



Monitoring Carrier Ethernet Services

The following topics describe how you can use Cisco Prime Network Vision (Prime Network Vision) to monitor Carrier Ethernet services:

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User Roles Required to Work with Carrier Ethernet Services

This topic identifies the roles that are required to work with to Carrier Ethernet services in Prime Network Vision. Prime Network determines whether you are authorized to perform a task as follows:

- For GUI-based tasks (tasks that do not affect elements), authorization is based on the default permission that is assigned to your user account.
- For element-based tasks (tasks that do affect elements), authorization is based on the default permission that is assigned to your account. That is, whether the element is in one of your assigned scopes and whether you meet the minimum security level for that scope.

For more information on user authorization, see the Cisco Prime Network 3.9 Administrator Guide.

The following tables identify the tasks that you can perform:

- Table 12-1 identifies the tasks that you can perform if a selected element **is not in** one of your assigned scopes.
- Table 12-2 identifies the tasks that you can perform if a selected element **is in** one of your assigned scopes.

By default, users with the Administrator role have access to all managed elements. To change the Administrator user scope, see the topic on device scopes in the *Cisco Prime Network 3.9 Administrator Guide*.

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
Adding Elements to Maps			I.		
Add associated VLANs to a map		—	Х	Х	X
Add EFP cross-connects		—	Х	Х	X
Add Ethernet services to a map		_	Х	Х	Х
Add pseudowires to a map		—	Х	Х	X
Add unassociated bridges		_	Х	Х	X
Add VLANs to a map		_	Х	Х	X
Add VPLS instances to a map		_	Х	Х	X
Viewing Element Properties	-		I.		
View access gateway properties		_		_	X
View associated network VLAN service links and VLAN mapping properties					Х
View CDP properties				—	X
View EFD properties				—	X
View EFP cross-connect properties	Partial ¹	Partial ¹	Partial ¹	Partial ¹	Х
View EFP properties	Partial ¹	Partial ¹	Partial ¹	Partial ¹	Х
View Ethernet flow domains	Х	Х	Х	Х	Х
View Ethernet LAG properties		_	—	—	Х
View Ethernet service properties	Х	Х	Х	Х	Х

Table 12-1 Default Permission/Security Level Required for Working with Carrier Ethernet Services - Element Not in User's Scope

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
View EVC service properties	_				Х
View IP SLA responder service properties	_		—	—	Х
View IS-IS properties	_		_	—	Х
View Link Layer Discovery Protocol (LLDP) properties	_		—	_	Х
View mLACP properties	_				Х
View OSPF properties	_			—	Х
View Provider Backbone Bridge (PBB) properties			—	_	Х
View pseudowire properties	Partial ¹	Partial ¹	Partial ¹	Partial ¹	Х
View pseudowire redundancy service properties	Partial ²	Partial ²	Partial ²	Partial ²	
View REP properties	_			—	Х
View REP properties for VLAN service links	_		—	_	Х
View STP properties	_				Х
View STP properties for VLAN service links	_		—	—	Х
View virtual service instance properties	_		—	—	Х
View VLAN bridge properties	_				Х
View VLAN links between VLAN elements and devices	Partial ³	Partial ³	Partial ³	Partial ³	Х
View VLAN mappings	_				Х
View VLAN service link properties	—	—	_	—	Х
View VLAN trunk group properties	_		—	—	Х
View VPLS access EFP properties	_		—	—	Х
View VPLS core or access pseudowire endpoint properties				_	Х
View VPLS instance properties	Х	Х	Х	Х	Х
Working with Overlays	+	<u>µ</u>		4	
Apply overlays	X	Х	Х	Х	Х
Display or hide overlays	X	Х	Х	Х	Х
Remove overlays	Х	Х	Х	Х	Х
View pseudowire tunnel links in VPLS overlays			_		X

Table 12-1 Default Permission/Security Level Required for Working with Carrier Ethernet Services - Element Not in User's Scope (continued) Services - Element Not in User's Scope (continued)

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
View REP information in VLAN domain views and VLAN overlays	_				X
View STP information in VLAN domain views and VLAN overlays	_				X
Other Tasks					
Display pseudowire information			_	_	Х
Ping a pseudowire			_	_	Х
Remove VLANs from a map	—	—	Х	Х	Х
Rename Ethernet flow domains	Х	X	Х	Х	X

Table 12-1 Default Permission/Security Level Required for Working with Carrier Ethernet Services - Element Not in User's Scope (continued) Services - Element Not in User's Scope (continued)

1. The user can view properties available via **Node > Properties** but not those available via the right-click Properties option or in logical inventory.

2. The user can view the pseudowire redundancy icon in the navigation and map panes, but not the inventory or properties window.

3. The user can view links, but the links are dimmed and do not indicate their status.

Table 12-2 Default Permission/Security Level Required for Working with Carrier Ethernet Services - Element in User's Scope

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
Adding Elements to a Map	4	4			
Add associated VLANs to a map	_	_	Х	Х	Х
Add EFP cross-connects		—	Х	Х	Х
Add Ethernet services to a map		_	Х	Х	X
Add pseudowires to a map		_	Х	Х	Х
Add unassociated bridges		_	Х	Х	Х
Add VLANs to a map		_	Х	Х	Х
Add VPLS instances to a map		_	Х	Х	Х
Viewing Element Properties	4	4			
View access gateway properties	Х	X	Х	Х	Х
View associated network VLAN service links and VLAN mapping properties	X	X	X	X	Х
View CDP properties	Х	Х	Х	Х	Х
View EFD properties	Х	Х	Х	Х	Х
View EFP cross-connect properties	Х	Х	Х	Х	Х
View EFP properties	Х	Х	Х	Х	Х
View Ethernet flow domains	Х	Х	Х	Х	Х
View Ethernet LAG properties	Х	Х	Х	Х	Х
View Ethernet service properties	Х	Х	Х	Х	Х

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator	
View EVC service properties	Х	Х	Х	Х	X	
View IP SLA responder service properties	Х	X	X	X	X	
View IS-IS properties	Х	Х	Х	Х	Х	
View Link Layer Discovery Protocol (LLDP) properties	Х	X	X	X	X	
View mLACP properties	Х	Х	Х	Х	Х	
View OSPF properties	Х	Х	Х	Х	Х	
View Provider Backbone Bridge (PBB) properties	X	X	X	X	X	
View pseudowire properties	Х	Х	Х	Х	Х	
View pseudowire redundancy service properties	Х	Х	X	X	X	
View REP properties	Х	Х	Х	Х	Х	
View REP properties for VLAN service links	Х	Х	X	Х	X	
View STP properties	Х	Х	Х	Х	Х	
View STP properties for VLAN service links	Х	X	X	X	X	
View VLAN bridge properties	Х	Х	Х	Х	Х	
View VLAN links between VLAN elements and devices	Х	Х	X	X	X	
View VLAN mappings	Х	Х	Х	Х	Х	
View VLAN service link properties	Х	Х	Х	Х	Х	
View VLAN trunk group properties	Х	X	Х	Х	Х	
View VPLS access EFP properties	Х	X	Х	Х	Х	
View VPLS core or access pseudowire endpoint properties	Х	Х	Х	X	X	
View VPLS instance properties	Х	X	Х	Х	Х	
View VSI properties	Х	Х	Х	Х	Х	

Table 12-2 Default Permission/Security Level Required for Working with Carrier Ethernet Services - Element in User's Scope (continued)

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
Working with Overlays			•	<u>.</u>	
Apply overlays	Х	Х	Х	Х	X
Display or hide overlays	Х	Х	Х	Х	X
Remove overlays	Х	Х	Х	Х	X
View pseudowire tunnel links in VPLS overlays	X	X	Х	X	X
View REP information in VLAN domain views and VLAN overlays	X	X	Х	X	X
View STP information in VLAN domain views and VLAN overlays	X	X	X	X	X
Other Tasks	k		I.		
Display pseudowire information	_	_	_	Х	X
Ping a pseudowire	_			Х	Х
Remove VLANs from a map	_		Х	Х	Х
Rename Ethernet flow domains X		Х	Х	Х	X

 Table 12-2
 Default Permission/Security Level Required for Working with Carrier Ethernet

 Services - Element in User's Scope (continued)

Viewing CDP Properties

Cisco Discovery Protocol (CDP) is primarily used to obtain protocol addresses of neighboring devices and discover the platform of those devices.

In Logical Inventory

To view CDP properties:

Step 1 In Prime Network Vision, double-click the device whose CDP properties you want to view.

Step 2 In the inventory window, click **Logical Inventory > Cisco Discovery Protocol**.

The CDP properties are displayed in logical inventory as shown in Figure 12-1.

🗑 NPE	E1-9K-FL	Poll Now					
-	Logical Inventory Access Gateway Access Lists	Process:	Cisco Discovery I	Protocol Process Stat	us: Running		
• 	ATM Traffic Profiles Bidirectional Forwarding Detection Bridges	CDP Local Device ID:	NPE1-9K-FL.cisco	.com CDP Version:	2		
B B	Ethernet Link Aggregation	CDP Neighbors Table					
>	IS-IS Local Switching	Find :	1 <u>2</u> v	ヤ原原			
<u>ه</u>	LSEs	Local Port 👌		Local Port ID	Remote Device ID	Remote Port ID	Remote IP Address
	Modular OS	NPE1-9K-FL#0:GigabitE	thernet0/0/0/29	GigabitEthernet0/0/0/29	AGG1-6524ME-FL	GigabitEthernet1/32	10.204.55.24
	OAM	NPE1-9K-FL#0:GigabitE	thernet0/0/0/30	GigabitEthernet0/0/0/30	CRS1-1-FL.Cisc.com	GigabitEthernet0/4/2/2	10.204.2.1
> 	OSPF Processes	NPE1-9K-FL#0:GigabitE	thernet0/0/0/38	GigabitEthernet0/0/0/38	GSR1-IOX-FL	GigabitEthernet0/2/1/0	10.204.2.18
	Pseudowires	NPE1-9K-FL#0:GigabitE	thernet0/0/0/39	GigabitEthernet0/0/0/39	9 NPE2-7600-FL	GigabitEthernet4/10	10.204.2.9
	Traffic Engineering Tunnels	NPE1-9K-FL#1:GigabitE	thernet0/1/0/37	GigabitEthernet0/1/0/37	7 NPE2-7600-FL	GigabitEthernet4/7	10.220.1.10
> .	VC Switching Entities	NPE1-9K-FL#1:GigabitE	thernet0/1/0/39	GigabitEthernet0/1/0/39	CRS1-1-FL.Cisc.com	GigabitEthernet0/4/0/0	10.56.59.30
Device Zoor	m) 🔀 Best Fit						Line () (Size 6)
,							2010 0 (5020 0)
Find :		5 B			1 1.		

Figure 12-1 CDP in Logical Inventory

Table 12-3 describes the CDP instance properties that are displayed.

 Table 12-3
 CDP Properties in Logical Inventory

Field	Description				
Process	Process name; in this case, Cisco Discovery Protocol				
Process Status	Process status: Running or Disabled.				
CDP Holdtime	Specifies the amount of time a receiving device should hold the information sent by a device before discarding it.				
CDP Message Interval	Interval between CDP advertisement transmissions.				
CDP Local Device ID	Local device identifier.				
CDP Version	CDP version: 1 or 2.				
CDP Neighbors Table					
Local Port	Local port name.				
Local Port ID	Local port identifier.				
Remote Device ID	Remote device identifier.				
Remote Port ID	Remote port identifier.				
Remote IP Address	Remote IP address.				

In Physical Inventory

To view CDP on a Layer 2 port:

- **Step 1** In Prime Network Vision, double-click the device with the Layer 2 port with the CDP information you want to view.
- Step 2 In the inventory window, select the required port under Physical Inventory.

The CDP information is displayed in the Discovery Protocols area in the Prime Network Vision content pane:

- Discovery Protocol Type—CDP
- Info—Up or Down

Viewing Link Layer Discovery Protocol Properties

LLDP stores and maintains the local device information, including a list of devices directly connected to the device.

In Logical Inventory

To view LLDP properties:

- **Step 1** In Prime Network Vision, double-click the device with the LLDP information you want to view.
- Step 2 In the inventory window, choose Logical Inventory > Link Layer Discovery Protocol. The LLDP properties are displayed in logical inventory as shown in Figure 12-2.

c7-sw10 [:	IN]							_ 🗆 >
🖬 🔽 c7-s	w10[1N]	😳 Poll Now						
- 🖳 I	ogical Inventory					-		
	Access Lists	Process:	Link Layer Di	scovery Protocol	Process Status:	Running		
Image: A marked block in the second secon	Bridges	LLDP Hold Time:	120.0 sec		LLDP Reinitialisation De	lay: 2.0 sec		
	CFM Ciara Diagona Duabagal	LLDP Advertisements Interval:	30.0 sec		Local System Name:	c7-sw10		
	Cisco Discovery Protocol	Local Chassis ID:	00 22 05 09 5	4.90				
	IP SLA Responder	LOCAL CHASSIS 1D.	00 22 00 301	4 00				
	Link Layer Discovery Protocol							
Þ	Local Switching							
Þ	LSEs	LLDP Neighbors Table						
►	MPBGPs	Find :	2 🖓 💎 🦤	1				
	Operating Suctors	Local Port 😌 /	Local Port ID	Local Port Name	Remote Chassis ID	Remote System Name	Remote Port ID	Remote Port Name
•	Resilient Ethernet Protocol	c7-sw10#0:GigabitEthernet1/0/2	Gi1/0/2	GigabitEthernet1/0/2	2 00 22 0C 98 F4 00	c7-sw9	Gi1/0/2	GigabitEthernet1/0/2
•	Routing Entities	c7-sw10#1:GigabitEthernet1(1()	Gi1/1/2	GigabitEthernet1/1/2	2 00 22 00 99 09 00	c7-sul8	Gi1/1/2	GigabitEthernet1/1/2
>	Spanning Tree Protocol	er strick indigabiliterioriteriyiyi	Girlin	algabicaciónica y 1/1		C/ SHO	Garlete	agabitectionitiotayaye
	Tunnel Traffic Descriptors	í l						
_ î	VTP							
-	Physical Inventory							
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Device Zeen	Ra Post St							
Device 2001	KA Dest III							
┉┉								
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ind :								
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ckets Net	work Events							
						Memory:	8%	onnected

Figure 12-2 LLDP in Logical Inventory

Table 12-4 describes the properties that are displayed for LLDP.

Field	Description
Process	Process; in this case, Link Layer Discovery Protocol
Process Status	Process status: Running or Disabled.
LLDP Hold Time	LLDP advertised hold time in seconds.
LLDP Reinitialization Delay	LLDP interface reinitialization delay in seconds
LLDP Advertisements Interval	LLDP advertisements interval in seconds.
Local System Name	Local system name.
Local Chassis ID	Local chassis identifier.

Field	Description			
LLDP Neighbors Table				
Local Port	Local port.			
Local Port ID	Local port identifier.			
Local Port Name	Local port name.			
Remote System Name	Remote system name.			
Remote Chassis ID	Remote chassis identifier.			
Remote Port ID	Remote port identifier.			
Remote Port Name	Remote port name.			
Remote Management IP	Remote management IP address.			

Table 12-4	Link Layer Discovery Protocol Properties (continued)
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In Physical Inventory

To view LLDP on a Layer 2 port:

- **Step 1** In Prime Network Vision, double-click the device with the Layer 2 port with LLDP information you want to view.
- Step 2 In the inventory window, select the required port under Physical Inventory.

The LLDP information is displayed in the Discovery Protocols area in the Prime Network Vision content pane:

- Discovery Protocol Type—LLDP
- Info—Tx (Enabled or Disabled), Rx (Enabled or Disabled).

Viewing Spanning Tree Properties

STP is a link management protocol that provides path redundancy while preventing undesirable loops in the network.

To view Spanning Tree properties:

- Step 1 In Prime Network Vision, double-click the element whose STP properties you want to view.
- **Step 2** In the inventory window, choose **Logical Inventory > Spanning Tree Protocol**.
- **Step 3** STP properties are displayed in logical inventory as shown in Figure 12-3.

₩ AGG-7604-TX [5M]						_ 🗆 ×
🕶 🖳 👽 Logical Inventory [2M]	A Poll Now					
 Access Gateway 						
▼ 🔜 2 (MSTAG)	Process:	Spanning Tree Protocol	Process Status:	Running		
GigabitEthernet2/0/19	Bridge Hello Time:	1.0 sec	Hello Time:	1.0 sec		
Access Lists	Bridge Eorward Delay:	4.0 sec	Forward Delay:	4.0 sec		
Bidirectional Forwarding Detection	bridge i drivara beidy.	+.0 SCC	r orward beidy.	4.0 SCC		
Bridges	Bridge Max Age:	6.0 sec	Max Age:	6.0 sec		
Cisco Discovery Protocol	STP Protocol:	MST	UplinkFast:	Down		
Clock [2M]	BackboneFast:	Down				
Ethernet Link Aggregation						
Enternet Line Frame Relay Traffic Profiles						
ICCP Redundancy			****			
IS-IS	STP Instance Info Ta	able				
Local Switching	Find :	🔛 🛃 🗸 🐂 🐺	5			
LSEs MORCO-	STP Instance ID	VLAN Ids Bridge Prio	ity STP Root Port	Root Cost	Designated Root	Bridge ID
MPLS-TP	MSTO	[1-4094] 32768		0	00 1E BE 8A B7 80	00 1E BE 8A B7 80
MPLS-TP Global		[
OAM						
Operating System						
OSPF Processes						
Pseudowires						
SegmentId 100						
SegmentId 300						
Routing Entities						
 Spanning Tree Protocol 						
Mst Properties						
MSTO						
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Device Zoom						
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Tickets Network Events Provisioning Events						
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Figure 12-3 STP in Logical Inventory

Table 12-5 describes the properties that are displayed for STP.

Table 12-5 STP Properties

Field	Description
Process	Process; in this case, Spanning Tree Protocol.
Process Status	Process status: Running or Disabled.
Bridge Hello Time	Hello message keepalive interval (in seconds) when the port is the root.
Hello Time	Current hello time (in seconds).
Bridge Forward Delay	When the port is the root and in listening or learning state, amount of time to wait (in seconds) before proceeding to the forwarding state.
Forward Delay	Current bridge forward delay (in seconds).
Bridge Max Age	When the port is the root, maximum age of learned Spanning Tree Protocol port information (in seconds).
Max Age	Current maximum age (in seconds).
STP Protocol	STP version: MST, RSTP, PVSTP, MSTP, or RPVST.
UplinkFast	PVSTP Uplink Fast function status: Up or Down.
BackboneFast	PVSTP BackboneFast function status: Up or Down.

Field	Description		
STP Instance Info Table			
STP Instance ID	STP instance name.		
VLAN IDs	VLAN identifiers.		
Bridge Priority	Bridge priority.		
STP Root Port	Hyperlinked entry to the STP port in logical or physical inventory.		
Root Cost	Root cost value for this bridge.		
Designated Root	MAC address of the designated root.		
Bridge ID	Bridge identifier (MAC address).		
Bridge Hello Time	Hello message keepalive interval (in seconds) when the port is the root.		
Hello Time	Current hello time (in seconds).		
Bridge Forward Delay	When the port is the root and in the listening or learning state, amount of time to wait (in seconds) before proceeding to the forwarding state.		
Forward Delay	Current bridge forward delay (in seconds).		
Bridge Max Age	When the port is the root, maximum age of learned Spanning Tree Protocol port information (in seconds).		
Max Age	Current maximum age (in seconds).		

Table 12-5	STP Properties (continued)
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Step 4 To view the properties of an STP instance, do one of the following:

- Double-click the required instance.
- Click the required entry in logical inventory under the Spanning Tree Protocol branch.

Table 12-6 describes the information that is displayed in the STP Instance Information Properties window.

Table 12-6 STP Instance Information Properties

Field	Description
STP Instance ID	STP instance identifier.
VLAN ID	VLAN identifier.
Bridge Priority	Bridge priority.
Bridge ID	Bridge identifier (MAC address).
Root Cost	Root cost value for this bridge.
Designated Root	MAC address of the designated root.
Bridge Hello Time	Hello message keepalive interval (in seconds) when the port is the root.
Hello Time	Current hello time (in seconds).
Bridge Forward Delay	When the port is the root and in listening or learning state, amount of time to wait (in seconds) before proceeding to the forwarding state.
Forward Delay	Current bridge forward delay (in seconds).
Bridge Max Age	When the port is the root, the maximum age of learned Spanning Tree Protocol port information (in seconds).

Field	Description	
Max Age	Current maximum age (in seconds).	
STP Protocol Specification	Specific STP protocol type or variant used for this instance, such as Rapid PvSTP.	
Is Root	Whether or not the port is the root: True or False.	
Ports Info Table		
STP Port	Hyperlinked entry to the STP port in physical inventory.	
Port State	STP port state: Disabled, Blocking, Listening, Learning, or Forwarding,	
Port Role	Port role: Unknown, Backup, Alternative, Designated, Root, or Boundary.	
Port Priority	Default 802.1p priority assigned to untagged packets arriving at the port.	
Port Path Cost	Port path cost, which represents the media speed for this port.	
Point To Point Port	Whether or not the port is linked to a point-to-point link: True or False.	
Edge Port	Whether or not the port is an edge port; that is, whether it is connected to a nonbridging device: True or False.	
MST Port Hello Time	This field is displayed in the Ports Info Table only for MST.	
	In seconds, the interval between hello BPDUs sent by root switch configuration messages. The range is 1 to 10 seconds.	
Port Identifier	STP port identifier.	
Portfast	Whether or not STP PortFast is enabled on the port: Up or Down.	
Designated Port Identifier	Designated STP port identifier.	
Designated Bridge	STP designated bridge.	
BPDU Filter	BPDU Filter status: Up or Down.	
BPDU Guard	BPDU Guard status: Up or Down.	

Table 12-6	STP Instance Information	Properties ((continued)
			,,

Step 5 To view MSTP properties, choose the required MSTP entry in logical inventory under Spanning Tree Protocol.

Table 12-7 describes the information that is displayed for MSTP.

Field	Description	
MST Force Version	Force version used: MST, PVSTP, RSTP, STP, or Unknown.	
MST Cfg ID Rev Level	Revision level used by the selected device and negotiated with other devices.	
MST Cfg ID Name	MSTP instance name.	
MST Max Instances	Maximum number of MSTP instances.	
MST Cfg ID Fmt Sel	Configuration format used by this device and negotiated with other devices.	
MST External Root Cost	External root cost of the MSTP instance.	

Table 12-7	MSTP Properties in Logical Inventory
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The following topics describe how to view STP properties related to:

- VLAN domain views and overlays—See Viewing STP Information in VLAN Domain Views and VLAN Overlays, page 12-63.
- VLAN service link properties—See Viewing STP Properties for VLAN Service Links, page 12-64.

Viewing Resilient Ethernet Protocol Properties

Cisco Resilient Ethernet Protocol (REP) technology is implemented on Cisco Carrier Ethernet switches and intelligent service edge routers. REP is a segment protocol, and a REP segment is a chain of ports connected to each other and configured with the same segment identifier. Each end of a segment terminates on an edge switch. The port where the segment terminates is called the edge port.

To view REP properties in logical inventory:

- Step 1 In Prime Network Vision, double-click the device configured for REP.
- **Step 2** In the inventory window, choose **Logical Inventory > Resilient Ethernet Protocol**.

Figure 12-4 shows an example of REP in logical inventory.

	Poll Now	
ATM Traffic Profiles Bidirectional Forwarding Detect Bidirectional Forwarding Detect Bidirectional Forwarding Detect Cisco Discovery Protocol Cisco Discovery Protocol Cisco Discovery Protocol Ethernet LMI Frame Relay Traffic Profiles ICCP Redundancy ICCP Redundancy ICCP Redundancy ICCP Redundancy IS-15 Local Switching LSES IMPBGPS IMPSGPS IMPSGPS IMPSGPS IMPSGPS IMPSGPS AMPS	Process: Resilient Ethernet Protocol Process Status: Running Administrative VLAN: 1 Notification Enabled: true REP Version: 1 Image: Complete in the status in t	
	Line 0 (Siz	2)
Find : Tickets Network Events Provisioning Event		

Figure 12-4 REP in Logical Inventory

Table 12-8 describes the information that is displayed for REP.

Table 12-8	REP Properties
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Field	Description
Process	Process name; in this case, Resilient Ethernet Protocol.
Process Status	State of the REP process, such as Running or Down.
Administrative VLAN	Administrative VLAN used by REP to transmit its hardware flooding layer messages. Values range from 1 to 4094.
Notification Enabled	Whether or not notification is enabled: True or False.
REP Version	Version of REP being used.
REP Segments Table	<u>.</u>
Segment ID	Segment identifier.
Segment Complete	Whether the segment is complete; that is, that no port in the segment is in a failed state: True or False.

Step 3 To view REP segment properties, double-click the required entry in the REP Segments table.Figure 12-5 shows an example of REP segment properties in logical inventory.

AGG-7606-TX [SM+] Logical Inventory [1M+] Ccess Gateway Access Gateway Cocha Bidges CFM Cisco Discovery Protocol Cock Cress Clock Fventet Link Aggregation Ethernet LMI Frame Relay Traffic Profiles ICCP Redundancy MAGroups IS-IS Local Switching Access Gateway	Segment Find : Port 2. AGG-7606	Ports	Segment Cc	mplete: f V Port State Two Way	alse Port Type	Port Role Open	Remote Device Name	Remote Port Name	Blocked VLA
Bidirectional Forwarding Detect Bridges CFM Cisco Discovery Protocol Clock T Clock Ethernet Link Aggregation Ethernet LMI Frame Relay Traffic Profiles ICCP Redundancy IMAGroups IS-15 Local Switching	Segment Find : Port 😌 . AGG-7606	Ports	Ethernet4/2	Port State Two Way	Port Type	Port Role Open	Remote Device Name	Remote Port Name	Blocked VLA
Clock Clock Ethernet Link Aggregation Ethernet LMI Frame Relay Traffic Profiles ICCP Redundancy MAGroups IS-IS Local Switching	Port €,	-TX#4:Gigabit	Ethernet4/2	Port State Two Way	Port Type	Port Role Open	Remote Device Name	Remote Port Name	Blocked VLA
Frame Relay Traffic Profiles FICCP Redundancy FIL Draw IMAGroups FIL Local Switching FIL									
Local Switching	1								
LSEs MPBGPs MPLS-TP									
OAM Operating System OSPF Processes Seudowires									
Resilient Ethernet Protocol SegmentId 100 SegmentId 300 SegmentId 300									
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Tickets Network Events Provisioning Events				_		Iv	amaru 149/	Connected	

Figure 12-5 REP Segment Properties

Table 12-9 describes the information that is displayed for REP segments.

Field	Description
Segment ID	Segment identifier.
Segment Complete	Whether the segment is complete; that is, that no port in the segment is in a failed state: True or False.
Segment Ports Table	
Port	Hyperlinked entry to the port in physical inventory.
Port State	Current operational link state of the REP port: None, Init Down, No Neighbor, One Way, Two Way, Flapping, Wait, or Unknown.
Port Type	Port type: Primary Edge, Secondary Edge, or Intermediate.
Port Role	Role or state of the REP port depending on its link status and whether it is forwarding or blocking traffic: Failed, Alternate, or Open.
Remote Device Name	Name of the neighbor device that this port is connected to on this segment. This value can be null.
Remote Port Name	Name of the neighbor port on the neighbor bridge that this port is connected to on this segment. This value can be null.
Blocked VLANs	VLANs that are blocked on this port.
Configured Load Balancing Blocked VLANs	List of VLANs configured to be blocked at this port for REP VLAN load balancing.
Preemptive Timer	Amount of time, in seconds, that REP waits before triggering preemption after the segment is complete. The entry can range from 0 to 300, or be Disabled.
	The value Disabled indicates that no time delay is configured, and that the preemption occurs manually.
	This property applies only to REP primary edge ports.
LSL Ageout Timer	Using the Link Status Layer (LSL) age-out timer, the amount of time, in milliseconds, that the REP interface remains up without receiving a hello from a neighbor.
Remote Device MAC	MAC address of the neighbor bridge that this port is connected to on this segment. This value can be null.

Table 12-9	REP Segment Properties
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The following topics describe how to view REP properties related to VLANs:

- VLAN domain views and overlays—See Viewing REP Information in VLAN Domain Views and VLAN Overlays, page 12-60.
- VLAN service link properties—See Viewing REP Properties for VLAN Service Links, page 12-61.

Viewing Access Gateway Properties

In an access network, an access gateway configuration ensures loop-free connectivity in the event of various failures by sending statically configured bridge protocol data units (BPDUs) toward the access network. Using statically configured BPDUs enables the gateway device to act appropriately when notified of the following topology changes:

- Failure of a link in the access network.
- Failure of a link between the access network and the gateway device.
- Failure of an access device.
- Failure of a gateway device.

To view access gateway properties:

- **Step 1** Double-click the element configured for access gateway.
- **Step 2** In the inventory window, choose **Logical Inventory > Access Gateway >** *access-gateway*. The group name is appended by either MSTAG or REPAG, indicating the group type Multiple Spanning Tree Access Gateway or Resilient Ethernet Protocol Access Gateway.

Figure 12-6 shows an example of an access gateway entry in logical inventory.

Figure 12-6 Access Gateway in Logical Inventory

C9-AGG20 [20M+]									-	
	Group Name: REF	'AG-Group1	Group Typ	e: REPAG						
REPAG-Group1 (REPAG)										
Access Lists	Interfaces Propertie	es								
Bidirectional Forwarding Detection	Find :	<u></u>	V 🖣	r 🚛 🔽						
Bridges	Interface	Config Name	Max Age	Provider Bridge	Bridge Address	Port Identifier	External Cost	Config Revision	Hello Time	Port A
CFM Creation Distance	C9-AGG20#Aggreg.	REPAG1	20	false	00 00 11 11 33 33	1	0	1	2	true
Ethernet Link Aggregation										
ICCP Redundancy [1m]										
IS-IS										
Local Switching										
Modular OS										
MPBGPs	-									
OAM OSPE Processes										
V Pseudowires										
Routing Entities										
VC Switching Entities										
VSIs										
Physical Inventory [4m+]										
Gevice Zoom Best Fit										
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Tickets Network Events Provisioning Events										
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Table 12-10 describes the information that is displayed for an access gateway.

Field	Description
Group Name	Access gateway group name.
Group Type	Group type: MSTAG or REPAG.
Interface Properties	
Interface	Hyperlink to the interface in physical inventory on which access gateway is configured.
Config Name	Name of the MSTP region.
	The default value is the MAC address of the switch, formatted as a text string using the hexadecimal representation specified in IEEE Standard 802.
Max Age	In seconds, the maximum age for the bridge.
	Values range from 6 to 40 seconds.
Provider Bridge	Whether the current instance of the protocol is in 802.1ad mode: True or False.
Bridge Address	Bridge identifier for the interface.
Port Identifier	Port identifier for the interface.
External Cost	External path cost on the current port.
	Values range from 1 to 200000000.
Config Revision	Number of the configuration revision.
Hello Time	Current hello time (in seconds)
Port Active	Whether or not the port is active: True or False.
BPDUs Sent	Number of BPDUs sent.
Reversion Control Enabled	Whether reversion control is enabled: True or False.

Table 12-10	Access G	Gatewav	Properties	in Lo	aical In	ventorv
	7100000 C	Jucoway	roperties		gioai ili	• ciii cii y

Step 3 Choose an access gateway instance to view instance properties.

Figure 12-7 shows an example of the information displayed for an access gateway instance.

V C9-AGG20 [20M+]													_ 🗆 ×
	Poli Now Interface Ke Config Revis Provider Brio BPDUS Sent: Reversion C Hello Time:	iy: ilon: ilge: : ontrol Enabl	ed:	Gigabit 1 false 68693 false 2	Ethernet0/0/0	//17.1900	Config I Max Ag Bridge A Port Ide Externa Port Act	Name: e: Address: entifier: Il Cost: tive:	mstag 20 00 00 00 20 0 true	00 00 20			
Cisco Discovery Protocol Cisco Discovery Protocol ♥ Ethernet Link Aggregation ► IS-IS ■ IS-IS ■ Local Switching ► V LSS ■ Modular OS	Instances Find :	VLAN Ids	Cost	₽ ∠	V V A	Root Bridge	Priority	Root Bridg	je Address	Port Priority	Topology Changes	Access GW Extern	nal Cost
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												Line	: 0 (Size 2)
Find: Image: Constraint of the second seco	· No ir				B 10	1				Memory	r: <mark>-</mark> 9%	Connected	

Figure 12-7 Access Gateway Instance in Logical Inventory

Table 12-11 describes the information that is displayed for an access gateway instance.

Field	Description
Interface Key	Hyperlink to the interface in physical inventory on which access gateway is configured.
Config Name	Name of the MSTP region.
	The default value is the MAC address of the switch, formatted as a text string using the hexadecimal representation specified in IEEE Standard 802.
Config Revision	Number of the configuration revision.
Max Age	In seconds, the maximum age for the bridge.
	Values range from 6 to 40 seconds.
Provider Bridge	Whether the current instance of the protocol is in 802.1ad mode: True or False.
Bridge Address	Bridge identifier for the current switch.
BPDUs Sent	Number of BPDUs sent.

Table 12-11 Access Gateway Instance Properties

L

Field	Description						
Port Identifier	Port identifier for the interface.						
Reversion Control Enabled	Whether reversion control is enabled: True or False.						
External Cost	External path cost on the current port.						
	Values range from 1 to 200000000.						
Hello Time	Current hello time (in seconds)						
Port Active	Whether or not the port is active: True or False.						
Instances Table							
Instance ID	Access gateway instance identifier.						
VLAN IDs	VLAN identifiers.						
Cost	Path cost for this instance.						
Bridge Priority	Priority associated with current bridge.						
Root Bridge Priority	Priority associated with the root bridge.						
Root Bridge Address	Address of the root bridge.						
Port Priority	Priority of the interface for this instance.						
Topology Changes	Number of times the topology has changed for this instance.						
Access GW External Cost	External root cost of this instance.						

Table 12-11 Access Gateway Instance Properties (continued)

Working with Ethernet Link Aggregation Groups

Ethernet link aggregation groups (LAGs) provide the ability to treat multiple switch ports as one switch port. The port groups act as a single logical port for high-bandwidth connections between two network elements. A single link aggregation group balances the traffic load across the links in the channel.

LAG links are discovered automatically for devices that support LAG technology and use VNEs that model Link Aggregation Control Protocol (LACP) attributes.

You can create static links between Ethernet LAGs by choosing a LAG and the desired port channel for the A or Z side as described in Adding Static Links, page 5-15.

If a physical link within the link aggregation group fails, the following actions occur:

• Traffic that was previously carried over the failed link is moved to the remaining links.

Most protocols operate over single ports or aggregated switch ports and do not recognize the physical ports within the port group.

• An aggregation service alarm is generated.

The aggregation service alarm indicates the percentage of links within the aggregation that have failed. For example, if an Ethernet link aggregation group contains four Ethernet links and one fails, the aggregation service alarm indicates that 25% of the links are down.

Γ

Viewing Ethernet LAG Properties

Note Cisco CRS devices must be configured to receive SNMP traps in order to view Ethernet LAG properties. For more information on required SNMP settings, see the *Cisco Prime Network 3.9 Administrator Guide*.

To view properties for Ethernet link aggregation groups:

- **Step 1** In Prime Network Vision, double-click the device with the link aggregation group you want to view.
- Step 2 In the inventory window, choose Logical Inventory > Ethernet Link Aggregation. The link aggregation properties are displayed as shown in Figure 12-8.

Figure 12-8 Ethernet Link Aggregation in Logical Inventory

👿 💎 🛛 AGO	-6500-CA [1M]	Poll Now						
	Access Lists	Type: Ethernet Link Aggregati	on					
	ATM Traffic Profiles							
Þ	Bridges				***			
	Cisco Discovery Protocol	Data Link Aggregations						
	Clock	Find :						
**	Ethernet LMI		т		Des La Mi			
	Frame Relay Traffic Profiles	ID 44	Type	Group Number	Bandwidth	Aggregation Control Protocol	Status	MAC Address
▶ 🔜	IS-IS	AGG-6500-CA#Aggregation Group 5	Ethernet Channel	5	10.0 Gbps	Manual	Down	00 21 D8 CD 69 80
▶ 🔜	Local Switching	AGG-6500-CA#Aggregation Group 50	IEEE 8023 AD LAG	50	10.0 Gbps	LACP	Down	00 18 B9 8C E5 04
	Operating System							
book book	OSPF Processes Pseudowires Routing Entities Spanning Tree Protocol Traffic Engineering Tunnels Tunnel Traffic Descriptors VC Switching Entities VRFs Best Fit							
bevice Zoor	OSPE Processes Pseudowires Routing Entities Spanning Tree Protocol Traffic Engineering Tunnels Tunnel Traffic Descriptors VC Switching Entities VRFS Best Fit							Line 0 (Size 2
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Table 12-12 describes the aggregation group properties that are displayed in the Data Link Aggregations table.

 Table 12-12
 Data Link Aggregations Table

Field	Description
ID	Aggregation identifier. Double-click the entry to view the properties for that aggregation.
Туре	Aggregation group type: Ethernet Channel or IEEE 8023 AD LAG.
Group Number	Aggregation group number.

Field	Description
Bandwidth	Aggregation bandwidth.
Aggregation Control Protocol	Aggregation control protocol: Manual, Link Aggregation Control Protocol (LACP), or Port Aggregation Protocol (PagP).
Status	Aggregation status: Up or Down.
MAC Address	Aggregation MAC address.

Table 12-12 Data Link Aggregations Table (continued)

Step 3 To view properties for a specific aggregation, double-click the group identifier.

The information that is displayed depends on the type of aggregation:

- For Ethernet Channel aggregations, see Table 12-13.
- For IEEE 802.3 AD aggregations, see Table 12-14.

 Table 12-13
 LAG Ethernet Channel Properties

Field	Description
Group Number	Aggregation group number.
Bandwidth	Aggregation bandwidth in b/s.
Control Protocol	Aggregation control protocol: Manual, Link Aggregation Control Protocol (LACP), or Port Aggregation Protocol (PagP).
MAC Address	Aggregation MAC address.
Administrative State	Aggregation administrative status: Up or Down.
Operational State	Aggregation operational status: Up or Down.
Adjacent	Adjacent group, hyperlinked to the group in logical inventory.
mLACP Properties	mLACP properties are displayed if the aggregation group is associated with an ICCP redundancy group.
ICCP Redundancy Group	ICCP redundancy group associated with this aggregation group, hyperlinked to the relevant entry in logical inventory.
mLACP Role	Role of the LAG in the redundancy group: Active or Standby.
mLACP Operational System MAC	MAC address used in a dual-homed environment that is selected by ICCP from one of the configured system MAC addresses for one of the points of attachment (PoAs).
mLACP Operational System Priority	Priority used in a dual-homed environment that is selected by ICCP from the configured system priority on one of the PoAs.
mLACP Failover Option	Configured mLACP failover mode: Revertive or Nonrevertive.
mLACP Max Bundle	Maximum number of links allowed per bundle.

Field	Description	
Aggregated Ports Table		
ID	Aggregated port identifier, hyperlinked to the interface in physical inventory.	
Туре	Aggregation type, such as Layer 2 VLAN.	
Mode	VLAN mode, such as Trunk.	
Native VLAN ID	VLAN identifier (VID) associated with this VLAN. The range of VLANs is 1 to 4067.	
VLAN Encapsulation Type	Type of encapsulation configured on the VLAN, such as IEEE 802.1Q.	
Allowed VLANs	List of VLANs allowed on this interface.	
VLAN Encapsulation Admin Type	VLAN administration encapsulation type, such as IEEE 802.1Q.	
Subinterfaces Table		
Address	IP address of the subinterface.	
Mask	Subnet mask applied to the IP address.	
VLAN Type	Type of VLAN, such as Bridge or IEEE 802.1Q.	
Operational State	Operational state of the subinterface: Up or Down.	
VLAN ID	VLAN identifier.	
Inner VLAN	CE-VLAN identifier.	
IP Interface	IP interface configured as part of the subinterface, hyperlinked to the routing entity or VRF in logical inventory.	
VRF Name	VRF associated with the subinterface.	
Is MPLS	Whether the subinterface is enabled for MPLS: True or False.	
	This column is displayed when at least one interface is MPLS-enabled.	
Tunnel Edge	Whether this is a tunnel edge: True or False.	
VC	Virtual circuit identifier, hyperlinked to the VC Table when the subinterface is configured for ATM VC.	
Binding	Hyperlinked entry to the specific bridge in logical inventory.	
EFPs Table	·	
EFP ID	EFP identifier.	
Operational State	EFP operational state: Up or Down.	
VLAN	VLAN associated with this EFP.	
Inner VLAN	CE-VLAN identifier.	
Translated VLAN	Translated, or mapped, VLAN identifier.	
Translated Inner VLAN	Translated, or mapped, inner VLAN identifier.	
Binding	Hyperlinked entry to the specific bridge in logical inventory.	
Description	Description for the EFP.	

Table 12-13	LAG Ethernet Channel Properties (continued)

Field	Description
Group Number	Aggregation group number.
Bandwidth	Aggregation bandwidth.
Control Protocol	Aggregation control protocol: Manual, Link Aggregation Control Protocol (LACP), or Port Aggregation Protocol (PagP).
MAC Address	Aggregation MAC address.
Administrative State	Aggregation administrative status: Up or Down.
Operational State	Aggregation operational status: Up or Down.
Dot3ad Agg Partner System Priority	Priority of the partner system.
Dot3ad Agg MAC Address	Aggregation MAC address.
Dot3ad Agg Actor Admin Key	Actor administrative key.
Dot3ad Agg Actor System Priority	Actor system priority.
Dot3ad Agg Partner Oper Key	Partner operational key.
Dot3ad Agg Actor Oper Key	Actor operational key.
Dot3ad Agg Collector Max Delay	Maximum delay (in microseconds) for either delivering or discarding a received frame by the frame collector.
Dot3ad Agg Actor System ID	Actor system identifier, in the form of a MAC address.
Dot3ad Agg Partner System ID	Partner system identifier, in the form of a MAC address.
mLACP Properties	mLACP properties are displayed if the aggregation group is associated with an ICCP redundancy group.
ICCP Redundancy Group	ICCP redundancy group associated with this aggregation group, hyperlinked to the relevant entry in logical inventory.
mLACP Role	Role of the LAG in the redundancy group: Active or Standby.
mLACP Operational System MAC	MAC address used in a dual-homed environment that is selected by ICCP from one of the configured system MAC addresses for one of the points of attachment (PoAs).
mLACP Operational System Priority	Priority used in a dual-homed environment that is selected by ICCP from the configured system priority on one of the PoAs.
mLACP Failover Option	Configured mLACP failover mode: Revertive or Nonrevertive.
mLACP Max Bundle	Maximum number of links allowed per bundle.
Aggregated Ports Table	
ID	Port identifier, hyperlinked to the interface in physical inventory.
Туре	Type of VLAN, such as Layer 2 VLAN.
Discovery Protocols	Discovery protocols used on this port.

Table 12-14	LAG IEEE 802.3 AD Properties
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Table 12-14	LAG IEEE 802.3 AD Properties (continued)
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Field	Description	
Subinterfaces Table		
Address	IP address of the subinterface.	
Mask	Subnet mask applied to the IP address.	
VLAN Type	Type of VLAN, such as Bridge or IEEE 802.1Q.	
Operational State	Operational state of the subinterface: Up or Down.	
VLAN ID	VLAN identifier.	
Inner VLAN	CE-VLAN identifier.	
IP Interface	IP interface configured as part of the subinterface, hyperlinked to the routing entity or VRF in logical inventory.	
VRF Name	VRF associated with the subinterface.	
VC	Virtual circuit identifier, hyperlinked to the VC Table when the subinterface is configured for ATM VC.	
Binding	Hyperlinked entry to the specific bridge in logical inventory.	
EFPs Table		
EFP ID	EFP identifier.	
Operational State	EFP operational state: Up or Down.	
VLAN	VLAN associated with this EFP.	
Inner VLAN	CE-VLAN identifier.	
Translated VLAN	Translated, or mapped, VLAN identifier.	
Translated Inner VLAN	Translated, or mapped, inner VLAN identifier.	
Binding	Hyperlinked entry to the specific bridge in logical inventory.	
Description	Description for the EFP.	
LACP Port Entries		
Aggregated Port	Port on which the aggregation is configured, hyperlinked to the entry in physical inventory.	
Dot3ad Agg Port Partner Admin Port Priority	Administrative port priority for the partner.	
Dot3ad Agg Port Partner Admin Key	Administrative key for the partner port.	
Dot3ad Agg Port Partner Oper Port Priority	Priority assigned to the aggregation port by the partner.	
Dot3ad Agg Port Actor Oper State	Local operational state for the port.	
Dot3ad Agg Port Actor Admin State	Local administrative state as transmitted by the local system in LACP data units (LACPDUs).	
Dot3ad Agg Port Selected Agg ID	Selected identifier for the aggregation port.	
Dot3ad Agg Port Partner Oper Key	Operational key for the partner port.	
Dot3ad Agg Port Partner Admin State	Partner administrative state.	
Dot3ad Agg Port Actor Port Priority	Priority assigned to the local aggregation port.	
Dot3ad Agg Port Partner Oper State	Partner administrative state as transmitted by the partner in the most recently transmitted LAPCDU.	
Dot3ad Agg Port Attached Agg ID	Identifier of the aggregator that the port is attached to.	

Field	Description
Dot3ad Agg Port Actor Admin Key	Administrative key for the local port.
Dot3ad Agg Port Actor Port	Number assigned to the local aggregation port.
Dot3ad Agg Port Partner Oper Port	Number assigned to the aggregation port by the partner.
Dot3ad Agg Port Actor Oper Key	Operational for the local port.
Dot3ad Agg Port Partner Admin Port	Administrative value of the port for the partner.

Table 12-14 LAG IEEE 802.3 AD Properties (continued)

Viewing mLACP Properties

Prime Network Vision supports the discovery of Multichassis LACP (mLACP) configurations on devices configured for them, and displays mLACP configuration information, such as redundancy groups and properties, in inventory.

To view mLACP properties:

- Step 1 In Prime Network Vision, double-click the element configured for mLACP.
- Step 2 In the inventory window, choose Logical Inventory > ICCP Redundancy.

In response, Prime Network Vision lists the Inter-Chassis Communication Protocol (ICCP) redundancy groups configured on the device as shown in Figure 12-9.



Figure 12-9 ICCP Redundancy in Logical Inventory

Table 12-15 describes the information displayed in the ICCP Redundancy Groups table.

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Field	Description
Group Number	ICCP group identifier.
Peer Monitoring Option	Method used to monitor the peer: BFD or IP Reachability Monitoring.
Member IP Address	IP address of the neighbor PoA device.
Member Device Name	Name of the neighbor PoA device.
mLACP Node ID	Identifier used by this member of the mLACP redundancy group.
mLACP Configured System MAC	System MAC address of the redundancy group advertised to other members of the mLACP redundancy group and used for arbitration.
mLACP Configured System Priority	System priority advertised to other mLACP members of the redundancy group.

Table 12-15	ICCP Redundancy Groups in Logical Inventory
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- **Step 3** To view additional information about an ICCP redundancy group, do either of the following:
 - In the logical inventory window navigation pane, choose Logical Inventory ICCP Redundancy > *ICCP-group*.
 - In the logical inventory content pane, right-click the required group in the ICCP Redundancy Groups table and choose **Properties**.

The ICCP Redundancy Group Properties window is displayed with the Backbone Interfaces and Data Link Aggregations tabs as shown in Figure 12-10.





Table 12-16 describes the information available in the ICCP Redundancy Group Properties window.

Field	Description	
Group Number	ICCP group identifier.	
Peer Monitoring Option	Method used to monitor the peer: BFD or IP Reachability Monitoring.	
Member IP Address	IP address of the neighbor PoA device.	
Member device name	Name of the neighbor PoA device.	
mLACP Node ID	Identifier used by this member of the mLACP redundancy group.	
mLACP Configured System MAC	System MAC address of the redundancy group advertised to other members of the mLACP redundancy group and used for arbitration.	
mLACP Configured System Priority	System priority advertised to other mLACP members of the redundancy group.	
Backbone Interfaces Tab		
ID	Backbone interface defined for the redundancy group, hyperlinked to the relevant entry in logical inventory.	
Status	Status of the backbone interface: Up, Down, or Unknown.	
Data Link Aggregations Tab		
ID	Link aggregation group associated with the redundancy group, hyperlinked to the relevant entry in logical inventory.	
Туре	Aggregation group type: Ethernet Channel or IEEE 8023 AD LAG.	
Group Number	Aggregation group number.	
Bandwidth	Aggregation bandwidth.	
Aggregation Control Protocol	Aggregation control protocol: Manual, LACP, or PAgP.	
Status	Aggregation status: Up or Down.	
MAC Address	Aggregation MAC address.	

Table 12-16 ICCF	Redundancy	/ Group	Properties	Window
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Step 4 To view additional mLACP properties, double-click the entry for the required link aggregation group in the Data Link Aggregations tab.

mLACP information is displayed in the Link Aggregation Group Properties window, as described in the following tables:

- Table 12-13—LAG Ethernet Channel Properties
- Table 12-14—LAG IEEE 802.3 AD Properties

Viewing Provider Backbone Bridge Properties

Provider backbone bridges (PBBs), specified by IEEE 802.1ah-2008, provide a way to increase the number of service provider supported Layer 2 service instances beyond the number supported by QinQ and VPLS. PBB adds a backbone VLAN tag and backbone destination and source MAC addresses to encapsulate customer Ethernet frames and create a MAC tunnel across core switches.

Prime Network supports PBB inventory discovery and modeling for the following devices:

- Cisco 7600-series devices running Cisco IOS version 12.2(33)SRE1
- Cisco ASR 9000-series devices running Cisco IOS XR version 3.9.1

Prime Network models the IB type of Backbone edge bridges which includes both I-type and B-type components.

To view PBB properties:

Step 1 In Prime Network Vision, double-click the element configured for PBB.

Step 2 In the inventory window, choose **Logical Inventory > BridgeILans >** *PBB-bridge*.

Figure 12-11 shows an example of PBB properties in logical inventory.

Figure 12-11 PBB Properties in Logical Inventory

172.20.125.80								_ 🗆 ×
✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	ntory ateway	Poll Now						
ATM Traf Bidirectio BridgeILa Bridge	fic Profiles nal Forwarding Detection ans eILan core123	IB Bridge Mapping	iii 2↓ マ 🐂 J					
Bridg Bridg Bridges	eILan mycore123 eILan pbbtest	ISID	I-Bridge 172.20.125.80 bd10@bg1(172.20.125.80 bd10@bg1)	B-Bridge 172.20.125	5.80 core123@bg(30		
CFM Gisco Dis Ethernet IS-15 Local Sw Modular Modular MPGPs OAM OAPE Dr.	covery Protocol Link Aggregation tching DS DS FR	32000	172.20.125.00 Di20g0g2) 172.20.123	.oo Ureiza@ug	30		
	▲ ↓							Line 0 (Size 2)
Find :		5						
Severity Ticket ID	Last Modification Time 🛛 🤂 🕅	Root Root	Event Time	Description	Location	Acknowledged	Creation Time	
Tickets Network Events	Provisioning Events					Memory:	10% Connec	ted

Table 12-17 describes the information displayed for PBB.

Field	Description							
Name	Identifier of the bridge as follows:							
	• For Cisco 7600 devices, the identifier of the MAC tunnel created.							
	• For Cisco ASR 9000-series devices, the identifier is a combination of the bridge group and the bridge domain on the B-Bridge component.							
IB Bridge Mapping Table								
ISID	24-bit entry representing the Backbone service instance.							
I-Bridge	XID of the I-Bridge component, hyperlinked to the relevant bridge in logical inventory.							
B-Bridge	XID of the B-Bridge component, hyperlinked to the relevant bridge in logical inventory.							

Table 12-17	PBB Properties in Logical Inventory
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Viewing EFP Properties

Prime Network Vision provides information about EFPs in a number of ways. For example:

- EFP names displayed in Prime Network Vision maps add EFP and the managed element name to the interface name, such as GigabitEthernet4/0/1 EFP: 123@c4-npe5-67.
- If you select an EFP in the navigation pane in Prime Network Vision and then click **Show List View**, an Ethernet Flow Points table lists the network element, port, and network VLAN associated with the EFP.

To view additional EFP properties:

- **Step 1** In the Prime Network Vision map view, select the required EFP in the navigation pane or in the map pane and then do either of the following:
 - Right-click the EFP and choose **Properties**.
 - Choose Node > Properties.

Figure 12-12 shows an example of the EFP Properties window.

∑ c1-npe1-76#4:	GigabitE	thernet4/2 EFP:182	- Efp Properties	_ 🗆 ×
Efp Id:	182	VLAN Match Criteria:	dot1q 182	
Split Horizon Group:	0	Operational State:	Up	
Administrative State:	Up	Binding:	c1-npe1-76 (2082) VLAN2082	
Rewrite Definition:	pop 1			
I			Memory: 12% Connected	

Figure 12-12 EFP Properties Window

Table 12-18 describes the information displayed in the EFP Properties window.

Table 12-18EFP Properties Window

Field	Description
EFP ID	Identifier for the EFP.
VLAN Match Criteria	Match criteria configured on the EFP for forwarding decisions.
Split Horizon Group	Split horizon group to which the EFP is associated.
	If no split horizon group is defined, the value is null.
	If only one split horizon group exists and it is enabled for the EFP, the value is the default group 0.
Operational State	Operational status of the EFP: Up or Down.
Administrative State	Administrative status of the EFP: Up or Down.
Binding	Hyperlinked entry to the relevant item in logical inventory, such as a pseudowire or bridge.
Rewrite Definition	Rewrite command configured on the EFP: pop, push, or translate.

Step 2 Click the hyperlink entry in the Binding field to view the related properties in logical inventory.In this example, clicking the hyperlink displays the relevant bridge in logical inventory, as shown in Figure 12-13.

AGG-7606-	-TX [5M+]												_ 🗆 ×
AGG	5-7606-TX [5M+] Logical Inventory [1M+]	Â	Poll N	low									
• 🛄	Access Gateway		Name:	(1	1) default		T	ype:	Bridge R	oute			
	Access Lists		MAC Add	iress: 00	0 1E F7 F6	C5 00	V	LAN ID:	1				
	ATM Traffic Profiles		Sto Inch		CC-7606-	TY/STD 6	ervice) V	ET.	ACC-760	IS-TY WYST MST YON T	d- 000011		
	Bidirectional Forwarding Detection		Dep triste	nice.		10(511-5	crricey v.	51.	Had Too	0 18#151.1151 1111	0. 555511		
× 55	Bridges												
	Bridge (60) MNG 60		_			_							
	Bridge (70) MNG_IPRAN		Bridge T	able Inl	iterfaces	EFPs							
	Bridge (303) Cus_303_Mux						* =						
23	Bridge (555) MNG		Find :			∎ z+	V V #						
	Bridge (3001) RAN_MPLS_3000		EFP ID	Operatio	onal State	VLAN	Inner VLAN	Transla	ted VLAN	Translated Inner VLAN	Binding Port 🗧	24	Description
	Bridge (3451) VI AN3451		1	Up		untagged	l.	untagg	ed		AGG-7606-TX#	1.1:GigabitEthernet1/1/3 EFP	1
	Bridge (3452) Cus_3452		1	Up		untagged	l.	untagg	ed		AGG-7606-TX#	4:GigabitEthernet4/19 EFP:1	
11	Bridge (3453) Cus_3453												
	Bridge (3456) Cus_3456	1											
	Bridge (3457) Cus_3457												
	Bridge (3458) Cus_3458												
	Bridge (3469) Cus_3460												
	Bridge (3461) Cus 3461												
22	Bridge (3462) VLAN3462												
22	Bridge (3463) Cus_3463												
	Bridge (3466) VLAN3466												
• • • • • • • • • • • • • • • • • • •	CFM Ciana Diseasana Bushagal												
۱. ۱.	Clock	-											
· (88)	Clock												
Device Zoon	n Best Fit	- 1											
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	and the second												e i in
ckets Net	work Events Provisioning Events												e · · · · · · · · · · · · · · · · · · ·

Figure 12-13 Bridge Associated with EFP in Logical Inventory

Table 12-19 describes the information displayed for an EFP associated with a bridge.

 Table 12-19
 EFP Associated with a Bridge in Logical Inventory

Field	Description
Name	VLAN bridge name.
Туре	VLAN bridge type.
MAC Address	VLAN bridge MAC address.
VLAN ID	VLAN bridge VLAN identifier.
STP Instance	STP instance information, hyperlinked to the STP entry in logical inventory.
VSI	VSI information, hyperlinked to the VSI entry in logical inventory.

Field	Description							
EFPs Table								
EFP ID	EFP identifier.							
Operational State	EFP operational state: Up or Down.							
VLAN	VLAN associated with this EFP.							
Inner VLAN	CE-VLAN identifier.							
Translated VLAN	Translated, or mapped, VLAN identifier.							
Translated Inner VLAN	Translated, or mapped, inner VLAN identifier.							
Binding	Hyperlinked entry to the specific interface and EFP entry in physical inventory.							
Description	Description for the EFP.							

Table 12-19 EFP Associated with a Bridge in Logical Inventory (continued)

- **Step 3** To view EFP properties in physical inventory, navigate to the required interface in one of the following ways:
 - In the bridge entry in logical inventory, click the hyperlinked entry in the Binding field.
 - Use the procedure described in Viewing and Renaming Ethernet Flow Domains, page 12-39 to navigate to the individual interface.
 - In physical inventory, navigate to and then select the required interface.

The EFPs tab is displayed in the content pane next to the Subinterfaces tab as shown in Figure 12-14.

c1-npe1-	76 [63M+]															_ 🗆 ×
	USPF Processes		-Location I	nformation-												
III 🖤	Pseudowires															
	Resilient Ethernet Protocol		Type:		Pluggable	Loca	ation:	4.GigabitE	thernel	4/4						
	Spanning Tree Protocol		Sending	Alarms: I	true	Port	Alias:	GigabitEtl	ernet4	/4						
	Traffic Engineering Tunnels		Manager	d: I	true	Stat	us:	OK								
•	VC Switching Entities		🕹 Disal	ble Sending /	Alarms											
	VRFs		Pluggable	Transceiver												
	VTP		Connect	or Type:	RJ	45			PI	uggable T	уре:	SFP				
Pł 💾	hysical Inventory		C	- Deservation				D T C 14	4			00511 5300				
- 1111	Chassis		Connect	or Descriptio	in: Tra	anscer	ver 1000	baset 614	/4 PI	ID:		ÓRCO-2148	iR			
▶	Slot 1: Card - RSP720-30		Connect	or Serial Nun	nber: AG	M122	720¥C		PI	uggable P	ort State:	In				
> max	Slot 2: Card - 7600-SIP-4															
W [1117	Slot 4: Card - 7600-ES+:															
E																
	Subslot 6: Subcard -		Find :				77 W	F								
4	GigabitEthernet4/1	-				Z+	ΥT	- Admin i Da								
4	GigabitEthernet4/2		EFP ID	Operationa	l State VL	AN 1	inner VLAN	I Translai	ed VLAN	Transla	ted Inner VLA	N Binding	g ∂ ⊺		Description	n
4	GigabitEthernet4/3		42	Up	40) 4	404	40		404		c1-npe	e1-76 (4	2) VLAN0042		
-	GigabitEthernet4/4		41	Up	40) 4	402-403	40		402-40	3	c1-npe	e1-76 (4	1) VLAN0041		
	GigabitEthernet4/5		40	Un	40	1 4	100	40		400						
4	GigabitEthernet4/6 -		10	op	TU	, .	100	10		400						
-	GigabitEthernet4//		50	Up	40) '	401	40		401						
4	GigabitEthernet4/8 -															
4	GigabitEthernet4/9	Ŧ														
Device Zoo	om 🔛 Best Fit		4													•
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																Empty
ickets Ne	etwork Events Provisioning	Ever	nts													
												Momor		149/	Connected	

Figure 12-14 EFPs Tab in Physical Inventory

Table 12-20 describes the information displayed in the EFPs tab.

Table 12-20 EFPs Tab

Field	Description
EFP ID	EFP identifier.
Operational State	EFP operational state.
VLAN	VLAN identifier.
Inner VLAN	CE-VLAN identifier.
Translated VLAN	Translated VLAN identifier.
Translated Inner VLAN	Translated CE-VLAN identifier.
Binding	Hyperlinked entry to the specific bridge or pseudowire in logical inventory.
Description	Configured description for the EFP.

Understanding EFP Severity and Ticket Badges

Severity and ticket badges are displayed on EFP icons as follows:

• If the VLAN EFP element represents a configuration, such as a service instance on a Cisco 7600 device or an enhanced port on a Cisco ASR 9000 device, and is associated directly with a network VLAN or a bridge domain switching entity, the severity and ticket badges are based on the underlying service instance or enhanced port configuration.

Figure 12-15 shows an example of a ticket badge based on a service instance.

Cisco Prime Network Vision - root@10.56.23.79 (123Doc) _ 🗆 × File Slot 0: Card - ME-3600X GigabitEthernet0/ GigabitEthernet0/1 GigabitEthernet0/2 E 🔗 🖹 - E - H 🚳 🗏 - E 🔍 🔍 - E E E 🗳 🕷 🛤 💌 - E R R 🔅 **₽**♥ 1230
 UB250c[94]

 UB25-3400ME-FL[1M]

 GapbEEIthmeth/330ME-15-340500-TX [1M]

 GapbEEIthmeth/330ME-3400-TX [1M]

 UAN-34500ME-15-340500-TX [1M]

 GapbEEIthmeth/330ME-16-440500-TX [1M]

 GapbEEIthmeth/330ME-16-4405000-TX [1M]

 GapbEEIthmeth/330ME-16-4405000-TX [1M]

 GapbEEIthmeth/ GigabitEthernet0/3 GigabitEthernet0/4 - 50 GigabitEthernet0/5 GigabitEthernet0/6 VLAN-3450@UPE19-ME3600-TX [1M] GigabitEthernet0/7 GigabitEthernet0/8 -GigabitEthernet0/9 -GigabitEthernet0/10 GigabitEthernet0/11 GigabitEthernet0/11 VLAN-3450@AGG4-ME3800-TX GigabitEl GigabitEthernet0/13.. TenGigabitEthernet0/. GigabitEthernet0/13 GigabitEthernet0/15 GinabitEthernet0/16 GigabitEthernet0/13.. GigabitEthernet0/14.. GinabitEthernet0/12 ~**.**7 GigabitEthernet0/18 -AN-3450@UPE19-ME3600-1% [1m] GigabitEthernet0/11@UPE19-ME3600-GigabitEthernet0/13 EFP: 3450@UPE1 GigabitEthernet0/14@UPE19-ME3600-GigabitEthernet0/19 GigabitEthernet0/20 R GigabitEthernet0/21 GigabitEthernet0/22 - 🔝 VLAN-3450@UPE20-ME3600-TX GigabitEthernet01/3@UPE20-ME3600-TX GigabitEthernet01/3@UPE20-ME3600-TX GigabitEthernet01/4@UPE20-ME3600-TX VLAN-3460@DataLinkAggregation20@UPE18-ME VLAN-3461@DataLinkAggregation20@UPE18-ME 9040 6 GigabitEthernet0/23 GigabitEthernet0/24 VLAN-3450@UPE20-ME3600-TX GigabitEthernet4/2 E.. GigabitEthernet0/13... GigabitEthe GigabitEthernet0/13... t0/14. Service In dot1a 345 Q De om 💽 Best Fit <-.**9** -⊡-開外マ Find 283648 Find ■ 24 マキ 幕 ■ Tickets Network Events Prov

Figure 12-15 EFP Severity and Ticket Badges Based on Underlying Service Instance

• If the Ethernet flow point element represents a VLAN interface for a regular switch port, the severity and ticket badges are based on the corresponding port, as shown in Figure 12-16.


Figure 12-16 EFP Severity and Ticket Badges Based on Corresponding Port

Viewing EVC Service Properties

Certain EVC service properties are configured as port attributes. These attributes determine the degree of service transparency and protect the service provider's network from protocol control traffic. Prime Network Vision discovers these key EVC service properties and displays this information in physical inventory for the following devices:

- Cisco ME3400- and Cisco ME3400E-series devices running Cisco IOS versions 12.2(52)SE to 12.2(54)SE.
- Cisco 3750 Metro devices running Cisco IOS versions 12.2(52)SE to 12.2(54)SE.

Shared Switching Entities and EVC Service View

Some switching entities that Prime Network Vision discovers are concurrently part of a network VLAN and VPLS/EoMPLS instance. These switching entities are referred to as *shared switching entities*.

Prime Network Vision displays the switching entity information for shared switching entities only under the VPLS instances in the EVC service view.

To view EVC port-related properties for the supported devices and software versions:

- **Step 1** In Prime Network Vision, double-click the required device.
- Step 2 In the inventory window, choose Physical Inventory > Chassis > module > port.Figure 12-17 shows an example of a port in physical inventory configured with these EVC properties.

L

C4-upe5	_ = ×
Chassis	Poll Now
Slot 0: Card - ME-3400-24TS-A - F	
46 FastEthernet0/1	
III FastEthernet0/2	Type: RJ45 Location: 0.FastEthernet0/1
46 FastEthernet0/3	Sending Alarms: true Port Alias: FastEthernet0/1
FastEthernet0/4	
I FastEthernet0/5	Managed: true Status: OK
FastEthernetU/6	A Disable Sending Alarms
FastEthernet0/2	
FastEtheroet0/0	VLAN Interface
FastEthernet0/10	Mada Taurah Mida Taura Laura 200 AN
FastEthernet0/11	Mode: IFUNK VLAN Type: Layer 2 VLAN
FastEthernet0/12	Native VLAN ID: 1 VLAN Encapsulation Type: IEEE802.1Q
FastEthernet0/13	Allowed VLANs: 1-4094 VLAN Encansulation Admin Type: TEFE802-10
FastEthernet0/14	
FastEthernet0/15	
40 FastEthernet0/16	
46 FastEthernet0/17	Storm Control and Monitoring Properties
46 FastEthernet0/18	Starm Castroly Disphlad Dark Manifesian Status, Enabled
4 FastEthernet0/19	Storin Control: Disableu Port Monitoring Status: Enableu
46 FastEthernet0/20	Port Monitoring Interval: 10.0 sec MAC Address: 00 24 C3 C6 7B 83
46 FastEthernet0/21	Ethernet LMI Enabled: false Port Type: NNI
4 FastEthernet0/22	
III FastEthernet0/23	
III FastEthernet0/24	
GigabitEthernetU/1 - No Transc	Find: 🖬 創 👽 🌴 幕 👼
Gigabitechemeto)/2 - No Transt V	Address Mark URANTERS Compliand Clarks URANTE Die Terrent RAN TO Takenfass URE News UK. Dieden
	Address Mask VLAN type Operational state VLAN ID & Interval IP Intervace VKP Name VC binding
Q Device Zoom	Bridge (1) default
	Bridge (400) VLAN0400
	Bridge (401) VLAN0401
	Line 0 (Size 102)
	Sub Interfaces
Find:	
	les Meseum les reclassisterem la
Tickets Network Events Provisioning Events	
	Memory: 6% Connected
	· · · · · · · · · · · · · · · · · · ·

Figure 12-17 EVC Port Properties in Physical Inventory

Table 12-21 describes the information displayed for these properties.

Table 12-21	EVC Port Pro	perties in Ph	ysical Inventory
-------------	--------------	---------------	------------------

Field	Description
Storm Control and Monitoring Pro	operties Area
Storm Control	Status of storm control on the port: Enabled or Disabled.
Port Monitoring Status	Status of port monitoring:
	 Enabled—The switch sends keepalive messages on user network interfaces (UNIs) and enhanced network interfaces (ENIs) and does not send keep alive messages on network node interfaces (NNIs). Disabled—The switch does not send keepalive messages.
Port Monitoring Interval	Keepalive interval in seconds. The default value is ten seconds.
Storm Control Level	Representing a percentage of the total available bandwidth of the port, the threshold at which additional traffic of the specified type is suppressed until the incoming traffic falls below the threshold.
Storm Control Type	Type of storm the port is configured for protection from: Broadcast, Multicast, or Unicast.

Field	Description
Security Properties Areas	
Port Security	Status of security on the port: Enabled or Disabled.
MAC Address Limit	Maximum number of MAC addresses allowed on the interface.
Aging Type	Type of aging used for automatically learned addresses on a secure port:
	• Absolute—Times out the MAC address after the specified age-time has been exceeded, regardless of the traffic pattern. This is the default for any secured port, and the age-time value is set to 0.
	• Inactivity—Times out the MAC address only after the specified age-time of inactivity from the corresponding host has been exceeded.
Aging Time	Length of time, in minutes, that a MAC address can remain on the port security table.
Violation Mode	Action that occurs when a new device connects to a port or when a new device connects to a port after the maximum number of devices are connected:
	• Protect—Drops packets with unknown source addresses until a sufficient number of secure MAC addresses are removed to drop below the maximum value
	• Restrict—Drops packets with unknown source addresses until a sufficient number of secure MAC addresses are removed to drop below the maximum value and causes the Security Violation counter to increment.
	• Shutdown—Puts the interface into the error-disabled state immediately and sends an SNMP trap notification.

Table 12-21 EVC Port Properties in Physical Inventory (continued)

Viewing and Renaming Ethernet Flow Domains

An Ethernet flow domain represents an Ethernet access domain. The Ethernet flow domain holds all network elements between the CE (inclusive, if managed by the SP), up to the SP core (exclusive). This includes CE, access, aggregation, and distribution network elements.

An Ethernet flow domain can have no N-PEs (flat VLAN) or one or more N-PEs (N-PE redundancy configuration). The Ethernet flow domain is defined using physical connectivity at the port level, and not at the network element level. STP is used to mark the root bridge, root or blocked ports, and blocked VLAN links.

To view Ethernet flow domains:

Step 1 In Prime Network Vision, choose Network Inventory > Ethernet Flow Domains.

The Ethernet Flow Domain List window is displayed with the domain name, the system-defined domain name, and a brief description for each Ethernet flow domain as shown in Figure 12-18.

Figure 12-18 Ethernet Flow Domain List Properties Window

ind : 🛛 🖬 🛃 🔽 🧤 📕	-		
ind: 🚺 🛍 🔽 🐨 🖩			
Domain Name 🛛 🔁 🛆	System Defined Name	Description	
)ataLinkAggregation1@c2-dist4	DataLinkAggregation1@c2-dist4		
)ataLinkAggregation1@c3-ac4	DataLinkAggregation1@c3-ac4		
)ataLinkAggregation10@c7-sw1	DataLinkAggregation10@c7-sw1		
)ataLinkAggregation12@10.56.101.176	DataLinkAggregation12@10.56.101.176		
)ataLinkAggregation12@3750E-24TD-AGG2	DataLinkAggregation12@3750E-24TD-AGG2		
)ataLinkAggregation20@3750E-48PD-AGG6	DataLinkAggregation20@3750E-48PD-AGG6		
astEthernet0/1@c4-ce8	FastEthernet0/1@c4-ce8		
astEthernet1/0/1@c1-upe2	FastEthernet1/0/1@c1-upe2		
astEthernet1/0/1@c3-ac3	FastEthernet1/0/1@c3-ac3		
astEthernet1/0/1@c7-sw10	FastEthernet1/0/1@c7-sw10		
astEthernet1/0/10@c4-upe9	FastEthernet1/0/10@c4-upe9		
iigabitEthernet1/1@c1-ce7	GigabitEthernet1/1@c1-ce7		
iigabitEthernet1/1@c4-ce2	GigabitEthernet1/1@c4-ce2		
iigabitEthernet1/1@c4-upe4	GigabitEthernet1/1@c4-upe4		
iigabitEthernet1/10@c4-ce3	GigabitEthernet1/10@c4-ce3		
iigabitEthernet3/1@c3-agg1	GigabitEthernet3/1@c3-agg1		
iigabitEthernet3/1@c7-npe1-76	GigabitEthernet3/1@c7-npe1-76		
			Line 0 (Size 17)
	Mem	ory: 7% Conne	cted

Step 2 To rename an Ethernet flow domain:

- a. Right-click the required domain, then choose Rename.
- **b.** In the Rename Node dialog box, enter a new name for the domain.
- c. Click OK.

The window is refreshed, and the new name is displayed.

- **Step 3** To view Ethernet flow domain properties, do either of the following:
 - Right-click the required domain, then choose Properties.
 - Double-click the required domain.

The Ethernet Flow Domain Properties window is displayed as shown in Figure 12-19.

Domain Name: FastEthe	rnet1/0	/1@c3-ac2 Sv	stem Defined Name:	FastEthernet1/	0/1@c3-ac2			
		,		,	-,-=			
Elements								
Find :	💾 🤌		5					
	Type	Discovery Protoco	 Aggregation Group 	LINI Properties	OAM Admin Status	Is FLMI Epabled	Efps	
c3-ac2#0:FastEthernet1/0/1	1700	5,500,71,00000	- Higgi og dalari di oqp	ontroportoo	oninnanin Status	IS EEN ENDING	Lips.	
c3-ac2#0:FastEthernet1/0/2								
c3-ac2#0:FastEthernet1/0/3								
c3-ac2#0:FastEthernet1/0/4								
c3-ac2#0:FastEthernet1/0/5								
c3-ac2#0:FastEthernet1/0/6								
c3-ac2#0:FastEthernet1/0/7								
c3-ac2#0:FastEthernet1/0/8	1							
c3-ac2#0:FastEthernet1/0/9								
c3-ac2#0:FastEthernet1/0/1	0							
c3-ac2#0:FastEthernet1/0/1	1							
c3-ac2#0:FastEthernet1/0/1	2							
c3-ac2#0:FastEthernet1/0/1	3							
c3-ac2#0:FastEthernet1/0/1	4						Line O /S	• () ()
							Line 0 (3	ize 26)

Figure 12-19 Ethernet Flow Domain Properties Window

Table 12-22 describes the information displayed in the Ethernet Flow Domain Properties window.

Note Not all fields are available in all tables. The table contents depend on the domain type, such as FastEthernet.

Table 12-22 Ethernet Flow Domain Properties Window

Field	Description
Domain Name	Name of the selected domain.
System Defined Name	Domain name as identified by the most dominant device and its lowest port name lexicographically.
Elements Table	
ID	Interface identifier, hyperlinked to the interface in physical inventory.
Туре	Aggregation group type: Ethernet Channel (EtherChannel), or IEEE 8023 AD LAG (IEEE 802.3 link aggregation group).
Discovery Protocols	Discovery protocols used on the interface.
Is ELMI Enabled	Whether or not Ethernet LMI is enabled on the interface: True or False.

Step 4To navigate to the individual interface or link aggregation group, click an interface identifier or group.The interface or link aggregation group properties are displayed in the inventory window.

Working with VLANs and VLAN Overlays

The following topics provide information and procedures for working with VLANs and VLAN overlays:

- Understanding VLAN and EFD Discovery, page 12-42
- Understanding VLAN Elements, page 12-43
- Switching Entities Containing Termination Points, page 12-48
- Adding VLANs to a Map, page 12-48
- Removing VLANs from a Map, page 12-50
- Viewing VLAN Mappings, page 12-50
- Working with Associated VLANs, page 12-52
- Viewing VLAN Links Between VLAN Elements and Devices, page 12-55
- Applying VLAN Overlays, page 12-58
- Displaying or Hiding VLAN Overlays, page 12-59
- Removing a VLAN Overlay, page 12-59
- Viewing VLAN Service Link Properties, page 12-60
- Viewing REP Information in VLAN Domain Views and VLAN Overlays, page 12-60
- Viewing REP Properties for VLAN Service Links, page 12-61
- Viewing STP Information in VLAN Domain Views and VLAN Overlays, page 12-63
- Viewing STP Properties for VLAN Service Links, page 12-64
- Viewing VLAN Trunk Group Properties, page 12-65
- Viewing VLAN Bridge Properties, page 12-67

Understanding VLAN and EFD Discovery

When you start the Prime Network gateway the first time, Prime Network Vision waits for two topology cycles to complete before discovering new VLANs, VLAN associations, and EFDs. The default configured time for two topology cycles to complete is one hour, but might be configured for longer periods of time on large setups. This delay allows the system to stabilize, and provides the time needed to model devices and discover links.

During this delay, Prime Network Vision does not add VNEs or apply updates to existing VLANs or EFDs.

After the initial delay has passed, Prime Network Vision discovers new VLANs, VLAN associations, and EFDs, applies updates to existing VLANs, VLAN associations, and EFDs, and updates the database accordingly.

When you restart the gateway, Prime Network Vision uses the persisted topology information instead of waiting two topology cycles, thus improving the discovery time for new VLANs, VLAN associations, and EFDs.

Working with VLANs and VLAN Overlays

Understanding VLAN Elements

The following concepts are important to understand when working with the representation of edge EFPs inside VLANs:

- VLAN Elements in Prime Network Vision, page 12-43
- VLANs, page 12-43
- Switching Entities, page 12-43
- Ethernet Flow Points, page 12-44

VLAN Elements in Prime Network Vision

Table 12-23 describes the icons that Prime Network Vision uses to represent VLAN elements.

Table 12-23 VLAN Elements and Icons in Prime Network Vision

Element	Associated Network Element	Icon
Network VLAN	None	
Switching entity	Bridge	
Ethernet Flow Point (EFP)	Ethernet port	

VLANs

Prime Network Vision discovers and allows you to display maps with a network-level view of VLANs.

In Prime Network, a VLAN entity consists of one or more switching entities and the corresponding EFP elements.

A network VLAN represents the virtual LAN. The network VLAN holds its contained switching entities and can be associated to a customer. The network VLAN also holds the Ethernet flow points that are part of the network VLAN but not part of any switching entity. For example, a port that tags ingress flows after which the flow moves to a different VLAN.

Switching Entities

A switching entity represents a device-level Layer 2 forwarding entity (such as a VLAN or bridge domain) that participates in a network VLAN. A switching entity is associated to a network VLAN according to its relationship to the same Ethernet Flow Domain (EFD) and the VLAN identifier.

If you right-click a switching entity in Prime Network Vision and then choose Inventory, the inventory window is displayed with the corresponding bridge selected in Logical Inventory.

A switching entity typically contains EFP elements.

Г

Ethernet Flow Points

An Ethernet flow point (EFP) can represent a port that is configured for participation in a specific VLAN.

If you right-click an EFP in Prime Network Vision and then choose **Inventory**, the inventory window is displayed with the corresponding port selected in Physical Inventory.

EFPs that are located in a switching entity represent Ethernet ports that are configured as switch ports (in either Access, Trunk, or Dot1Q tunnel mode).

Figure 12-20 shows an example of EFPs configured as switch ports in Prime Network Vision.

Figure 12-20 EFPs Configured as Switch Ports

Cisco Prime Network Vision - ro	oot@10.56.22.25 (physical) ation Network Inventory Reports \	Vindow Help		_ 🗆 ×
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EFPs that are located directly inside a VLAN represent one of the following:

• Termination point EFPs—Ethernet ports that are at the edge of a Layer 2 domain flow, such as a VLAN, on which traffic enters a Layer 3 domain or a different Layer 2 domain, such as EoMPLS. These ports are found on such devices as the Cisco 7600 series, Cisco GSR, and Cisco ASR 9000 series devices.

These EFPs are typically connected to a switching entity inside the VLAN by a VLAN link, as shown in Figure 12-21.

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GigabitEhrmeti (200760 GigabitEhrmeti (200760 GigabitEhrmeti (310760 GigabitEhrmeti (310760 GigabitEhrmeti (310760 GigabitEhrmeti (1077 GigabitEhrmeti (2077 GigabitEhrmeti (2077 GigabitEhrmeti (2077 GigabitEhrmeti (2077 GigabitEhrmeti (2077) GigabitEhrmeti (2077)	GigabitEthernet1/31 GigabitEthernet1/28 Tunk Tunk ULAN-10@7600ACE ULAN-10@7600	×
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Figure 12-21 Termination Point EFP Inside a VLAN

• Edge EFPs—A subset of EFPs that exist inside a switching entity but that are not connected to other EFPs and that represent edge EFPs in the context of the VLAN.

In Prime Network Vision, edge EFPs are displayed directly under the VLAN at the same level as their switching entities and are connected to their corresponding switching entities by a dotted link, as shown in Figure 12-22.





An edge EFP can be displayed both inside and outside of its switching entity, as shown (highlighted with a red outline) in Figure 12-23:





You can delete EFPs and switching entities that have a reconciliation icon by right-clicking them and choosing **Delete**. After all switching entities and EFPs are deleted from a network VLAN, the empty network VLAN is automatically deleted from Prime Network Vision after a few minutes.

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Switching Entities Containing Termination Points

For some devices, such as Cisco 7600 series, Cisco GSR, and Cisco ASR 9000 series devices, the related switching entities can contain Ethernet flow point elements that serve as termination points on different network VLANs. If a single map contains both the switching entities and the network VLANs, a link is displayed between them.

Adding VLANs to a Map

You can add VLANs to a map if the VLANs were previously discovered by Prime Network Vision and are not currently displayed in the map.



Adding VLANs affects other users if they are working with the same map.

To add VLANs to a map:

Step 1 In Prime Network Vision, display the map to which you want to add the VLANs.

Step 2 Choose File > Add to Map > VLAN. The Add VLAN to map dialog box is displayed as shown in Figure 12-24.

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л.	VLAN-1@DataLinkAggregation10@c7-sw1	1	DataLinkAggregation10@c7-sw1	DataLinkAggregation10@c7-sw1	VLAN-1		
T.	VLAN-1@DataLinkAggregation12@10.56.101.176	1	DataLinkAggregation12@10.56.101.176	DataLinkAggregation12@10.56.101.176	VLAN-1		
њ	VLAN-1@DataLinkAggregation12@3750E-24TD-AGG2	1	DataLinkAggregation12@3750E-24TD-AGG2	DataLinkAggregation12@3750E-24TD-AGG2	VLAN-1		
Ŧ.	VLAN-1@DataLinkAggregation20@3750E-48PD-AGG6	1	DataLinkAggregation20@3750E-48PD-AGG6	DataLinkAggregation20@3750E-48PD-AGG6	VLAN-1		
I.	VLAN-1@FastEthernet1/0/1@c3-ac3	1	FastEthernet1/0/1@c3-ac3	FastEthernet1/0/1@c3-ac3	VLAN-1		
I.	VLAN-1@FastEthernet1/0/1@c7-sw10	1	FastEthernet1/0/1@c7-sw10	FastEthernet1/0/1@c7-sw10	VLAN-1		
I.	VLAN-1@FastEthernet1/0/10@c4-upe9	1	FastEthernet1/0/10@c4-upe9	FastEthernet1/0/10@c4-upe9	VLAN-1		
I.	VLAN-1@GigabitEthernet1/1@c1-ce7	1	GigabitEthernet1/1@c1-ce7	GigabitEthernet1/1@c1-ce7	VLAN-1		
I.	VLAN-1@GigabitEthernet1/1@c4-upe4	1	GigabitEthernet1/1@c4-upe4	GigabitEthernet1/1@c4-upe4	VLAN-1		
I.	VLAN-1@GigabitEthernet1/10@c4-ce3	1	GigabitEthernet1/10@c4-ce3	GigabitEthernet1/10@c4-ce3	VLAN-1		
I.	VLAN-1@GigabitEthernet3/1@c3-agg1	1	GigabitEthernet3/1@c3-agg1	GigabitEthernet3/1@c3-agg1	VLAN-1		
I.	VLAN-1@GigabitEthernet3/1@c7-npe1-76	1	GigabitEthernet3/1@c7-npe1-76	GigabitEthernet3/1@c7-npe1-76	VLAN-1		
Ŧ.	VLAN-2@DataLinkAggregation12@10.56.101.176	2	DataLinkAggregation12@10.56.101.176	DataLinkAggregation12@10.56.101.176	VLAN-2		
Ŧ.	VLAN-2@DataLinkAggregation12@3750E-24TD-AGG2	2	DataLinkAggregation12@3750E-24TD-AGG2	DataLinkAggregation12@3750E-24TD-AGG2	VLAN-2		
.	VLAN-2@DataLinkAggregation20@3750E-48PD-AGG6	2	DataLinkAggregation20@3750E-48PD-AGG6	DataLinkAggregation20@3750E-48PD-AGG6	VLAN-2		
Ŧ.	VLAN-3@DataLinkAggregation12@10.56.101.176	3	DataLinkAggregation12@10.56.101.176	DataLinkAggregation12@10.56.101.176	VLAN-3		
μ.	VLAN-3@DataLinkAggregation12@3750E-24TD-AGG2	3	DataLinkAggregation12@3750E-24TD-AGG2	DataLinkAggregation12@3750E-24TD-AGG2	VLAN-3		
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Figure 12-24 Add VLAN Dialog Box

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Step 3 In the Add VLAN dialog box, do either of the following:

• Choose a search category, enter a search string, then click **Go** to narrow the VLAN display to a range of VLANs or a specific VLAN.

The search condition is "contains." Search strings are case-insensitive. For example, if you choose the Name category and enter "net," Prime Network Vision displays VLANs that have "net" anywhere in their names. The string "net" can be at the beginning, the middle, or end of the name, such as Ethernet.

• Choose Show All to display all the VLANs.

Step 4 Select the VLANs that you want to add to the map.



Press **Shift** or **Ctrl** to choose multiple adjoining or nonconsecutive VLANs.

Step 5 Click OK.

The VLANs are displayed in the Prime Network Vision content pane as shown in Figure 12-25. Any tickets that apply to the VLANs are displayed in the ticket pane.

V Cisco Prime Network Vision - root@192.168.100.171 (CPT) _ 🗆 × File Edit View Node Tools Activation Network Inventory Reports E 🚰 🖹 • E • 💾 🕥 📰 🐂 🖻 • 📰 🚳 📧 E 🔛 🔍 🗃 🛤 🖄 • 🔯 🖓 🔇 🖓 🇔 🛱 🗗 Ф. СРТ 🗙 V CPT [2M] ii G⊽ 10.64.106.171 10.64.106.174 [1M] 10.64.106.224 [1M] VLAN-1@DataLinkAggregati E N DataLinkAggregation2@40 GigabitEthernet3/0/10@40 VI AN-29@Data 10.64.106,224 [GigabitEthernet4/1@40.40 + GigabitEthernet5/1@40.40 **FT** GigabitEthernet5/10@40.4 VLAN-1@40.40.40.5 VLAN-28@DataL VLAN-29@DataLinkAggregatio 10.64.106.171 GigabitEther met1/5@10.78 ÷ GigabitEthernet1/6@10.78 Æ 10.64.106.174 [... GinabitEthernet1/25@10.7 GigabitEthernet1/26@10.7 VLAN-1@DataLi. GigabitEthernet1/27@10.7 GigabitEthernet1/28@10.7 GigabitEthernet1/29@10.7 GigabitEthernet1/30@10.7 GigabitEthernet1/31@10.7 GigabitEt et1/32@10.7 Find : 🟥 🋃 🗸 ヤ 🐺 🐺 Severity Ticket ID N... Last Modification Time Root ... Root Event Time Description Location Acknowledged V 39 10-Apr-12 09:01:50 T 10-Apr-12 08:59:50 1 + -Line 0 (Size 2) Tickets Latest Events 285168 Memory: Connected 6%

Figure 12-25 VLANs in Map View

After you add a VLAN to a map, you can use Prime Network Vision to view its switching entities and Ethernet flow points. For more information, see:

- Viewing and Renaming Ethernet Flow Domains, page 12-39
- Viewing EFP Properties, page 12-31

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You can view additional information about REP and STP in logical inventory, VLAN domain views, and VLAN overlays.

For REP, see:

- Viewing Resilient Ethernet Protocol Properties, page 12-14
- Viewing REP Information in VLAN Domain Views and VLAN Overlays, page 12-60
- Viewing REP Properties for VLAN Service Links, page 12-61

For STP, see:

- Viewing Spanning Tree Properties, page 12-10
- Viewing STP Information in VLAN Domain Views and VLAN Overlays, page 12-63
- Viewing STP Properties for VLAN Service Links, page 12-64

Removing VLANs from a Map

You can remove one or more VLANs from the current map. This change does not affect other maps. Removing a VLAN from a map does not remove it from the Prime Network database. You can add the VLAN to the map at any time.

When removing VLANs from maps, keep the following in mind:

- Removing a VLAN affects other users who are working with the same map view.
- This option does not change the business configuration or database.
- You cannot remove virtual routers or sites from the map without removing the VLAN.

To remove a VLAN, in the Prime Network Vision navigation pane or map view, right-click the VLAN and choose **Remove from Map**.

The VLAN is removed from the navigation pane and map view along with all VLAN elements such as connected CE devices. Remote VLANs (extranets) are not removed.

Viewing VLAN Mappings

VLAN mapping, or VLAN ID translation, is used to map customer VLANs to service provider VLANs. VLAN mapping is configured on the ports that are connected to the service provider network. VLAN mapping acts as a filter on these ports without affecting the internal operation of the switch or the customer VLANs.

If a customer wants to use a VLAN number in a reserved range, VLAN mapping can be used to overlap customer VLANs by encapsulating the customer traffic in IEEE 802.1Q tunnels.

To view VLAN mappings:

- **Step 1** In Prime Network Vision, double-click the device with VLAN mappings configured.
- **Step 2** In the inventory window, choose **Physical Inventory > Chassis >** *slot > port*.
- Step 3 Click VLAN Mappings next to the Subinterfaces tab in the lower portion of the content pane. The VLAN Mappings tab is displayed as shown in Figure 12-26.

[c7-sw10 [1N]							_ 🗆 ×
🗑 🔽 c7-sw10 [1N]	Poll Now						
Logical Inventory	-Location Informa	tion					
Physical Inventory Chassis	Type:	Pluggable	Location:	1.GigabitEthernet1/1	/1		
Slot 0: Card - ME-C3750-24TE - Fixed	Sending Alarms	true	Port Alias:	GigabitEthernet1/1/1			
Slot 1: Card - ME-C3750-24TE - Fixed	Managed	hrue	Statue	or			
GigabitEthernet1/1/2	Managea.	true	oracas.	ŬK.			
🕨 🛲 Slot Fan	able Sen	ding Alarms					
Slot Power	-Pluggable Transc	eiver					
	Connector Type	e: RJ	45	Pluggable Ty	/pe: SFP		
	Connector Desc	ription: 10,	/100/1000Ba	seTX SFP PID:	GLC-T		
	Connector Seria	al Number: AG	M122820AV	Pluqqable Po	ort State: In		
	-VLAN Interface -						
	Mode:	Trunk	VI AN Type:	Lave	r 2 VI AN		
	Find :		2 V 1	目标			
	Find : Direction	VLAN	Inner VLAN	Translated VLAN	Translated Inner VLAN	Action €∕	
	Find : Direction	VLAN 1702	Inner VLAN	Translated VLAN	Translated Inner VLAN	Action 관∠ Drop	
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	Find : Direction Out Out Out Out	VLAN 1702 1762 1761 1761	Inner VLAN 761	761	Translated Inner VLAN	Action $\begin{array}{c} \hline \hline$	
Device Zoom)	Find : Direction Out Out Out Out Out	VLAN 1702 1762 1761 1761 1728	Inner VLAN	761 728	Translated Inner VLAN	Action 2 / Drop Drop Drop Translate Translate	
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V Device Zoom	Find : Direction Out	VLAN 1702 1762 1761 1761 1728 1727 1726	Inner VLAN	761 728 726	Translated Inner VLAN	Action 2 / Drop Drop Drop Translate Translate Translate Translate	
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Device Zoom Set Fat Image: Set Fat Image: Set Fat	Find : Direction Out Out Out Out Out Out Out Out Out Sub Interfaces	VLAN 1702 1762 1761 1761 1728 1727 1726 VLAN Mapping	2↓ マ 1 Inner VLAN 761	7 761 728 727 726	Translated Inner VLAN	Action 2 / Drop Drop Translate Translate Translate Translate	ne 0 (Size 69)
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Figure 12-26 VLAN Mappings Tab in Physical Inventory

Table 12-24 describes the information that is displayed in the VLAN Mappings table.

Table 12-24VLAN Mappings Table

Field	Description
Direction	Whether the VLAN mapping is defined in the incoming or outgoing direction: In or Out.
VLAN	Customer-side VLAN identifier.
Inner VLAN	Used for two-to-one mappings, the customer-side inner VLAN identifier.
Translated VLAN	Translated, or mapped, service-provider side VLAN identifier.
Translated Inner VLAN	Translated, or mapped, service-provider side inner VLAN identifier.
Action	Action taken if the VLAN traffic meets the specified mapping: Translate or Drop.

Working with Associated VLANs

Prime Network Vision discovers associations between network VLANs and displays the information in Prime Network Vision. Network VLAN associations are represented by VLAN service links, and can be any of the tag manipulation types described in Table 12-25.

Table 12-25	Types of Tag Manipulations in VLAN Associations
-------------	---

VLAN Tag Manipulation	Description	Example
One-to-one	One VLAN tag is translated to another VLAN tag.	VLAN tag 100 > VLAN tag 200
Two-to-two	 Two VLAN tags exist and both are translated to other tags. Two VLAN tags exist, but tag manipulation is applied only to the outer tag. 	 Inner tag 100, Outer tag 101 > Inner tag 200, Outer tag 201 Inner tag 100, Outer tag 101 > Inner tag 100, Outer tag 201
One-to-two	One VLAN tag exists and an additional tag is inserted into the packet.	VLAN tag 100 > Inner tag 100, Outer tag 101

When working with VLANs, you can:

- Add an associated VLAN—See Adding an Associated VLAN, page 12-52.
- View properties for associated VLANs—See Viewing Associated Network VLAN Service Links and VLAN Mapping Properties, page 12-54.

Adding an Associated VLAN

To add an associated VLAN to an existing VLAN in a map:

Step 1 In Prime Network Vision, select the required VLAN in the map view.

Step 2 Right-click the VLAN and choose Add Associated VLAN.

The Add Associated VLAN table is displayed as shown in Figure 12-27.

Add A	Assoc	iated	VLA	N											×
Find :					۲	₽Ļ	∇	Ŧ	罰						
Name									ID		EFD Name		EFD Syste	m Name	
	VLAN	-1742@)FastE	itherr	net1	/0/1	@c7-:	sw10	174	42	FastEthernet1/0/1@c7	'-sw10	FastEtherr	et1/0/1@	c7-sw10
•)				Þ
														Line 0 (Size 1)
													ОК	Cano	

Figure 12-27 Add Associated VLAN Window

In this example, the selected network VLAN has one associated VLAN: VLAN-1742. Table 12-26 describes the information displayed in the Add Associated VLAN table.

 Table 12-26
 Add Associated VLAN Table

Field	Description
Name	Name of the VLAN.
ID	VLAN identifier.
EFD Name	Name of the Ethernet flow domain.
EFD System Name	Name that Prime Network assigns to the EFD.
System Name	Name that Prime Network assigns to the VLAN.
Description	Brief description of the VLAN.

Step 3Select the required VLAN in the Add Associated VLAN table, then click OK.The associated network VLAN is added to the map in Prime Network Vision.

Viewing Associated Network VLAN Service Links and VLAN Mapping Properties

After you add an associated network VLAN, you can:

- View the associated network VLAN service links in Prime Network Vision in the thumbnail view.
- View VLAN mapping properties in the Link Properties window.

To view associated network VLAN service links and VLAN mapping properties:

- **Step 1** Select the required network VLAN in the map view.
- Step 2 Right-click the VLAN, then choose Show Thumbnail.

Figure 12-28 shows an example of a network VLAN in a thumbnail.

The VLAN service links are displayed as lines between the associated network VLANs. The links represent the connections between the Ethernet flow points that are part of each network VLAN.

Figure 12-28 VLAN Service Links Between Associated Network VLANs



Step 3To view additional information, right-click a link, and choose Properties.The Link Properties window is displayed as shown in Figure 12-29.

If VLAN tag manipulation is configured on the link, the VLAN Mapping Properties area in the Link Properties window displays the relevant information. For example, in Figure 12-29, the VLAN Mapping Properties area shows that a one-to-one VLAN mapping for VLAN tag 1709 to VLAN tag 709 is configured on GigabitEthernet1/1/1 on c7-sw8 on the egress direction.

c7-sw5#1:GigabitEthernet1/0/3 <-> c7-sw8#	Connection Properties	
	Location: c7-sw5#1:GigabitEthernet1/0/3 Port Alias: GigabitEthernet1/0/3	Location: c7-sw8#1:GigabitEthernet1/1/1 Port Alias: GigabitEthernet1/1/1
	-STP Properties Port State: FORWARDING Port Role: DESIGNATED	
	- VLAN Properties VLAN ID: 709 Mode: Trunk Vlan Type: IEEE802.1Q Native Vlan Id: 1	VLAN ID: 1709 Mode: Trunk Vlan Type: IEEE802.1Q Native Vlan Id: 1
	-VLAN Mappings Properties	Direction: Out VLAN: 1709 Translated VLAN: 709
	Ethernet Properties MAC Address: 00 24 13 43 72 83	MAC Address: 00 22 0C 99 09 18
	Physical Properties	
ind : 👘 🎒 🤝 👘 📠	<u></u>	
kets Network Events		

Figure 12-29 VLAN Mapping Properties in Link Properties Window

For additional information about viewing network VLAN service link properties, see:

- Viewing REP Properties for VLAN Service Links, page 12-61
- Viewing STP Properties for VLAN Service Links, page 12-64

Viewing VLAN Links Between VLAN Elements and Devices

If a Prime Network Vision map contains a VLAN and the network element on which the VLAN is configured, along with EFPs, switching entities, or network VLANs, you might see what appear to be multiple associations between the logical and physical entities. Actually, however, you are seeing other views of the original VLAN link.

For example, assume that you have the following situation, as shown in Figure 12-30 and described in the following paragraphs.

OL-26486-01



Figure 12-30 VLAN Elements and Devices in Prime Network Vision

The elements are configured as follows:

- Port GigabitEthernet1/1/2 on element c7-sw10 is connected to port GigabitEthernet1/1/2 on element c7-sw8 by an Ethernet topology link.
- Port GigabitEthernet1/1/2 on element c7-sw10 is a trunk port associated with VLAN-1704 which is configured on element c7-sw10.
- Port GigabitEthernet1/1/2 on element c7-sw8 is a trunk port associated with VLAN-704 which is configured on element c7-sw8.
- Port GigabitEthernet1/1/2 on element c7-sw8 has a VLAN mapping to tunnel VLAN-1704 (C-VLAN) in VLAN-704 (SP-VLAN).

In this example, VLAN discovery identified two network VLANs: VLAN-1704 and VLAN-704. Each of these network VLANs contains a switching entity and an EFP that represent the connected ports, GigabitEthernet1/1/2@c7-sw10 and GigabitEthernet1/1/2@c7-sw8, respectively.

The four links in the map are identified in Figure 12-31 and described in the following table.



Figure 12-31 Links Between VLAN Elements and Devices

- 1 The Ethernet topological link between port GigabitEthernet1/1/2 on VNE c7-sw10 and GigabitEthernet1/1/2 on VNE c7-sw8.
- 2 The VLAN link between GigabitEthernet1/1/2@c7-sw10 EFP and GigabitEthernet1/1/2@c7-sw8 EFP.
- **3** Another view of the VLAN link (link 2), shown as a link between GigabitEthernet1/1/2@c7-sw10 EFP and GigabitEthernet1/1/2@c7-sw8 EFP.
- 4 Another view of the VLAN link (link 2), shown as a link between GigabitEthernet1/1/2@c7-sw10 EFP and GigabitEthernet1/1/2@c7-sw8 EFP.

The key point is that a link between a VNE and EFP, switching entity, or network VLAN **does not** represent an association between the VNE and the logical element. Such a link is simply another view of the VLAN link.

If the thumbnail view is closed, instead of a link between the VNE and EFP, you will see a link between the VNE and the switching entity or network VLAN.

Γ

Applying VLAN Overlays

You can create an overlay of a specific VLAN on top of the physical network elements displayed in a map view. The overlay highlights the network elements and links that the selected VLAN and its associated VLANs traverse. Network elements and links that are not part of the VLAN are dimmed in the map view.

The VLAN overlay is a snapshot of the network to help you visualize the network elements and links connected to a VLAN. The overlay displays STP and REP link and port information.

If you select a network VLAN that is associated with other VLANs, the associated VLANs are included in the overlay.

The VLAN service overlay allows you to isolate the parts of a network that are being used by a particular service. This information can then be used for troubleshooting. For example, the overlay can highlight configuration or design problems when bottlenecks occur and all site interconnections use the same link.

To add a VLAN overlay:

- **Step 1** Display the network map for which you want to create an overlay in Prime Network Vision.
- **Step 2** In the toolbar, choose **Choose Overlay Type > VLAN**.
- **Step 3** In the Select VLAN Overlay dialog box, do either of the following:
 - Choose a search category, enter a search string, then click **Go** to narrow the selection to a set of overlays or a specific overlay.

The search condition is "contains." Search strings are case-insensitive. For example, if you choose the Name category and enter "net," Prime Network Vision displays overlays that have "net" in their names. The string "net" can be at the beginning, middle, or end of the name, such as Ethernet.

- Choose **Show All** to view all overlays.
- **Step 4** Select an overlay, then click **OK**.

The network elements and physical links used by the selected VLAN overlay are highlighted in the network map. All other network elements and links are dimmed. The VLAN name is displayed in the title of the window. See Figure 12-32.

		IT Netwo	ik inventory	Vehours				ER 1	i nori entre				10.4.4046.5	
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СРТ 🗙														
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Verity Ticket ID N 78	10.8== 10													
verity Ticket ID N 78 78 70 vets Latest Events	10.4=- 12													

Figure 12-32 VLAN Overlay Example



The overlay is a snapshot taken at a specific point in time. As a result, the information in the overlay might become stale. To update the overlay, click **Refresh the Last Selected Overlay** in the toolbar.

Displaying or Hiding VLAN Overlays

After you create a VLAN overlay, you can hide it by clicking **Hide Overlay** in the toolbar. All previously dimmed network elements and links are displayed. To display the overlay, click **Show Overlay**.

Note

The Overlay icon toggles between Show Overlay and Hide Overlay. When selected, the VLAN overlay is displayed and the Hide Overlay tool is active. When deselected, the VLAN overlay is hidden and the Show Overlay tool is active.

Removing a VLAN Overlay

To remove a VLAN overlay from a map, choose **Choose Overlay Type > None** in the toolbar. The overlay is removed from the map, and the Show Overlay/Hide Overlay icon is dimmed.

Viewing VLAN Service Link Properties

See the following topics for information on viewing VLAN service link properties:

- Viewing REP Properties for VLAN Service Links, page 12-61
- Viewing STP Properties for VLAN Service Links, page 12-64
- Viewing Associated Network VLAN Service Links and VLAN Mapping Properties, page 12-54

Viewing REP Information in VLAN Domain Views and VLAN Overlays

You can view REP segment and port information in Prime Network Vision in the map view. The icons displayed depend on whether you view the REP information in the VLAN domain view or in a VLAN overlay. Table 12-27 describes the icons and badges used to represent REP segment and port information.

ltem	Description	VLAN Domain View	VLAN Overlay
REP-140	REP identifier—Uses the format REP- <i>id</i> where <i>id</i> represents the REP segment identifier.	The REP identifier is displayed in the domain view if the visual link represents only one link. f the visual link represents more than one link, no REP identifier is displayed.	The REP identifier is displayed in a VLAN overlay view if all the links represented by the visual link are from the same source to the same destination.
REP No Neighbor-255	REP No Neighbor segment— Indicates that the specified segment has no neighbor.	C7-SW9 [2M+] Cisco Catalyst 3 10.56.101.38 12.2(55)SE	C7-sw9 [2M] Circo Calabyt 3 10.56.101.30 12.2(55)5E Circo Calabyt 3 10.56.101.39 12.2(55)5E Circo Calabyt 3 10.56.101.39 12.2(55)5E
REP-?	REP identifier for incorrect configuration—Indicates that the two sides of the link are configured differently or incorrectly.	••• VLAN-711@c7-sw9 [PEP-2 8 VLAN-711@c7-s 8	c7-sw10 [1N] Cisco Catalyst 3 10.56.101.39 12.2(54)SE Cisco Catalyst 3 12.2(54)SE Cisco Catalyst 3 12.2(54)SE Cisco Catalyst 3 Cisco Ca

ltem	Description	VLAN Domain View	VLAN Overlay
Ē	Multiple links with badges icon—Indicates that one or more link is represented by the visual link and at least one of the links contains a badge.	The multiple links icon is displayed in the domain view if more than one link is represented by the visual link and at least one of the links contains a badge.	 The multiple links icon is displayed in a VLAN overlay view if either of the following is true: More than one link is represented by the visual link and the links have different sources or destinations. A badge or REP identifier exists on a sublink.
Р	REP primary badge—Indicates a REP primary port.	VLAN-407@cf-upe5 REP.140 VLAN-407@cf-upe5 VLAN-407@cf-upe4 VLAN-407@cf-upe4	C4-upe4 [1M] C40-upe4 [1M] C40-upe4 [1M] C40-upe5 C4-upe5 C4-upe5 C50-U1A(YS 1056.101294 122(S5)662
0	Blocking badge—Indicates a REP alternate port.	VLAN-407@c4-upe3	C4-agg1 CISCO CATALYS_ 1056.101.230 12.2(53)562
R	Primary and blocking badge—Indicates a REP primary port that is also blocking.	REP-255 VLAN-142@c7-sw9 VLAN-142@c7-sw10	(t-upe7 [1N] C4-upe8 [1N] C15C0 C4TALYS_ 1055401241 122(54)5E (t) C4-upe8 [1N] C4-upe8 [1N] C5C0 C4TALYS_ 1055401241 C4-upe8 [1N] C5C0 C4TALYS_ 1055401241 C4-upe8 [1N] C5C0 C4TALYS_ 1055401241 C4-upe8 [1N] C5C0 C4TALYS_ 1055401241 C4-upe8 [1N] C5C0 C4TALYS_ 1055401241 C4-upe8 [1N] C4-upe8 [1N] C4-up

Table 12-27 F	REP Icons and Badges	s in VLAN Domain	Views and Overlays	(continued)
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Viewing REP Properties for VLAN Service Links

To view REP properties for a VLAN service link, open the Link Properties window in either of the following ways:

- Double-click the VLAN service link.
- Right-click the VLAN service link, and choose **Properties**.

Figure 12-33 shows an example of the Link Properties window with REP information.

3	c4-upe4#1:GigabitEthernet1/6 <-> c4-upe5#0:FastEthernet0/1 Ether c4-upe4#1:GigabitEthernet1/6 <-> c4-upe5#0:FastEthernet0/1 Phys	-Connection Properties	e4#1:GigabitEthernet1/6	Location: c	4-une5#0:FastEthernet0/1	
3	c4-upe4#1:GigabitEthernet1/6 <-> c4-upe5#0:FastEthernet0/1 VLAN	Port Alias: Gigab	itEthernet1/6	Port Alias: F	astEthernet0/1	
		REP Properties				<u>۱</u>
		Segment ID: 1	40	Segment ID:	140	
		Port Type: P	rimary Edge Itornato	Port Type:	Intermediate	
		Port Status: T	wo Way	Port Status:	Two Way	
		Blocked VLANs: [:	1-4094]			
						/
		-VLAN Properties				
		VLAN ID: 50	00	VLAN ID:	500	
		Mode: Ti	runk	Mode:	Trunk	
		Vlan Type: IE	EE802.1Q	Vlan Type:	IEEE802.1Q	
		Native vian Id: I		Native Man 10;	1	
		-Ethernet Properties-				
		MAC Address: 00	1 23 33 F2 A5 85	MAC Address:	00 24 C3 C6 7B 83	
		-Physical Properties				
		Oper Status:	Up	Oper Status:	Up	
		Admin Status:	Up	Admin Status:	Up	
		Maximum Speed:	100.0 Mbps	Maximum Speed	100.0 Mbps	
		Port Utilization Gra	aph	Port Utilizatio	on Graph	
)					
: F						
ets	Network Events					

Figure 12-33 VLAN Service Link Properties Window with REP Information

Table 12-28 describes the information that is displayed for REP for each end of the link.

 Table 12-28
 REP Properties in VLAN Service Link Properties Window

Field	Description			
Segment ID	REP segment identifier.			
Port Type	Port type: Primary Edge, Secondary Edge, or Intermediate.			
Port Role	Role or state of the REP port depending on its link status and whether it is forwarding or blocking traffic: Failed, Alternate, or Open.			
Port Status	Operational link state of the REP port: None, Init Down, No Neighbor, One Way, Two Way, Flapping, Wait, or Unknown.			

Viewing STP Information in VLAN Domain Views and VLAN Overlays

You can view STP segment and port information in Prime Network Vision in the map view. The icons displayed depend on whether you view the STP information in the VLAN domain view or in a VLAN overlay. Table 12-29 describes the icons and badges used to represent STP link and port information.



ltem	Description	VLAN Domain View	VLAN Overlay
R	The STP root bridge, or root of the STP tree, is indicated by an uppercase R.	VLAN-2501@c7-sw4	C7-5W7
GgabiEthernet	An STP root port is the port at the root of the STP tree. Each switching entity in the network VLAN should have a port designated as the root port. The STP root port is indicated by an uppercase R on the Ethernet flow point that is designated the root port.	GigabitEthernet1/2@ Trunk	GigabitEthernet
0	STP blocks some VLAN ports to ensure a loop-free topology. The blocked port is marked with a red deny badge on the side on which traffic is denied.	VLAN-2157@c4-agg1 VLAN-2157@c4-upe4 VLAN-2157@c4	C4-upe4 [1M] C5C0 CATALYS. ISSO CATALYS. ISSO BAIL234 ISSO BAIL234 ISSO BAIL234 ISSO BAIL235 ISSO BAIL255 ISSO BAIL255

To view additional STP information in a VLAN overlay, right-click an STP link and choose **Show Callouts**. The following STP port information is displayed as shown in Figure 12-34:

- Port name
- Port role
- Port state



Figure 12-34 STP Link Information in a VLAN Overlay

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Viewing STP Properties for VLAN Service Links

To view STP properties for a VLAN service link, open the Link Properties window in one of the following ways:

- Double-click the VLAN service link.
- Right-click the VLAN service link, and choose Properties.

Figure 12-35 shows an example of the Link Properties window with STP information.

Figure 12-35 STP Properties in VLAN Service Link Properties Window

C7-sw8 <-> VLAN-709@DataLinkAggrega	ation8@c7-sw8	_ 🗆 ×
e7-sw6#1:GigabitEthernet1/1/2 <-> c7-sw1	Connection Properties Location: c7-sw8#1:GigabitEthernet1/1/2 Port Alias: GigabitEthernet1/1/2	Location: c7-sw10#1:GigabitEthernet1/1/2 Port Alias: GigabitEthernet1/1/2
	STP Properties Port State: FORWARDING Port Role: ROOT	Port State: FORWARDING Port Role: DESIGNATED
	-VLAN Properties VLAN ID: 709 Mode: Trunk Vian Type: IEEE802.1Q Native Vian Id: 1	VLAN ID: 709 Mode: Trunk Vian Type: IEEE802.1Q Native Vian Id: 1
	-Ethernet Properties MAC Address: 00 22 0C 99 09 1C	MAC Address: 00 22 0C 98 F4 9C
	Physical Properties Oper Status: Up Admin Status: Up Maximum Speed: 1000.0 Mbps Maximum Speed: 1000.0 Mbps	Oper Status: Up Admin Status: Up Maximum Speed: 1000.0 Mbps Port Utilization Graph
Find:	5	
Tickets Network Events		Memory: 5% Connected

Table 12-30 describes the information that is displayed for STP for the VLAN service link.

Table 12-30 STP Properties in VLAN Service Link Properties Window

Field	Description
Port State	STP port state: Disabled, Blocking, Listening, Learning, or Forwarding,
Port Role	STP port role: Unknown, Backup, Alternative, Designated, Root, or Boundary.

Viewing VLAN Trunk Group Properties

VTP is a Layer 2 multicast messaging protocol that manages the addition, deletion, and renaming of VLANs on a switched network-wide basis.

Prime Network Vision displays VTP information in the logical inventory. VTP information is shown only for Cisco devices that support VTP, and support is provided only for VTP Version 1 and 2. Support for Version 3 is limited to the additional attributes that are supported by the version, such as primary and secondary server. No support is provided for the display of VTP information at the port (trunk) level.

Prime Network Vision shows all VTP modes: Server, Client, Transparent, and Off. For each mode, Prime Network Vision displays the relevant mode information such as VTP domain, VTP mode, VTP version, VLAN trunks, and the trunk encapsulation. Prime Network Vision also displays VTP domain information in a view that includes a list of all switches that are related to these domains, their roles (server, client, and so on), and their VTP properties.

To view VTP properties:

- Step 1 In Prime Network Vision, choose Network Inventory > VTP Domains.
- **Step 2** Double-click the VTP domain you want to view.

The VTP Domain Properties window is displayed as shown in Figure 12-36.

ind :	🔛 🛃 🖓 🐂 🖡				
1anaged Element 🛛 🕀 🛆	Operating Mode	Process Status	Authentication Enabled	Configuration Revision	Version
7-sw2 - VTP Service	Server	Running	false	273	1
7-sw3 - VTP Service	Transparent	Running	false	0	1
7-sw6 - VTP Service	Server	Running	false	273	1
7-sw7 - VTP Service	Transparent	Running	false	0	1

Figure 12-36 VTP Domain Properties Window in Logical Inventory

Table 12-31 describes the information that is displayed in the VTP Domain Properties window.

Table 12-31VTP Domain Properties Window

Field	Description				
Managed Element	Managed element name, hyperlinked to VTP in logical inventory.				
Operating Mode	VTP operating mode:				
	• Server—Allows VLAN creation, modification, and deletion, and specification of other configuration parameters for the entire VTP domain. Server is the default mode.				
	• Client—Same behavior as VTP server, except VLANs cannot be created, changed, or deleted.				
	• Transparent—The device does not participate in the VTP. The device does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements.				
	However, the device forwards received VTP advertisements out of their trunk ports in VTP Version 2.				
	• Off—The device does not participate in VTP and does not forward VTP advertisements.				
Process Status	Status of the VTP process: Running or Disabled.				
Authentication Enabled	Whether or not VTP authentication is enabled: True or False.				
	Authentication ensures authentication and integrity of switch-to-switch VTP messages. VTP Version 3 introduces an additional mechanism to authenticate the primary VTP server as the only device allowed to change the VLAN configuration on a network-wide basis.				
Configuration Revision	32-bit number that indicates the level of revision for a VTP packet.				
	Each VTP device tracks the VTP configuration revision number that is assigned to it. Most VTP packets contain the VTP configuration revision number of the sender.				
Version	VTP version: 1, 2, or 3.				

Step 3 To view the VTP properties at the device, double-click the VTP domain.

Table 12-32 describes the VTP information that is displayed in the inventory window content pane.

Field	Description
Operating Mode	VTP operating mode: Server, Client, Transparent, or Off.
Domain Name	VTP domain name.
Version	VTP version: 1, 2, or 3.
Pruning	Whether or not VTP pruning is enabled: True or False.VTP pruning increases available bandwidth by restricting flooded traffic to those trunk links that the traffic must use to access the appropriate network devices.

Table 12-32 VTP Properties in Inventory

Field	Description
Configuration Revision	32-bit number that indicates the level of revision for a VTP packet.
Authentication	Whether or not VTP authentication is enabled: True or False.

Table 12-32 VTP Properties in Inventory (continued)

Step 4 When finished, press **Ctrl + F4** to close each VTP properties window.

Viewing VLAN Bridge Properties

You can view VLAN bridges provisioned on a device by displaying the device in the Prime Network Vision inventory window and choosing Bridges in logical inventory.

To view VLAN bridge properties:

- Step 1 In Prime Network Vision, double-click the device containing the VLAN bridges you want to view.
- **Step 2** In the inventory window, choose **Logical Inventory > Bridges >** *bridge*.

VLAN bridge properties are displayed as shown in Figure 12-37.

Figure 12-37 VLAN Bridge Properties in Logical Inventory

▼ c7-sw10 [1	N]								_ 🗆 ×
	Bridges 🔺	Poll Nov							
	Bridge (1) default 🦳	() I OII 1401	9						
	Bridge (483) VLAN0483	Name:	(701) VLAN0701	Туре:	Regula	ar			
	Bridge (701) VLAN0701	ULANI TO .	701	Cha Inches est	c7 cm	10/ETD Comuico			
	Bridge (702) VLAN0702	VEAN ID:	701	stp instance:	CI-SW	ro(sir service)			
	Bridge (703) VLAN0703								
	Bridge (704) VLAN0704								
	Bridge (705) VLAN0705	Interfaces							
	Bridge (706) VLAN0706	Internaces							
	Bridge (707) VLAN0707	Find :		ۇ 💎 🐂					
	Bridge (708) VLAN0708	ID A		Type	Mode	Native VLAN ID	VI AN Encanculation Type	Allowed VLANc	VLAN Encanculation Admin Ty
	pridge (709) VLANU709 Pridge (710) VLAN0719	-7	contacts and lots	1700	Touch	1		F1 4004]	
	Bridge (710) VLANU710 Bridge (711) VLAN0711	c7-sw10#0	GigapitEthernet1/0/2	Layer 2 VLAN	TUNK	1	ICCC0U2.1Q	[1-4034]	IEEE002.1Q
	Bridge (712) VLAN0711 Bridge (712) VLAN0712	c7-sw10#1	GigabitEthernet1/1/1	Layer 2 VLAN	Trunk	1	IEEE802.1Q	[1-4094]	IEEE802.1Q
	Bridge (712) VLAN0712	c7-sw10#1	GigabitEthernet1/1/2	Layer 2 VLAN	Trunk	1	IEEE802.1Q	[1-1700], [1730-1733],	IEEE802.1Q
	Bridge (714) VLAN0714								
	Bridge (715) VI AN0715								
	Bridge (716) VLAN0716								
1	Bridge (717) VLAN0717								
	Bridge (718) VLAN0718								
	Bridge (719) VLAN0719								
	Bridge (720) VLAN0720								
	Bridge (721) VLAN0721								
	Bridge (722) VLAN0722								
	Bridge (723) VLAN0723								
	Bridge (724) VLAN0724 🖕								
Q Device Zoom	Best Fit								
		•		-					► ►
4	•								Line 0 (Size 3)
Find :	1 2 V V								
			1 1 6 16 17		-	· · · ·		1 1 1 1 1 1	
Tickets Netw	vork Events Provisioning Events								
							Me	emory: 7%	Connected

Table 12-33 describes the information that is displayed. Depending on the bridge configuration, any of the tabs might be displayed for the selected bridge.

Table 12-33 VLAN Bridge Properties

Field	Description					
Name	VLAN bridge name.					
Туре	VLAN bridge type.					
MAC Address	VLAN bridge MAC address.					
VLAN ID	VLAN bridge VLAN identifier.					
STP Instance	STP instance information, hyperlinked to the STP entry in logical inventory.					
Bridge Table Tab						
MAC Address	Bridge MAC address.					
Port	Port associated with the bridge, hyperlinked to the interface in physical inventory.					
Interfaces Tab						
ID	VLAN interface identifier, hyperlinked to the interface in physical inventory.					
Туре	VLAN interface type, such as Layer 2 VLAN.					
Mode	VLAN interface configuration mode:					
	• Unknown—The interface is not VLAN aware.					
	• Access—Puts the interface into permanent nontrunking mode and negotiates to convert the link into a nontrunk link. The interface becomes nontrunking.					
	• Dynamic Auto—The interface can convert the link to a trunk link. The interface becomes a trunk if the neighbor interface is set to Trunk or Dynamic Desirable mode.					
	• Dynamic Desirable—The interface actively attempts to convert the link to a trunk link. The interface becomes a trunk if the neighboring interface is set to Trunk, Dynamic Desirable, or Dynamic Auto mode. Dynamic Desirable is the default mode for all Ethernet interfaces.					
	• Trunk—Puts the interface into permanent trunking mode and negotiates to convert the link into a trunk link. The interface becomes a trunk interface even if the neighbor interface is not a trunk interface.					
	• Dot1Q Tunnel—Configures the interface as a tunnel (nontrunking) port to be connected in an asymmetric link with an 802.1Q trunk port. 802.1Q tunneling is used to maintain customer VLAN integrity across a service provider network.					
Native VLAN ID	VLAN Identifier (VID) associated with this VLAN. The range of the VLAN ID is 1 to 4067.					
VLAN Encapsulation Type	Type of encapsulation configured on the VLAN, such as IEEE 802.1Q.					

Field	Description			
Allowed VLANs	List of the VLANs allowed on this VLAN interface.			
VLAN Encapsulation Admin Type	VLAN administration encapsulation type, such as IEEE 802.1Q.			
EFPs Tab				
EFP ID	EFP identifier.			
Operational State	EFP operational state.			
VLAN	VLAN identifier.			
Inner VLAN	CE-VLAN identifier.			
Translated VLAN	Translated VLAN identifier.			
Translated Inner VLAN	Translated CE-VLAN identifier.			
Binding Port	Hyperlinked entry to the port in physical inventory.			
Description	Brief description of the EFP.			
Pseudowires Tab				
ID	Pseudowire identifier, hyperlinked to the VLAN entry in Bridges in logical inventory.			
Peer	Identifier of the pseudowire peer, hyperlinked to the entry in the Pseudowire Tunnel Edges table in logical inventory.			
Tunnel ID	Tunnel identifier.			
Tunnel Status	Status of the tunnel: Up or Down.			
Peer Router IP	IP address of the peer router for this pseudowire.			
Sub Interfaces Tab				
BER	VLAN bit error rate.			
Interface Name	Interface on which the VLAN is configured.			
VLAN Type	Type of VLAN, such as Bridge or IEEE 802.1Q.			
Operational State	Subinterface operational state.			
VLAN ID	VLAN identifier.			
Inner VLAN	CE-VLAN identifier.			

Table 12-33	VLAN Bridge Properties	(continued)
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Step 3 When finished, press **Ctrl + F4** to close each VLAN Bridge properties window.

Understanding Unassociated Bridges

Some switching entities might not belong to a flow domain, such as a network VLAN, a VPLS instance, or a network pseudowire. These switching entities are referred to as *unassociated bridges*.

In addition, a switching entity that belongs to a network VLAN is considered an unassociated bridge if it meets both of the following criteria:

- The network VLAN contains a null Ethernet flow domain (EFD).
- The switching entity contains no switch ports.

Unassociated bridge switching entities can hold Ethernet flow points that serve as termination points on different network VLANs. If these switching entities are added to a map with the relevant VLANs, the links are displayed in the Prime Network Vision map.

Adding Unassociated Bridges

Prime Network Vision enables you to add unassociated bridges to maps and to view their properties. To add an unassociated bridge to a map:

- **Step 1** In Prime Network Vision, select the required map or domain.
- **Step 2** Open the Add Unassociated Bridge dialog box in one of the following ways:
 - Choose File Add to Map > Unassociated Bridge.
 - In the toolbar, click Add to Map and choose Unassociated Bridge.

Figure 12-38 shows an example of the Add Unassociated Bridge dialog box.

Find : 🔛 🖞 💎 🚏 🐺 🔽			
Name	€ <i>1</i>	System Name	Description
22	VLAN-910@PE-7604-WEST	VLAN-910@PE-7604-WEST	
22	VLAN-901@PE-7604-WEST	VLAN-901@PE-7604-WEST	
** **	VLAN-874@sol-dist-2	VLAN-874@sol-dist-2	
::	VLAN-400@PE-7604-WEST	VLAN-400@PE-7604-WEST	
::	VLAN-323@sol-dist-2	VLAN-323@sol-dist-2	
**	VLAN-101@sol-dist-2	VLAN-101@sol-dist-2	
**	VLAN-100@PE-7604-WEST	VLAN-100@PE-7604-WEST	
22	VLAN-77@sol-dist-2	VLAN-77@sol-dist-2	
22	VLAN-43@sol-dist-2	VLAN-43@sol-dist-2	
22	VLAN-6@PE-7604-WEST	VLAN-6@PE-7604-WEST	
	VLAN-1@sol-dist-2	VLAN-1@sol-dist-2	
22	VLAN-1@PE-7604-WEST	VLAN-1@PE-7604-WEST	
* *	Grace9@Grace9@asr-9k-auto1	Grace9@Grace9@asr-9k-auto1	
** 4.4	bd_sagay8@bg_sagay8@asr-9k-auto1	bd_sagay8@bg_sagay8@asr-9k-auto1	
::	bd_sagay6@bg_sagay6@asr-9k-auto1	bd_sagay6@bg_sagay6@asr-9k-auto1	

Figure 12-38 Add Unassociated Bridge Dialog Box

Step 3 In the Add Unassigned Bridge to *domain* dialog box, select the required bridge and click OK.The map is refreshed and displays the newly added bridge as shown in Figure 12-39.



Figure 12-39 Unassociated Bridge in Prime Network Vision

Working with Ethernet Flow Point Cross-Connects

Prime Network Vision automatically discovers Ethernet flow point (EFP) cross-connects, also known as locally switched EFPs. Prime Network Vision also identifies changes in already identified EFP cross-connects, such as cross-connect deletions or changes. Cross-connect changes can occur when one side of the cross-connect is removed or replaced.

Prime Network Vision also associates the VLANs that contain the EFPs that are part of the cross-connects. If the cross-connect contains a range EFP, which represents a range of VLANs, and you add the related VLANs to a map, Prime Network Vision displays the links between them and the cross-connect as well.

Prime Network Vision enables you to add EFP cross-connects to maps and to view their properties in inventory, as described in the following topics:

- Adding EFP Cross-Connects, page 12-73
- Viewing EFP Cross-Connect Properties, page 12-73
Adding EFP Cross-Connects

To add an EFP cross-connect to a map:

- **Step 1** In Prime Network Vision, select the map to which you wish to add the cross-connect.
- **Step 2** Open the Add EFP Cross-Connect dialog box in one of the following ways:
 - Choose File Add to Map > Cross Connect.
 - In the toolbar, click Add to Map and choose Cross Connect.
- **Step 3** In the Add EFP Cross Connect to *domain* dialog box, select the required EFP cross-connect and click **OK**.

The map is refreshed and displays the newly added EFP cross-connect.

Viewing EFP Cross-Connect Properties

To view EFP cross-connect properties in Prime Network Vision, do either of the following:

- Select the EFP cross-connect with the properties you want to view, and choose Node > Properties.
- Double-click the device configured with an EFP cross-connect and, in the inventory window, choose Logical Inventory > Local Switching > Local Switching Entity.

The information that is displayed for EFP cross-connects is the same in both the Local Switching Entry Properties window and in the Local Switching Table in logical inventory (as shown in Figure 12-40).

🖄 👽 c4-r	npe1-76 [2M+]	🕑 Poll No	w				
-	ogical Inventory [21N]	Local Swi	tching Table				
	ATM Traffic Profiles	Find :	-	🖬 🛃 🗸 🏲 🗸 🖉			
<u>ا</u>	Bidirectional Forwarding Detecti Bridges	Key	Entry Status	Segment 1	Segment 1 Port Name	Segment 1 Status	Segment 2
► 100	CFM	1-alina3	Up	c4-npe1-76#4.0:GigabitEthernet4/0/3	GigabitEthernet4/0/3	Up	c4-npe1-76#
	Cisco Discovery Protocol	2-alina	Up	c4-npe1-76#4.0:GigabitEthernet4/0/2.444	GigabitEthernet4/0/2.444	Up	c4-npe1-76#
	Clock	3-alipa2	Lin	c4-ppe1-76#4 0/GigsbitEtherpet4/0/2 FED/555	GigabitEtberpet4/0/2:555	Lip	c4-ppe1-761
F F	Ethernet Link Aggregation	J-dii 1d2	op	competitionalgabitemetrio/2 er Proco	algabitethernettyo/2.000	op	CH-Hper-Vov
	Ethernet LMI						
	Frame Relay Trathic Profiles						
P ERF	15-15 Logal Switching						
* EXX	Local SwitchingEntity						
> III	LSEs						
>	MPBGPs						
	OAM						
	Operating System						
▶	OSPF Processes						
.	Pseudowires						
► 	Routing Entities						
•	Spanning Tree Protocol						
F F	Traffic Engineering Tunnels						
	Tunnel Traffic Descriptors						
▶■	WC Switching Entities	-					
Device Zoon	n 💽 Best Fit						
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nd :		調察					
		22 0	1			1	
kota Mak	work Events Drewisioning Events						
Rets Net	work Events J Provisioning Events						

Figure 12-40 Local Switching Table in Logical Inventory

Table 12-34 describes the information displayed for the EFP cross-connects in the Local Switching Table.

Table 12-34	EFP Cross-Connect	Properties in Loca	l Switching Ta	able
-------------	-------------------	--------------------	----------------	------

Field	Description
Key	Entry key for the cross-connect group.
Entry Status	Status of the cross-connect: Down, Unresolved, or Up.
Segment 1	Identifier of the first cross-connect segment, hyperlinked to the relevant entry in physical inventory.
Segment 1 Port Name	Identifier of the first cross-connect segment port.
Segment 1 Status	Status of the first cross-connect segment, such as Admin Up, Admin Down, Oper Down, or Up.
Segment 2	Identifier of the second cross-connect segment, hyperlinked to the relevant entry in physical inventory.
Segment 2 Port Name	Identifier of the second cross-connect segment port.
Segment 2 Status	Status of the second cross-connect segment, such as Admin Up, Admin Down, Oper Down, or Up.

L

Working with VPLS and H-VPLS Instances

Virtual Private LAN Service (VPLS) is a Layer 2 VPN technology that provides Ethernet-based multipoint-to-multipoint communication over MPLS networks. VPLS allows geographically dispersed sites to share an Ethernet broadcast domain by connecting sites through pseudowires. The network emulates a LAN switch or bridge by connecting customer LAN segments to create a single bridged Ethernet LAN.

Hierarchical VPLS (H-VPLS) partitions the network into several edge domains that are interconnected using an MPLS core. The edge devices learn only of their local N-PE devices and therefore do not need large routing table support. The H-VPLS architecture provides a flexible architectural model that enables Ethernet multipoint and point-to-point Layer 2 VPN services, as well as Ethernet access to Layer 3 VPN services, enabling service providers to offer multiple services across a single high-speed architecture.

Prime Network Vision discovers the following VPLS-related information from the network and constructs VPLS instances:

- VSIs
- Pseudowires
- EFPs
- Switching entities

Working with VPLS and H-VPLS in Prime Network Vision

Prime Network Vision enables you to:

- Add VPLS instances to a map—See Adding VPLS Instances to a Map, page 12-76.
- Apply VPLS overlays—See Applying VPLS Instance Overlays, page 12-77.
- View link details in VPLS overlays—See Viewing Pseudowire Tunnel Links in VPLS Overlays, page 12-79.
- View VPLS-related properties—See the following topics:
 - Viewing VPLS Instance Properties, page 12-81
 - Viewing Virtual Switching Instance Properties, page 12-83
 - Viewing VPLS Core or Access Pseudowire Endpoint Properties, page 12-85
 - Viewing VPLS Access Ethernet Flow Point Properties, page 12-87

You can delete a VPLS forward from Prime Network Vision if it is displayed with the reconciliation icon.

Adding VPLS Instances to a Map

You can add the VPLS instances that Prime Network Vision discovers to maps as required.

To add a VPLS instance to a map:

Step 1 In Prime Network Vision, select the required map or domain.

- **Step 2** Open the Add VPLS Instance to *map* dialog box in either of the following ways:
 - In the toolbar, choose **Add to Map > VPLS**.
 - In the menu bar, choose File > Add to Map > VPLS.
- **Step 3** In the Add VPLS Instance dialog box, do either of the following:
 - To search for specific elements:

a. Choose Search.

b. To narrow the display to a range of VPLS instances or a group of VPLS instances, enter a search string in the search field.

c. Click Go.

For example, if you enter **VPLS1**, the VPLS instances that have names containing the string VPLS1 are displayed.

• To view all available VPLS instances, choose Show All and click Go.

The VPLS instances that meet the specified search criteria are displayed in the Add VPLS Instance dialog box in table format. The dialog box also displays the date and time at which the list was generated. To update the list, click **Refresh**.



If an element is not included in your scope, it is displayed with the locked device icon.

For information about sorting and filtering the table contents, see Working with Prime Network Tables, page 2-49.

- Step 4 In the Add VPLS Instance dialog box, select the instances that you want to add. You can select and add multiple instances by pressing Ctrl while selecting individual instances or by pressing Ctrl +Shift to select a group of instances.
- Step 5 Click OK.

The VPLS instance is displayed in the navigation pane and in the content area. In addition, any associated tickets are displayed in the ticket pane. See Figure 12-41.

Cisco Prime N	letwork Vision - root@10.5 Node Tools Activation Net	twork Inventory	Reports Window	Help	_			×
B 🖻 🖬 - L	 - ® =	() 🗈 🔙 🗄	<u> </u>	 🛛 - 🖸 🕟 🔍 «) 🗔 📇			
V 112VPL3 V 04n V 04n	S [20894+] pel-76 [6M] pel-85 [6M] pel-95 [694+] orel [11++] pel-96 [994+] orel [11++] pel-96 [24266@c2456@c2-pel-1-0 pero_Elan(24260@c2456@c2-pel- GgabtEthemet4/0/5 EFP: 444@c4- pel-100; Eanti-2436@c2456@c2-pel-100; pel-101; 242@c2456@c2-pel-100; pel-101; 242@c2456@c2+pel-100; pel-101; 242@c2456@c2+pel-100; pel-101; 242@c2456@c2+pel-100; pel-101; 242@c2456@c2+pel-100; pel-101; 242@c2+pel-100; pel-101; 242@c2+pel-100; pel-101; pel-101; 242@c2+pel-100; pel-101; 242@c2+pel-100; pel-101; pe	rs [1M] 2e1-76 31-crs t npe1-76 -crs [2M] npe1-76 ne1-crs [Demo_ELm1242m	chipel-9	K [69	Aggrega	€ (4N+)	
€ C C C C C C C C C C C C C C C C C C C	00/7/01/243@c2-npe1-ors GgabaEthenet4/0/5 EFP: 443@c4- Regate [4M+]	npe1-76	Demo_ELanHi24	c2-rpsi-cr c2-core1	s [54M]	c4npel-	-76 [GM]	
Agg	00/7/01/243@c2mpe1-os GgablEthemet4/0/5 EFP: 443@c4- regate [4M+]	npe1-76	ELanH124	c2-rpsi-cr	(LM+)	c+npe1-	-76 [GM]	×
verity Ticket ID	60(7/0)(1.243@c2-npe1-os GgabiEthemet4(0)5 EFP: 443@c4- regate [4M+] Last Modification Time 관 1	Root? Ri	Demo_ELanHi24	c2-rope1-cri c2-rope1-cri c2-core1	(1M+)	c4-npe1-	-76 [GM]	
	GI0/7/0/1.243@c2-npe1-os GigabitEthernet4/0/5 EFP: 443@c4- regate [4M+] Last: Modification Time	Root R	Demo_ELanthi24 aot Event Time 7-Jun-11 09:11:09	c2-rope1-cr c2-rope1-cr c2-core1[Description Port down due to	(1M+)	c4-npe1-	276 [6M]	
 ▲ Agg 	00/7/01/243@c2-rpe1-os GgablEthemet4/0/5 EFP: 443@c4- regate [4M+] Last Modification Time € \ 27-3un-111311308 27-3un-111311014	Root? Ri V 22	Demo ELantit24 bot Event Time 7-Jun-11 09:11:09 7-Jun-11 12:16:40	c2-rost [c2-rost] c2-rost [c2-cort] Description Port down due to.7	[s44]	c4-npe1-	27-5 [6M]	• •
	00/7/01/243@c2-npe1-os GgabiEthemet4/0/5 EFP: 443@c4- regate [4M+] Last Modification Time € V 27-Jun-11 13:10:04 27-Jun-11 13:10:04	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Demo_ELanHi24 Demo_ELanHi24 cot Event Time r-Jan-11 109:11:09 r-Jan-11 09:11:09 r-Jan-11 09:12:0400 r-Jan-11 04:29:59	C2-rope1-cm c2-rope1-cm c2-core11 Description Port down due to .3. CPU utilization le3. CPU utilization le3.	[[544]] [Location c2-core1#1 c4-upe6	c4npet- c4npet- Acknowledged No No No	Creation Time 27-Jun-11 09:13:12 27-Jun-11 12:16:40 27-Jun-11 104:29:59	× •

Figure 12-41 VPLS Instance in Prime Network Vision Map

The VPLS instance information is saved with the map in the Prime Network database.

Applying VPLS Instance Overlays

An VPLS instance overlay allows you to isolate the parts of a network that are being used by a specific VPLS instance.

To apply a VPLS instance overlay:

- **Step 1** In Prime Network Vision, choose the map in which you want to apply an overlay.
- **Step 2** From the toolbar, choose **Choose Overlay Type > VPLS**.

Figure 12-42 shows an example of the Select VPLS Instance Overlay for map dialog box.

mtall	able Vpls Instances as of [04-Nov-10 14:37]] 🕲		
Find :	1 24 🔽 👘 🐺			
Name	€∧	System Defined Name	Vpn Id	1
	A:DomainA@GroupA@10.56.101.153	A:DomainA@GroupA@10.56.101.153	1	
	C:DomainC@GroupC@10.56.101.153	C:DomainC@GroupC@10.56.101.153	4	
	cisco@c7-npe1-76	cisco@c7-npe1-76	991	
	EFPs_Test:(778) VLAN0778@c1-npe1-76	EFPs_Test:(778) VLAN0778@c1-npe	778	
	omar:(999) VLAN0999@10.56.101.75	omar:(999) VLAN0999@10.56.101.75	666	
	Oren_Test:(987) VLAN0987@c1-npe1-76	Oren_Test:(987) VLAN0987@c1-npe	987	
	QHVPL5:481781181:(2081) VLAN2081@10.56.101	QHVPLS:481781181:(2081) VLAN208	481781181	
	QHVPL5:481781181:(2081) VLAN2081@c1-npe1-76	QHVPLS:481781181:(2081) VLAN208	481781181	
	QinQ_VFI:(200) VLAN0200@10.56.101.75	QinQ_VFI:(200) VLAN0200@10.56.1	200	
	QVPL5:482782182:(2082) VLAN2082@10.56.101.75	QVPL5:482782182:(2082) VLAN2082	482782182	
	QVPLS:482782182:(2082) VLAN2082@c1-npe1-76	QVPL5:482782182:(2082) VLAN2082	482782182	
	Service1:(477) VLAN0477@10.56.101.75	Service1:(477) VLAN0477@10.56.10	777	L
	Service2:(853) VLAN0853@c1-npe1-76	Service2:(853) VLAN0853@c1-npe1-76	1010	
	ServiceD:(426) VLAN0426@10.56.101.75	ServiceD:(426) VLAN0426@10.56.10	26	
	ServiceD@c1-npe1-76	ServiceD@c1-npe1-76	1001	
	VFI7:(307) VLAN0307@c3-npe1-76	VFI7:(307) VLAN0307@c3-npe1-76	99007	
	VFI7:(407) VLAN0407@10.56.101.75	VFI7:(407) VLAN0407@10.56.101.75	99007	-

Figure 12-42 Select VPLS Instance Overlay Dialog Box

Step 3 Select the required VPLS instance for the overlay.

Step 4 Click OK.

The elements being used by the selected VPLS instance are highlighted in the map while the other elements are dimmed, as shown in Figure 12-43.



Figure 12-43 VPLS Instance Overlay in Prime Network Vision

- **Step 5** To hide and view the overlay, click **Hide Overlay/Show Overlay** in the toolbar. The button toggles depending on whether the overlay is currently displayed or hidden.
- **Step 6** To remove the overlay, choose **Choose Overlay Type > None**.

Viewing Pseudowire Tunnel Links in VPLS Overlays

When a VPLS overlay is applied to a map in Prime Network Vision, you can view the details of the pseudowires that are interconnected through selected links.

Γ

To view unidirectional or bidirectional pseudowire traffic links when a VPLS overlay is applied to a map:

Step 1 Right-click the required link in the overlay, and choose **Show Callouts**. The link must be visible (not dimmed) in the map.

Link information is displayed as shown in Figure 12-44.

Figure 12-44 Link Callout Window for a VPLS Overlay

p1#3.0:GigabitEthernet0/3/0/6 -> c2-npe1-crs#0.7.0:GigabitEthernet0/7/0/0			
c1-npe1-76#VSI: vl2051 VPN Id: 2051	c2-npe1-crs#VSI: vfi2051 VPN Id: 5		
c2-npe1-crs#0.7.0:GigabitEthernet0/7/0/0 -> p1#3.0:GigabitEthernet0/3/0/6			
c2-npe1-crs#VSI: vfi2051 VPN Id: 5 c2-npe1-crs#VSI: vfi2051 VPN Id: 5	c7-npe1-76#VSI: vl2051 VPN Id: 2051 c1-npe1-76#VSI: vl2051 VPN Id: 2051	37516	

The callout window displays the following information for each link represented by the selected link:

- Link details and direction.
- Details of the sites using the link and the interlinks.
- **Step 2** To view the pseudowire link details, double-click the yellow callout window.

The details about the link are displayed in the Link Details window as shown in Figure 12-45.

Figure 12-45 Link Details Window for a VPLS Overlay



The Link Details window provides the following information:

1	Link details and direction. In this example, the link is from p1 to p2.
3	Link details and direction. In this example, the link is from p2 to p1.
2 and 4	Details of the pseudowire tunnel traversing this link.

Step 3 Click **OK** to close the Link Details window.

Step 4 To close the link callout window, right-click the selected link, then choose Hide Callouts.

Viewing VPLS-Related Properties

Prime Network Vision enables you to view the properties of the following VPLS-related elements:

- VPLS instances—See Viewing VPLS Instance Properties, page 12-81.
- Virtual Switching Instances—Viewing Virtual Switching Instance Properties, page 12-83
- Tunnels—See Viewing VPLS Core or Access Pseudowire Endpoint Properties, page 12-85.
- Port connectors—See Viewing VPLS Access Ethernet Flow Point Properties, page 12-87.

Viewing VPLS Instance Properties

To view the properties of a VPLS instance in Prime Network Vision, open the VPLS Instance Properties window in either of the following ways:

- In the navigation pane or the map pane, right-click the VPLS instance and choose Properties.
- In the navigation pane or the map pane, select the VPLS instance and choose Node > Properties.

Figure 12-46 shows an example of the VPLS Instance Properties window.

pls Fo	rwards	Acce	ss Pseud	lowires	Access	Flow Points								
ind : (₿₽	∇	物学								
lame	€∧					System Name			Bridge			VSI		Vpn Id
	Service1	(477)	VLAN04	77@10.	56.101.75	Service1:(477) VLAN0477@10.56	.101.75	10.56.101.75 [Def	ault context] (477) V	LAN0477	10.56.101.75#VSI: Service	1 VPN Id: 777	777
•	Service1	(777)	VLAN07	77@c7-	npe1-76	Service1:(777) VLAN0777@c7-np	e1-76	c7-npe1-76 [Defau	lt context] (777) VLA	N0777	c7-npe1-76#VSI: Service1	VPN Id: 777	777
	Service1	(852)	VLAN08	52@c1-	npe1-76	Service1:(852) VLAN0852@c1-npi	e1-76	c1-npe1-76 [Defau	lt context] (852) VLA	N0852	c1-npe1-76#VSI: Service1	VPN Id: 777	777
	Service1	Doma	nA@Gro	upA@c	2-npe1-crs	Service1:Dom	ainA@GroupA@c2-r	npe1-crs	c2-npe1-crs [Defau	ult context] DomainA(@GroupA	c2-npe1-crs#VSI: Service1	VPN Id: 2	2

Figure 12-46 VPL	S Instance	Properties	Window
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Table 12-35 describes the information that is displayed for VPLS instance properties.

The tabs that appear in the window depend on the VPLS instance and its configuration.

Field	Description
System Name	Name that Prime Network Vision assigns to the VPLS instance.
Name	User-defined name of the VPLS instance.
	When the VPLS instance is created, the system name and this name are the same. If you change the name of the VPLS instance (right-click, then choose Rename), the changed name appears in this field whereas the system name retains the original name.
VPN ID	VPN identifier used in an MPLS network to distinguish between different VPLS traffic.
VPLS Forwards Tab	
Name	User-defined name of the VPLS forward.
System Name	Name that Prime Network Vision assigns to the VPLS forward.
Bridge	Bridge that the VSI is configured to use, hyperlinked to the bridge table in logical inventory.
VSI	VSI hyperlinked to the relevant entry in logical inventory.
VPN ID	VPN identifier for the VSI.

Table 12-35 VPLS Instance Properties

Field	Description		
Access Pseudowires Tab	<u>.</u>		
Name	Pseudowire name.		
Port	VSI on which the pseudowire is configured, hyperlinked to the entry in logical inventory.		
Local Router IP	Local router IP address on which the pseudowire is configured.		
Tunnel ID	Virtual circuit identifier of the pseudowire.		
PTP Tunnel	Hyperlinked entry to the pseudowire properties in logical inventory.		
Peer Router IP	Peer router IP address on which the pseudowire is configured.		
Peer OID	Hyperlinked entry to the pseudowire properties of the peer.		
Pseudowire Type	Type of pseudowire, such as Ethernet, Ethernet Tagged, CESoPSN Basic, PPP, or SAToP.		
Pseudowire Edge Binding Type	 Pseudowire endpoint association: 0—Unknown 1—Connection termination point 2—Ethernet flow point 3—Switching entity 4—Pseudowire switching entity 5—VPLS forward 		
Access Flow Points Tab			
Name	Access flow point name. Double-click to view port connector properties.		
Port	Interface configured as a flow point, hyperlinked to the interface in physical inventory.		

Table 12-35	VPLS Instance Properties	(continued)
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Viewing Virtual Switching Instance Properties

To view VSI properties in Prime Network Vision, open the VSI properties window in either of the following ways:

- Double-click the required device and, in the inventory window, choose Logical Inventory > VSIs > vsi.
- In the navigation pane, expand the VPLS instance, right-click the required VPLS forward, and choose **Inventory** or **Properties**. (See Figure 12-47.)





If you right-click the VPLS forward and choose **Inventory**, the inventory window is displayed. If you right-click the VPLS forward and choose **Properties**, the VSI Properties window is displayed. The information displayed is the same for both options.

VSI properties are displayed as shown in Figure 12-48.

Figure 12-48 VSI Properties in Logical Inventory

NPE2-7600-NY [7M+]						_ 🗆 ×
Bridges Cisco Discovery Protocol Clock Ethernet Link Aggregation Ethernet MI Frame Relay Traffic Profiles Sistem Sistem	VSI Name: VSI Name: VSI Mode: Operational State: Local Bridge:	Cus_400_Мих Multipoint Up NPE2-7600-NY (400) У	VPN ID Discovi Adminis LANO400	: 400 ery Mode: Manual strative State: Up	1	
Figure 1	Pseudowires Find :	🖬 約 🗸 🎙	御寺			
MPBGPs	Pseudowire ID 🕹 /	Autodiscovery	Split Horizon	Pseudowire Peer IP	Pseudowire VC ID	
P DAM	300@NPE2-7600-NY	false	false	172.255.1.41	300	
Operating System	400@NPE2-7600-NY	false	true	172.200.1.7	400	
OSPF Processes	400@NPE2-7600-NY	false	true	172.200.1.6	400	
Pseudowires	403@NPE2-7600-NV	false	true	172.200.1.7	403	
Routing Entities						
Traffic Engineering Tunnels						
Tunnel Traffic Descriptors						
VC Switching Entities						
VSIs						
VSI: Cus_400_Mux (VPN: 400)						
Physical Inventory [1M]						
Device Zoom 🔀 Best Fit						
	•					Line 0 (Size 4)
· · ·						
Find : 📄 🛃 💎 🦖 🐺 🛛	\$					
Severity 🛛 Ticket ID 👘 Last Modification Time 🛛 रू	Root Root Eve	ent Time	Description	Location Acknowler	daed Creation Time	
ickets Network Events Provisioning Events						
				Memory:	15% Connect	ed 🔽

Table 12-36 describes the information that is displayed for the selected VSI.

Field	Description
VSI Name	VSI name.
VPN ID	VPN identifier used in an MPLS network to distinguish between different VPLS traffic.
VSI Mode	VSI mode: Point-to-Point (default) or Multipoint.
Discovery Mode	VSI discovery mode: Manual, BGP, LDP, RADIUS, DNS, MSS/OSS, or Unknown.
Operational State	VSI operational status: Up or Down.
Administrative State	VSI administrative status: Up or Down.
Local Bridge	Local bridge, hyperlinked to the bridge in logical inventory.
Pseudowires Table	· ·
Pseudowire ID	Pseudowire identifier, hyperlinked to the Tunnel Edges table under Pseudowires in logical inventory.
Autodiscovery	Whether the pseudowire was automatically discovered: True or False.
Split Horizon	SSH pseudowire policy that indicates whether or not packets are forwarded to the MPLS core: True or False.
Pseudowire Peer IP	IP address of the pseudowire peer.
Pseudowire VC ID	Pseudowire virtual circuit identifier.

Table 12-36 VSI Properties in Logical Inventory

Viewing VPLS Core or Access Pseudowire Endpoint Properties

Pseudowire endpoints are displayed under VPLS Instance (Access) or VPLS Forward (Core) in the Prime Network Vision navigation pane.

To view pseudowire endpoint properties for a VPLS instance, right-click the required pseudowire endpoint in the navigation pane, and choose **Properties**. (See Figure 12-49.)

Figure 12-49 VPLS Pseudowire in Prime Network Vision Navigation Pane



Figure 12-50 shows an example of the Tunnel Properties window that is displayed.

¥ 3466@AGG-7	604-TX - PTP Layer2 MPLS Tunnel Prope	rties		_ 🗆 ×
OPOII Now				
Port:	AGG-7604-TX#V5I: Cus_3466 VPN Id: 3466	Peer:	3466@NPE1-9K-NGN	
Peer VC Label:	16007	Status:	down	
Local VC Label:	0	Local Router IP:	172.255.3.175	
Peer Router IP:	172.200.1.1	Local MTU:		
Remote MTU:	1500	Pseudowire Type:	Ethernet	
Pseudowire Role:				
				5
[Memory: 11% Connected	
,			, <u> </u>	, ,

Figure 12-50 VPLS Tunnel Properties Window

Table 12-37 describes the information that is displayed for pseudowire endpoint properties.

Field	Description
Port	VSI on which the pseudowire is configured, hyperlinked to the VSI in logical inventory.
Peer	Hyperlinked entry to the pseudowire endpoint peer pseudowires in logical inventory.
Peer VC Label	MPLS label that is used by this router to identify or access the tunnel. It is inserted into the MPLS label stack by the peer router.
Tunnel Status	Operational state of the tunnel: Up or Down.
Local VC Label	MPLS label that is used to identify or access the tunnel. It is inserted into the MPLS label stack by the local router.
Local Router IP	IP address of this tunnel edge, which is used as the MPLS router identifier.
Tunnel ID	Identifier that, along with the router IP addresses of the two pseudowire endpoints, identifies the PWE3 tunnel.
Peer Router IP	IP address of the peer tunnel edge, which is used as the MPLS router identifier.
Local MTU	Size, in bytes, of the MTU on the local interface.
Remote MTU	Size, in bytes, of the MTU on the remote interface.
Signaling Protocol	Protocol used by MPLS to build the tunnel, such as LDP or TDP.
Pseudowire Type	Type of pseudowire, such as Ethernet, Ethernet Tagged, CESoPSN Basic, PPP, or SAToP.

Table 12-37 Tunnel Properties Window

Viewing VPLS Access Ethernet Flow Point Properties

The ports that represent the attachment circuits to VPLS instances are displayed under VPLS instances in the Prime Network Vision navigation pane.

To view the properties for the Access Ethernet Flow Points configured for a VPLS instance, right-click the required interface in the navigation pane, and choose **Inventory**. (See Figure 12-51.)

Figure 12-51 VPLS Interface in Prime Network Vision Navigation Pane

- 🎫 🛡	Service1:DomainA@GroupA@c2-npe1-crs [5M]	
۱) ا	777@c9-npe1-9K	
1	7777@c4-npe1-76	
> 🎫 🛡	A:DomainA@GroupA@c9-npe1-9K [2M]	
(->)	GigabitEthernet4/0/5 EFP: 477@c4-npe1-76	
▶ 💶	Service1:(477) VLAN0477@c4-npe1-76	88
Þ 🚟 🛡	Service1:DomainA@GroupA@c2-npe1-crs [1M]	282

Figure 12-52 shows an example of the information displayed for the interface in physical inventory.



¥	Slot 2: Card - 7600-SIP-400	😨 Poll No	w								
► <u></u>	Subslot 0: Subcard - SPA-24CHT	-Location I	nformation								
>	Slot 3: Card - WS-X6748-GE-TX										
* <u></u>	Slot 4: Card - 76-ES+XC-40G3C [3M	Type:	Plu	uggable	Location:	4.GigabitEtherne	t4/2				
	Subslot 3: Subcard - 7600-ES+4	Sending	Alarms: tru	Je	Port Alias:	GigabitEthernet4	/2				
468	GigabitEthernet4/1	Mananer	- te	10	Statuc	or					
46	GigabitEthernet4/2	Managot	. a.	JC .	status.	0K					
-15	GigabitEthernet4/3 - No Transce	🔒 Disat	ole Sending Ale	arms							
-16	GigabitEthernet4/4 - No Transce		_								
10	GigabitEthernet4/5 - No Transce	Pluggable	Transceiver-								
-16I W	GigabitEthernet4/6	Connect	or Type:	Fiber	Optic		Pluggable Type:	SFP			
-16	GigabitEthernet4/7 - No Transce	C				000	010	CED CE	<i>c</i>		
1.	GigabitEthernet4/8 - No Transce	Connect	or Description:	Tran	scewer 10	JUDASESA GI4/Z	PID:	SEP-GE-	-2		
-15	GigabitEthernet4/9	Connect	or Serial Numb	er: FNS1	347118X		Pluggable Port State:	In			
-16	GigabitEthernet4/10										
16	GigabitEthernet4/11 - No Transc										
-15	GigabitEthernet4/12 - No Transc	Carls Cit									
	GigabitEthernet4/13 - No Transc	Gigabic Eu	nemet								
40	GigabitEthernet4/14 - No Transc	MAC Add	dress: 00 1	E F7 F6 C5	00 Ether	net LMI Enabled: f	alse				
468	GigabitEthernet4/16 - No Transc										
-05											
-16	GigabitEthernet4/17										
-[G -[J]	GigabitEthernet4/17 GigabitEthernet4/18 - No Transc										
46 46	GigabitEthernet4/17 GigabitEthernet4/18 - No Transc GigabitEthernet4/19	Discovery	Protocols								
46 46	GigabitEthernet4/17 GigabitEthernet4/17 GigabitEthernet4/18 - No Transc GigabitEthernet4/19 GigabitEthernet4/20	Discovery	Protocols								
-6 -6 -6 -6	GigabitEthernet4/17 GigabitEthernet4/17 GigabitEthernet4/19 GigabitEthernet4/20 7 TenGigabitEthernet4/21 - No Tre	Discovery	Protocols								
ی۔ ی۔ ی ۔ و ی۔ و ی۔	GigabitEthernet4/17 GigabitEthernet4/18 - No Transc GigabitEthernet4/19 GigabitEthernet4/20 7 TenGigabitEthernet4/20 - No Tra 7 EnGigabitEthernet4/20 - No Tra	-Discovery	Protocols		24 V 4	7 25 55					
13)- 13)- 13)- 13)- 13)- 13)- ₩ 13)- ♥ 13)- ♥	GigabitEthernet4/17 GigabitEthernet4/18 - No Transc GigabitEthernet4/19 GigabitEthernet4/20 TenGigabitEthernet4/20 - No Tra TenGigabitEthernet4/22 - No Tra •	-Discovery Find : EFP ID	Protocols Operational S	tate VL	2↓ ▽ ¶ AN Inner V	LAN Translated VLA	N Translated Inner \	VLAN	Binding €∧	Description	
-(6) -(6) -(6) -(6) -(6) -(6) -(6) -(6)	GigabitEthernet4/17 GigabitEthernet4/18 No Transc GigabitEthernet4/19 TenGigabitEthernet4/20 TenGigabitEthernet4/21 - No Trat TenGigabitEthernet4/22 - No Trat TenGigabitEthernet4/22 - No Trat TenGigabitEthernet4/22 - No Trat TenGigabitEthernet4/22 - No Trat	-Discovery Find : EFP ID 3450	Protocols Operational S Up	tate VL 34	AN Inner V 50	Translated VLA	N Translated Inner V	VLAN	Binding 원 /. 3450@AGG-7606-TX	Description	
-(6 -(6 -(6 -(6 -(6 -(6 -(6 -(6 -(6))))))))))	GigabitEhernet/13 rol rulac GigabitEhernet/13 rol rulac GigabitEhernet/14 rol rulac GigabitEhernet/12 rol rulac TercigabitEhernet/12 rol ric TercigabitEhernet/22 rol ric Best Fill	Find : EFP ID 3450 3451	Protocols Operational S Up Up	tate VL 34 34	2↓ ▼ ¶ AN Inner V 50 51	AN Translated VLA	N Translated Inner V	VLAN	Binding € /. 3450@AG5-7606-TX AGG-7606-TX (3451) VLAN3451	Description	
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is is is is vis vis v bevice Zoom) ≥ veriee Zoom) is is is is is is is is is is is is is	GigabitEthernet/13 ro rulac GigabitEthernet/13 ro rulac GigabitEthernet/14 ro GigabitEthernet/12 ro Trac GigabitEthernet/20 rac TenGigabitEthernet/20 ro Tra TenGigabitEthernet/22 ro Tra Best Fit	-Discovery Find : EFP ID 3450 3451 EFPs	Protocols Operational S Up Up	tate VL 34 34	2↓ ▽ ¶ AN Inner ₩ 50 51	7 👼 👼 LAN Translated VLAI	N Translated Inner V	VLAN	Binding € /. 3450@AGG-7606-TX AGG-7606-TX (3451) VLAN3451	Description) (Size 2)
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The information displayed in this window is the same as that displayed when the interface is selected in physical inventory.

The following information is displayed, depending on the interface and its configuration:

- Location and interface details.
- Technology-related information, such as Ethernet CSMA/CD or ATM IMA properties.
- VLAN configuration details.

- List of the configured subinterfaces on the port. For more information on the Subinterfaces table, see Viewing a Port Configuration, page 3-24.
- List of the configured EFPs on the port. For more information on the EFPs table, see Viewing EFP Properties, page 12-31.
- List of VLAN mappings configured on the port. For more information about the VLAN Mappings table, see Viewing VLAN Mappings, page 12-50.

Working with Pseudowires

Prime Network supports the discovery and modeling of Any Transport over MPLS (AToM) and Ethernet over MPLS (EoMPLS) domains that span multisegment pseudowires. After discovery is complete, you can add any of the pseudowires to a map, view their properties in logical inventory, or view their redundancy status.

The following topics describe the options available to you for working with pseudowires in Prime Network:

- Adding Pseudowires to a Map, page 12-88
- Viewing Pseudowire Properties, page 12-91
- Pinging a Pseudowire, page 12-94
- Displaying Pseudowire Information, page 12-96
- Viewing Pseudowire Redundancy Service Properties, page 12-98
- Applying Pseudowire Overlays, page 12-100

Adding Pseudowires to a Map

You can add a pseudowire that Prime Network discovers to maps as required. To add a pseudowire to a map:

- **Step 1** In Prime Network Vision, select the required map or domain.
- Step 2 Open the Add Pseudowire to *map* dialog box in either of the following ways:
 - In the toolbar, choose **Add to Map > Pseudowire**.
 - In the menu bar, choose File > Add to Map > Pseudowire.

Figure 12-53 shows an example of the Add Pseudowire dialog box.

L

O Se	arch Name 💌 🕬	1-npe1-76	Go
💿 Sh	ow All		
Availa	ble Pseudowires as of [17-Jun-11	15:14] 🕐	
Find :	1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 B	
Vame		System Name 🛛 🕀 🛆	Descrip
8	5@c1-npe1-76	5@c1-npe1-76	
2	8@c1-npe1-76	8@c1-npe1-76	
	99@C9-AGG20	99@C9-AGG20	
	234@10.56.101.75	234@10.56.101.75	
8	333@10.56.101.75	333@10.56.101.75	
	666@c9-npe1-9K	666@c9-npe1-9K	
8	777@c9-npe1-9K	777@c9-npe1-9K	
	1231@c1-npe1-76	1231@c1-npe1-76	
8	1234@c1-npe1-76	1234@c1-npe1-76	
8	1900@C9-AGG20 1900@c9-npe1-9K	1900@C9-AGG20 1900@c9-npe1-9K	
8	2350@c1-npe1-76	2350@c1-npe1-76	
	2450@c1-npe1-76	2450@c1-npe1-76	
8	9999@c1-npe1-76	9999@c1-npe1-76	
8	12345@10.56.101.75	12345@10.56.101.75	
2	23972@10.56.101.75	23972@10.56.101.75	
4	23972@c1-ppe1-76	23972@c1-ope1-76	
		Line C) (Size 271)
		OK	Cancel

Figure 12-53 Add Pseudowire Dialog Box

Step 3 In the Add Pseudowire dialog box, do either of the following:

• To search for specific elements:

a. Choose Search.

b. To narrow the display to a range of pseudowire or a group of pseudowires, enter a search string in the search field.

c. Click Go.

For example, if you enter **pseudo1**, the pseudowires that have names containing the string "pseudo1" are displayed.

• To view all available pseudowires, choose Show All and click Go.

The pseudowires that meet the specified search criteria are displayed in the Add Pseudowire dialog box in table format. The dialog box also displays the date and time at which the list was generated. To update the list, click **Refresh**.



If an element is not included in your scope, it is displayed with the locked device icon.

For information about sorting and filtering the table contents, see Working with Prime Network Tables, page 2-49.

Step 4 In the Add Pseudowire dialog box, select the pseudowires that you want to add. You can select and add multiple pseudowires by pressing Ctrl while selecting individual pseudowires or by pressing Ctrl +Shift to select a group of pseudowires.

Step 5 Click OK.

The pseudowire is displayed in the navigation pane and in the content area. In addition, any associated tickets are displayed in the ticket pane. See Figure 12-54.



Figure 12-54 Pseudowire in Prime Network Vision Map

Step 6 Click the pseudowire in the navigation pane or double-click the pseudowire in the map pane to view the pseudowire components, such as pseudowire endpoints, pseudowire switching entities, and terminating interfaces.

Figure 12-55 shows an example of an expanded pseudowire in Prime Network Vision.



Figure 12-55 Pseudowire Components in Prime Network Vision Maps

The pseudowire information is saved with the map in the Prime Network database.

Viewing Pseudowire Properties

To view pseudowire properties:

- **Step 1** In Prime Network Vision, select the required map or domain.
- **Step 2** To view pseudowire endpoint properties configured on an element:
 - **a.** In the navigation or map pane, right-click the required element and then choose **Inventory**.
 - **b.** In the inventory window, choose **Logical Inventory > Pseudowires**.

The Tunnel Edges table is displayed, listing the pseudowire endpoints configured on the selected element. For a description of the information contained in the Pseudowires Tunnel Edges table, see Table 17-24 on page 17-48.

- **Step 3** To view the properties of a pseudowire that you added to a map, do either of the following:
 - If the pseudowire icon is of the largest size, click the **Properties** button.
 - Right-click the element, and then choose **Properties**.

The Pseudowire Properties window is displayed as shown in Figure 12-56.

Γ

	941-5 230@sol-dist-1 - Pseudo	wire Properties		_ 🗆 ×
Name: System Name:	230@MW2941-5 230@sol-dist-1 230@MW2941-5 230@sol-dist-1	Multisegment Pseudowire: Pseudowire Type:	false SAToP E1	
J			Memory: 4% Connected	<u>A</u>

Figure 12-56 Pseudowire Properties Window



Table 12-38Pseudowire Properties Window

Field	Description
Name	Name of the pseudowire.
Multisegment Pseudowire	Whether or not the pseudowire is multisegment: True or False.
System Name	Internal or system-generated name of the pseudowire.
Pseudowire Type	Type of pseudowire, such as Ethernet, Ethernet Tagged, CESoPSN Basic, PPP, or SAToP.

Step 4 To view the properties of a pseudowire endpoint associated with a pseudowire, right-click the required pseudowire endpoint, and then choose **Properties**.

The Tunnel Properties window containing the pseudowire endpoint properties is displayed as shown in Figure 12-50 and described in Table 12-37.

Step 5 To view the properties of a pseudowire switching entity associated with the pseudowire, select the switching entity, and then choose **Node > Inventory**.

The Local Switching table is displayed as shown in Figure 12-40.

Table 12-34 describes the information displayed in the Local Switching table.

Step 6 To view the properties of the pseudowire endpoint that terminates on the subinterface, right-click the required interface, and then choose **Properties**.



Note The selected port must be an Ethernet subinterface for the Contained Current CTPs table to be displayed.

Table 12-39 describes the information displayed in the Contained Current CTPs table.

Field	Description
Local Interface	The name of the subinterface or port, hyperlinked to the interface in physical inventory.
ID	The tunnel identifier, hyperlinked to Pseudowires Tunnel Edges table in logical inventory.
Peer	The peer tunnel identifier, hyperlinked to the peer pseudowire tunnel in logical inventory.
Tunnel ID	The identifier that, along with the router IP addresses of the two tunnel edges, identifies the tunnel.
Tunnel Status	The operational state of the tunnel: Up or Down.
Local Router IP	The IP address of this tunnel edge, which is used as the router identifier.
Peer Router IP	The IP address of the peer tunnel edge, which is used as the router identifier.
Pseudowire Type	Type of pseudowire, such as Ethernet, Ethernet Tagged, CESoPSN Basic, PPP, or SAToP.
Local MTU	The size, in bytes, of the MTU on the local interface.
Remote MTU	The size, in bytes, of the MTU on the remote interface.
Local VC Label	The MPLS label that is used by this router to identify or access the tunnel. It is inserted in the MPLS label stack by the local router.
Peer VC Label	The MPLS label that is used by this router to identify or access the tunnel. It is inserted in the MPLS label stack by the peer router.
Signaling Protocol	The protocol used to build the tunnel, such as LDP or TDP.
Preferred Path Tunnel	The path to be used for pseudowire traffic.

Step 7 To view the properties of an Ethernet flow point associated with the pseudowire, right-click the EFP and then choose Properties.

See Viewing EFP Properties, page 12-31 for the information that is displayed for EFPs.

Pinging a Pseudowire

Prime Network Vision enables you to ping a peer router to ensure that the pseudowire tunnel is available. To ping a pseudowire peer router:

- **Step 1** In the require map, double-click the required device configured for pseudowire.
- **Step 2** In the inventory window, choose **Logical Inventory > Pseudowires**.
- **Step 3** In the Tunnel Edges table, select the interface with the peer edge that you want to ping, and make sure that the tunnel status is up.
- Step 4 Right-click the interface and choose Commands > Configure > Ping Pseudowire as shown in Figure 12-57.



Figure 12-57 Ping Pseudowire Command

The Ping Pseudowire dialog box is displayed with the General tab as shown in Figure 12-58.

Ping with default	Destination IP and ¥	C-ID	
Destination IP Addr	ess		
VC-ID			

Figure 12-58 Ping Pseudowire Dialog Box - General Tab

Step 5 In the General tab, specify the destination as follows:

- Ping with default Destination IP and VC-ID—Check the check box to ping the selected peer pseudowire endpoint using the default destination IP address and VC identifier. You do not need to enter a destination IP address or tunnel identifier if you choose this option.
- Destination IP Address—Enter the required destination IP address if you do not want to use the default destination IP address. If you enter a destination IP address, you must enter the tunnel identifier in the VC-ID field.
- VC-ID—Enter the required tunnel identifier if you do not want to use the default VC identifier. If you enter a tunnel identifier, you must enter the destination IP address in the Destination IP Address field.
- **Step 6** To preview the command to ensure it is right, click **Preview**.

The command is displayed in the Result tab for your review.

Step 7 To execute the command, click **Execute**.

The result of the command is displayed in the Result tab, as shown in Figure 12-59.

Cenera	Peoult 1	
General	Result	
E I I I	0/5/27 mai 7/	
111	003967-1002-70 7-2mp - 76#	
	bing mpls pseudowire 1.1.0.219 777065	
	Total number of MS-PW segments is less than segment number; Adjusting the segment number to 1	
	Sending 5, 100-byte MPLS Echos to 1.1.0.219,	
	timeout is 2 seconds, send interval is 0 msec:	
	Codes: '!' - success, 'Q' - request not sent, '.' - timeout,	
	'L' - labeled output interface, 'B' - unlabeled output interface,	
	'D' - DS Map mismatch, 'F' - no FEC mapping, 'f' - FEC mismatch,	
	'N' - malformed request, 'm' - unsupported tlvs, 'N' - no label entry,	
	'P' - no rx intE label prot, 'p' - premature termination of LSP,	
	'R' - transit router, 'l' - unknown upstream index,	
	-X unknown return code, 'x' - return code o	
	Type escape sequence to abort.	
	Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/8 ms	
	Clapsed time: 0 seconds	
		_
	Preview Execute Close	

Figure 12-59 Ping Pseudowire Dialog Box - Result Tab

Step 8 Click **Close** to close the Ping Pseudowire dialog box.

Displaying Pseudowire Information

To view Virtual Circuit Connectivity Verification (VCCV) and Control Channel (CC) information for a pseudowire endpoint:

- **Step 1** In the require map, double-click the required device configured for pseudowire.
- **Step 2** In the inventory window, choose **Logical Inventory > Pseudowire**.
- Step 3 In the Tunnel Edges table, right-click the required interface and choose Commands > Show > Display Pseudowire.
- **Step 4** In the Display Pseudowire dialog box, do either of the following:
 - To view the command before running it, click Preview.
 - To run the command, click **Execute**.

When you click Execute, the results are displayed in the dialog box as shown in Figure 12-60.

Display Pseudowire	_ 🗆 ×
Result	
460760@c7-npe1-76 c7-npe1-76#	
show mpls 12transport binding 460760 include CC	
VCCV: CC Type: RA [2], TTL [3] VCCV: CC Type: RA [2], TTL [3]	
Elapsed time: 0 seconds	
Preview Execute Close	
Memory 12% Connected	
	j ja

Figure 12-60 Display Pseudowire Dialog Box

Step 5 The following information is displayed:

- The element name.
- The command issued.
- The results, including:
 - VCCV: CC Type—The types of CC processing that are supported. The number indicates the position of the bit that was set in the received octet. The available values are:
 - CW [1]—Control Word
 - RA [2]-Router Alert
 - TTL [3]-Time to Live
 - Unkn [x]—Unknown
 - Elapsed time—The elapsed time, in seconds.
- **Step 6** Click **Close** to close the Display Pseudowire dialog box.

Viewing Pseudowire Redundancy Service Properties

If a pseudowire is configured for redundancy service, a redundancy service badge is applied to the secondary (backup) pseudowire in the navigation and map panes in the Prime Network Vision window. Additional redundancy service details are provided in the inventory window for the device on which the pseudowire is configured.

To view redundancy service properties for pseudowires:

Step 1 To determine if a pseudowire is configured for redundancy service, expand the required pseudowire in the navigation or map pane.

If the pseudowire is configured for redundancy service, the redundancy service badge appears in the navigation and map panes as shown in Figure 12-61.



Figure 12-61 Pseudowire Redundancy Service Badge in a Map

Step 2 To view additional details, in the map, double-click the element with the redundancy service badge.The PTP Layer 2 MPLS Tunnel Properties window is displayed as shown in Figure 12-62 and shows that the selected pseudowire has a Secondary role in a redundancy service.

V 3464@AGG-7	604-TX - PTP Layer2 M	PLS Tunnel Properti	ies				_ 🗆 ×
🕐 Poll Now							
Port:	AGG-7604-TX#Aggregal	ion Group 20 EFP:3464	Peer:		3464@NPE2-9K-NG	in	
Peer VC Label:	17368		Status:		down		
Local VC Label:	77		Local Router IP:		172.255.3.175		
Peer Router IP:	172.200.1.2		Local MTU:		1500		
Remote MTU:	1500		Pseudowire Type:	I	Ethernet Tagged		
Pseudowire Role:	Secondary						
Associated Pseud	owires	御屋					
Local Interface 🛛 🥹	Δ	VC ID	Peer	Status	Pseudowire Role	Preferred Path Tunnel	Local Ro
AGG-7604-TX#Aggr	regation Group 20 EFP:3464	3464@AGG-7604-TX	3464@NPE2-9K-NGN	down	Secondary)	172.255
4						Line	► 9 0 (Size 1)
				Me	mory: 9%	Connected	

Figure 12-62 Layer 2 MPLS Tunnel Properties for Pseudowire Redundancy Service

Step 3 In the PTP Layer 2 MPLS Tunnel Properties window, click the VC ID hyperlink.

The Tunnel Edges table in logical inventory is displayed, with the local interface selected in the table. (See Figure 12-63.)

🖄 🖤 🛛 AGG	-7604-TX [5M]		Poll Now					
- ₽	ogical Inventory [2M]		Turppel Edges					
	Access Gateway							
	Access Lists		Find:					
	Bidirectional Forwarding Detection		Local Interface	VCID 🔁 🗸	Peer	Status	Pseudowire Role	
•	Bridges		AGG-7604-TX#2.0:GigabitEthernet2/0/0 EFP:3450	3450@AGG-7604-TX	3450@NPE2-9K-TX	down		P
	Cisco Discovery Protocol		AGG-7604-TX#VSI: Cus 3456 VPN Id: 3456	3456@AGG-7604-TX	3456@AGG-7606-TX	up		
•	Clock [2M]		AGG-7604-TX#VSI: Cus. 3456 VPN Id: 3456	3456@AGG-7604-TX	3456@NPE1-9K-NGN	un		
	Ethernet Link Aggregation		AGG-7604-TV#V51: Cur, 2456 VPN Id: 2456	3456@ACC-7604-TV	2456@NPE2-9K-NCN	up		
	Ethernet LMI Eramo Bolay Traffic Brofilos			0450@Mdd-7004-1X	0457046627964464	up		
•	ICCP Redundancy		AGG-7604-1X#V51: CUS_3457 VPN Id: 3457	3457@AGG-7604-1X	3457@AGG-7606-1X	up		
•	IS-IS		AGG-7604-TX#V5I: Cus_3457 VPN Id: 3457	3457@AGG-7604-TX	3457@NPE1-9K-NGN	up		
Þ .	Local Switching		AGG-7604-TX#VSI: Cus_3457 VPN Id: 3457	3457@AGG-7604-TX	3457@NPE2-9K-NGN	up		
►	LSEs		AGG-7604-TX#VSI: Cus_3461 VPN Id: 3461	3461@AGG-7604-TX	3461@NPE2-9K-NGN	up		
Þ	MPBGPs	:	AGG-7604-TX#V5I: Cus_3461 VPN Id: 3461	3461@AGG-7604-TX	3461@AGG-7606-TX	up		
	MPLS-TP	-	AGG-7604-TX#V5I: Cus_3461 VPN Id: 3461	3461@AGG-7604-TX	3461@NPE1-9K-NGN	up		
	Operating System			3462@AGG-7604-TX	3462@NPE1-9K-NGN	up	Primary	77
•	OSPF Processes		AGG-7604-TX#Aggregation Group 20 EEP:3462	3462@AGG-7604-TX	3462@NPE2-9K-NGN	UD	Secondary	
	Pseudowires		Had root thengg cgaton aroup 20 cm to to2	3102@AGG 7001 TX	OTGEGNIPEL OK NON	up 	Drimenu	-
•	Resilient Ethernet Protocol			3463@AGG-7604-1X	3463@NPE1-9K-NGN	up	Prillary	
Þ	Routing Entities		AGG-7604-1X#Aggregation Group 20 EFP:3463	3463@AGG-7604-1X	3463@INPE2-9K-INGN	up	Secondary	
	Spanning Tree Protocol	1	AGG-7604-TX#Aggregation Group 20 EFP:3464	3464@AGG-7604-TX	3464@NPE2-9K-NGN	down	Secondary	
F	Tunnel Traffic Descriptors			3464@AGG-7604-TX	3464@NPE1-9K-NGN	standby	Primary	
•	VC Switching Entities	.		3465@AGG-7604-TX	3465@NPE1-9K-NGN	standby	Primary	
- KK			AGG-7604-TX#Aggregation Group 20 EFP:3465	3465@AGG-7604-TX	3465@NPE2-9K-NGN	down	Secondary	
Device Zoom	Best Fit		AGG-7604-TX#VSI: Cus_3466 VPN Id: 3466	3466@AGG-7604-TX	3466@AGG-7606-TX	standby		
1.	1 1		AGG-7604-TX#VSI: Cus 3466 VPN Id: 3466	3466@AGG-7604-TX	3466@NPE1-9K-NGN	standby		
			0.GG-7604-TX#VSI: Cus 3466 VPN Id: 3466	3466@AGC-7604-TY	3466@NDE2-0K-NGN	standby		۰.
				STODEMOG 7001 IM	STOOGHEEZ SK NGN	standby		•
4		÷.					Line 22 (1 / 22 Sele	cted
ind :								
	· · · · · · · · · · · · · · ·		la i Na in internet da		1	~		-
tkets Net	work Events Provisioning Events							

Figure 12-63 Pseudowire Redundancy Service in Logical Inventory

The entries indicate that the selected tunnel edge has a Secondary role in the first VC and a Primary role in the second VC.

For more information about the Pseudowires Tunnel Edges table, see Table 17-24 on page 17-48.

Applying Pseudowire Overlays

A pseudowire overlay allows you to isolate the parts of a network that are used by a specific pseudowire. To apply a pseudowire overlay:

Step 1 In Prime Network Vision, choose the map in which you want to apply an overlay.

Step 2 From the toolbar, choose **Choose Overlay Type > Pseudowire**.

Figure 12-64 shows an example of the Select Pseudowire Overlay for map dialog box.

Figure 12-64 Select Pseudowire Overlay Dialog Box

Select	Pseudowire Overlay for 233Map		×
🔿 Sea	arch Description 👻	Go	
💿 Sho	W All		
Availa	ble Pseudowires as of [23-Jun-11 14	:59] 🕲	
Find :	🖬 🛃 🗸 🕆 🖡	l 👼	
Name		System Name De	scri
8	63@CRS_Sim	63@CRS_Sim	
2	99@C9-AGG20	99@C9-AGG20	
2	102@CRS_Sim	102@CR5_Sim	
8	103@CRS_Sim	103@CR5_Sim	
2	234@c4-npe1-76	234@c4-npe1-76	
2	333@c4-npe1-76	333@c4-npe1-76	
2	666@c9-npe1-9K	666@c9-npe1-9K	
8	777@10.56.101.137	777@10.56.101.137	
8	777@c9-npe1-9K	777@c9-npe1-9K	
8	988@10.56.101.137	988@10.56.101.137	
2	1900@C9-AGG20 1900@c9-npe1-9K	1900@C9-AGG20 1900@c9-npe1-9K	
2	2350@10.56.101.137	2350@10.56.101.137	
2	2450@10.56.101.137	2450@10.56.101.137	
2	3400@10.56.101.137	3400@10.56.101.137	
8	3401@10.56.101.137	3401@10.56.101.137	
	12345@c4-npe1-76	12345@c4-npe1-76	•
-		Line 4 (1 / 250 Sela	ected)
		OK Can	cel

Step 3 Select the required pseudowire for the overlay.

Step 4 Click OK.

The elements being used by the selected pseudowire are highlighted in the map while the other elements are dimmed, as shown in Figure 12-65.

e Ed 1 🖂	it View N	ode <u>T</u> ools <u>A</u> ctivation	Networ <u>k</u> • 🛃 😳	Inventor	y <u>R</u> eports	Windo	ow <u>H</u> e	dp V		Q (") 🗔	P	Pseudo	wire Ov	verlay from	03-Jul-:	11 20:33	
▼ 123Pseudowire [2C+] ♥ 10.56.101.75 [27M+] ♥ 10000C9-AGC20 @gabbEthermet0/0/017 EFP: 1900@C9-AGC ♥ 1900@C9-AGC20 @gabbEthermet0/0/017 EFP: 1900@C9-AGC20 @gabbEthermet0/0/017 EFP: 1900@C9-AGG20 @gabbEthermet0/0/017 EFP: 1900@C9-AGG20 C-corret [1M] ♥ C-corret [1M] ♥ C-corret [1M+] ♥ C-pei-1-67 [7M+] ♥ C-pei-167 [7M+] ♥ C-pei-167 [7M+] ♥ Pei-pei-167 [7M+] ♥ Pei-pei-176 [7M+] ♥ Pei-pei-167 [7M+] ♥ Pei-pei-167 [7M+] ♥ Pei-pei-167 [7M+] ♥ Pei-pei-167 [7M+] ♥ Pei-pei-176 [7M+] ♥ Pei-pei-176 [7M+] ♥ Pi [1M+] ♥ Pi [1M+]						C+UPEZT [IM+] C+UPEZT [IM+] C+AGC20 [IM+] UD00C+AGC2 C+TUPE1*W [70												
				• 4				190	Jec9-AG	32	9-npe1-9	к [70	p2 [1M	+]				•
d :		世 社 文 *	加速	•					Dec9-AG	32	9-npe1-9	K [70	p2 [1M	+]				•
d :	Ticket ID	Last Modification Time	6 7、 1 世 隆	Root	Root Event	Time		190	Descriptio	32	.9-npe1-9	к [70	p2 [1M	+]	Creation Time			Þ
d :	Ticket ID 20021	Last Modification Time 03-3ul-11 20:33:21	6 7.	Root	Root Event 29-Jun-11 (Time 14:26:23			Descriptio CPU utiliz	an a	.9-npe1-9	к [70 pn E27	p2 [1M Acknowled Partially	+]	Creation Time 29-Jun-11 04:	26:23		► E 1
d :	Ticket ID 20021 740002	Last Modification Time 03-Jul-11 20:33:21 03-Jul-11 20:29:53	6 7	Root`	Root Event 29-Jun-11 (03-Jul-11 1:	Time 14:26:23 3:00:41			Descriptio CPU utiliz Port dow	az	S-npe1-9	x [70 x [70 pn E27 e1#1	p2 [1M Acknowled Partially No	+]	Creation Time 29-Jun-11 04: 03-Jul-11 13:0	26:23		► E 1 5
d :verity	Ticket ID 20021 740002 200002	브 와 호 * Last Modification Time 03-Jul-11 20:32):53 03-Jul-11 20:29:53 03-Jul-11 15:35:05	6 7. 4 皇 睿	Root Y	Root Event 29-Jun-11 03-Jul-11 1: 29-Jun-11 1	Time 14:26:23 3:00:41 2:16:42			Descriptic CPU utiliz Port dow Login aut	an an ation le henticat.	Locatic C9-UPI	x [70 bn E27 e1#1 iG20	p2 [1M Acknowled Partially No No	+]	Creation Time 29-Jun-11 04: 03-Jul-11 13:0 29-Jun-11 12:	26:23)2:43 16:42		E 1 5 6
verity	Ticket ID 20021 740002 200002 690006	Last Modification Time 03-3ul-11 20:33:21 03-3ul-11 20:33:21 03-3ul-11 10:55:05 03-3ul-11 10:617:57	· 篇章	Root Y	Root Event 29-Jun-11 (J 03-Jul-11 1: 29-Jun-11 1 03-Jul-11 0	Time 14:26:23 3:00:41 2:16:42 5:13:53			Descriptio CPU utiliz Port dow Login aut Layer 2 t	an an eation le n due to. thenticat. unnel d		x [70 pn E27 e1≢1 KG20 10.56	p2 [1M Acknowled Partially No No No	+]	Creation Time 29-Jun-11 04: 03-Jul-11 13:0 29-Jun-11 12: 03-Jul-11 06:1	26:23 22:43 16:42 17:55		► E 1 5 6 2

Figure 12-65 Pseudowire Overlay in Prime Network Vision

- **Step 5** To hide and view the overlay, click **Hide Overlay/Show Overlay** in the toolbar. The button toggles depending on whether the overlay is currently displayed or hidden.
- **Step 6** To remove the overlay, choose **Choose Overlay Type > None**.

Working with Ethernet Services

Ethernet services are created when the following business elements are linked to one another:

- Network VLAN and bridge domain are linked through a shared EFP.
- Network VLAN and VPLS instance are linked through either of the following:
 - A shared, standalone EFP.
 - A shared switching entity.
- Network VLAN and network pseudowire (single or multi-segment) are linked through either of the following:
 - A shared, standalone EFP.
 - A shared switching entity.
- VPLS-EoMPLS connected via a shared access pseudowire endpoint.
- Network VLAN and cross-connect are connected by a shared EFP.
- Network VLAN and service link are connected by a shared EFP.

If a VPLS, network pseudowire, cross-connect, or network VLAN object is not connected to another business element, it resides alone in an Ethernet service.

In releases prior to Prime Network Vision 3.8, EVC multiplex was discovered by means of Ethernet flow point associations. Beginning with Prime Network Vision 3.8, multiplex capabilities were enhanced to distinguish multiplexed services based on the Customer VLAN ID; that is, Prime Network Vision 3.9 is Inner Tag-aware.

As a result, in environments in which service providers have customers with multiplexed services, an EVC can distinguish each service and create its own EVC representation.

Prime Network Vision discovers Ethernet services and enables you to add them to maps, apply overlays, and view their properties. See the following topics for more information:

- Adding Ethernet Services to a Map, page 12-102
- Applying Ethernet Service Overlays, page 12-104
- Viewing Ethernet Service Properties, page 12-105

Adding Ethernet Services to a Map

You can add the Ethernet services that Prime Network Vision discovers to maps as required.

To add an Ethernet service to a map:

- **Step 1** In Prime Network Vision, select the required map or domain.
- **Step 2** Open the Add Ethernet Service to *map* dialog box in either of the following ways:
 - In the toolbar, choose Add to Map > Ethernet Service.
 - In the menu bar, choose File > Add to Map > Ethernet Service.
- **Step 3** In the Add Ethernet Service dialog box, do either of the following:
 - To search for specific elements:

a. Choose **Search**, and then choose a search category: EVC Terminating EFPs, Name, or System Name.

b. To narrow the display to a range of Ethernet services or a group of Ethernet services, enter a search string in the search field.

c. Click Go.

For example, if you choose Name and enter **EFP1**, the network elements that have names beginning with EFP1 are displayed.

• To view all available Ethernet services, choose Show All and click Go.

The available elements that meet the specified search criteria are displayed in the Add Ethernet Service dialog box in table format. The dialog box also displays the date and time at which the list was generated. To update the list, click **Refresh**.

Note

If an element is not included in your scope, it is displayed with the locked device icon.

For information about sorting and filtering the table contents, see Working with Prime Network Tables, page 2-49.

- Step 4 In the Add Ethernet Service dialog box, select the elements that you want to add. You can select and add multiple elements by pressing Ctrl while selecting individual elements or by pressing Ctrl +Shift to select a group of elements.
- Step 5 Click OK.

The Ethernet service is displayed in the navigation pane and in the content area. In addition, any associated tickets are displayed in the ticket pane. See Figure 12-66.





The Ethernet service information is saved with the map in the Prime Network database.

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Applying Ethernet Service Overlays

An Ethernet service overlay allows you to isolate the parts of a network that are being used by a specific Ethernet service.

To apply an Ethernet service overlay:

- **Step 1** In Prime Network Vision, choose the map in which you want to apply an overlay.
- **Step 2** From the toolbar, choose **Choose Overlay Type > Ethernet Service**.

Figure 12-67 shows an example of the Select Ethernet Service Overlay for map dialog box.

Figure 12-67 Select Ethernet Service Overlay Dialog Box

elect	t Ethernet Service Overlay for Physical for VLAN overla	У	>
) s	earch EVC Terminating EFPs 🔻	Go	
o si	how All		
<u> </u>			
Avail	able Ethernet Services as of [US-Nov-10 09:38]		
Find :	🖬 🛃 🗸 🔽 🌆 👼		
Vame	चे ∧	System Name	Description
	Ethernet Service 5002; ServiceD@c1-npe1-76	ServiceD@c1-npe1-76	
	Ethernet Service 5004; cisco@c7-npe1-76	cisco@c7-npe1-76	
	Ethernet Service 5006: Oren_Test:(987) VLAN0987@c1-npe1-76	Oren_Test:(987) VLAN0987@c1-npe1	
	Ethernet Service 5010: VFI7@c1-npe1-76	VFI7@c1-npe1-76	
	Ethernet Service 5012: VFI7:(307) VLAN0307@c3-npe1-76	VFI7:(307) VLAN0307@c3-npe1-76	
	Ethernet Service 5015; eli@c1-npe1-76	eli@c1-npe1-76	
	Ethernet Service 5018; eli:eli-bd1@eli-group@c2-npe1-crs	eli:eli-bd1@eli-group@c2-npe1-crs	
	Ethernet Service 5020; seliyahu:(83) VLAN0083@c7-npe1-76	seliyahu:(83) VLAN0083@c7-npe1-76	
	Ethernet Service 5022; seliyahu@c1-npe1-76	seliyahu@c1-npe1-76	
	Ethernet Service 5024: VFI7:(707) VLAN0707@c7-npe1-76	VFI7:(707) VLAN0707@c7-npe1-76	
	Ethernet Service 5026: vl2051@c3-npe1-76	vl2051@c3-npe1-76	
	Ethernet Service 5032: 777018@10.56.101.75 777018@c1-npe1-76	777018@10.56.101.75 777018@c1	E
	Ethernet Service 5033: 777089@c1-npe1-76 777089@c4-upe9	777089@c1-npe1-76 777089@c4-u	
	Ethernet Service 5034: 777060@c1-upe2 777060@c4-upe9	777060@c1-upe2 777060@c4-upe9	
	Ethernet Service 5035: 23972@c1-npe1-76 23972@c4-upe9	23972@c1-npe1-76 23972@c4-upe9	
	Ethernet Service 5037: 777110@c1-npe1-76 777110@c4-upe9	777110@c1-npe1-76 777110@c4-u	
	Ethernet Service 5039: 777067@c1-upe2 777067@c3-npe1-76	777067@c1-upe2 777067@c3-npe	
			Line 0 (Size 2,061)
			OK Cancel

Step 3 Select the required Ethernet Service for the overlay.

Step 4 Click OK.

The elements being used by the selected Ethernet service are highlighted in the map while the other elements are dimmed, as shown in Figure 12-68.



Figure 12-68 Ethernet Service Overlay in Prime Network Vision

Step 5 To hide and view the overlay, click **Hide Overlay/Show Overlay** in the toolbar. The button toggles depending on whether the overlay is currently displayed or hidden.

Step 6 To remove the overlay, choose **Choose Overlay Type > None**.

Viewing Ethernet Service Properties

To view Ethernet service properties:

- **Step 1** In Prime Network Vision, select the map containing the required Ethernet service.
- **Step 2** In the navigation or map pane, right-click the Ethernet service and choose **Properties**.

Figure 12-69 shows an example of an Ethernet Service Properties window with the EVC Terminating table. Depending on the types of service in the EVC, tabs might be displayed. For example, if the EVC contains two network VLANs and a VPLS, tabs are displayed for the following:

- EVC Terminating table
- Network VLANs
- VPLS

Γ

Name: DDemo:(500) VLAN0500@c7-npe1-76 System Name: DDemo:(500) VLAN0500@c7-npe1-76 Evc: EVC EVC EVC EVC Evc: Find: Port Binding Type Name: DatalinkAggregation10@c7-sw1 c7-sw1#Aggregation Group 10 EVC Image: DatalinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 EVC Image: GigabitEthernet1/0/7@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 EVC	V DDer	mo:(500)	'6 - Ethernet Service Propertie	S	_ 🗆 ×
Evc: EVC	Name:	DDemo:(500) ¥LAN0500@c7-npe1	-76 System Name: DDem	o:(500) ¥LAN0500@c7-npe1-76	
Ever Terminating Find: Find: Port Port Binding Type DataLinkAggregation10@c7-sw1 c7-sw1#Aggregation Group 10 DataLinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 GigabitEthernet1/0/7@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 GigabitEthernet3/6@c7-npe1-76 c7-npe1-76#3:GigabitEthernet3/6	Evc:	EVC			
Evc Terminating Find : Image: Comparison of the state of the s					
Find : Image: Constraint of the state	Evc Teri	minating			
Name Port Binding Type Image: DataLinkAggregation10@c7-sw1 c7-sw1#Aggregation Group 10 Image: DataLinkAggregation11@c7-sw1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 Image: DataLinkAggregation11@c7-sw1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 Image: DataLinkAggregation11@c7-sw1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 Image: DataLinkAggregation11@c7-sw1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 Image: DataLinkAggregation11@c7-sw1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 Image: DataLinkAggregation1 Image: DataLinkAggregation11@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 Image: DataLinkAggregation1	Find :	🖬 🛃 🗸 🖤	物理		
DataLinkAggregation10@c7-sw1 c7-sw1#Aggregation Group 10 DataLinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 GigabitEthernet1/0/7@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 GigabitEthernet3/6@c7-npe1-76 c7-npe1-76#3:GigabitEthernet3/6	Name		Port	Binding Type	
DataLinkAggregation11@c7-sw1 c7-sw1#Aggregation Group 11 GigabitEthernet1/0/7@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 GigabitEthernet3/6@c7-npe1-76 c7-npe1-76#3:GigabitEthernet3/6		DataLinkAggregation10@c7-sw1	c7-sw1#Aggregation Group 10		
GigabitEthernet1/0/7@c7-sw1 c7-sw1#1:GigabitEthernet1/0/7 Image: GigabitEthernet3/6@c7-npe1-76 c7-npe1-76#3:GigabitEthernet3/6		DataLinkAggregation11@c7-sw1	c7-sw1#Aggregation Group 11		
GigabitEthernet3/6@c7-npe1-76 c7-npe1-76#3:GigabitEthernet3/6		GigabitEthernet1/0/7@c7-sw1	c7-sw1#1:GigabitEthernet1/0/7		
	(-)	GigabitEthernet3/6@c7-npe1-76	c7-npe1-76#3:GigabitEthernet3/6		
				Line	0 (Size 4)
Line 0 (Size 4)			Memo	ry: 21% Connected	

Figure 12-69 Ethernet Service Properties Window

Table 12-40 describes the information that is displayed for an Ethernet service.

 Table 12-40
 Ethernet Service Properties Window

Field	Description
Name	Ethernet service name.
System Name	Name that Prime Network Vision assigns to the Ethernet service.
EVC	Name of the EVC associated with the Ethernet service, hyperlinked to the EVC Properties window.
EVC Terminating Table	
Name	EVC name, represented by the interface name, EFP, and the EFP name.
Network Element	Hyperlinked entry to the specific interface and EFP in physical inventory.
Port	Hyperlinked entry to the specific interface in physical inventory.

Step 3 To view the EVC Properties window, click the hyperlink in the EVC field. Figure 12-70 shows an example of the EVC Properties window.

EVC (6860: QHVPLS:4817	781181:(2081) VLAN2081@)10.56.101.75 - EV	C Properties		_ 🗆 ×
System M	Name: QHVPL5:4817	81181:(2081) V	LAN2081@10.5	6.101.75 Name:	QHVPL5:48178	1181:(2081) VLAN2081	@10.56.101.75
Network	k Vlans Vpls Instances	;					
Find :		2 🖓 🔻	調査				
Name		ID	EFD Name	EFD System Name	System N	ame Description	
	VLAN-481	481			VLAN-481		
	VLAN-2081	2081			VLAN-208	1	
							Line 0 (Size 2)
					Memory	« 8% (c	
				1	Internet.		initestad @

Figure 12-70 EVC Properties Window

Table 12-41 describes the information that is displayed in the EVC Properties window. The tabs that are displayed depend on the services included in the EVC. For example, if the EVC contains two network VLANs and a VPLS, tabs are displayed for the following:

- EVC Terminating table
- Network VLANs
- VPLS

Table 12-41 EVC Properties Window

Field	Description
System Name	Name of the system on which the EVC is configured.
Name	EVC name.
Cross-Connects Table	
Name	Cross-connect name.
Segment 1	Identifier of the first cross-connect endpoint.
Segment 2	Identifier of the second cross-connect endpoint.
System Name	Cross-connect system name.

Field	Description
Network VLANs Tab	
Name	VLAN name.
ID	VLAN identifier.
EFD Name	Name of the Ethernet flow domain.
EFD System Name	Name that Prime Network Vision assigns to the EFD.
System Name	VLAN system name.
Description	Brief description of the VLAN.
Network Pseudowires Tab	
Name	Pseudowire name.
System Name	System on which the pseudowire is configured.
Description	Brief description of the pseudowire.
Pseudowire Type	Type of pseudowire.
Is Multisegment Pseudowire	Whether or not the pseudowire is multisegment: True or False.
VPLS Instances Tab	
Name	VPLS instance name.
System Defined Name	Name that Prime Network Vision assigns to the VPLS instance.
VPN ID	Identifier of associated VPN.

Table 12-41	EVC Properties Window (continued)
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Viewing IP SLA Responder Service Properties

Cisco IOS Service Level Agreements (SLAs) software allows you to analyze IP service levels for IP applications and services by using active traffic monitoring to measure network performance.

The IP SLA responder is a component embedded in the destination Cisco device that allows the system to anticipate and respond to IP SLAs request packets. The responder provides accurate measurements without requiring dedicated probes. The responder uses the Cisco IOS IP SLAs Control Protocol to provide a mechanism through which it can be notified on which port it should listen and respond.

Two-Way Active Measurement Protocol (TWAMP) defines a standard for measuring round-trip network performance between any two devices that support the protocol.

Prime Network Vision supports IP SLA Responder service on the following devices:

- Cisco 3400ME and 3750ME devices running Cisco IOS 12.2(52)SE.
- Cisco MWR2941 devices running Cisco CSR 3.2.

To view IP SLA Responder service properties:

- **Step 1** In Prime Network Vision, double-click the device configured for IP SLA Responder service.
- Step 2 In the inventory window, choose Logical Inventory > IP SLA Responder.

IP SLA Responder properties are displayed as shown in Figure 12-71.
3750E-24TD-AGG2 [1N]		_ 🗆 ×
S750E-24TD-AGG2 [1N] Logical Inventory Access Lists Bridges Gisco Discovery Protocol	IP SLA Responder Status: Down IP SLA TWAMP Responder Status: Unknown	
	UDP Echo	
Ethernet Link Aggregation	Find: 自分文字 幕章	
IP SLA Responder	IP Address Port Number	
IS-IS	10.10.2.33 1	
Local Switching		
MPBGPs		
OAM		
Operating System Routing Entities		
Spanning Tree Protocol		
Tunnel Traffic Descriptors		
VTP		
Physical Inventory		
Device Zoom	1	
		Line 0 (Size 1)
	Memory: 9% Conperted	

Figure 12-71 IP SLA Responder in Logical Inventory

Table 12-42 describes the properties displayed for IP SLA Responder service.

 Table 12-42
 IP SLA Responder Properties in Logical Inventory

Field	Description				
IP SLA Responder Status	Status of the IP SLA Responder: Up or Down.				
IP SLA TWAMP Responder Status	Status of the IP SLA TWAMP responder: Up or Down.				
UDP Echo Tab					
IP Address	Destination IP address used for the UDP echo operation.				
Port Number	Destination port number used for the UDP echo operation.				
TCP Connect Tab					
IP Address	Destination IP address used for the TCP connect operation.				
Port Number	Destination port number used for the TCP connect operation				

Viewing IS-IS Properties

Intermediate System-to-Intermediate System (IS-IS) protocol is a routing protocol developed by the ISO. It is a link-state protocol where IS routers exchange routing information based on a single metric to determine network topology. It behaves in a manner similar to OSPF in the TCP/IP network.

IS-IS networks contain end systems, intermediate systems, areas, and domains. End systems are user devices. Intermediate systems are routers. Routers are organized into local groups called areas, and areas are grouped into a domain.

To view IS-IS properties:

- Step 1 In Prime Network Vision, double-click the device configured for IS-IS.
- Step 2 In the inventory window, choose Logical Inventory > IS-IS > System.

Figure 12-72 shows an example of the IS-IS window with the Process table in logical inventory.





Table 12-43 describes the information that is displayed in this window and the Processes table.

Field	Description			
Version	Version of IS-IS that is implemented.			
Processes Table				
Process ID	Identifier for the IS-IS process.			
System ID	Identifier for this Intermediate System.			
IS Type	Level at which the Intermediate System is running: Level 1, Level 2, or Level 1-2.			
Manual Area Address	Address assigned to the area.			

Table 12-43 IS-IS Properties in Logical Inventory - Processes Table

Step 3 To view IS-IS process information, choose **Logical Inventory** > **IS-IS** > **Process** *nnn*.

Figure 12-73 shows an example of the information that is displayed for the IS-IS process.

Figure 12-73 IS-IS Process Properties in Logical Inventory

☑ C9-AGG20 [28M+]	_ 🗆 ×
C9-AGG20 [28M+] Logical Inventory [15M+] Access Gateway Access Lists ATM Traffic Profiles Bidirectional Forwarding Detection Bridges	Process ID: IGP System ID: 0143.0008.0170 IS Type: level-2 Manual Area Address: 49.1680.0212
CFM Cisco Discovery Protocol	Metrics Interfaces Neighbors Find : Image:
▼ IS-IS	Type 🔁 🛆 Metric Style Metric Value Address Family
System	level-2 none 10 IPv6
Process IGP Local Switching ESs Modular OS OAM	level-2 wide 10 IPv4
Q Device Zoom E Best Fit	
۲ () () () () () () () () () (Line 0 (Size 2)
Find :	
Severity Ticket ID Last Modification Time	Root Root Event Time Description Location Acknowledged Creation Tir
Tickets Network Events Provisioning Events	
	Memory: 13% Connected

Table 12-44 describes the information that is displayed for the selected IS-IS process.

Field	Description				
Process	Unique identifier for the IS-IS process.				
System ID	Identifier for this Intermediate System.				
IS Type	Level at which the Intermediate System process is running: Level 1, Level 2, or Level 1-2.				
Manual Area Address	Address assigned to the area.				
Metrics Tab					
IS Type	Level at which the Intermediate System is running: Level 1, Level 2, or Level 1-2.				
Metric Style	Metric style used: Narrow, Transient, or Wide.				
Metric Value	Metric value assigned to the link. This value is used to calculate the path cost via the links to destinations. This value is available for Level 1 or Level 2 routing only.				
	If the metric style is Wide, the value can range from 1 to 16777214. If the metric style is Narrow, the value can range from 1 to 63.				
	The default value for active IS-IS interfaces is 10, and the default value for inactive IS-IS interfaces is 0.				
Address Family	IP address type used: IPv4 or IPv6.				
Interfaces Tab					
Interface Name	Interface name.				
Neighbors Tab					
System ID	Identifier for the neighbor system.				
Interface	Neighbor interface name.				
IP Address	Neighbor IP address.				
Туре	IS type for the neighbor: Level 1, Level 2, or Level 1-2.				
SNPA	Subnetwork point of attachment (SNPA) for the neighbor.				
Hold Time	Holding time, in seconds, for this adjacency. The value is based or received IS-to-IS Hello (IIH) PDUs and the elapsed time since receipt.				
State	Administrative status of the neighbor system: Up or Down.				
Address Family	IP address type used by the neighbor: IPv4 or IPv6.				

 Table 12-44
 IS-IS Process Properties in Logical Inventory

Viewing OSPF Properties

Prime Network Vision supports the following versions of OSPF:

- OSPFv1
- OSPFv2
- OSPFv3

Using Prime Network Vision you can view OSPF properties for:

- OSPF processes, including the process identifier and OSPF version.
- OSPF network interfaces, such as the area identifier, network type, and status.
- OSPF neighbors, including the neighbor identifier, neighbor interface address, and status.

To view OSPF properties:

Step 1 In Prime Network Vision, double-click the device configured for OSPF.

Step 2 To view OSPF processes, choose **Logical Inventory > OSPF Processes > OSPF Process** (vn) *ID* where vn represents the OSPF version and *ID* is the OSPF process identifier.

For example, in Figure 12-74, the entry in the navigation tree is OSPF Process (v2) 10.

Figure 12-74 OSPF Processes in Logical Inventory

NPE2-7600	-NY [7M+]						_ D >
• 🖄 👿 🧿 NPE:	2-7600-NY [7M+]	Poll Now					
-¶⊒¶ ι	ogical Inventory [6M+]	-OSPE Process Del	ails				
	Access Lists						
	ATM Traffic Profiles	Process ID:	100	Router ID:	172.255.1.4	0	
	Bidirectional Forwarding Detection	OSPF Version:	v 2				
	Cisco Discovery Protocol						
	Clock						
E	Ethernet Link Aggregation	SDE Timore				20	
	Ethernet LMI	SPF Tillers					
	Frame Relay Traffic Profiles	Schedule Delay:	5000.) msec Min Hold Tim	ie:	10000.0 msec	
, 🔜 🔺	GRE Tunnels	Max Wait Time:	10000	.0 msec			
	IS-IS Local Switching						
	LSEs					a .	
> 	MPBGPs	OSPF Neighbors	OSPF 1	nterfaces			
>	MPLS-TP	Eind (
	OAM	rinu;					
_	Operating System	Neigh 🔁 🛆	Area	Interface Address	State	OSPF Interface	
	OSPE Process (v2) 100	10.56.59.42	0	10.201.1.142	FULL	OSPF If: GigabitEthernet3/0/3	
E F F	OSPF Process (v2) 200	172.255.0.2	0	10.201.1.149	FULL	OSPF If: GigabitEthernet3/0/19	
🔜 🖂	Pseudowires	172.255.1.41	0	10.201.1.129	FULL	OSPF If: GigabitEthernet3/0/1	
♥ 🔜 🔍	Routing Entities	172.255.1.103	0	10.210.1.2	FULL	OSPF If: Tunnel1000	
•	Spanning Tree Protocol						
K R	Traffic Engineering Tunnels						
▶ ■	VC Switching Entities						
	· · · · · · · · · · · · · · · · · · ·	-					
Device Zoom	n 💽 Best Fit						
							Line 0 (Size 4)
		-					
Find :							
	and the second	- In i Ne		•••	- · · ·	le les ses les	11 m
Tickets Net	work Events Provisioning Events						
						Memory: 9% Connecte	a – – – – –

Table 12-45 describes the information that is displayed for OSPF processes.

Field	Description			
OSPF Process Details				
Process ID	Unique process identifier.			
Router ID	Router IP address.			
OSPF Version	OSPF version: v1, v2, or v3.			
SPF Timers				
Schedule Delay	Number of milliseconds to wait after a change before calculating the shortest path first (SPF).			
Min Hold Time	Minimum number of milliseconds to wait between two consecutive SPF calculations.			
Max Wait Time	Maximum number of milliseconds to wait between two consecutive SPF calculations.			
OSPF Neighbors Table				
Neighbor ID	OSPF neighbor IP address.			
Area	OSPF area identifier.			
Interface Address	IP address of the interface on the neighbor configured for OSPF.			
State	State of the communication with the neighbor: Down, Attempt, Init, 2-Way, Exstart, Exchange, Loading, and Full.			
OSPF Interface	Hyperlinked entry to the OSPF Interface Properties window.			
	The OSPF Interfaces window displays the same information as the OSPF Interfaces Table below.			
OSPF Interfaces Table				
IP Interface	OSPF interface, hyperlinked to the relevant entry in the routing entity IP Interfaces table in logical inventory.			
	For more information about the IP Interfaces table, see Table 17-11.			
Internet Address	OSPF interface IP address.			
Area ID	OSPF area identifier.			
Priority	Eight-bit unsigned integer that specifies the priority of the interface. Values range from 0 to 255. Of two routers, the one with the higher priority takes precedence.			
Cost	Specified cost of sending a packet on the interface, expressed as a metric. Values range from 1 to 65535.			
Status	State of the interface: Up or Down.			
State	OSPF state: BDR, DR, DR-Other, Waiting, Point-to-Point, or Point-to-Multipoint.			
Network Type	Type of OSPF network: Broadcast, Nonbroadcast Multiple Access (NBMA), Point-to-Multipoint, Point-to-Point, or Loopback.			
DR Address	Designated router IP address.			
BDR Address	Backup designated router IP address.			

Table 12-45 OSPF Processes in Logical Inventory