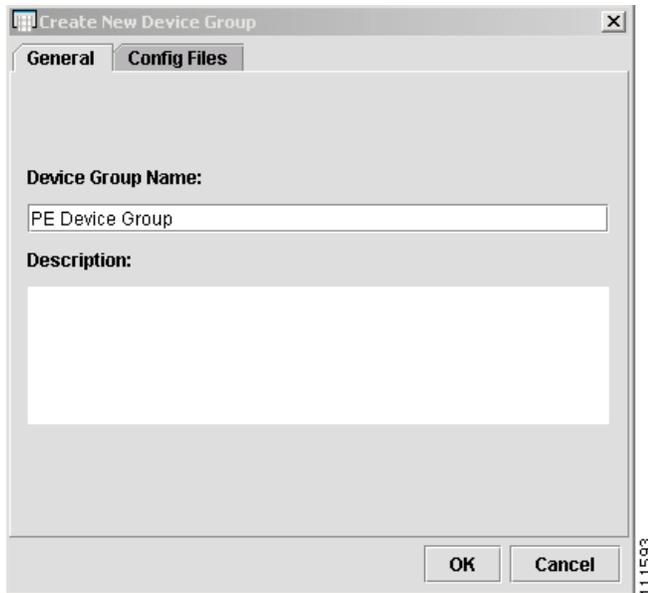
**Figure 2-19** Inventory Manager Task Bar



- Step 4** Select **File > New > New Device Group**.

The **Create New Device Group** window appears, as shown in [Figure 2-20](#).

**Figure 2-20** Create New Device Group



**Step 5** Enter the *Device Group Name* (**PE Device Group**) and a *Description* (optional).

**Step 6** Click **OK**.

The **No Config Files Specified for Import** window appears (not shown).

**Step 7** Click **Yes**.

The **Choose Config Files for Device Group** window appears (not shown).



**Note**

This process is continued in [Import Configuration Files, page 2-18](#).

## Import Configuration Files

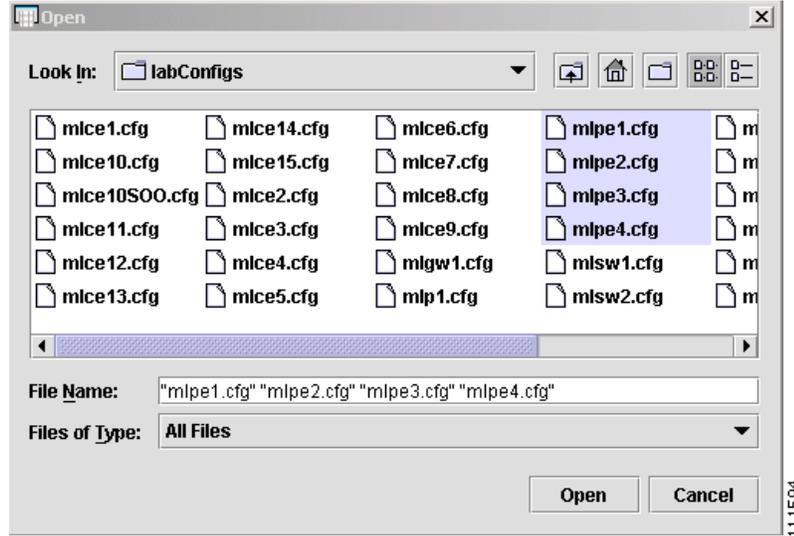
This section describes how to import configuration files with Inventory Manager.

To import configuration files, follow these steps:

**Step 1** From the **Choose Config Files for Device Group** window in the previous section ([Step 7](#)), click **Add**.

The **Open** window appears, as shown in [Figure 2-21](#).

Figure 2-21 Open Config Files



- Step 2** Browse to the directory where your configuration files are located and select the appropriate configuration file. Use Ctrl+Click to select multiple devices.
- Step 3** Click **Open**.  
The **Choose Config Files for Device Group** window appears (not shown).
- Step 4** Click **OK**.  
The **Group** spreadsheet appears, as shown in [Figure 2-22](#).

Figure 2-22 Group Spreadsheet

File Edit View Tasks Tools Logging Help								
General Passwords SNMPv3 Attributes CNS Attributes Platform Information Interfaces								
Host Name	Device Type	Device Description	Management Address	Domain Name	Access Protocol	Config Upload/Downl...	SNMP Version	Device Groups
mlpe1	Cisco Router				Default	Default	Default	PE Device Group
mlpe2	Cisco Router				Default	Default	Default	PE Device Group
mlpe3	Cisco Router				Default	Default	Default	PE Device Group
mlpe4	Cisco Router				Default	Default	Default	PE Device Group

Group - PE Device Group

- Step 5** Select **File > Save**.

**Note**

You have now saved this Device Group, with the logical Devices and configuration data, in the Repository.

## Open a Device

**Note**

Inventory Manager is designed to configure multiple Devices in a single operation. To facilitate understanding of this process, this scenario focuses on only one Device.

This section describes how to open a Device with Inventory Manager.

To open a Device, follow these steps:

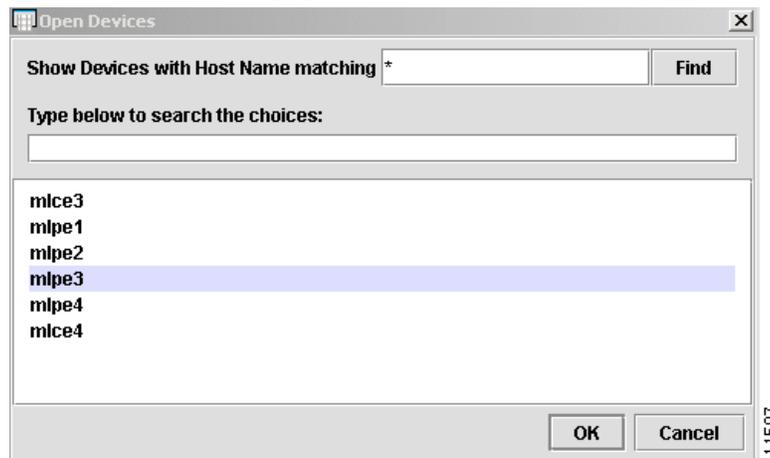
- Step 1** From the **Inventory Manager** task bar (not shown), select **File > Open > Open Devices**. The **Open Devices** window appears, as shown in [Figure 2-23](#).

*Figure 2-23 Open Devices*



- Step 2** Click **Find**. The **Open Devices** window appears, as shown in [Figure 2-24](#).

*Figure 2-24 Open Devices*



- Step 3** Select a Device and then click **OK**. (**mlpe3**) The **Devices** spreadsheet appears, as shown in [Figure 2-25](#).

Figure 2-25 Devices Spreadsheet

Host Name	Device Type	Device Description	Management Address	Domain Name	Access Protocol	Config Upload/Download	SNMP Version	Device Groups
mlpe4	Cisco Router				Default	Default	Default	PE Device Group



Note

This process is continued in [Collect the Latest Configuration, page 2-21](#).

## Collect the Latest Configuration

This section describes how to connect to a physical device in the network, and collect the latest configuration, with Inventory Manager.

To collect a configuration, follow these steps:

- Step 1** Click the cell in the **Management Address** column of the **Device** spreadsheet shown above in [Figure 2-25](#).

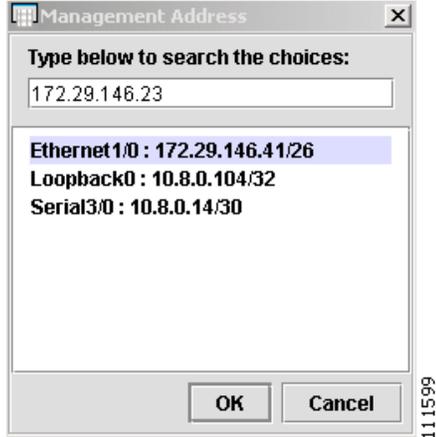
The **Management Address** window appears, as shown in [Figure 2-26](#).



Note

The three IP addresses in the lower window were imported previously in the section, [Import Configuration Files, page 2-18](#). These interface addresses could also be used as the Management Address.

Figure 2-26 Management Address



- Step 2** Enter the *Management Address* and then click **OK**. (**172.29.146.23**)  
The **Devices** spreadsheet appears (not shown).
- Step 3** Click the **Passwords** tab.  
The **Passwords** spreadsheet appears (not shown).
- Step 4** Click the **Login Password** cell.  
The **Login Password** window appears (not shown).
- Step 5** Enter the *Password* (\*\*\*\*\*).
- Step 6** Enter the *Verify Password* (\*\*\*\*\*).
- Step 7** Click **OK**.
- Step 8** Click the **Enable Password** cell.  
The **Enable Password** window appears (not shown).
- Step 9** Enter the *Password* (\*\*\*\*\*).
- Step 10** Enter the *Verify Password* (\*\*\*\*\*).
- Step 11** Click **OK**.
- Step 12** Select **File > Save**.
- Step 13** Select **Task > Collect Latest Config Files**.
- Step 14** Accept the prompt to proceed.  
You are notified if the task completes successfully.
- Step 15** Click the **Platform Information** tab to view the newly collected configuration information.  
The **Platform Information** spreadsheet appears, as shown in [Figure 2-27](#) below.
- Step 16** Select **File > Save**.

**Note**

You have now saved this Device information in the Repository. This process is continued in [Create a Provider and a PE](#), page 2-23.

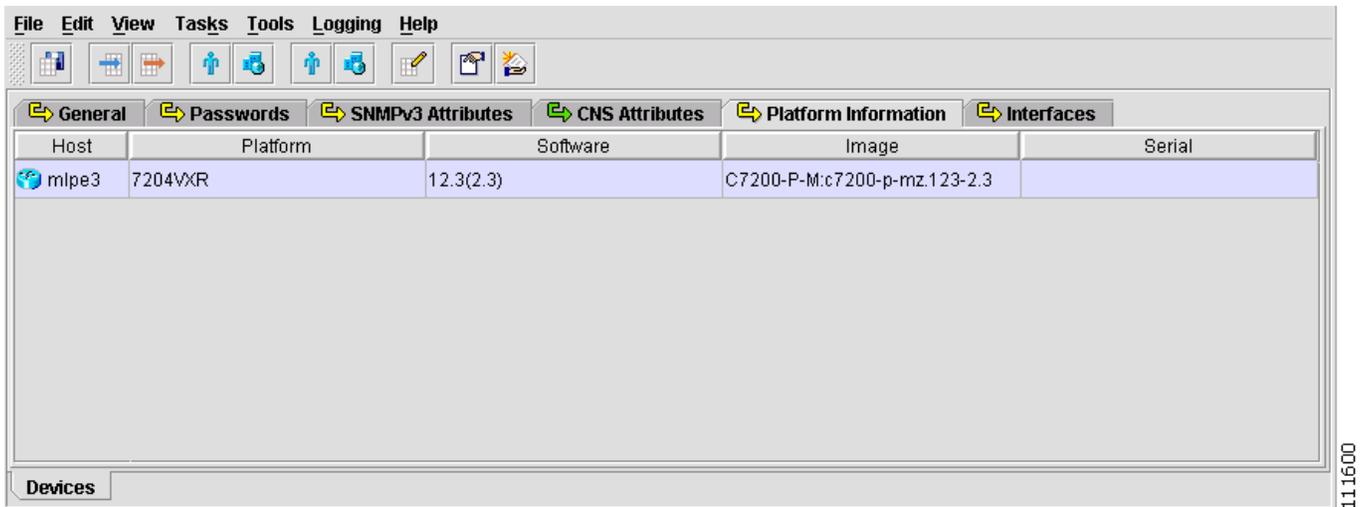
## Create a Provider and a PE

This section describes how to create a Provider and a PE from a Device, using Inventory Manager.

To create a Provider and a PE, follow these steps:

- Step 1** From the **Devices** spreadsheet shown in [Figure 2-27](#), click the cell in the **Host** column to select the Device.

**Figure 2-27** Platform Information



Host	Platform	Software	Image	Serial
mlpe3	7204VXR	12.3(2.3)	C7200-P-M:c7200-p-mz.123-2.3	

- Step 2** From the Inventory Manager task bar, select **Edit > Move to New Provider**, as shown in [Figure 2-28](#).

**Figure 2-28** Move to New Customer



The **Create New Provider** window appears, as shown in [Figure 2-29](#).

Figure 2-29 Create New Provider

**Create New Provider**

**General**

**Provider Name:**  
Provider-X

**BGP AS Number:**  
99

**Contact Information:**

OK Cancel

Enter the *Provider Name* and *BGP AS Number*. (**Provider-X, 99**)

**Step 3** Click **OK**.

The **Provider** spreadsheet appears with a PE, as shown in [Figure 2-30](#).

Figure 2-30 Provider Spreadsheet

Host Name	Device Type	Device Description	Management Address	Domain Name	Access Protocol	Config Upload/Downl...	SNMP Version	Device Groups
mlpe3	Cisco Router		Ethernet1/0 : 1...		Default	Default	Default	PE Device Group

**Step 4** Select **File > Save**.



**Note**

The Provider spreadsheet contains two new tabs, **PE Attributes** and **PE Interfaces**. This process is continued in [Create a Region for the PE, page 2-25](#).

## Create a Region for the PE

This section describes how to create a Region for the PE with Inventory Manager.

To create a Region, follow these steps:

- Step 1** From the Provider spreadsheet, shown in [Figure 2-30](#), click the **PE Attributes** tab. The **PE Attributes** spreadsheet appears, as shown in [Figure 2-31](#).

**Figure 2-31** PE Attributes



Host Name	Provider Name	Region Name	Role	Loopback Interface	Is Managed
mlpe3	Provider-X		PE POP		<input checked="" type="checkbox"/>

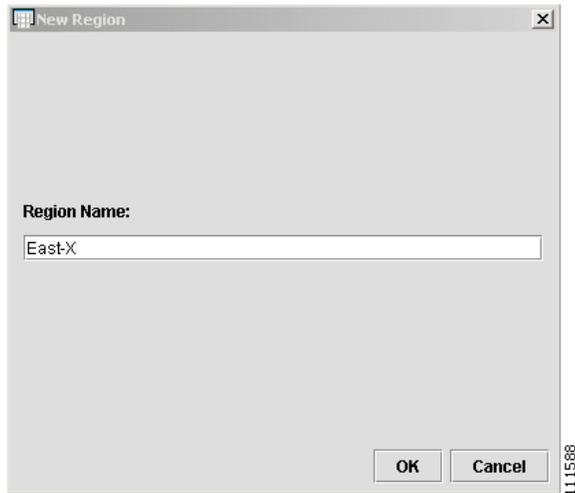
- Step 2** Click the cell in the **Region Name** column. The **Region Name** window appears, as shown in [Figure 2-32](#).

**Figure 2-32** Region Name



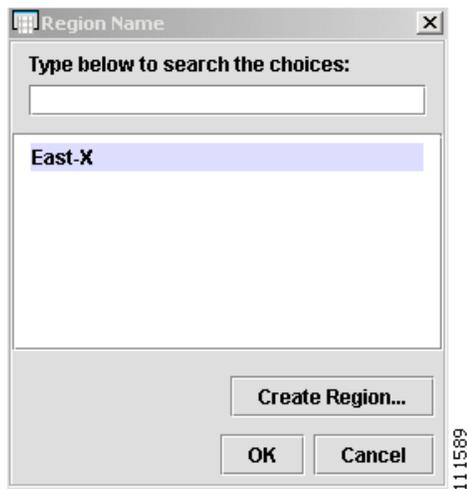
- Step 3** Click **Create Region**. The **New Region** window appears, as shown in [Figure 2-33](#).

Figure 2-33 New Region



- Step 4 Enter the *Region Name* and then click **OK**. (**East-X**)  
 The **Region Name** window appears, as shown in Figure 2-34.

Figure 2-34 Region Name



- Step 5 Click **OK**.  
 The **PE Attributes** spreadsheet appears, as shown in Figure 2-35.

Figure 2-35 PE Attributes

General Passwords SNMPv3 Attributes PE Attributes PE Interfaces CNS Attributes Platform Information						
Host Name	Provider Name	Region Name	Role	Loopback Interface	Is Managed	
mlpe3	Provider-X	East-X	PE POP		<input checked="" type="checkbox"/>	

- Step 6 Click **File > Save**.

**Note**

The process of adding a PE to a Provider Region is complete. To view or edit the PE in the ISC GUI, continue to [Edit a PE with the ISC GUI, page 2-27](#).

## Edit a PE with the ISC GUI

This section describes how to view or edit a PE with the ISC GUI.

To view a PE with the ISC GUI, follow these steps:

- Step 1** Open a new browser and log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager**.
- Step 3** Click **PE Devices** in the **Selection** window.

The **PE Devices** window appears, as shown in [Figure 2-36](#).

**Figure 2-36** PE Devices

#	Device Name	Provider Name	Region Name	Role Type	Service Request
1.	m1pe3	Provider-X	East-X	PE_POP	

- Step 4** Select the PE Device.
- Step 5** Click **Edit**.

## Creating an Access Domain

**Note**

This section is only required for Layer 2 access to MPLS VPN.

This section describes how to create an Access Domain using the Cisco IP Solution Center (ISC) GUI. This section contains the following sections:

- [Overview of an Access Domain, page 2-28](#)
- [Create an Access Domain, page 2-28](#)

## Overview of an Access Domain

Any Transport over MPLS (AToM) is the Cisco solution for transporting Layer 2 traffic over an IP/MPLS backbone. AToM is required for supporting legacy services over MPLS infrastructures and for supporting new connectivity options, including Layer 2 VPNs and Layer 2 virtual leased lines.

AToM supports three types of Ethernet-based L2VPNs (EoMPLS):

- Point-to-Point Ethernet Wire Service (EWS)
- Point-to-Point Ethernet Relay Service (ERS)
- Multipoint TLS Service

The Layer 2 Ethernet switching domain that connects a PE to a CE is called an Access Domain. All the switches attached to the PE-POP belong to this Access Domain. These switches belong to the Provider and are defined in ISC as PE-CLE.



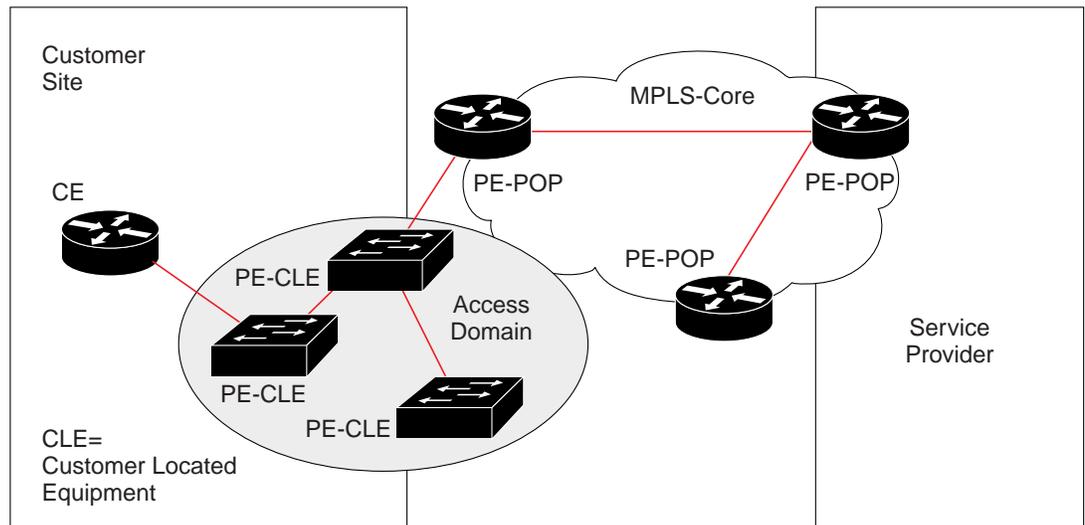
**Note**

To have ISC automatically assign VLAN links from a VLAN pool, you must create an Access Domain.

ISC supports multiple PE-POPs per Access Domain and multiple PE-CLE devices can be included.

Figure 2-37 shows an overview of an ISC Access Domain.

**Figure 2-37 Overview of an Access Domain**



## Create an Access Domain

This section describes how to create a Device with the ISC GUI.

To create a Device with the ISC GUI, follow these steps:

- Step 1 Log into ISC.
- Step 2 Select **Service Inventory > Inventory and Connection Manager**.

- Step 3** Click **Access Domains** in the **Selection** window.  
The **Access Domains** window appears, as shown in [Figure 2-38](#).

**Figure 2-38** Access Domains

- Step 4** Click **Create**.  
The **Create Access Domain** window appears, as shown in [Figure 2-39](#).

**Figure 2-39** Create Access Domain

- Step 5** Enter an Access Domain *Name*.  
**Step 6** Select a Provider (not shown).  
**Step 7** Click **Select** to show PEs.  
The **Show PEs** window appears, as shown in [Figure 2-40](#).

Figure 2-40 Show PEs

#	Device Name	Provider Name	Region Name	Role Type
1.	m1pe3	Provider-X	East-X	PE_POP
2.	m1pe4	Provider-X	North-X	PE_POP

Rows per page: 10 Go to page: 1 of 1

Select Cancel

111618

Step 8 Select a PE.

Step 9 Click **Select**.

The **Create Reserved VLAN** window appears, as shown in Figure 2-41.

Figure 2-41 Create Reserved VLAN

Starting Value: \* 500 (1 - 4094)

Size: \* 100 (1 - 4094)

Management VLAN:

OK Cancel

Note: \* - Required Field

111619

Step 10 Enter a *Starting Value*.

Step 11 Enter a *Size*.

Step 12 Select **Management VLAN**.

Step 13 Click **OK**.

The **Access Domains** window appears, as shown in Figure 2-8.

Figure 2-42 Access Domains

The screenshot shows the 'Access Domains' management interface. At the top, there is a search bar with 'Show Access Domains with' and a dropdown menu set to 'Access Domain Name'. A 'Matching' field contains an asterisk, and a 'Find' button is to the right. Below the search bar, it says 'Showing 1 - 1 of 1 record'. The main table has three columns: '#', 'Access Domain Name', and 'Provider Name'. The first row contains '1.', 'AD-North-X', and 'Provider-X'. Below the table, there are 'Rows per page: 10' and navigation buttons for 'Go to page: 1 of 1'. At the bottom right, there are 'Create', 'Edit', and 'Delete' buttons. A vertical label '111620' is on the right side of the screenshot.

The Access Domain has been saved in the Repository.

## Creating Resource Pools

This section describes how to create Resource Pools using the Cisco IP Solution Center (ISC) GUI.

This section contains the following sections:

- [Overview of Resource Pools, page 2-31](#)
- [Create an IP Address Pool, page 2-32](#)
- [Create a Multicast Pool, page 2-34](#)
- [Create a Route Distinguisher Pool, page 2-36](#)
- [Create a Route Target Pool, page 2-38](#)
- [Create a Site of Origin Pool, page 2-40](#)
- [Create a VC ID Pool, page 2-41](#)
- [Create a VLAN Pool, page 2-43](#)

## Overview of Resource Pools

Before creating a service in ISC, you must define your Resource Pools. From these Resource Pools, ISC can automatically assign some values during the provisioning process. You can also manually assign these values during the provisioning process, but it is not recommended.

ISC allocates numbers from the following pools during the provisioning process:

- **IP Address**—Connects PE and CE interfaces, when you define addresses in a Service Request.
- **Multicast**—Class D addresses used with multicast, when building PE to multiple CE links.
- **Route Distinguisher (RD)**—A 64-bit number composed of the Provider AS number and an index number that is prepended to a VPN route. The RD allows the route subnet to be unique across the entire provider MPLS VPN network. It is carried by MP-BGPv4 as a 96-bit VPNv4 address as part of the extended community string.

- **Route Target (RT)**—An import and export feature of a VRF, the RT allows VPN routes to be forwarded between VRFs. It is a 64-bit number, also carried as part of the MP-BGPv4 extended community string, and directly related to each VPNv4 route and its VPN-related IPv4 route.
- **Site of Origin**—Indicates the origin of a BGP update. Depending on the use of two Cisco IOS BGP commands, the Site of Origin will be used by BGP to preclude routing loops.
- **VC ID (Virtual Circuit)**—Used as a Layer 2 circuit identifier across a provider network.
- **VLAN**—Used in a Layer 2 VPN as a circuit identifier within the provider Access Domain.

## Create an IP Address Pool

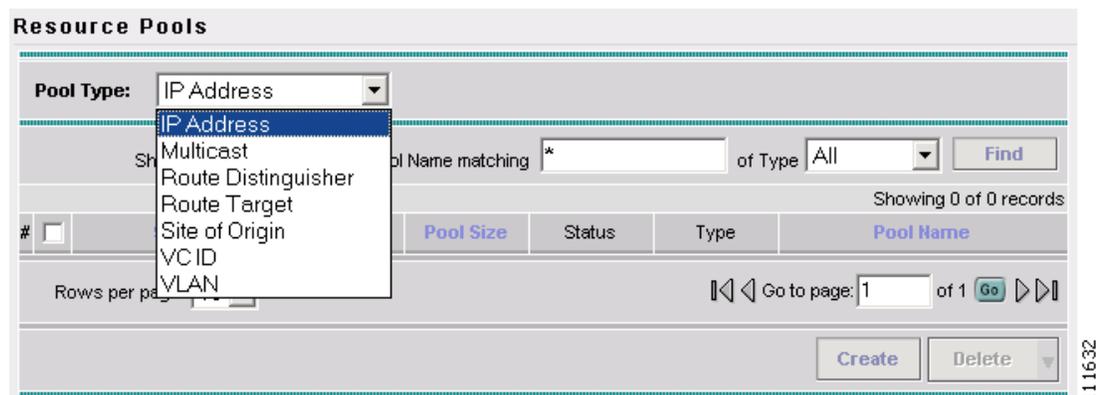
This section describes how to create an IP Address Pool with the ISC GUI.

To create an IP Address Pool with the ISC GUI, follow these steps:

- 
- Step 1** Log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.

The **Resource Pools** window appears, as shown in [Figure 2-43](#).

**Figure 2-43** Resource Pools



- Step 3** Select **IP Address** from the **Pool Type** window.
- Step 4** Click **Create**.

The **Create IP Address Pool** window appears, as shown in [Figure 2-44](#).

Figure 2-44 Create IP Address Pool

Note: \* - Required Field

**Step 5** Enter an *IP Address* and *Mask*. (**25.5.0.0/24**)

**Step 6** Select the **Pool Mask (bits)** value. (**30**)



**Note** Use **32** for loopback addresses.

**Step 7** Click **Select** to associate the pool with a Region.

The **Select Region** window appears, as shown in [Figure 2-45](#).

Figure 2-45 Select Region

**Step 8** Select a **Region**.

**Step 9** Click **Select**.

The **Create IP Address Pool** window appears, as shown in [Figure 2-6](#).

Figure 2-46 Create IP Address Pool

**Create IP Address Pool**

IP Address Pool\*: 25.5.0.0/24 (IP Address/Mask)

Pool Mask (bits)\*:  30  32

Pool Association\*: East-X Region

Note: \* - Required Field

111643

**Step 10** Click **Save**.

The **Resource Pools - IP Address** window appears, as shown in Figure 2-47.

Figure 2-47 Resource Pools - IP Address

**Resource Pools**

Pool Type: IP Address

Show IP Address Pools with Pool Name matching \* of Type All

Showing 1 - 1 of 1 record

#	Start	Pool Mask	Pool Size	Status	Type	Pool Name
1.	25.5.0.0	30	62	Available	Region	Provider-X:East-X

Rows per page: 10

111644

You have saved an IP Address Pool in the Repository.

## Create a Multicast Pool

This section describes how to create a Multicast Address Pool with the ISC GUI.

To create a Multicast Pool with the ISC GUI, follow these steps:

- 
- Step 1** Log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.  
The **Resource Pools** window appears (not shown).
- Step 3** Select **Multicast** from the **Pool Type** window.  
The **Resource Pools - Multicast** window appears, as shown in Figure 2-8.

Figure 2-48 Resource Pools - Multicast

111645

Step 4 Click **Create**.

The **Create Multicast Pool** window appears, as shown in Figure 2-49.

Figure 2-49 Create Multicast Pool

111646

Step 5 Enter an *IP Address* and *Mask*. (**239.0.0.0/24**)

Step 6 Select the defaults. (**Default MDT** and **Data MDT**).

Step 7 Click **Save**.

The **Resource Pools - Multicast** window appears, as shown in Figure 2-48.

Figure 2-50 Resource Pools - Multicast

**Resource Pools**

Pool Type:

Showing 1 - 1 of 1 record

#	<input type="checkbox"/>	Multicast Address	Size	Use Default MDT	Use Data MDT	Status
1.	<input type="checkbox"/>	239.0.0.0	256	true	true	Available

Rows per page:

Go to page:  of 1

111647

You have saved a Multicast Address Pool in the Repository.

## Create a Route Distinguisher Pool

This section describes how to create a Route Distinguisher Pool with the ISC GUI.

To create a Route Distinguisher Pool with the ISC GUI, follow these steps:

- Step 1 Log into ISC.
- Step 2 Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.  
The **Resource Pools** window appears (not shown).
- Step 3 Select **Route Distinguisher** from the **Pool Type** window.  
The **Resource Pools - Route Distinguisher** window appears, as shown in [Figure 2-11](#).

Figure 2-51 Resource Pools - Route Distinguisher

**Resource Pools**

Pool Type:

Show Route Distinguisher Pools with Pool Name matching

Showing 0 of 0 records

#	<input type="checkbox"/>	Start	Pool Size	Status	Pool Name
---	--------------------------	-------	-----------	--------	-----------

Rows per page:

Go to page:  of 1

111648

- Step 4 Click **Create**.  
The **Create Route Distinguisher Pool** window appears, as shown in [Figure 2-52](#).

Figure 2-52 Create Route Distinguisher Pool

**Create Route Distinguisher Pool**

RD Pool Start *	<input type="text" value="0"/>	(0 - 2147483646)
RD Pool Size *	<input type="text" value="0"/>	(1 - 2147483647)
Provider *	<input type="text" value="Provider-X"/>	<input type="button" value="Select"/>
		<input type="button" value="Save"/> <input type="button" value="Cancel"/>

Note: \* - Required Field

111622

**Step 5** Enter an *RD Pool Start*. (**50000**)

**Step 6** Enter an *RD Pool Size*. (**1000**)

**Step 7** Click **Select**.

The **Select Provider** window appears (not shown).

**Step 8** Select a **Provider**.

The **Create Route Distinguisher Pool** window appears, as shown in [Figure 2-53](#).

Figure 2-53 Create Route Distinguisher Pool

**Create Route Distinguisher Pool**

RD Pool Start *	<input type="text" value="50000"/>	(0 - 2147483646)
RD Pool Size *	<input type="text" value="1000"/>	(1 - 2147483647)
Provider *	<input type="text" value="Provider-X"/>	<input type="button" value="Select"/>
		<input type="button" value="Save"/> <input type="button" value="Cancel"/>

Note: \* - Required Field

111623

**Step 9** Click **Save**.

The **Resource Pools - Route Distinguisher** window appears, as shown in [Figure 2-15](#).

Figure 2-54 Create Route Distinguisher Pool

The screenshot shows the 'Resource Pools' interface. At the top, 'Pool Type' is set to 'Route Distinguisher'. Below this is a search bar with the text 'Show Route Distinguisher Pools with Pool Name matching \*' and a 'Find' button. The table below shows one record:

#	Start	Pool Size	Status	Pool Name
1.	50000	1000	Available	99:Provider-X

At the bottom, there are 'Create' and 'Delete' buttons. The page number '111624' is visible on the right side.

You have saved a Route Distinguisher Pool in the Repository.

## Create a Route Target Pool

This section describes how to create a Route Target Pool with the ISC GUI.

To create a Route Target Pool with the ISC GUI, follow these steps:

- Step 1 Log into ISC.
- Step 2 Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.  
The **Resource Pools** window appears (not shown).
- Step 3 Select **Route Target** from the **Pool Type** window.  
The **Resource Pools - Route Target** window appears, as shown in [Figure 2-55](#).

Figure 2-55 Create Route Target Pool

The screenshot shows the 'Resource Pools' interface with 'Pool Type' set to 'Route Target'. The search bar contains 'Show Route Target Pools with Pool Name matching \*' and a 'Find' button. The table below is empty, showing 'Showing 0 of 0 records':

#	Start	Pool Size	Status	Pool Name
---	-------	-----------	--------	-----------

At the bottom, there are 'Create' and 'Delete' buttons. The page number '111625' is visible on the right side.

- Step 4 Click **Create**.  
The **Create Route Target Pool** window appears, as shown in [Figure 2-56](#).

Figure 2-56 Create Route Target Pool

**Create Route Target Pool**

RT Pool Start *	<input type="text" value="0"/>	(0 - 2147483646)
RT Pool Size *	<input type="text" value="0"/>	(1 - 2147483647)
Provider *	<input type="text" value="Provider-X"/>	<input type="button" value="Select"/>

Note: \* - Required Field

111626

**Step 5** Enter an *RT Pool Start*. (**50000**)

**Step 6** Enter an *RT Pool Size*. (**1000**)

**Step 7** Click **Select**.

The **Select Provider** window appears (not shown).

**Step 8** Select a **Provider**.

The **Create Route Target Pool** window appears, as shown in [Figure 2-57](#).

Figure 2-57 Create Route Target Pool

**Create Route Target Pool**

RT Pool Start *	<input type="text" value="50000"/>	(0 - 2147483646)
RT Pool Size *	<input type="text" value="1000"/>	(1 - 2147483647)
Provider *	<input type="text" value="Provider-X"/>	<input type="button" value="Select"/>

Note: \* - Required Field

111627

**Step 9** Click **Save**.

The **Resource Pools - Route Target** window appears, as shown in [Figure 2-58](#).

Figure 2-58 Resource Pools - Route Target

**Resource Pools**

Pool Type:

Show Route Distinguisher Pools with Pool Name matching \*

Showing 1 - 1 of 1 record

#	Start	Pool Size	Status	Pool Name
1.	50000	1000	Available	99:Provider-X

Rows per page:

111624

You have saved a Route Target Pool in the Repository.

## Create a Site of Origin Pool

This section describes how to create a Site of Origin Pool with the ISC GUI.

To create a Site of Origin Pool with the ISC GUI, follow these steps:

- Step 1 Log into ISC.
- Step 2 Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.  
The **Resource Pools** window appears (not shown).
- Step 3 Select **Site of Origin** from the **Pool Type** window.  
The **Resource Pools - Site of Origin** window appears, as shown in [Figure 2-59](#).

Figure 2-59 Resource Pools - Site of Origin

**Resource Pools**

Pool Type:

Show Site of Origin Pools with Pool Name matching \*

Showing 0 of 0 records

#	Start	Pool Size	Status	Pool Name
---	-------	-----------	--------	-----------

Rows per page:

111629

- Step 4 Click **Create**.  
The **Create Site of Origin Pool** window appears, as shown in [Figure 2-60](#).

Figure 2-60 Create Site of Origin Pool

**Create Site of Origin Pool**

SOO Pool Start\*: 50000 (0 - 2147483646)

SOO Pool Size\*: 1000 (1 - 2147483647)

Provider\*: Provider-X

Note: \* - Required Field

111630

**Step 5** Enter an *SOO Pool Start*. (**50000**)

**Step 6** Enter an *SOO Pool Size*. (**1000**)

**Step 7** Click **Select**.

The **Select Provider** window appears (not shown).

**Step 8** Select a **Provider**.

The **Create Route Target Pool** window appears, as shown in [Figure 2-61](#).

Figure 2-61 Resource Pools - Site of Origin

**Resource Pools**

Pool Type: Site of Origin

Show Site of Origin Pools with Pool Name matching \*

Showing 1 - 1 of 1 record

#	Start	Pool Size	Status	Pool Name
1.	50000	1000	Available	99:Provider-X

Rows per page: 10  of 1

111631

You have saved a Site of Origin Pool in the Repository.

## Create a VC ID Pool

This section describes how to create a Virtual Circuit ID (VC ID) Pool with the ISC GUI.

To create a VC ID Pool with the ISC GUI, follow these steps:

**Step 1** Log into ISC.

**Step 2** Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.

The **Resource Pools** window appears (not shown).

**Step 3** Select **VC ID** from the **Pool Type** window.

The **Resource Pools - VC ID** window appears, as shown in [Figure 2-62](#).

**Figure 2-62** Resource Pools - VC ID

**Step 4** Click **Create**.

The **Create VC ID Pool** window appears, as shown in [Figure 2-63](#).

**Figure 2-63** Create VC ID Pool

**Step 5** Enter an *VC Pool Start*. (**50000**).

**Step 6** Enter an *VC Pool Size*. (**1000**).

**Step 7** Click **Save**.

The **Resource Pools - VC ID** window appears, as shown in [Figure 2-64](#).

Figure 2-64 Resource Pools - VC ID

**Resource Pools**

Pool Type:

Showing 1 - 1 of 1 record

#	Start	Pool Size	Status
1. <input type="checkbox"/>	50000	1000	Available

Rows per page:

Go to page:  of 1

111635

You have saved a VC ID Pool in the Repository.

## Create a VLAN Pool

This section describes how to create a VLAN (VC ID) Pool with the ISC GUI.

To create a VLAN Pool with the ISC GUI, follow these steps:

- 
- Step 1** Log into ISC.
  - Step 2** Select **Service Inventory > Inventory and Connection Manager > Resource Pools**.  
The **Resource Pools** window appears (not shown).
  - Step 3** Select **VLAN** from the **Pool Type** window.  
The **Resource Pools - VLAN** window appears, as shown in [Figure 2-65](#).

Figure 2-65 Resource Pools - VLAN

Step 4 Click **Create**.

The **Create VLAN Pool** window appears, as shown in Figure 2-66.

Figure 2-66 Select Device

Step 5 Enter an *VLAN Pool Start*. (**500**)

Step 6 Enter an *VLAN Pool Size*. (**100**)

Step 7 Click **Select**.

The **Select Access Domain** window appears, as shown in Figure 2-67.

Figure 2-67 Select Access Domain

Step 8 Select an **Access Domain**.

Step 9 Click **Select**.

The **Create VLAN Pool** window appears, as shown in Figure 2-68.

Figure 2-68 Create VLAN Pool

Step 10 Click **Save**.

The **Resource Pools - VLAN** window appears, as shown in Figure 2-69.

Figure 2-69 Resource Pools - VLAN

You have saved a VLAN Pool in the Repository.

## Defining a VPN

During service deployment, ISC generates the Cisco IOS commands to configure the logical VPN relationships.

At the beginning of the provisioning process, before creating a Service Policy, a VPN must be defined within ISC. The first element in a VPN definition is the name of the VPN.

To create a VPN Name, follow these steps:

- Step 1** Log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager > VPNs**.  
The VPN window appears, as shown in [Figure 2-70](#).

**Figure 2-70** VPNs

- Step 3** Click **Create** to create a VPN.  
The Create VPN window appears, as shown in [Figure 2-71](#).

**Figure 2-71** Create VPN

- Step 4** Enter the *VPN Name*. (**west-xVPN**)
- Step 5** Click **Select**.  
The Select Customer window appears, as shown in [Figure 2-72](#).

Figure 2-72 Select Customer

Show Customers with Customer Name matching \*

Showing 1 - 1 of 1 record

#	Customer Name
1.	<input checked="" type="radio"/> Cust-A

Rows per page:

116147

**Step 6** Select a Customer and then click **Select**. (Cust-A)

**Step 7** Click **Next**.

The VPNs window reappears, as shown in [Figure 2-73](#).

Figure 2-73 VPNs

**Create VPN**

Name \*:

Customer \*:

**MPLS Attributes**

Create Default CE Routing Community:

Enable Multicast:

Data MDT Size:

Data MDT Threshold:  (1 - 4294967 bits/sec)

CE Routing Communities:

**VPLS Attributes**

Enable VPLS:

Service Type:

Topology:

Note: \* - Required Field

116149

**Step 8** To associate the VPN with a Provider, you have two options:

- Select **Create Default CE Routing Community** and then Select a **Provider**.
- Select a CE Routing Community, if one is already set up.

**Step 9** Click **Save**.

The VPN Name (**west-xVPN**) is associated with the Customer (**Cust-A**) in this new VPN definition.

## Defining an MVRFCE PE-CE Service Policy

To define an MVRFCE PE-CE Service Policy, follow these steps:

- Step 1 Log into ISC.  
Step 2 Select **Service Design > Policies**.

The Policies window appears, as shown in [Figure 2-74](#).

**Figure 2-74 Policies**

- Step 3 From the **Create** drop-down list, select **MPLS Policy**.

The MPLS Policy Editor - Policy Type window appears, as shown in [Figure 2-75](#).

**Figure 2-75 MPLS Policy Editor - Policy Type**

- Step 4 Edit the following attributes:

- Step 5** Enter the *policy name*. (**mvrfce pe-ce**)
- Step 6** Select the Policy Type. (**Regular MVRFCE PE-CE**)
- Step 7** Select CE Present. (**CE Present**)
- Step 8** Click **Select** to specify a Customer.

The Customer for MPLS Policy ownership window appears, as shown in [Figure 2-76](#).

**Figure 2-76** Customer for MPLS Policy

#	Customer Name
1.	Cust-A

- Step 9** Select a Customer and then click **Select**. (**Cust-A**)
- Step 10** Click **Next**.

The MPLS Policy Editor - PE Interface window appears, as shown in [Figure 2-77](#).

**Figure 2-77** The MPLS Policy Editor - PE Interface

Attribute	Value	Editable
<b>Reset all Attribute editable flags:</b>		<input checked="" type="checkbox"/>
<b>PE Information</b>		
Interface Type:	ANY	
Interface Format:		
Interface Description:		<input checked="" type="checkbox"/>
Shutdown Interface:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>MVRFCE PE Facing Information</b>		
Interface Type:	ANY	
Interface Format:		
Interface Description:		<input checked="" type="checkbox"/>

- Step 11** Click **Next**.

The MPLS Policy Editor - CE Interface window appears, as shown in [Figure 2-78](#).

Figure 2-78 The MPLS Policy Editor - CE Interface

MPLS Policy Editor - Interface		
Attribute	Value	Editable
<b>MVRFCE CE Facing Information</b>		
Interface Type:	ANY	
Interface Format:		
Interface Description:		<input checked="" type="checkbox"/>
<b>CE Information</b>		
Interface Type:	ANY	
Interface Format:		
Interface Description:		<input checked="" type="checkbox"/>

101677

Step 12 Click **Next** to accept the defaults.

**Note**

Make sure the Editable check boxes are checked, so you can edit these attributes in the Service Request process.

The MPLS Policy Editor - PE IP Address Scheme window appears, as shown in [Figure 2-79](#).

Figure 2-79 The MPLS Policy Editor - PE IP Address Scheme

MPLS Policy Editor - IP Address Scheme		
Attribute	Value	Editable
<b>PE-MVRFCE Interface Address/Mask</b>		
IP Numbering Scheme:	IP Numbered	<input checked="" type="checkbox"/>
Automatically Assign IP Addresses:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IP Address Pool:	Region Pool	<input checked="" type="checkbox"/>

101678

Step 13 Select **Automatically Assign IP Addresses**.

The **IP Address Pool** appears with the **Region Pool** in the window.

Step 14 Click **Next**.

The MPLS Policy Editor - CE IP Address Scheme window appears, as shown in [Figure 2-79](#).

Figure 2-80 The MPLS Policy Editor - CE IP Address Scheme

MPLS Policy Editor - IP Address Scheme		
Attribute	Value	Editable
<b>MVRFCE-CE Interface Addresses/Mask</b>		
IP Numbering Scheme:	IP Numbered	<input checked="" type="checkbox"/>
Extra CE Loopback Required:	<input type="checkbox"/>	<input type="checkbox"/>
Automatically Assign IP Addresses:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IP Address Pool:	Region Pool	<input checked="" type="checkbox"/>

101679

Step 15 Select **Automatically Assign IP Address**.

**Step 16** Click **Next**.

The MPLS Policy Editor - PE Routing Information window appears, as shown in [Figure 2-81](#).

**Figure 2-81** The MPLS Policy Editor - PE Routing Information

Attribute	Value	Editable
<b>PE-MVRFCE Routing Information</b>		
<b>Routing Protocol</b>	STATIC	<input checked="" type="checkbox"/>
Give Only Default Routes to MVRFCE:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Redistribute Connected (BGP only):	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Default Information Originate (BGP only):	<input type="checkbox"/>	<input checked="" type="checkbox"/>

101680

**Step 17** Click **Next** to accept the defaults.

The MPLS Policy Editor - CE Routing Information window appears, as shown in [Figure 2-82](#).

**Figure 2-82** The MPLS Policy Editor - CE Routing Information

MPLS Policy Editor - Routing Information		
Attribute	Value	Editable
<b>MVRFCE-CE Routing Information</b>		
<b>Routing Protocol</b>	STATIC	<input checked="" type="checkbox"/>
Give Only Default Routes to CE:	<input type="checkbox"/>	<input checked="" type="checkbox"/>

101681

**Step 18** Click **Next** to accept the defaults.



**Note**

Make sure the Editable check boxes are checked, so you can edit these attributes in the Service Request process.

The MPLS Policy Editor - VRF and VPN Membership window appears, as shown in [Figure 2-83](#).

Figure 2-83 The MPLS Policy Editor - VRF and VPN Membership

Attribute	Value	Editable
<b>VRF Information</b>		
Export Map:	<input type="text"/>	<input checked="" type="checkbox"/>
Import Map:	<input type="text"/>	<input checked="" type="checkbox"/>
Maximum Routes:	(1-4294967295)	<input checked="" type="checkbox"/>
Maximum Route Threshold:	80 (1-100)	<input checked="" type="checkbox"/>
VRF Description:	<input type="text"/>	<input checked="" type="checkbox"/>
Allocate new route distinguisher:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VRF And RD Overwrite	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Template Association</b>		
Template Enable:	<input type="checkbox"/>	
<b>VPN Selection</b>		
PE VPN Membership:		<input checked="" type="checkbox"/>

Select Customer VPN Provider CERC Is Hub

Add Delete

Step 8 of 8 -

< Back Next > Finish Cancel

**Step 19** Click **Next** to accept the defaults.



**Note**

You could add the VPN here, but in this scenario you add the VPN in the Service Request process. Make sure the Editable check boxes are checked, so you can edit these attributes in the Service Request process.

**Step 20** Click **Finish**:

The Policies window reappears, as shown in [Figure 2-84](#).

Figure 2-84 Policies

Show Policies with Policy Name Matching \* of Type All Find

Showing 1 - 1 of 1 record

#	Policy Name	Type	Owner
1.	mvrfce pe-ce	MPLS	Customer - Cust-A

Rows per page: 10 Go to page: 1 of 1 Go

Create Edit Copy Delete

The MVRFCE PE-CE Service Policy is complete.

# Creating an MVRFCE PE-CE Service Request

To create a MVRFCE PE-CE Service Request, follow these steps:

- Step 1** Log into ISC.
- Step 2** Select **Service Inventory > Inventory and Connection Manager > Service Requests**.  
The Service Requests window appears, as shown in [Figure 2-85](#).

**Figure 2-85** Service Requests

- Step 3** From the **Create** drop-down list, select **MPLS VPN**.  
The Select MPLS Policy window appears, as shown in [Figure 2-86](#).

**Figure 2-86** Select MPLS Policy

- Step 4** Select the MPLS Policy. (**mvrfce pe-ce**)
- Step 5** Click **OK**.  
The MPLS Service Request Editor window appears, as shown in [Figure 2-87](#).

Figure 2-87 MPLS Service Request Editor

**MPLS Service Request Editor**

Job ID:                      SR ID:                      SR State:

Policy:    mvrfce pe-ce

Customer: Cust-A

Description:

Showing 0 of 0 records

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE PE Interface	Link Attribute	Logical Link
Showing 0 of 0 records									

Rows per page: 10      Go to page: 1 of 1

116127

**Step 6** Click **Add Link**.

The MPLS Service Request Editor window appears, as shown in [Figure 2-88](#).

Figure 2-88 MPLS Service Request Editor - Select CE

Showing 1 - 1 of 1 record

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE PE Interface	Link Attribute	Logical Link	
1.	0	Select CE	<input type="button" value="Select CE"/>	<input type="button" value="Select CE"/>	Select MVRFCE	<input type="button" value="Select MVRFCE"/>	Select PE	<input type="button" value="Select PE"/>	Add	N/A

Rows per page: 10      Go to page: 1 of 1

116128

**Step 7** Click **Select CE**.

The Select CPE Device - CE window appears, as shown in [Figure 2-89](#).

Figure 2-89 Select CPE Device - CE

Show CPEs with Customer Name Matching \*

Showing 1 - 1 of 1 record

#	Device Name	Customer Name	Site Name	Management Type
1.	mlice4	Cust-A	Cust-A-Site-mlice4	Unmanaged

Rows per page: 10      Go to page: 1 of 1

116129

**Step 8** Select the **CPE Device** and then click **Select. (mlce4)**

The MPLS Service Request Editor window appears, as shown in [Figure 2-90](#).

**Figure 2-90 MPLS Service Request Editor - CE Interface**

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE	PE Interface	Link Attribute	Logical Link
1.	0	mlce4	FastEthernet0/1		Select MVRFCE		Select PE		Add	N/A

Showing 1 - 1 of 1 record

Rows per page: 10 Go to page: 1 of 1 Go

Add Link Delete Link Save Cancel

**Step 9** Select the **CE Interface** from the drop-down box. (**FE0/1**)

**Step 10** Click **Select MVRFCE**.

The Select CPE Device - MVRFCE window appears, as shown in [Figure 2-91](#).

**Figure 2-91 Select CPE Device - MVRFCE**

Show CPEs with Customer Name Matching \* Find

Showing 1 - 1 of 1 record

#	Device Name	Customer Name	Site Name	Management Type
1.	mlce3	Cust-A	Cust-A-Site-mlce3	Unmanaged Multi-VRF

Rows per page: 10 Go to page: 1 of 1 Go

Select Cancel

**Step 11** Select the **MVRFCE** and then click **Select. (mlce3)**

The MPLS Service Request Editor window appears, as shown in [Figure 2-92](#).

**Figure 2-92 MPLS Service Request Editor - MVRFCE CE Facing Interface**

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE	PE Interface	Link Attribute	Logical Link
1.	0	mlce4	FastEthernet0/1	Ethernet0/2	mlce3	Select One	Select PE		Add	N/A

Showing 1 - 1 of 1 record

Rows per page: 10 Go to page: 1 of 1 Go

Add Link Delete Link Save Cancel

**Step 12** Select the **MVRFCE CE Facing Interface** from the drop-down box. (**E0/2**)

**Step 13** Select the **MVRFCE PE Facing Interface** from the drop-down box. (**E0/1**)

The MPLS Service Request Editor window appears, as shown in [Figure 2-93](#).

**Figure 2-93** MPLS Service Request Editor - Select MVRFCE PE Facing Interface

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE	PE Interface	Link Attribute	Logical Link
1.	0	mlce4	FastEthernet0/1	Ethernet0/2	mlce3	Ethernet0/1	Select PE	Add	N/A	

Showing 1 - 1 of 1 record

Rows per page: 10 Go to page: 1 of 1

Add Link Delete Link Save Cancel

116134

**Step 14** Select **PE**.

The Select PE Device window appears, as shown in [Figure 2-94](#).

**Figure 2-94** Select PE Device

Show PEs with Provider Name Matching \* Find

Showing 1 - 3 of 3 records

#	Device Name	Provider Name	Region Name	Role Type
1.	mlpe3	Provider-X	East-X	PE_POP
2.	mlpe4	Provider-X	North-X	PE_POP
3.	mlpe2	Provider-X	West-X	PE_POP

Rows per page: 10 Go to page: 1 of 1

Select Cancel

116135

**Step 15** Select the **PE** and then click **Select**.

The MPLS Link Attribute Editor window appears, as shown in [Figure 2-95](#).

**Figure 2-95** MPLS Link Attribute Editor - Interface

#	Link ID	CE	CE Interface	MVRFCE CE Facing Interface	MVRFCE	MVRFCE PE Facing Interface	PE	PE Interface	Link Attribute	Logical Link
1.	0	mlce4	FastEthernet0/1	Ethernet0/2	mlce3	Ethernet0/1	mlpe2	FastEthernet0/0	Add	N/A

Showing 1 - 1 of 1 record

Rows per page: 10 Go to page: 1 of 1

Add Link Delete Link Save Cancel

116136

**Step 16** Select the **PE Interface** from the drop-down box. (**FE0/0**)

**Step 17** Click **Add** in the **Link Attribute** cell.

The MPLS Link Attribute Editor - Interface window appears, as shown in [Figure 2-95](#).

Figure 2-96 MPLS Link Attribute Editor - Interface

**MPLS Link Attribute Editor - Interface**

Attribute	Value
<b>PE Information</b>	
<b>PE</b>	m1pe2
Interface Name:	FastEthernet0/0. <input type="text"/>
Interface Description:	<input type="text"/>
Shutdown Interface:	<input type="checkbox"/>
Encapsulation:	DOT1Q <input type="text"/>
VLAN ID *:	510 <input type="text"/> (1-4095)
<b>MVRFCE PE Facing Information</b>	
<b>MVRFCE</b>	m1ce3
Interface Name:	Ethernet0/1. <input type="text"/>
Interface Description:	<input type="text"/>
Encapsulation:	DOT1Q <input type="text"/>

Note: \* - Required Field

- Step 1 of 7 -

< Back Next > Finish Cancel

116137

**Step 18** Enter the *VLAN ID* for the PE. (**510**)

**Step 19** Click **Next**.

The MPLS Link Attribute Editor - Interface window appears, as shown in [Figure 2-97](#).

Figure 2-97 MPLS Link Attribute Editor - Interface

Attribute	Value
<b>MVRFCE CE Facing Information</b>	
MVRFCE	mlce3
Interface Name:	Ethernet0/2
Interface Description:	
Encapsulation:	DOT1Q
VLAN ID *	530 (1-4095)
<b>CE Information</b>	
CE	mlce4
Interface Name:	FastEthernet0/1
Interface Description:	
Encapsulation:	DOT1Q

Note: \* - Required Field

- Step 2 of 7 -

< Back Next > Finish Cancel

Step 20 Enter the *VLAN ID* for the MVRFCE. (530)

Click **Next**.

The MPLS Link Attribute Editor - IP Address Scheme window appears, as shown in Figure 2-98.

Figure 2-98 MPLS Link Attribute Editor - IP Address Scheme

Attribute	Value
<b>PE-MVRFCE Interface Address/Mask</b>	
IP Numbering Scheme:	IP Numbered
Automatically Assign IP Addresses:	<input checked="" type="checkbox"/>
IP Address Pool:	Region Pool

Note: \* - Required Field

116139

Step 21 Keep the defaults and click **Next**.

The MPLS Link Attribute Editor - IP Address Scheme window appears, as shown in Figure 2-99.

Figure 2-99 MPLS Link Attribute Editor - IP Address Scheme

MPLS Link Attribute Editor - IP Address Scheme	
Attribute	Value
<b>MVRFCE-CE Interface Address/Mask</b>	
IP Numbering Scheme:	IP Numbered ▾
Extra CE Loopback Required:	<input checked="" type="checkbox"/>
Automatically Assign IP Addresses:	<input checked="" type="checkbox"/>
IP Address Pool:	Region Pool ▾

Note: \* - Required Field

116142

Step 22 Keep the defaults and click **Next**.

The MPLS Link Attribute Editor - Routing Information window reappears, as shown in Figure 2-100.

Figure 2-100 MPLS Link Attribute Editor - PE Routing Information

MPLS Link Attribute Editor - Routing Information	
Attribute	Value
<b>PE-MVRFCE Routing Information</b>	
<b>Routing Protocol</b>	STATIC ▾
Give Only Default Routes to MVRFCE:	<input type="checkbox"/>
Redistribute Connected (BGP only):	<input type="checkbox"/>
Default Information Originate (BGP only):	<input type="checkbox"/>
Advertised Routes for MVRFCE:	<input type="button" value="Edit"/>
Routes To Reach Other Sites:	<input type="button" value="Edit"/>

Note: \* - Required Field

116143

Step 23 Keep the defaults and click **Next**.

The MPLS Link Attribute Editor - Routing Information window reappears, as shown in Figure 2-101.

Figure 2-101 MPLS Link Attribute Editor - MVRFCE Routing Information

MPLS Link Attribute Editor - Routing Information	
Attribute	Value
<b>MVRFCE-CE Routing Information</b>	
<b>Routing Protocol</b>	STATIC ▾
Give Only Default Routes to CE:	<input type="checkbox"/>
Advertised Routes for CE:	<input type="button" value="Edit"/>
Routes To Reach Other Sites:	<input type="button" value="Edit"/>

Note: \* - Required Field

116144

Step 24 Keep the defaults and click **Next**.

The MPLS Link Attribute Editor - VRF and VPN window appears (not shown).

- Step 25** Click **Add** to select a VPN.  
The Select VPN window appears, as shown in [Figure 2-102](#).

**Figure 2-102** Select VPN

#	Customer	VPN	Provider	CERC	Topology
1.	CUST-A	west-xVPN	PROVIDER-X	Default	Hub and Spoke

- Step 26** Select a VPN.  
**Step 27** Click **Join as Hub** or **Join as Spoke** to join the CERC.  
**Step 28** Click **Done**.

The MPLS Link Attribute Editor - VRF and VPN window reappears, as shown in [Figure 2-103](#).

**Figure 2-103** MPLS Service Request Editor

Attribute	Value				
<b>VRF Information</b>					
Export Map:					
Import Map:					
Maximum Routes:	(1-4294967295)				
Maximum Route Threshold *:	80 (1-100)				
VRF Description:					
Allocate new route distinguisher:	<input type="checkbox"/>				
VRF And RD Overwrite	<input type="checkbox"/>				
<b>VPN Selection</b>					
PE VPN Membership *:					
Select	Customer	VPN	Provider	CERC	Is Hub
<input type="checkbox"/>	CUST-A	west-xVPN	PROVIDER-X	Default	<input checked="" type="checkbox"/>

- Step 29** Click **Finish**.  
The MPLS Service Request Editor window appears, as shown in [Figure 2-104](#).

Figure 2-104 MPLS Service Request Editor

**MPLS Service Request Editor**

Job ID: 7      SR ID: 8      SR State: REQUESTED

Policy: mpls-mvrfce-pe-ce

Description:

Showing 1-1 of 1 records

#	Link ID	CE	CE Interface	MVRFC CE Facing Interface	MVRFC	MVRFC PE Facing Interface	PE	PE Interface	Link Attribute	Logical Link
1.	<input type="checkbox"/>	6	mlce4	FastEthernet0/1	Ethernet0/2	mlce3	Ethernet0/1	mlpe2	FastEthernet0/0	Edited Details...

Rows per page:       Go to page:  of 1

101698

- Step 30** Enter the Service Request *description* and then click **Save**. (**mpls-mvrfce-pe-ce**)  
The MPLS Service Requests window appears, as shown in Figure 2-105.

Figure 2-105 Service Request

**Service Requests**

Show Services with  Matching \*  of Type

Showing 1 - 1 of 1 record

#	Job ID	State	Type	Operation Type	Creator	Customer Name	Policy Name	Last Modified	Description
1.	<input type="checkbox"/> 1	<input type="text" value="REQUESTED"/>	MPLS	ADD	admin	Cust-A	mvrfce-pe-ce	2/22/04 7:24 PM	mpls-mvrfce-pe-ce service re...

Rows per page:       Go to page:  of 1

Auto Refresh:

116145

The MPLS VPN MVRFC PE-CE Service Request is in the Requested state and ready to deploy.

