

# **Physical Object Dialog Boxes**

This chapter describes the Cisco 6500/7600 Series Manager dialog boxes for the physical objects. The following physical object dialog boxes are available in the C65/76M:

- C6576M Chassis Dialog Box, page 5-3
- C6576M Power Supply Dialog Box, page 5-12
- C6576M Supervisor Module Dialog Box, page 5-15
- C6576M Ethernet Module Dialog Box, page 5-22
- C6576M Ethernet Interface Dialog Box, page 5-27
- C6576M Switch Fabric Module Dialog Box, page 5-49
- C6576M FlexWAN Module Dialog Box, page 5-53
- C6576M Port Adapter Dialog Box, page 5-56
- C6576M Optical Services Modules Dialog Box, page 5-60
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- C6576M ATM T3 Interface Dialog Box, page 5-78
- C6576M ATM E3 Interface Dialog Box, page 5-90
- C6576M ATM SONET Interface Dialog Box, page 5-101
- C6576M OSM GE-WAN Interface Dialog Box, page 5-115
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- C6576M OSM Serial Subinterface Dialog Box, page 5-149
- C6576M OSM POS Subinterface Dialog Box, page 5-163

Table 5-1 lists the pop-up menu launch points for all C65/76M dialog boxes.

Container	Object	Dialog Box
Network	Network Element	All dialogs (under the Cisco 6500/7600 Series Manager menu entry)
Physical	Container (site, bay, shelf, etc.)	All dialogs (under the Cisco 6500/7600 Series Manager menu entry)
	Network Element	All dialogs (under the Cisco 6500/7600 Series Manager menu entry)
	Chassis	Chassis Dialog Power Supply Dialog All Module Dialogs All Port Adapter Dialogs All Interface Dialogs
	Power Supply	Power Supply Dialog
	Supervisor Module	Supervisor Module Dialog Ethernet Interface Dialog
	All other Interface Modules (Ethernet, OSM, etc.)	Corresponding Module Dialog All Interface Dialogs for interfaces associated with the Module
	Switch Fabric Module, SLB Module, FlexWAN Module	Corresponding Module Dialog
	All Interfaces	Corresponding Interface Dialog

 Table 5-1
 Launch Points for the C65/76M Dialog Boxes

# C6576M Chassis Dialog Box

This dialog box provides access to attributes for the physical chassis. This includes items such as the fan, temperature, and power supplies. This dialog box can be launched from a Network Element object or Chassis object within the Network or Physical containment views.

Only one Chassis object can be selected at a time from the Chassis object list on the left-hand side of the dialog box.

### **Status Tab**

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Figure 5-1 shows the Status tab of the C6576M Chassis dialog box.

	n Actions				ŀ
					-
Chassis De	itails   47 Cretails   Performanc	e Export Inventory	Additional Notes		
NE2970-Chassis	- Inventory				
NE6500-Chassis	Туре	A0	Back Plane Type	other	
NE6509-Chassis	Number of Slots	0	Used Slots	1	
127000-01103313	Serial Number	FAA0551D060	Power Supply 1 Type	other	
	Power Supply 2 Type	externalPS			
	Slot Number Se	erial Number	Model Number of Po	rts Hardw	
	1		12	AO	
				Ы	
	Status				
	Status Core Temperature Status	Normal	Fan Status	Normal	
	Status Core Temperature Status Clock 1 Status	Normal N/A	Fan Status Clock 1 In Use	Normal N/A	
	Status Core Temperature Status Clock 1 Status Clock 2 Status	Normal N/A N/A	Fan Status Clock 1 In Use Clock 2 In Use	Normal N/A N/A	
	Status Core Temperature Status Clock 1 Status Clock 2 Status VTT 1 Status	Normal N/A N/A N/A	Fan Status Clock 1 In Use Clock 2 In Use VTT 1 Outlet Temperature	Normal N/A N/A N/A	
	Status Core Temperature Status Clock 1 Status Clock 2 Status VTT 1 Status VTT 2 Status	Normal N/A N/A N/A	Fan Status Clock 1 in Use Clock 2 in Use VTT 1 Outlet Temperature VTT 2 Outlet Temperature	Normal N/A N/A N/A N/A	
	Status Core Temperature Status Clock 1 Status Clock 2 Status VTT 1 Status VTT 2 Status VTT 3 Status	Normal N/A N/A N/A N/A N/A	Fan Status Clock 1 In Use Clock 2 In Use VTT 1 Outlet Temperature VTT 2 Outlet Temperature VTT 3 Outlet Temperature	Normal N/A N/A N/A N/A	

Figure 5-1 Status Tab of the C6576M Chassis Dialog Box

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#### **General Area**

The General area of the C6576M Chassis dialog box provides the following information:

- Core Temperature Status—Status of the core of the chassis. This attribute can have the following values:
  - Excessive—The current temperature is within normal operating parameters.
  - Normal—The current temperature has exceeded the normal operating range.
  - High—The current temperature is dangerously high. The system will shutdown imminently.



If this attribute has a value other than off, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

- Fan Status—Status of the chassis fans. This attribute can have the following values:
  - other—The fan status is unknown.
  - Normal-Fan status is normal.
  - High—There is a minor problem.
  - Excessive—There is a major problem.

Note

If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

#### **Clock Area**

The Clock area of the C6576M Chassis dialog box provides the following information:

- Clock 1 Status, Clock 2 Status—Operational statuses of clocks 1 and 2. These attributes can have the following values:
  - OK—Clock is operating.
  - failed—Clock is not operating.
- Clock 1 In Use, Clock 2 In Use—Indicates which clock is in use. These attributes can have the following values:
  - in-use—Clock is in use.
  - not-in-use—Clock is not in use.

#### **VTT Area**

The VTT area of the C6576M Chassis dialog box provides the following information:

- VTT 1 Status, VTT 2 Status, VTT 3 Status—Operational status of VTT 1, VTT 2, and VTT 3. These attributes can have the following values:
  - OK—VTT is operating.
  - failed—VTT is not operating.
- VTT 1 Outlet Temperature, VTT 2 Outlet Temperature, VTT 3 Outlet Temperature—Outlet Temperatures of VTT 1, VTT 2, and VTT 3. These attributes can have the following values:
  - <n>C—Temperature in degrees Celsius.
  - N/O—Indicates that the sensor is not operational.
  - N/A—Indicates that the sensor value is not available.

#### **Status Field**

The Status display-only field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- discovery—CEMF is trying to determine the contents and configuration of the Chassis object.
- normal—Presence polling of the object.
- performance—Attributes are collected periodically for trending purposes.
- normallostcomms-CEMF lost communication with the device from the normal state.
- perflostcomms—CEMF lost communication with the device from the performance state.
- discoverylostcomms—CEMF lost communication with the device during discovery.



To collect some of the statistics in the Performance tab, the running configuration of the switch is modified to add the following command to each interface: **rmon collection stats** *<n>* **owner monitor** 

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### **Inventory Tab**

Figure 5-2 shows the Inventory tab of the C6576M Chassis dialog box.

-	C65	76M Chassis Dialog				•
<u>File Edit Options Window Navię</u>	jation <u>A</u> ctions					Help
रे। 🏽 🗁 🔳 💽 🖌 💡 🍳	Q					
Chassis	Status Inventory Perform	nance Additional Note:	s			
C6000_100_Chassis	- Chassis Inventory -					
C6500-101-Chassis	Type	WS-C6506	Back Plan	e Type	giga16	
C6500-102-Chassis	Number of Slots	6	Used Slots	21	1, 2, 3, 4, 5, 6	
C6500-105-Chassis C7600-104-Chassis	Serial Number	TBA04430433				
	Power Supply Invent	tory				
	Power Supply 1 Type	wscac1300	Power Sup	iply 2 Type	wscac1000	
	Module Inventory					
	Slot Number	Serial Number	Model	Number of I	Ports Ha	rdw
	1	SAD044602YC	WS-X6K-SUP1A-2GE	2	7.0	
	2	SAD04440H0C	WS-X6316-GE-TX	16	1,1	. –
	3	SAD052603NM	WS-X6182-2PA	0	1.3	
			ſ			
	– Export Inventory –					
	Export to file				Expo	rt
itatus: C6576MChassis (normal)				Dyi	namic updates are	enabled

Figure 5-2 Inventory Tab of the C6576M Chassis Dialog Box

#### **Chassis Inventory Area**

The Chassis Inventory area of the C6576M Chassis dialog box provides the following information:

- Type—Displays the type of the chassis. One of the following values is displayed:
  - WS-C6006-6-slot Catalyst 6000 series switch
  - WS-C6009-9-slot Catalyst 6000 series switch
  - WS-C6506—6-slot Catalyst 6500 series switch
  - WS-C6509—9-slot Catalyst 6500 series switch
  - WS-C6509NEB— 9-slot vertical Catalyst 6500 series switch
  - WS-C6513—13-slot Catalyst 6500 series chassis
  - OSR-7603—3-slot Cisco 7600 series chassis
  - OSR-7606-6-slot Cisco 7600 series chassis
  - OSR-7609-9-slot Cisco 7600 series chassis
- Number of Slots—Displays the total number of slots in the chassis. The values are 6 or 9.
- Serial Number—Displays the serial number of the chassis.
- Backplane Type—Indicates the chassis backplane type. For a Catalyst 6500 series switch or Cisco 7600 series Internet Router chassis, this attribute has the value "giga16 – 16 Gigabit switch."
- Used Slots—Displays a comma-separated list indicating the slots that are occupied.



If the Serial Number attribute changes, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

#### **Power Supply Inventory Area**

The Power Supply Inventory area of the C6576M Chassis dialog box provides the following information:

- Power Supply 1 Type—Indicates the type of the first power supply.
- Power Supply 2 Type—Indicates the type of the second power supply.

The possible types of power supplies are:

- wscac1000—1000W AC power supply
- wscac1300—1300W AC power supply
- wscac2500w—2500W AC power supply
- wscac4000w—4000W AC power supply
- wscdc1300—1300W DC power supply
- wscdc2500w—2500W DC power supply
- pwr950ac—950W AC power supply
- pwr950dc—950W DC power supply
- pwr1900ac—1900W AC power supply
- pwr1900dc—1900W DC power supply
- pwr1900ac6—1900 watt supply AC/6 slots

#### Module Inventory Area

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The Module Inventory area of the C6576M Chassis dialog box provides a list of occupied slots, including the following information:

- Slot Number
- Serial Number
- Model number
- Number of ports
- Hardware version
- Firmware version
- Software version

#### **Export Inventory Area**

The Export Inventory area can be used to export the information on this tab to a CSV file on the CEMF server host.

- Export to file—Enter the name of the file to which inventory is to be exported on the CEMF server host. If the file already exists, it will be overwritten.
- **Export** Button—Exports the inventory list to a comma-separated file. The following data is exported from the Chassis object:
  - Туре
  - Backplane Type
  - Number of Slots
  - Used Slots
  - Serial Number
  - Power Supply 1 Type
  - Power Supply 2 Type

The following data is exported for each installed module in the chassis:

- Slot Number
- Model
- Number of Ports
- Hardware Version
- Firmware Version
- Software Version
- Serial Number

The inventory attributes are written in sections. Each section contains the attributes applicable to a particular class of object in the Cisco6500Manager containment hierarchy. Each section is preceded by the name of the object of that class in the Cisco6500Manager view hierarchy. If the object has not been deployed in the network model, a default name is used instead. The object name is delimited by the [ and ] characters.

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The default section names are in this order:

- [chassis]
- [power supply 1]
- [power supply 2]
- [slot 1]
- [slot2]
- [slot3]
- **-** [slot4]
- [slot 5]
- [slot 6]
- [slot 7]
- [slot 8]
- [slot 9]

The chassis and power supply sections are always printed. Each slot section is only printed if there is an installed module in that slot. The slot sections are always printed in order.

After each section name, the next line contains a comma-delimited list of attributes for that object class. The line of attributes is terminated by the end-of-line character. Each field is printed regardless of whether it is empty or not. If an attribute in the list has no value, a (nil) tab is written in its place.

The following is an example of the output:

```
[192.168.12.101-Chassis]
WS-C6506,8,9,TBA04430433,1, 2, 3, 4, 5, 6
[power supply 1]
2
[PowerSupply-2]
30
[Supervisor-1]
1,WS-X6K-SUP1A-2GE,2,7.0,,6.1(0.105)ORL 2000-06-15 06:07:10,SAD04510T8K
[Ethernet-2]
2,WS-X6316-GE-TX,16,1.1,5.4(2) 2000-03-17 10:18:33,6.1(0.105)ORL 2000-06-15
06:44:56,SAD04440H0C
[Ethernet-3]
3,WS-X6416-GBIC,16,1.2,5.4(2) 2000-03-17 10:18:33,6.1(0.105)ORL 2000-06-15
06:44:56,SAD04470EEK
[Ethernet-4]
4,WS-X6324-100FX-SM,24,1.1,5.4(2) 2000-03-17 10:18:33,6.1(0.105)ORL 2000-06-15
06:43:57,SAD04320F4X
[Ethernet-5]
5,WS-X6348-RJ-45,48,1.4,5.4(2) 2000-03-17 10:18:33,6.1(0.105)ORL 2000-06-15
06:43:57,SAD04310F9P
[Ethernet-6]
6,WS-X6248A-TEL,48,1.0,5.4(2) 2000-03-17 10:23:19,6.1(0.105)ORL 2000-06-15
06:43:36,SAD043608EH
```

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### **Performance Tab**

Figure 5-3 shows the Performance tab of the C6576M Chassis dialog box.

	C6576M Chassis Dialog	• [	5
File Edit Options Window Navigation #	ctions	Help	,
File     Edit     Options     Window     Navigation     4       Image: Status     Image: Status     Image: Status     Image: Status     Image: Status       Chassis     Image: Status     Image: Status     Image: Status     Image: Status       F7600-104-Chassis     Image: Status     Image: Status     Image: Status	ctions       Inventory       Performance       Additional Notes       Back Plane Statistics       Current Load       0       20       40       60       80       100       Peak Load       0       Peak Time       16 days, 00:45:37	Help	
	Start Performance Logging (All Chassis Elements) Stop Performance Logging (All Chassis Elements)		
Status: C6576MChassis (normal)	Dynawic updates are enable	ed .	

Figure 5-3 Performance Tab of the C6576M Chassis Dialog Box

#### **Back Plane Statistics Area**

The Back Plane Statistics area of the C6576M Chassis dialog box provides the following information:

- Current Load—Displays the current traffic load on the backplane.
- Peak Load—Displays the peak traffic load encountered.
- Peak Time—Displays the time when the peak traffic load was encountered.

The Current Load and Peak Load attributes are polled at the specified interval when the Chassis object is in the Performance state.

#### **Performance Logging Area**

The Performance Logging area of the C6576M Chassis dialog box allows users to turn on performance logging for the chassis attributes as well as the attributes of all the chassis elements.

- Start Performance Logging (Chassis Only) button—Turns performance data logging on the chassis object.
- Start Performance Logging (All Chassis Elements) button—Turns performance data logging on all the chassis elements. This includes all chassis performance attributes, all supervisor performance attributes and all interface performance attributes.
- Stop **Performance** Logging (All Chassis Elements) button—Turns performance data logging off for all the chassis elements.



The logged data is available to the user through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Additional Notes Tab**

Figure 5-4 shows the Additional Notes tab of the C6576M Chassis dialog box.

Figure 5-4 Additional Notes Tab of the C6576M Chassis Dialog Box

C6576M Chassis Dialog	• •
File Edit Options Window Navigation Actions	Help
Chassis Status Inventory Performance Additional Notes	
Image: Chassis     Notes	X
Status: Cisco5500Chassis (normal) Dynamic updates are enat	bled
Status as of Mon Apr 9 13:51:30 2001	

#### **Notes Area**

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The Notes area of the C6576M Chassis dialog box is a text box that allows you to type in additional notes for this chassis object. This can be used for providing notes, such as contact information, specifics of the chassis and/or network configurations, warnings, etc.

# C6576M Power Supply Dialog Box

This dialog box provides access to attributes relating to the power supplies. This dialog box can be launched from a Chassis object or Power Supply objects within the Physical containment view.

You can select multiple Chassis and Power Supply objects at a time from the object list on the left side of the dialog box.

### **Details Tab**

Figure 5-5 shows the Details tab of the C6576M Power Supply dialog box.

Figure 5-5 Details Tab of the C6576M Power Supply Dialog Box

	Power Supply Management	• •
File Edit Options Window Navigation	'n	Help
1 🛯 📥 🗏 📴 🖌 💡 🔍		
Chassis D	etails 47 Details Additional Notes	
NE2970-Chassis		
NE6500–Chassis NE6509–Chassis	Details	
NE7600-Chassis	Type wscac2500w	
	Operational Status ok	
	Redundancy Mode redundant Z	
Power Supply		
PowerSupply-1		
Status: PowerSupply (normal), Chassis (n	ormal) Dynamic updates are	enabled
		1

#### **Details Area**

The Details area of the C6576M Power Supply dialog box provides the following information:

- Type—Displays the type of power supply. This field has one of the following values:
  - wscac1000—1000W AC power supply
  - wscac1300—1300W AC power supply
  - wscac2500w—2500W AC power supply
  - wscac4000w—4000W AC power supply
  - wscdc1300—1300W DC power supply
  - wscdc2500w—2500W DC power supply
  - pwr950ac—950W AC power supply
  - pwr950dc—950W DC power supply
  - pwr1900ac—1900W AC power supply
  - pwr1900dc—1900W DC power supply
  - pwr1900ac6—1900 watt supply AC/6 slots



The WS-C6509-NEB chassis does not support the Type attribute. This attribute is displayed as 'unknown' in the Power Supply Dialog.

- Operational Status—Displays the operational status of the power supply. This field has the following values:
  - ok—The power supply status is normal.
  - other—The power supply operational status is unknown.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.

Note

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If this field has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

- Redundancy Mode—Displays the mode in which the power supply is operating. This is a drop-down list with the following values:
  - redundant—Power supply 1 is used as the primary supply. If power supply 1 fails, power supply 2 becomes the primary power supply.
  - combined—Both power supplies are used to supply power to the modules.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the power supply attributes.
- normal—Data is being gathered periodically.
- normallostcomms—CEMF lost communication with the power supply from the normal state.

### **Additional Notes Tab**

Figure 5-6 shows the Additional Notes tab of the C6576M Power Supply dialog box.

-	C6576M Power Supply Dialog	• 🗆
File Edit Options Window Navig	pation	Help
XISI™ ≡ ₪ ✓ ? (		
Chassis Iochy-Chassis may-Chassis Torar-Chassis Torar-Chassis Torar-Chassis	Details Additional Notes	
Power Supply PowerSupply-1 PowerSupply-2	7	
Status: Cisco6500PowerSupply (normal)	, Cisco6t Dynamic updates are enable	d

Figure 5-6 Additional Notes Tab of the C6576M Power Supply Dialog Box

#### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the power supply configuration. For example, the note might include the reason why the power supply is in redundant mode.

# C6576M Supervisor Module Dialog Box

This dialog box provides access to attributes of the supervisor engine modules. This dialog box can be launched from a Chassis object or Supervisor Module object within the Physical view.

You can select one chassis and more than one supervisor engine module at a time from the object list on the left side of the dialog box.

### **Status Tab**

Figure 5-7 shows the Status tab of the C6576M Supervisor Module dialog box.

Figure 5-7 Status Tab of the C6576M Supervisor Module Dialog Box

-	Supervisor Mo	dule Management			•
File Edit Options Window Naviga	tion <u>A</u> ctions				Help
1 🛯 📥 🔳 💽 🗸 💡 🔍					
Chassis	Details ar Cretalis Syst	em Performance	Management No	ites	
NE2970-Chassis					
NE6500- Chassis	Configuration				
NE6509-Chassis	Native VLAN 802.1	ר ב Tagging	false	X	
NE7600-Chassis	Tunnel CoS			5	
	Status				
	Operational Status	ok	Standby Status	Active	
	Module Inlet	N/A	Module Outlet	24C	
	RP Inlet	N/A	RP Outlet	32C	
Supervisor Modules	EARL Inlet	25C	EARL Outlet	31C	
Supervisor-2	Inventory				
	Model WS-X6K-S	UP2-2GE	Serial Number	SAL0721DXX1	
	PFC Card	wsf6kpfc2	MSFC Card	wsf6kmsfc2	
	Hardware Version	4.2			
	Software Version	12.1(19)E1			
	Firmware Version	7.1(1)			
<b></b>					

#### **Status Area**

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The Status area of the C6576M Supervisor Module dialog box provides the following information:

- Operational Status—Displays the operational status of the supervisor engine module. The operation status can have one of the following values:
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor fault.
  - majorFault—There is a major fault.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

- Standby Status—Displays the status of the redundant Supervisor module if available. This attribute can have one of the following values:
  - other—Indicates a mode other than standby or active.
  - unknown—Indicates that mode cannot be detected.
  - standby—Indicates that the supervisor engine module status is in standby mode.
  - active—Indicates the supervisor engine module is being used to switch or route packets.

#### **Temperature Area**

The Temperature area of the C6576M Supervisor Module dialog box provides the temperature for the following sensors:

- Module Inlet—Inlet temperature of the module in degrees Celsius.
- Module Outlet—Outlet temperature of the module in degrees Celsius.
- RP Inlet—Inlet temperature of the MSFC daughter card in degrees Celsius.
- RP Outlet—Outlet temperature of the MSFC daughter card in degrees Celsius.
- EARL Inlet—Inlet temperature of the Policy Feature Card (PFC) daughter card in degrees Celsius.
- EARL Outlet—Outlet temperature of the PFC daughter card in degrees Celsius.

Each of these sensor attributes can have the following values:

- <n>C—Temperature in degrees Celsius.
- N/O—Indicates that the sensor is not operational.
- N/A—Indicates that the sensor value is not available.

#### **Actions Area**

The Actions area of the C6576M Supervisor Module dialog box provides the following information:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state. By clicking this button, the two interface subobjects are also commissioned.
- Decommission—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current. Decommissioning the Supervisor Module will also decommission its Ethernet Interface objects.

The decommission action is useful to allow a supervisor engine module to be removed and replaced without generating alarms.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF lost communication with the device from the normal state.
- perflostcomms—CEMF lost communication with the device from the performance state.
- mismatched—The type of supervisor engine module discovered does not match the predeployed supervisor engine module.

### **Inventory Tab**

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Figure 5-8 shows the Inventory tab of the C6576M Supervisor Module dialog box.

-	C6576M Superviso	r Module Dialog	g	•
<u>File Edit Options Window Navig</u>	ation <u>A</u> ctions			<u>H</u> elp
1 🛯 📥 🔳 🖬 🗸 💡 🤇	<b>&gt;</b>			
Changia	Las a las antena las a	(	-	
Chassis	Status   Inventory   Performa	nce Additional Note	s	
may-Chassis	System			
	Model WS-X6K-	-SUP1A-2GE	Serial Number SAD044602YC	
	PFC Card wsf6kpfc		MSFC Card wsf6kmsfc	
	Rom ID System Boot Copyright (c	strap, Version 12.0(3) ) 1998 by cisco Syste	XE, RELEASE SOFTWARE ms, Inc.	
$\nabla$	Version			
	Hardware Version 7	.0		
	Software Version 6	.2(0.116) 2001-03-23	19:34:56	
Supervisor Modules	Firmware Version 5	.4(2) 2000-03-17 10:2	23:19	
	System Flash Memor	y Inventory		
	File System	Size (Bytes)	Free Space (Bytes)	
	slot0:	24772608	10534540	
	sup-bootflash:	15990784	3216	
	hant£1 saht	15000704	E007017	
Status: C6576MSupervisorModule (norma	al), C6576MChassis (normal)		Dynamic updates are enab	led

Figure 5-8 Inventory Tab of the C6576M Supervisor Module Dialog Box

#### **System Area**

The System area of the C6576M Supervisor Module dialog box provides the following information:

- Model—Displays the model description of supervisor engine module installed.
- Serial Number—Displays the serial number for the supervisor engine module.
- PFC Card—Displays the type of PFC daughter card installed on the Supervisor module.
  - empty-No card installed
  - wsf6kpfc—PFC installed
  - wsf6kpfc2—PFC2 installed
  - other—Card is not one of the above.
- MSFC Card—Displays the type of MSFC daughter card installed on the Supervisor module. Not supported in Hybrid OS.
  - empty-No card installed
  - wsf6kmsfc—MSFC installed
  - wsf6kmsfc2—MSFC installed
  - other—Card is not one of the above
- ROM ID—Displays the bootflash version information.

#### **Version Area**

The Version area of the C6576M Supervisor Module dialog box provides the following information:

- Hardware—Displays the hardware version of the supervisor engine module.
- Software—Displays the software version of the supervisor engine module.
- Firmware—Displays the firmware version of the supervisor engine module.

#### **System Flash Memory Inventory Area**

The System Flash Memory Inventory area lists the Flash memory information for the entire switch (including redundant supervisor engines, if available).

- File System—Name used to refer to a partition by the system.
- Size (Bytes)—Total size of Flash memory.
- Free Space (Bytes)—Amount of free space available in the device.
- File Count—Number of files on the device.

### **Performance Tab**

Figure 5-9 shows the Performance tab of the C6576M Supervisor Module dialog box.

C6576M Supervisor Module Dialog Box

File Edit Options Window Navigation Actions <u>H</u>elp 1 🛯 📩 🔳 🗳 🖌 👂 Status Inventory Performance Additional Notes Chassis lochy-Chassis CPU Usage mav–Chassis morar-Chassis CPU Busy (%) 20 80 100 40 60 Average (1 min) 80 100 20 40 ด่ก Average (5 min) 20 40 60 80 100 Memory Usage Total (Bytes) 93074868 Supervisor Modules Used (%) 100 20 40 n. 60 80 Super Performance Logging Start Stop Status: Cisco6500SupervisorModule (normal), Ci Dynamic updates are enabled g

Figure 5-9 Performance Tab of the C6576M Supervisor Module Dialog Box

#### **CPU Usage Area**

The CPU Usage area of the C6576M Supervisor Module dialog box provides the following information:

- CPU Busy (%)—Displays the current CPU load.
- Average (1 min.)—Displays the 1-minute load average.
- Average (5 min.)—Displays the 5-minute load average.

#### **Memory Usage Area**

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The Memory Usage area of the C6576M Supervisor Module dialog box provides the following information:

- Total (Bytes)—Displays the total amount of processor memory.
- Used (%)—Displays the current amount of processor memory used.

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#### **Performance Logging Area**

The Performance Logging area of the C6576M Supervisor Module dialog box allows users to turn on performance logging for the supervisor module attributes as well as the attributes of the two Gigabit Ethernet interfaces.

- Start—Turns performance data logging on the Supervisor object and its interfaces.
- Stop—Turns performance data logging off for the Supervisor object and its interfaces.

Note

The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

The following Supervisor attributes are polled in the Performance state:

- CPU Usage Average (5 sec)
- CPU Usage Average (1 min)
- CPU Usage Average (5 min)
- Memory Used (%)
- Total amount of memory available (bytes)
- Total amount of memory used (bytes)

### **Additional Notes Tab**

Figure 5-10 shows the Additional Notes tab of the C6576M Supervisor Module dialog box.

Figure 5-10 Additional Notes Tab of the C6576M Supervisor Module Dialog Box

	C6576M Supervisor Module Dialog	· 🗆
<u>File</u> <u>Edit</u> <u>Options</u> <u>Window</u> <u>Naviga</u>	tion Actions	<u>H</u> elp
1 3 📩 🗏 📴 🖌 💡 🔍		
Chassis	Status Inventory Performance Additional Notes	
lochy-Chassis may-Chassis morar-Chassis	Notes	
Supervisor Modules	<	T P
Status: Cisco6500SupervisorModule (norm	mal), Ci Dynamic updates	are enabled
Status as of Mon Apr 9 13:58:26 2001		

### **Notes Area**

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The Notes area is text box that allows you to type in additional notes for the supervisor engine module.

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# **C6576M Ethernet Module Dialog Box**

This dialog box provides information on Ethernet modules, including standard Ethernet, Fast Ethernet, and Gigabit Ethernet modules. This dialog box can be launched from a Chassis object or Ethernet Module object within the Physical view.

You can select one chassis and more than one Ethernet module from the object list on the left side of the dialog box.

### **Details Tab**

Figure 5-11 shows the Details tab of the C6576M Ethernet Module dialog box.

	Ethern	et Module Management			· 🗆
File Edit Options Window Navigat	tion <u>A</u> ctions				Help
🔪 😂 🚞 💽 🖌 🤶 🔍 Chassis	Details ar Details Manage	ement Additional Notes			
NE2970-Chassis NE350-Chassis NE6500-Chassis NE6509-Chassis NE7600-Chassis	Status Operational Status Temperature Module Outlet	ok N/A	Module Inlet	N/A	
Ethernet Modules	Inventory Model Number of Ports Hardware Version Software Version Firmware Version	WS-C2970G-24T-E 24 A0 12.1(14)EA1a 12.1(14)EA1a	Serial Number Daughter Card	CAT0719R18L none	
Status: EtherModule (normal), Chassis G	(normal)			Dynamic updates are en	abled

Figure 5-11 Details Tab of the C6576M Ethernet Module Dialog Box

#### **Status Area**

The Status area of the C6576M Ethernet Module dialog box provides the following information:

- Operational Status—Displays the operational status of the Ethernet module. This attribute can have one of the following values:
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

#### **Temperature Area**

The Temperature area of the C6576M Supervisor Module dialog box provides information for the following sensors:

- Module Inlet—Inlet temperature of the module in degrees Celsius.
- Module Outlet—Outlet temperature of the module in degrees Celsius.

Each sensor can have the following values:

- <n>C—Temperature in degrees Celsius.
- N/O—Indicates that the sensor is not operational.
- N/A—Indicates that the sensor value is not available.

#### **Inventory Area**

The Inventory area of the C6576M Ethernet Module dialog box provides the following information:

- Model—Type of Ethernet module. This attribute can have one of the following values:
  - WS-X6524-100FX-MM
  - WS-X6548-RJ-21
  - WS-X6548-RJ-45
  - WS-X6408-GBIC
  - WS-X6408A-GBIC
  - WS-X6416-GBIC
  - WS-X6416-GE-MT
  - WS-X6516-GBIC
  - WS-X6816-GBIC
  - WS-X6316-GE-TX
  - WS-X6501-10GEX4
  - WS-X6224-100FX-MT

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- WS-X6324-100FX-SM
- WS-X6324-100FX-MM
- WS-X6248-RJ-45
- WS-X6248-TEL
- WS-X6248-A-TEL
- **-** WS-X6348-RJ-45
- WS-X6348-RJ-21
- WS-X6516-GE-TX
- WS-X6502-10GE
- Serial Number—The serial number of the module.
- Number of Ports—The total number of ports on the module.
- Daughter Card—The type of daughter card installed on the module. The possible values of this attribute are:
  - none—No card installed.
  - WS-F6KDFC—Distributed Forwarding Card for WS-X6516-GBIC module.
  - WS-F6KVPWR—Inline Power Card.
  - unknown—Card installed is not one of the above.
- Hardware Version—The hardware version on the module.
- Software Version—The software version on the module.
- Firmware Version—The firmware version on the module.

#### **Performance Logging Area**

The Performance Logging area of the C6576M Ethernet Module dialog box allows users to turn on performance data logging for all interfaces on the module:

- Start—Turn performance data logging on for all interfaces.
- Stop—Turn performance data logging off for all interfaces.

See the "C6576M Ethernet Interface Dialog Box" section on page 5-27 for a list of the interface attributes that are polled for performance data.

Note

The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

#### **Actions Area**

The Actions area of the C6576M Ethernet Module dialog box provides the following information:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state. Clicking this button commissions all interfaces.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current. Clicking this button decommissions all interfaces.

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The decommission action is useful to allow a Ethernet module to be removed and replaced without generating alarms.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms-CEMF lost communication with the device from the normal state.
- perflostcomms—CEMF lost communication with the device from the performance state.
- mismatched—The type of Ethernet module discovered does not match the predeployed Ethernet module.

### **Additional Notes Tab**

Figure 5-12 shows the Additional Notes tab of the C6576M Ethernet Module dialog box.

C6M Ethernet Module Dialog	• 🗆
File Edit Options Window Navigation Actions	Help
Chassis Details Additional Notes	
Iochy-Chassis Angele Notes	
Ethernet Modules	
Ethernet-7	
Status: Cisco6500EtherModule (normal), Cisco65 Dynamic updates	are enabled
Status as of Mon Apr 9 14:00:57 2001	

#### Figure 5-12 Additional Notes Tab of the C6576M Ethernet Module Dialog Box

#### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the Ethernet module.

# C6576M Ethernet Interface Dialog Box

This dialog box provides information for all Ethernet interface attributes, including Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces. This dialog box can be launched from a Chassis object, Supervisor module object, Ethernet module object, or Ethernet Interface object within the Physical view.

You can select one chassis, more than one Ethernet module, and more than one interface at a time from the object list on the left side of the dialog box.

### **Status Tab**

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Figure 5-13 shows the Status tab of the C6576M Ethernet Interface dialog box.



Figure 5-13 Status Tab of the C6576M Ethernet Interface Dialog Box

#### **Interface Status Area**

The Interface Status area of the C6576M Ethernet Interface dialog box provides the following information:

• Description—Descriptive name of the interface.



The maximum number of characters allowed for Hybrid OS is 25.

- Index—String index of the interface. This is a read-only attribute.
- Type—Displays the type of physical layer medium dependent interface on the port. This attribute is read-only. These are possible types:
  - e10BaseT
  - e10BaseF
  - e100BaseTX
  - e100BaseT4
  - e100BaseF
  - e100BaseFsm
  - e10a100BaseTX
  - mii
  - e1000BaseLX
  - e1000BaseSX
  - e1000BaseCX
  - e1000Empty
  - e1000BaseLH
  - e1000BaseT
  - e1000UnsupportedGbic
  - e1000BaseZX
- Operational Status—Displays the operational status of the interface. This attribute is read-only and has one of the following values:
  - up—Interface is ready to transmit and receive packets.
  - down—No packets are being passed. The interface is in this state if there is a fault preventing it from going to the up state.
  - testing-No operational packages can be passed.
  - unknown
  - dormant—Interface is up but waiting for external actions.
  - notPresent—The interface is in this state if the interface has missing components (typically hardware).
  - lowerLayerDown—The interface in the lower layer is down.
- Administrative Status—Displays the administrative status of the interface. These are the values:
  - up—The interface is up and operational.

- down—The interface is in a down administrative status; this value causes the operational status to be set to down as well.
- testing (read-only)—In this state, no operational packets can be transmitted or received. This value is read-only.
- Last Change—The timestamp indicating when the configuration for this interface was last changed. This is a read-only attribute.
- Connector Present—Displays if a cable is attached to the interface. These are the values:
  - yes
  - **–** no
  - unknown—This value is used when the Administrative Status is not set to "up". In this case, it cannot be determined if a connection is present or not.
- Number of Resets—The number of times this interface has been reset. This attribute is read-only.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates that current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

### **Configuration Tab**

Figure 5-14 shows the Configuration tab of the C6576M Ethernet Interface dialog box.

Figure 5-14 Configuration Tab of the C6576M Ethernet Interface Dialog Box

	C6576M Ethernet Interface Dialog	*
le <u>E</u> dit <u>O</u> ptions <u>Wi</u> ndow <u>N</u> avigatio	n <u>A</u> ctions	<u>H</u> elp
IS 📥 🗏 📮 🗸 🤋 🔍		
Chassis Sta	tus Configuration Performance Routing Protocol STP HSRP QoS Additional Notes	
Cisco7600-Chassis	General	
	Speed autoDetect 🗵 Max. Input Queue Length	2000
	Duplex auto 🔽 Max. Output Queue Length	40
alubolu	Link Up/Down Trap enabled 🔽 Delay	10
Ethemet-3	Bandwidth	100000
	Layer 2 Layer 3	
	MAC Address 00 01 97 23 39 88 IP Address 0.0.0	. 0
	MTU 9216 Netmask 0, 0, 0	. 0
7	Default VLAN 12	
	Trunking Made off	
Ethernet Interfaces	Trunking Mode	ldress
FastEthernet-8-1		
atus: C6576MOsBroker (nativeios), C6576	MEthe Dynamic updates	are enabled
atus as of Thu Jun 20 16+40+56 2002		

#### **General Area**

The General area of the C6576M Ethernet Interface dialog box provides the following information:

- Speed—The desired speed of this port in bits per second. This attribute is only editable if it is a Fast Ethernet interface. In this case, you can choose one of the following values:
  - autoDetect
  - 10 Mb/s
  - 100 Mb/s
  - 1000 Mb/s
  - s10G

If set to autoDetect, the Duplex attribute is set to auto, which forces the interface to determine the speed and duplex mode for the interface automatically.



If an unsupported speed is selected, an error is reported.

- Duplex—Displays the duplex mode for the port. This attribute is only editable if it is a Fast Ethernet interface. In this case, you can choose one of the following modes:
  - half
  - full
  - disagree (read-only)
  - auto

If the Speed attribute is set to autoDetect, the Duplex will be set to auto.

- Link Up/Down Trap—Indicates if link up or link down traps are being generated. This list contains the following values:
  - enabled
  - disabled
- Input Queue Length—Displays the input queue length in packets.
- Output Queue Length—Displays the output queue length in packets.
- Delay—Specifies the delay in tens of microseconds for an interface or network segment.

Note

The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP); you cannot adjust the actual delay of an interface with this command.

• Bandwidth—Overwrites default bandwidth in kilobits per second.

#### Layer 2 Area

The Layer 2 area of the C6576M Ethernet Interface dialog box provides the following information:

- MAC Address—Displays the MAC address of the interface. This attribute is read-only.
- MTU—Displays the maximum transmission unit (MTU) size in bytes. The size of the largest packet which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface.



IOS 12.1(8a)E5 caveat: Jumbo frame support is incompatible with the IS-IS routing protocol. Leave the MTU size at the default value on any interface where IS-IS provides routing.

**Note** For Native IOS, any value for the MTU will be accepted although it is recommended that only 1500 or 9600 bytes is configured. For Hybrid OS, if jumbo frames are enabled, the MTU will be reported as 9216 bytes. If jumbo frames are not enabled, the MTU will be reported as 1500 bytes. Any input value greater than or equal to 9216 bytes will be taken as 9216 bytes, and the jumbo frames will be enabled. Any input value less than 9216 bytes will be taken as 1500 bytes, and the jumbo frames will be disabled.

• Default VLAN—Displays the VLAN to which this interface belongs if it stops trunking. This is a read-only attribute.

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- Trunking Mode—Indicates the administrative status set on the trunk port, while the operational status is the one that indicates whether the port is actually trunking or not. This mode is one of the following values:
  - off—The port is permanently set to be a non-trunk.
  - onNoNegotiate—The port is permanently set to be a trunk and no negotiation takes place with the far end to try to ensure consistent operation.
  - on—The port initiates a request to become a trunk and will become a trunk regardless of the response from the far end.
  - desirable—The port initiates a request to become a trunk and will become a trunk if the far end agrees.
  - auto—The port does not initiate a request to become a trunk but will do so if it receives a request to become a trunk from the far end.

#### Layer 3 Area

The Layer 3 area of the C6576M Ethernet Interface dialog box provides the following information:

- IP Address—Displays the IP address of the layer 3 interface.
- Netmask—Subnet mask of the interface IP address. Enabled bits indicate the network addressing bits in the IP address.
- Clear IP Address button— After receiving confirmation, will unset the IP address for this interface.

## **Performance Tab**

Figure 5-15 shows the Performance tab of the C6576M Ethernet Interface dialog box.

le <u>E</u> dit <u>O</u> ptions <u>W</u> indow <u>N</u> avigati	ion <u>A</u> ctions				Help
I Si 🎦 🔳 🗊 🖌 💡 🔍					
Chassis S	itatus   Configuration   Perf	ormance Routing Protocol	STP   HSRP   QoS   Add	litional Notes	
192.168.12.103-Chassis	Packets/Octets Statis	stics			
	Bandwidth Util (%)	0			
4	In Octets	0	Out Octets	0	
	In Broadcast Pkts.	0			
fa dula	In Multicast Pkts.	0			
	In Unicast Pkts.	0	Out Unicast Pkts	0	
Ethernet-3	In Packets/Sec	0	Out Packets/Sec	0	
Ethernet-8	In Bits/Sec	0	Out Bits/Sec	n	
Ethernet-9		·	our bits ooo	·	
Supervisor-1	Error Statistics				
	Collisions	0			
	Giants	0	Runts	0	
	CRC Error Pkts.	0	Misaligned Pkts.	0	
	In Discarded Pkts.	0	Out Discarded Pkt	s. O	
Ethernet Interfaces	In Dropped Pkts.	0	Out Dropped Pkts.	0	
Ethernet-3-Port-1	In Ignored Pkts.	0			
Ethernet-3-Port-2	In Aborted Pits	0			
Ethernet-3-Port-3	in Pibolica Pika.				
Ethernet-3-Port-5	In Error Pkts.	0	Out Error Pkts.	0	
Ethernet-3-Port-6	- Performance Longing				
Ethernet-3-Port-7					
Ethernet-3-Port-8	Start	Stop			
Ethernet-7-Port-2					
Ethernet-7-Port-3					

Figure 5-15 Performance Tab on the C6576M Ethernet Interface Dialog Box

#### **Packets/Octets Statistics Area**

The Packets/Octets Statistics area C6576M Ethernet Interface dialog box provides the following information:

• Bandwidth Util (%)—Percentage of bandwidth utilization of the interface.

Note

This value will be disabled if the Chassis object is not in the normal or performance state.

- In Octets—Total number of received octets including framing characters.
- In Broadcast Pkts.—The total number of good packets received that were directed to the broadcast address. Note that this does not include multicast packets.
- In Multicast Pkts.—The total number of good packets received that were directed to a multicast address. Note that this number does not include packets directed to the broadcast address.
- In Unicast Packets—The number of packets, delivered by this sublayer to a higher (sub)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- In Bits/Sec-Five-minute exponentially decayed moving average of input bits per second.

- Out Octets—Total number of transmitted octets including framing characters.
- Out Unicast Pkts—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Error Statistics Area**

The Error Statistics area C6576M Ethernet Interface dialog box provides the following information:

- Collisions—Number of collisions on this segment.
- Giants—Total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets) and were otherwise well formed.
- CRC Error Pkts.—Packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a nonintegral number of octets (Alignment Error).
- In Discarded Pkts.—Number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher layer protocol. One reason to discard such a packet is to free up buffer space.
- In Dropped Pkts.—Number of events in which packets were dropped by the probe due to lack of resources. This number is not necessarily the number of packets dropped, but is the number of times this condition has been detected.
- In Ignored Pkts.—Number of packets ignored.
- In Aborted Pkts.—Number of packets aborted.
- In Error Pkts.—Number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Runts—Total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed.
- Misaligned Pkts.—Alignment errors.
- Out Discarded Pkts.—Number of outbound packets that were chosen to be discarded.
- Out Dropped Pkts.—Number of events in which outbound packets were dropped.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### **Performance Logging Area**

The Performance Logging area of the C6576M Ethernet Interface dialog box allows users to turn on performance data logging for a single interface.

- Start—Turns performance data logging on for this specific interface's attributes.
- Stop—Turns performance data logging off for this specific interface's attributes.

All attributes in the Performance tab are logged when the object is placed into the Performance state.

Note

The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

## **Routing Protocol Tab**

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Figure 5-16 shows the Routing Protocol tab of the C6576M Ethernet Interface dialog box.

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v 🖂 🗕 🖳 🗴 🔅						
Chassis	Status Configuration Perfo	ormance   Routing F	rotocol STP HSRP	QoS Additional Not	es	
may-Chassis	OSPF					
	Network Type		Trans. Priority			
	Area ID		Trans. Dead (s	ec)		
	Authentication Key	Authentication Key Trans Delay (sec)				
fodulo		Hamomicaton Key Hano. Delay (sec)				
	Hello Interval (sec)		Retrans. Interv	ar (sec)		
Supervisor-1	EIGRP					
	Interface		_		_	
	444	Bandwid	th Utilization (%)	þ	0	
	666	Hold Tim	e (sec)	1	5	
			e (sec)	1		
		Hello Int	erval (sec)		5	
			·			
themet Interfaces	ISIS					
FastEthernet-5-1	ISIS Enabled	false	Area Tag			
FastEthernet-5-2	Level 1 Hello Interval	10	Level 2 Hello Interval	10		
FastEthernet-5-3	Lover Price Interval	10	Lovor E riono interval	10	Enable	
FastEthernet-5-5	Level 1 Metric	10	Level 2 Metric	10		
FastEthernet-5-6	Level 1 Priority	64	Level 2 Priority	64	Disable	
FastEthernet-5-8						
FastEthernet-5-9						
FastEthernet-5-10						
	CCE7CMEthonIntonface (nonnal)	C6576MEther		Dunamic und	later and such lad	

#### Figure 5-16 Routing Protocol Tab on the C6576M Ethernet Interface Dialog Box

#### **OSPF** Area

The OSPF area of the C6576M Ethernet Interface dialog box provides the following information:

- Network Type—The OSPF interface type. For Ethernet interfaces, the type is always broadcast. This is a read-only attribute.
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. This is a read-only attribute.
- Authentication Key—The OSPF authentication key. This is a read-only attribute.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. This is a read-only attribute.
- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. If more than one router has the same value for this field, the routers use their router ID as a tie breaker. This is a read-only attribute.
- Trans. Dead (sec)—The number of seconds that a router's hello packets have not been seen before its neighbors declare the router down. This value should be a multiple of the hello interval. This value must be the same for all routers attached to a common network. This is a read-only attribute.
- Trans. Delay (sec)—The estimated number of seconds it takes to transmit a link state update packet over this interface. This is a read-only attribute.

#### **EIGRP Area**

The EIGRP Area of the C6576M Ethernet Interface dialog box provides the following information:

- EIGRP Interface Table—A list of the EIGRP processes. The following attributes can be configured for an EIGRP process:
  - Bandwidth Utilization (%) —The percentage of the interface bandwidth that the EIGRP protocol can use.
  - Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.
  - Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
### **ISIS** Area

The ISIS area of the C6576M Ethernet Interface dialog box provides the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface:
  - true—IS-IS routing is enabled.
  - false—IS-IS routing is disabled.
- Area Tag—The IS-IS routing area in which the interface participates. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 1 Priority—The priority is used to determine which router on a LAN will be the designated router or Designated Intermediate System (DIS).
- Level 2 Priority—The priority is used to determine which router on a LAN will be the designated router or Designated Intermediate System (DIS).
- Enable button—Enables IS-IS routing on the interface.



**Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.

• Disable button—Disables IS-IS routing on the interface.

# **STP Tab**

Figure 5-17 shows the STP tab of the C6576M Ethernet Interface dialog box.

-	C6576M Ethernet Interface Dialog	• 🗆
File Edit Options Window Navigation	n <u>Actions</u>	Help
1 2 2 1 2 2 2		
Chassis St	atus Configuration Performance Routing Protocol STP HSRP QoS Additional Notes	
192.168.12.103-Chassis	Guard Mode	
	PortFast Enabled 🔷 false	
	Access Mode	
Module	Port Priority 128	
Ethernet-3	Port Cost 4	
Ethernet-8 Ethernet-9 Supervisor-1	Per VLAN STP Setting VLAN VLAN Priority Cost Add / Remove Per VLAN STP Setting	
Ethernet Interfaces		
Ethernet-3-Port-1	STP Status	i
Ethemet-3-Port-2 Ethemet-3-Port-3 Ethemet-3-Port-4 Ethemet-3-Port-6 Ethemet-3-Port-6 Ethemet-3-Port-6 Ethemet-3-Port-7 Ethemet-7-Port-1 Ethemet-7-Port-2 Ethemet-7-Port-2	VLAN Port State Port Cost	
Status: C6576MEtherInterface (normal), C	5576ME Dynamic updates are en	abled

Figure 5-17 STP Tab on the C6576M Ethernet Interface Dialog Box

The area at the top of the STP tab provides the following information:

- Guard Mode—Indicates whether or not STP guard mode is enabled on an interface. These are possible values:
  - root
  - none
  - loop (Hybrid OS only)
- PortFast Enabled—Indicates whether or not an interface is enabled to move directly to the forwarding state on link up. This is a read-only attribute. Portfast can be configured on a trunking interface, but it only has an effect when the interface is in access mode. These are possible values:
  - true
  - false

### **Access Mode Area**

The Access Mode area of the C6576M Ethernet Interface dialog box provides the following information:

- Port Priority—Describes the STP port priority of this interface. This is a metric used to represent the location of an interface in a network topology. It is used to determine which port will be placed in a blocking state when two or more ports are part of a loop. The default value is 128 in all versions of IOS, 32 in all versions of CatOS. The valid values are:
  - Native IOS 12.1(6)E and earlier:Integer (0..248) [increments of 8]
  - Native IOS 12.1(8a)E and later:Integer (0..252) [increments of 4]
  - CatOS 6.3:Integer(0..63)
  - CatOS 7.1:Integer(1..63)
- Port Cost—Describes the STP port cost for this interface. The port cost is a metric used to represent the speed of the interface. STP will use this value in determining the preferred path when a loop is detected in the network.

### Per VLAN STP Setting Area

The Per VLAN STP Setting area in the STP tab of the C6576M Ethernet Interface dialog box provides the following information:

• STP VLAN Table—Describes the STP per-VLAN configurations of a trunking interface. There is one entry for each explicit per-VLAN spanning-tree configuration on the interface.

Note

The VLAN STP instance does not have to be currently carried on the trunk in order to configure the per-VLAN STP settings. The settings will take effect when the interface actually begins trunking the VLAN traffic.

- Priority—Describes the STP VLAN port priority of this interface. The VLAN port priority is used on trunking interfaces. On any switchport that is not in trunking mode, the STP port priority is used instead. The default value is 128 in all versions of IOS, 32 in all versions of CatOS. The valid values are:
  - Native IOS 12.1(6)E and earlier:Integer (0..248) [increments of 8]
  - Native IOS 12.1(8a)E and later:Integer (0..252) [increments of 4]
  - CatOS 6.3:Integer(0..63)
  - CatOS 7.1:Integer(1..63)
- Cost—Describes the STP VLAN path cost of this interface. The VLAN path cost is only used on trunking interfaces. On any switchport that is not in trunking mode, the STP port path cost is used instead.



Default values for priority and cost will be used if one of these arguments is not provided by the user. The user must provide a nondefault value for at least one of these arguments; otherwise, the action will fail.

• Add/Remove Per VLAN STP Setting button—Launches a subdialog box to add and remove an explicit STP VLAN configuration to the interface. The configuration will only have an effect if the interface is in trunking mode and the VLAN has an associated STP instance. The interface does not

currently need to be configured as a trunking port, nor does the VLAN or the VLAN STP instance need to exist. Figure 5-18 shows the subdialog box that is displayed when the Add/Remove Per VLAN STP Setting button is selected. The subdialog box contain the following:

- VLAN—Identifies the VLAN STP instance. This is the numeric identifier of the access mode VLAN or a VLAN that is carried on the trunk.
- Priority—Describes the STP VLAN port priority of this interface.



This value is the same as the Per VLAN STP Port Priority in the Per VLAN STP Setting Area.

- Cost—Describes the STP VLAN path cost of this interface.
- Add button—Adds an explicit STP VLAN configuration to the interface.
- Remove button-Removes an explicit STP VLAN configuration to the interface.

Figure 5-18 Add/Remove Per VLAN STP Setting Subdialog Box

- Ethernet Interface Manageme	ent - Add/Remove per VLAN STP Settings	• 🗆
File Edit Options Window Naviga	ation <u>A</u> ctions	Help
Chassis Cyber3550a-Chassis ems2950e-Chassis ems3550c-Chassis ems6006a-Chassis Module Ethernet-3 Supervisor-1	VLAN	
Ethernet Interfaces	Add Remove	
Status: EtherIfModule (performance), C	Chassis (performance)	ed -

### **STP Status Area**

The STP Status area of the C6576M Ethernet Interface dialog box provides the following information:

Γ

- STP VLAN Status Table—Describes the status of the active STP VLAN port configurations of the interface. No data is displayed if it is in the linkDown or STP misconfigured state. Data is displayed in the following columns:
  - VLAN—Identifies the VLAN STP instance that this status applies to. This is the numeric identifier of the access mode VLAN or a VLAN that is carried on the trunk.
  - Port—Unique port identifier for the interface in the STP instance. This identifier is unique for that port across all devices in the STP management domain.
  - State—Describes the interface state in the STP instance.
  - Port Cost—Indicates the current calculated port path cost of the interface in the STP instance.

# **HSRP** Tab

Figure 5-19 shows the HSRP tab of the C6576M Ethernet Interface dialog box.

-	C6576M Ethe	rnet Interface Dialog	· 🗆
File Edit Options Window Navigatio	n <u>A</u> ctions		<u>H</u> elp
1 2 2 1 2 2 2			
Chassis St	atus Configuration Perform	nance Routing Protocol STP HSRP QoS Additional Notes	
192.168.12.103-Chassis	HSRP		
	HSRP Group		
	Group	Virtual IP 0.0.0.0	
		Viitderin 0.0.0.0	
	2	Preempt true	
Module	4		
Ethernet-3		Delay Minimum 0	
Ethernet 8	7	A Priority 100	
Ethernet-9		Filolity 100	
Supervisor-1		Hello Interval 5	
	Can Guuna	Hold Interval 20	
	Comigure		
	Secondary IP		
Ethernet Interfaces	Group Number	Secondary IP	
Ethernet-3-Port-1			
Ethernet-3-Port-2			
Ethernet-3-Port-3			
Ethernet-3-Port-5			
Ethernet-3-Port-6	1		
Ethernet-3-Port-7			
Ethernet-3-Port-8			
Ethernet-7-Port-1		Modify	
Ethemot 7 Dort 2			
atus: C6576MEtherInterface (normal), C	6576ME	Dynamic updates a	re enabled
tatus as of Fri Jan 25 11:36:18 2002			

Figure 5-19 HSRP Tab on the C6576M Ethernet Interface Dialog Box

### **HSRP** Area

The HSRP area of the C6576M Ethernet Interface dialog box provides the following information:

• HSRP Group Table—Describes HSRP groups deployed on an interface.

6 Note

There may be multiple groups deployed on an interface. Using a group number on one logical or physical interface does not preclude using it on another.

- Virtual IP—Primary virtual IP address of the HSRP group. If this address is not configured, the agent attempts to discover the virtual address through a discovery process which scans the hello messages.
- Preempt—If enabled, the current router attempts to overthrow a lower priority active router and attempt to become the active router. If disabled, this router becomes the active router only if there is no such router or the active router fails.
  - true—preempt enabled.
  - false-preempt disabled.

- Delay Minimum—Time difference (in seconds) between a router power up and the time it can start preempting the currently active router. This value is only applicable when preemption is enabled.
- Priority—Priority value that prioritizes a potential hot standby router. The range is 1 to 255, where 1 indicates the lowest priority and 255 indicates the highest priority. The default priority value is 100. The router in the HSRP group with the highest priority value becomes the active router.
- Hello Interval—Hello interval in milliseconds. If this value is not configured, it can be learned from the active router.
- Hold Interval—Hold interval in milliseconds. If this value is not configured, it can be learned from the active router.
- Configure button—Enable HSRP for IP on an interface. This action deploys an HSRP group on the interface. The HSRP group may optionally be assigned a primary IP address. If no address is explicitly assigned, the device attempts to discover the virtual IP address from the active server using Hello messages. Figure 5-20 shows the subdialog box displayed when the Add/Remove button is pressed.



### Figure 5-20 HSRP Group Configure Subdialog Box

### **Secondary IP Area**

The Secondary IP area of the C6576M Ethernet Interface dialog box provides the following information:

- HSRP Secondary Address Table—Describes secondary IP addresses of HSRP groups deployed on the interface. Data is displayed in the following columns:
  - Group Number—Unique identifier along of an HSRP group.
  - Secondary IP—Secondary IP address of HSRP group.
- Modify button—Figure 5-21 shows the subdialog box that is displayed when the Modify button is pressed. This subdialog box is used to modify the following C6576M Ethernet Interface attributes of a given HSRP group:
  - Secondary IP
  - Virtual IP
  - Preempt
  - Delay Minimum
  - Priority
  - Hello Interval
  - Hold Interval

### Figure 5-21 HSRP Secondary IP Modify Subdialog Box

-	Ethernet Interf	face Management - Modify HSRP Grou	P	4
File Edit Options Window Naviga	tion <u>A</u> ctions			He
ti 🚳 🔳 🗊 🖌 💡 🔍				
Chassis ems3550c-Chassis	Group Number			
ems6006a-Chassis ems6506a-Chassis	Secondary IP		Add	Remove
Module	Virtual IP		Modify	Remove
Supervisor-1	Preempt	iruo 🔽	Modify	
Ethernet Interfaces	Priority		Modify	Default
	Hello Interval		Modify	Remove
	Hold Interval			
itatus: OsBroker (hybridos), EtherIfMo	dule (performance),	Chassis (performance)	Dynamic	c updates are enabled

# QoS Tab

Figure 5-22 shows the QoS tab of the C6576M Ethernet Interface dialog box.

-	C6576M Ethe	rnet Interface Dial	og		• 🗖
File Edit Options Window Navigation	ctions				<u>H</u> elp
1 🛯 📩 🗏 📮 🔽 💙					
Chassis Status	Configuration Perform	ance Routing Protocol	STP HSRP QoS	Additional Notes	
Cat6500-103-Chassis	08				
	QoS Enabled	true 🗵	Queue Type (Rx)	1q4t	
Module Ethemet-3	VLAN QoS Enabled	false 🗵	Queue Type (Tx)	2q2t	
Ethernet-9 Supervisor-1	Trust State	COS 🗵			
	Default CoS Value	<u>3</u>			
	Input Service Policy		Select Policy	Remove Policy	
Ethernet Interfaces					
GigabilEthernet-3-1 GigabilEthernet-3-2 GigabilEthernet-3-3 GigabilEthernet-3-4 GigabilEthernet-3-5 GigabilEthernet-3-5 GigabilEthernet-3-7 GigabilEthernet-3-8					
Status: C6576MOsBroker (nativeios), C6576MEth	ić			Dynamic updates are enab	led

Figure 5-22 QoS Tab on the C6576M Ethernet Interface Dialog Box

### **QoS Area**

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The QoS area of the C6576M Ethernet Interface dialog box provides the following information:

- QoS Enabled—Enables or disables QoS on the interface.
  - true—QoS enabled.
  - false—QoS disabled.

Note

By default, if global QoS is enabled on the device, then the port QoS is also enabled unless explicitly disabled.

- VLAN QoS Enabled—Enables/disables VLAN-based QoS on the interface.
  - true—VLAN-based QoS enabled.
  - false—VLAN-based QoS disabled.
- Interface Trust State—The trust state of an interface determines how it marks, schedules, and classifies received L2 frames, and whether or not congestion avoidance is implemented. This attribute can have the following values:

- untrusted—The interface is marked as untrusted.
- DSCP—The DSCP value of the frame is trusted.
- CoS—The CoS value of the frame is trusted.
- IP-precedence—The IP-precedence value of the frame is trusted.
- Default CoS Value—Interface class of service value. QoS assigns the CoS value to untagged frames from a trusted interface and to all frames of an untrusted interface.
- Input Service Policy—The QoS policy map applied to the interface. This policy map is only applied if QoS is enabled on the interface and VLAN-based QoS is disabled on the interface.
- Queue Type (RX)—Desribes the queue structure for traffic on an egress port.
- Queue Type (TX)—Desribes the queue structure for traffic on an ingress port.
- Select Policy button—Launches a subdialog box to attach an input QoS policy map to the interface. This action may fail if the specified policy map is not suitable for use with an Ethernet interface. Figure 5-23 shows subdialog box that is displayed when the Select Policy button is pressed. The subdialog box contains the following:
  - Input Policy Map Table—Lists the QoS policy maps to apply to the interface.
  - Modify button—Attaches an input QoS policy map to the interface
- Remove Policy button—Detaches an input QoS policy map from the interface. When you click the **Remove Policy** button, a subdialog box is displayed prompting you to confirm the removal action.

Γ

Ite Edit Options Window Mavigation Actions       Hel         Image: Select an Input Policy Map       Image: Select an Input Policy Map         Image: Select an Input Policy Map       Policy Map Name       Pol_100         Image: Select an Input Policy Map       Policy Map Name       Pol_100         Image: Select an Input Policy Map       Policy Map Pol_101       Policy Map Pol_102         Image: Module       Image: Select an Input Policy Map Pol_103       Policy Map Pol_103         Image: Module       Image: Select an Input Pol_103       Policy Map Pol_104         Image: Select an Input Pol_105       Policy Map Pol_105       Policy Map Pol_105         Image: Select an Input Pol_105       Policy Map Pol_106       Policy Map Pol_107         Policy Map Pol_106       Policy Map Pol_101       Policy Map Pol_101         Policy Map Pol_101       Policy Map Pol_101       Policy Map Pol_111         Policy Map Pol_111       Policy Map Pol_112       Image: Select an Input Pol_122         Image: OsBroker (nativeios), QoSPolicy Map (normal), NetworkElement (normal)       1	Ethernet Interface	management – Modity Wos Policy Map	
Image: Section 1     Section 1 <th>e <u>E</u>dit <u>O</u>ptions <u>Wi</u>ndow <u>N</u>avi</th> <th>igation <u>A</u>ctions</th> <th><u>H</u>elp</th>	e <u>E</u> dit <u>O</u> ptions <u>Wi</u> ndow <u>N</u> avi	igation <u>A</u> ctions	<u>H</u> elp
Select an Input Policy Map   ems2950e   ems3550c   ems6006a     Module     PolicyMap-Pol_101   PolicyMap-Pol_102   PolicyMap-Pol_103   PolicyMap-Pol_104   PolicyMap-Pol_105   PolicyMap-Pol_106   PolicyMap-Pol_107   PolicyMap-Pol_108   PolicyMap-Pol_109   PolicyMap-Pol_111   PolicyMap-Pol_112   tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)	SA 🗏 🖪 🖌 🥺 🔍		
Select an Input Policy Map   ems2950e   ems3550c   ems6006a     Module   PolicyMap-Pol_100   PolicyMap-Pol_102   PolicyMap-Pol_103   PolicyMap-Pol_104   PolicyMap-Pol_105   PolicyMap-Pol_106   PolicyMap-Pol_107   PolicyMap-Pol_108   PolicyMap-Pol_109   PolicyMap-Pol_111   PolicyMap-Pol_112   tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)			
Cyber3550a         ems2950e         ems3550c         ems6006a         Aodule         Module         PolicyMap-Pol_100         PolicyMap-Pol_103         PolicyMap-Pol_104         PolicyMap-Pol_105         PolicyMap-Pol_106         PolicyMap-Pol_107         PolicyMap-Pol_108         PolicyMap-Pol_109         PolicyMap-Pol_110         PolicyMap-Pol_103         PolicyMap-Pol_104         PolicyMap-Pol_105         PolicyMap-Pol_104         PolicyMap-Pol_105         PolicyMap-Pol_104         PolicyMap-Pol_105         PolicyMap-Pol_104         PolicyMap-Pol_105         PolicyMap-Pol_107         PolicyMap-Pol_108         PolicyMap-Pol_110         PolicyMap-Pol_112         Modify         tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)	letwork Element		
ems2950e ems3550c ems6006a Addule Addule thermet Interfaces tuts: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)	cvber3550a	Select an Input Policy Map	
Policy Map Name Pol_100 Policy Map Pol_100 Policy Map Pol_101 Policy Map Pol_101 Policy Map Pol_102 Policy Map Pol_103 Policy Map Pol_103 Policy Map Pol_105 Policy Map Pol_105 Policy Map Pol_106 Policy Map Pol_107 Policy Map Pol_108 Policy Map Pol_109 Policy Map Pol_110 Policy Map Pol_110 Policy Map Pol_112 Modify tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) 1	ems2950e		
ems6006a     Aodule     Aodule     PolicyMap-Pol_101   PolicyMap-Pol_103   PolicyMap-Pol_103   PolicyMap-Pol_104   PolicyMap-Pol_105   PolicyMap-Pol_106   PolicyMap-Pol_107   PolicyMap-Pol_108   PolicyMap-Pol_109   PolicyMap-Pol_111   PolicyMap-Pol_112     Modify   tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)	ems3550c	Policy Map Name Pol_100	
Aodule PolicyMap-Pol_101 PolicyMap-Pol_102 PolicyMap-Pol_103 PolicyMap-Pol_104 PolicyMap-Pol_105 PolicyMap-Pol_106 PolicyMap-Pol_107 PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) 1	ems6006a 🗸 🗸	PolicyMan-Bol 100	
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Aodule PolicyMap-Pol_103 PolicyMap-Pol_104 PolicyMap-Pol_105 PolicyMap-Pol_107 PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: 0sBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) 1		PolicyMap-Pol 102	
PolicyMap-Pol_104 PolicyMap-Pol_105 PolicyMap-Pol_106 PolicyMap-Pol_107 PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify	/lodule	PolicyMap-Pol_103	
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PolicyMap-Pol_106 PolicyMap-Pol_107 PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify		PolicyMap-Pol_105	
PolicyMap-Pol_107 PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify		PolicyMap-Pol_106	
PolicyMap-Pol_108 PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)		PolicyMap-Pol_107	
thernet Interfaces PolicyMap-Pol_109 PolicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)		PolicyMap-Pol_108	
thernet Interfaces POlicyMap-Pol_110 PolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)		PolicyMap-Pol_109	
HolicyMap-Pol_111 PolicyMap-Pol_112 Modify tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal)	thernet Interfaces	PolicyMap-Pol_110	
Modify tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) 1		PolicyMap-Pol_111	
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j		FolicyMap-Fol_112	
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j			
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j			
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j			
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j		Modify	
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) j	N	Mouny	
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) d			
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) d			
tus: OsBroker (nativeios), QoSPolicyMap (normal), NetworkElement (normal) d			
tus: Usbroker (nativeios), Qo5PolicyMap (normal), NetworkElement (normal) 1			
	tus: Usbroker (nativeios), WoSPol	(icymap (normal), NetworkElement (normal)	1

Figure 5-23 Select Policy Subdialog Box

# **Additional Notes Tab**

Figure 5-24 shows the Additional Notes tab of the C6576M Ethernet Interface dialog box.



Figure 5-24 Additional Notes Tab on the C6576M Ethernet Interface Dialog Box

### **Notes Area**

The Notes tab is a text box that allows you to type in additional notes for the interface.

# C6576M Switch Fabric Module Dialog Box

This dialog box provides information for the Switch Fabric Modules. This dialog box can be launched from a Chassis object or Switch Fabric Module object within the Physical view.

You can select one chassis and more than one Switch Fabric Module at a time from the object list on the left side of the dialog box.

# **Details Tab**

Figure 5-25 shows the Details tab of the C6576M Switch Fabric Module dialog box. All the attributes displayed in this tab are read-only.

hassis	Details Performance Ad	ditional Notes			
yber3550a-Chassis	Details				
ms2950e-Chassis	Operational Status	ok	Standby Status	Active	
ems3550c-Chassis ems6006a-Chassis	Model	WS-X6500-SFM2	Serial Number	SAD052505LH	
ems6506a-Chassis ems6509neb-Chassis	Hardware Version	1.0			
ems6513a-Chassis	Software Version	7.5(0.6)HUB9 2002-12-	06 17:56:07		
ems/609a-Chassis dp6509a-nsp-Chassis	Firmware Version	6.1(3) 2000-08-29 09:5	55:19		
	Temperature				
FM	Module Outlet	31C	Module inlet	27C	
witchFabric-7	EARL Outlet	N/A	EARL Inlet	N/A	
	Actions				
	Commission	Decommission			
$\nabla$					

Figure 5-25 Details Tab of the C6576M Switch Fabric Module Dialog Box

### **Details Area**

The Details area of the C6576M Switch Fabric Module dialog box provides the following information:

- Operational Status—Displays the operational status of the Switch Fabric Module. This attribute has one of the following values:
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

- Standby Status—Displays the status of the Switch Fabric Module. This attribute has one of the following values:
  - other (Hybrid OS only)
  - active
  - standby
  - error (Hybrid OS only)
- Model—Model of the Switch Fabric Module. This attribute has the following value:
  - WS-X6500-SFM
  - WS-X6500-SFM2
- Serial Number—The serial number of the module.
- Hardware Version—The hardware version on the module.
- Software Version—The software version on the module.
- Firmware Version—The firmware version on the module.

### **Temperature Area**

The Temperature area of the C6576M Switch Fabric Module dialog box provides the following information:

- Module Outlet—The outlet temperature, in degrees Celsius, of the module.
- Module Inlet—The inlet temperature, in degrees Celsius, of the module.
- **EARL Outlet**—The outlet temperature, in degrees Celsius, of the Distributed Forwarding daughter card.
- **EARL Inlet**—The inlet temperature, in degrees Celsius, of the Distributed Forwarding daughter card.

### **Actions Area**

The Actions area of the C6576M Switch Fabric Module dialog box provides the following actions:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current.

The decommission action allows a Switch Fabric Module to be removed and replaced without generating alarms.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.
- mismatched—The type of Switch Fabric Module discovered does not match the predeployed Switch Fabric Module.

# **Performance Tab**

Figure 5-26 shows the Performance tab of the C6576M Switch Fabric Module dialog box.



Figure 5-26 Performance Tab of the C6576M Switch Fabric Module Dialog Box

### **Statistics Area**

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The Statistics Table of the Statistics area dialog box provides the fabric channel counters and utilization for the device. There is an entry in this table for each fabric-enabled module installed in the chassis.

- Slot—Slot number of the fabric-enabled module.
- Channel—Fabric channel number.
- InErrors—Total number of error packets received on the module through the fabric channel since the entry was last initialized.

- Out Errors—Total number of error packets transmitted on the module through the fabric channel since the entry was last initialized.
- Out Dropped—Total number of dropped packets transmitted on the module through the fabric channel since the entry was last initialized.
- In Util—Input utilization of the fabric channel for the module.
- Out Util—Output utilization of the fabric channel for the module.



This table is only supported in IOS versions 12.1(8a)EX and later; in earlier IOS versions, the table will be empty.

# **Additional Notes Tab**

Figure 5-27 shows the Additional Notes tab of the C6576M Switch Fabric Module dialog box.

Figure 5-27 Additional Notes Tab of the C6576M Switch Fabric Module Dialog Box

	C6576M Switch Fabric Module Dialog	
<u>File Edit Options Window Naviga</u>	tion <u>Actions</u>	р
1 🛯 🎂 🔳 📮 🖌 💡 🔍		
Chassis	Details Performance Additional Notes	1
may-Chassis	Notes	
SFM		
<u>7</u>	Z Z	
Status: C6576MChassis (normal)	Dynamic updates are enabled	

### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the Switch Fabric Module.

# C6576M FlexWAN Module Dialog Box

This dialog box provides information for the FlexWAN modules. This dialog box can be launched from a Chassis object or FlexWAN module object within the Physical view.

You can select one chassis and more than one FlexWAN module at a time from the object list on the left side of the dialog box.

# **Details Tab**

Figure 5-28 shows the Details tab of the C6576M FlexWAN module dialog box.

Figure 5-28 Details Tab of the C6576M FlexWAN Module Dialog Box

-	Flex	dWAN Module Management		
$\underbrace{\mbox{File}}_{\mbox{Edit}} \underbrace{\mbox{Constant}}_{\mbox{Options}} \underbrace{\mbox{Window}}_{\mbox{Navigation}} \underbrace{\mbox{Navigation}}_{\mbox{Navigation}}$	Actions			<u>H</u> elp
1 😂 📥 🔳 💽 🖌 💡 🔍				
Chassis	alls Additional Notes			1
cyber3550a-Chassis	Status			
ems2950e-Chassis ems3550c-Chassis	Operational Status	ok		
ems6008a-Chassis ems6506a-Chassis	Temperature			
ems6509neb-Chassis ems6513a-Chassis	Module Outlet	29C	Module Inlet	24C
ems7609a-Chassis jdp6509a-nsp-Chassis	Inventory			
	Model	WS-X6182-2PA	Serial Number	SAD052603NM
	Hardware Version	1.3		
	Software Version	12.1(12c)E4		
FlexWAN-4	Firmware Version	12.1(12c)E4		
	0-41		Desferences I amin	
	Actions		- Fertormance Logging	
	Commission	Decommission	Start	Stop
Status: FlexWANModule (performance), Chass	is (performance)			Dynamic updates are enabled

### **Status Area**

The Status area of the C6576M FlexWAN Module dialog box provides the following information:

- Operational Status—Displays the operational status of the FlexWAN module. This attribute is read-only and has one of the following values:
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

### **Inventory Area**

The Inventory area of the C6576M FlexWAN Module dialog box provides the following information. All the attributes in this area are read-only.

- Model—Model of the FlexWAN module. This attribute has the following value:
  - WS-X6182-2PA
- Serial Number—The serial number of the module.
- Hardware Version—The hardware version on the module.
- Software Version—The software version on the module.
- Firmware Version—The firmware version on the module.

### **Performance Logging Area**

The Performance Logging area of the C6576M FlexWAN Module dialog box contains these buttons to enable and disable performance logging of the interface attributes of the port adapters (if installed) on the FlexWAN module:

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.

Note

The logged data is available to the user through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Actions Area**

The Actions area of the C6576M FlexWAN Module dialog box provides the following actions:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current.

The decommission action allows a FlexWAN module to be removed and replaced without generating alarms.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.
- mismatched—The type of FlexWAN module discovered does not match the predeployed FlexWAN module.

# **Additional Notes Tab**

Figure 5-29 shows the Additional Notes tab of the C6576M FlexWAN Module dialog box.

# CG57/CM FlexWAN Module Dialog Image: CG57/CM FlexWAN Module Conservation Actions File Edit Options Window Maxingation Actions Help Image: CG57/CM FlexWAN Module Conservation Statue: CG57/CM FlexWAN Module Conservation Image: CG57/CM FlexWAN Module Conservation

Figure 5-29 Additional Notes Tab of the C6576M FlexWAN Module Dialog Box

### **Notes Area**

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The Notes area is a text box that allows you to type in additional notes for the FlexWAN module.

# **C6576M Port Adapter Dialog Box**

This dialog box provides information for the port adapters. This dialog box can be launched from a Chassis object or FlexWAN object within the Physical view.

You can select multiple chassis and port adapters at a time from the object list on the left side of the dialog box.

# **Details Tab**

Figure 5-30 shows the Details tab of the C6576M Port Adapter dialog box.

Figure 5-30 Details Tab of the C6576M Port Adapter Dialog Box

-	Port Adapter Management	
File Edit Options Window Navigatio	n Actions	Help
Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Chassis     Image: Second state     Image: Second state     Image: Second state       Chassis     Image: Second state     Image: Second state     Image: Second state       Chassis     Image: Second state     Image: Second state     Image: Second state       Chassis     Image: Second state     Image: Second state     Image: Second state       Chassis     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     Image: Second state     Image: Second state     Image: Second state       Image: Second state     <	etails Additional Notes Inventory Type Serial Number Number of Ports Hardware Version Software Version	Tesh
Port Adapter	Actions           Commission         Decommission         Start         Stop	
itatus: FlexWANModule (performance), Chas	sis (performance) Dynamic updates are e	nabled

### **Inventory Area**

The Inventory area of the C6576M Port Adapter dialog box provides the following information. All the attributes in this area are read-only.

- Model—Model of the port adapter. This attribute may have one of the following values:
  - PA-2E3-2-port serial E3 port adapter
  - PA-2H—2-port HSSI port adapter
  - PA-2T3-2-port serial T3 port adapter
  - PA-2T3+—Enhanced 2-port serial T3 port adapter
  - PA-4T+—Enhanced 4-port serial port adapter
  - PA-8T-232—8-port EIA/TIA-232 serial port adapter
  - PA-8T-V35-8-port V.35 serial port adapter

- PA-8T-X21-8-port X.21 serial port adapter
- PA-A3-E3—Enhanced ATM E3 port adapter
- PA-A3-OC3MM—Enhanced ATM, OC-3 multimode port adapter
- PA-A3-OC3SMI—Enhanced ATM, OC-3 single-mode intermediate reach port adapter
- PA-A3-OC3SML—Enhanced ATM, OC-3 single-mode long reach port adapter
- PA-A3-T3—Enhanced ATM T3 port adapter
- PA-E3—1-port serial E3 port adapter
- PA-H—1-port HSSI port adapter
- PA-MC-2T3+—Dual interface multichannel T3 port adapter
- PA-MC-8E1-8-port multichannel E1 port adapter
- PA-MC-8T1-8-port multichannel T1 port adapter
- PA-MC-E3—1-port multichannel E3 port adapter
- PA-MC-T3—1-port multichannel T3 port adapter
- PA-POS-OC3MM—Multimode PoS, OC3 port adapter
- PA-POS-OC3SMI—Single-mode intermediate reach PoS, OC3 port adapter
- PA-POS-OC3SML—Single-mode long reach PoS, OC3 port adapter
- PA-T3—1-port T3 serial port adapter
- PA-T3+—Enhanced 1-port T3 serial port adapter
- Serial Number—The serial number of the port adapter.



This attribute is unsupported for PA-ATMDX-E3 port adapter.

- Number of Ports—The number of ports on the port adapter.
- Hardware Version-The hardware version of the port adapter.
- Software Version—The software version of the port adapter.

### **Performance Logging Area**

The Performance Logging area of the C6576M ATM Interface dialog box contains the buttons to enable data logging of all the interface attributes of the port adapter.

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Actions Area**

The Actions area of the C6576M Port Adapter dialog box provides the following actions:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current.

The decommission action allows a port adapter to be removed and replaced without generating alarms.

## **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.
- mismatched—The type of port adapter discovered does not match the predeployed port adapter.

# **Additional Notes Tab**

Figure 5-31 shows the Additional Notes tab of the C6576M Port Adapter dialog box.

Figure 5-31 Additional Notes Tab of the C6576M Port Adapter Dialog Box

-	C6576M Port Adapter Dialog	• 🗆
<u>File</u> <u>Edit</u> <u>Options</u> <u>Window</u> <u>Navi</u>	jation Actions	Help
11 S 📩 🗏 💽 🗸 ? 🤇	Denous additional Notes	
	Notes	
PortAdapter-3-0 PortAdapter-3-1		<u> </u>
Status: C6576MFlexWANModule (normal). Status as of Thu Dec 27 11:37:40 200	. C6575HCF Dynamic updates 1.	are enabled

## **Notes Area**

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The Notes area is a text box that allows you to type in additional notes for the port adapter.

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# **C6576M Optical Services Modules Dialog Box**

This dialog box describes the physical Gigabit Ethernet WAN OSM (OSM GE-WAN), Packet over Sonet OSM (OSM PoS), and channelized SONET OSM on a Cisco 7600 series Internet Router. This dialog box can be launched from a Chassis object or an OSM module object within the Physical view.

You can select multiple chassis and OSMs at a time from the object list on the left side of the dialog box.

# **Details Tab**

Figure 5-32 shows the Details tab of the C6576M OSM dialog box.

Figure 5-32 Details Tab of the C6576M OSM Dialog Box

-	OSM Module Management		
<u>File Edit Options Window Naviga</u>	tion Actions	<u>H</u> elp	
Chassis       cyber3550a-Chassis       ems2950e-Chassis	Details Additional Notes		
ems3550c-Chassis ems6006a-Chassis ems6506a-Chassis ems6509neb-Chassis	Operational Status temperature Module Inlet	Module Outlet	
OSM Modules	Inventory Model	Serial Number	
OSM-8	Number of Ports Hardware Version Software Version Firmware Version		
	Actions Commission Decommission	Performance Logging Start Stop	
Status: OsmModule (perflostcomms), Cha	ssis (performance)	Dynamic updates are enabled	72188

### **Status Area**

The Status area of the C6576M OSM dialog box provides the following information.

- Operational Status—Displays the operational status of the OSM. This attribute has one of the following values. This is a read-only attribute.
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

### **Temperature Area**

The Temperature area of the C6576M OSM dialog box provides information for the following sensors. All the attributes in this area are read-only.

- Module Inlet—Inlet temperature of the module in degrees Celsius.
- Module Outlet—Outlet temperature of the module in degrees Celsius.

Each sensor can have the following values:

- <n>C—Temperature in degrees Celsius.
- N/O—Indicates that the sensor is not operational.
- N/A—Indicates that the sensor value is not available.

### **Inventory Area**

The Inventory area of the C6576M OSM dialog box provides the following information. All the attributes in this area are read-only.

- Model—Model of the OSM. This attribute has the following value:
  - OSM-4GE-WAN-GBIC—4-port Gigabit Ethernet Optical Services Module, GBIC
  - OSM-4OC12-POS-MM—4-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 Gigabit Ethernet ports
  - OSM-4OC12-POS-SI—4-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 Gigabit Ethernet ports
  - OSM-4OC12-POS-SL—4-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 Gigabit Ethernet ports
  - OSM-1OC48-POS-SS—1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, with 4 Gigabit Ethernet ports
  - OSM-1OC48-POS-SI—1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, with 4 Gigabit Ethernet ports
  - OSM-1OC48-POS-SL—1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, with 4 Gigabit Ethernet ports

- OSM-16OC3-POS-MM—16-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 Gigabit Ethernet ports
- OSM-16OC3-POS-SI—16-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 Gigabit Ethernet ports
- OSM-16OC3-POS-SL—16-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 Gigabit Ethernet ports
- OSM-2OC12-POS-MM—2-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 Gigabit Ethernet ports
- OSM-2OC12-POS-SI—2-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 Gigabit Ethernet ports
- OSM-2OC12-POS-SL—2-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 Gigabit Ethernet ports
- OSM-80C3-POS-MM—8-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 Gigabit Ethernet ports
- OSM-80C3-POS-SI—8-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 Gigabit Ethernet ports
- OSM-8OC3-POS-SL—8-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 Gigabit Ethernet ports
- OSM-1CHOC48/T3-SS—1-port Channelized OC48 to T3, Short Reach, with 4 Gigabit Ethernet ports
- OSM-1CHOC48/T3-SI—1-port Channelized OC48 to T3, Single-mode Intermediate Reach, with 4 Gigabit Ethernet ports
- OSM-2CHOC48/T3-SS—2-port Channelized OC48 to T3, Short Reach, with 4 Gigabit Ethernet ports
- OSM-2CHOC48/T3-SI—2-port Channelized OC48 to T3, Single-mode Intermediate Reach, with 4 Gigabit Ethernet ports
- OSM-4CHOC12/T3-MM—4-port Channelized OC12 to T3, Multi-mode, with 4 Gigabit Ethernet ports
- OSM-4CHOC12/T3-SI—4-port Channelized OC12 to T3, Single-mode Intermediate Reach, with 4 Gigabit Ethernet ports
- OSM-8CHOC12/T3-MM—8-port Channelized OC12 to T3, Multi-mode, with 4 Gigabit Ethernet ports
- OSM-8CHOC12/T3-SI—8-port Channelized OC12 to T3, Single-mode Intermediate Reach, with 4 Gigabit Ethernet ports
- Serial Number—The serial number of the module.
- Hardware Version—The hardware version on the module.
- Software Version—The software version on the module.
- Firmware Version—The firmware version on the module.

Performance Logging Area

The Performance Logging area of the C6576M Port Adapter dialog box contains the buttons to enable data logging of all the interface attributes of the OSM.

- Start—Turns on performance data logging.
- **Stop**—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Actions Area**

The Actions area of the C6576M OSM dialog box provides the following actions:

- **Commission**—This button is used to commission the object manually. This can only be done if the object is in a decommissioned state.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current.

The decommission action allows a OSM to be removed and replaced without generating alarms.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms-CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.
- mismatched—The type of OSM discovered does not match the predeployed OSM.

# **Additional Notes Tab**

Figure 5-33 shows the Additional Notes tab of the C6576M OSM dialog box.

 C6576M OSM Module Dialog
 C

 File Edit Options Window Havigation Actions
 Help

 Image: Chassis
 Image: Chassis

 Chassis
 Details

 Chassis
 Details

 Chassis
 Details

 Cost
 Notes

 Cost
 Notes

 OSM Modules
 Image: Cost

 OSM-3
 OSM-3

 OSM-3
 Image: Cost

 Status: (C6576MChassis (normal), C6576MCbaHodul
 Image: Cestore content

 Status: (C6576MChassis (normal), C6576MCbaHodul
 Image: Cestore content

Figure 5-33 Additional Notes Tab of the C6576M OSM Dialog Box

### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the OSM.

# C6576M SLB Dialog Box

The Content Switching Module is a line card that provides server load balancing (SLB) of client traffic to server farms, firewalls, Secure Sockets Layer (SSL) devices, or VPN termination devices. This dialog box provides information for SLB. This dialog box can be launched from a Chassis object or SLB object within the Physical view.

You can select one chassis and one SLB object at a time from the object list on the left side of the dialog box.

# **Details Tab**

Figure 5-34 shows the Details tab of the C6576M SLB dialog box.

Edit Ontiono Window Novier	tion Actions	SLB Module Mana;	genent		·	
					He	
hassis	Details Client Side Vlan	Server Side Vlan Server F	arms Virtual Servers	Additional Notes		
yber3550a-Chassis	Status					
ms2950e-Chassis ms3550c-Chassis ms6006a-Chassis	Operational Status	ok				
ms6506a-Chassis	Temperature					
ms6509neb-Chassis ms6513a-Chassis	Module Inlet	23C	Module Outlet	27C		
ns7609a-Chassis	Inventory					
ipoboba-risp-Criassis	Model	WS-X6066-SLB-APC	Туре	wsx6066SlbAp		
	Number of Ports	4	Serial Number	SAD051102CK		
	Hardware Version	1.2				
SLB=10	Software Version	Software Version 3.1(1a) 0000-00-00 00.00.00				
	Firmware Version					
	SLB Setting					
	Forwarding Mode	rp	Configured Mode	rp 🔽		
	Actions					
	Commission	Decommission				
ust SlbModule (performance), Chass	is (normal)				Dunamic updates are enabled	

Figure 5-34 Details Tab of the C6576M SLB Dialog Box

### **Status Area**

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The Status area of the C6576M SLB dialog box provides the following information:

- Operational Status—Displays the operational status of the CSM. This attribute has one of the following values. This is a read-only attribute.
  - other—The status is unknown.
  - ok—The status is normal.
  - minorFault—There is a minor problem.
  - majorFault—There is a major problem.



If this attribute has a value other than ok, an alarm is generated. (See Chapter 8, "Alarms and Alarm Management.")

### **Temperature Area**

The Temperature area of the C6576M SLB dialog box provides information for the following sensors. All the attributes in this area are read-only.

- Module Inlet—Inlet temperature of the module in degrees Celsius.
- Module Outlet—Outlet temperature of the module in degrees Celsius.

Each sensor can have the following values:

- <n>C—Temperature in degrees Celsius.
- N/O—Indicates that the sensor is not operational.
- N/A—Indicates that the sensor value is not available.

### **Inventory Area**

The Inventory area of the C6576M SLB dialog box provides the following information. All the attributes in this area are read-only.

- Model—Model of the Content Switching Module. This attribute has the following value:
  - WS-X6066-SLB-APC
- Type—The type of module.
- Number of Ports—The number of internal ports in the module.
- Serial Number—The serial number of the module.
- Hardware Version—The hardware version on the module.
- Software Version—The software version on the module.
- Firmware Version—The firmware version on the module.

### **SLB Setting Area**

The Inventory area of the C6576M SLB dialog box provides the following information:

- Forwarding Mode—The current SLB operating mode. This attribute has one of the following values. This is a read-only attribute.
  - csm(1)
  - rp(2)
- Configured Mode—The current configured SLB mode. This attribute has one of the following values:
  - csm(1)
  - **-** rp(2)



The configured SLB mode does not take effect until the Content Switching Module is reloaded. The reload is performed manually by executing the IOS config mode command **power cycle module** *slot\_number*.

Note

When changing the configured SLB mode from CSM to RP, the SLB configurations for CSM will be erased.

### **Actions Area**

The Actions area of the C6576M SLB dialog box provides the following actions:

- Commission—This button is used to commission the object manually. This can only be done if the
  object is in a decommissioned state.
- **Decommission**—This button is used to decommission the object manually. In the decommissioned state, the properties of the object are not monitored. As a result, data displayed in the configuration window is not guaranteed to be current.

The decommission action allows a Content Switching Module to be removed and replaced without generating alarms.

## **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field has the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.
- mismatched—The type of Content Switching Module discovered does not match the predeployed Content Switching Module.

# **Client Side VLAN Tab**

Figure 5-35 shows the Client Side VLAN tab of the C6576M SLB module dialog box.

Figure 5-35 Client Side VLAN Tab of the C6576M SLB Module Dialog Box

### **Client Side VLAN Area**

The Client Side VLAN area of the C6576M SLB dialog box provides the following information:

- Client VLAN Table—Identifies the client VLANs used by the CSM. These are the VLANs on the device to which clients will connect. The following attributes are displayed for the selected client VLANs in the table:
  - IP Address—IP address of the client VLAN.
  - Netmask—Subnet mask of the client VLAN IP address. Enabled bits indicate network addressing bits in the IP address.
- Client VLAN Gateway Table—Describes the default gateways associated with the client VLANs. There may be multiple gateways associated with each client VLAN. The following columns are displayed in this table:
  - Client Side VLAN—Unique identifier of a client VLAN on the device.
  - Gateway—Default gateway of a client VLAN. A router to the client VLAN must have this gateway address configured and real servers must point their gateways to this address.

**Client VLAN Config Area** 

The Client VLAN Config area of the C6576M SLB dialog box allows the user to add client side VLANs. The following attributes are configured:

• Client Side VLAN field—Unique identifier of a client VLAN on the device.



VLAN 1 is the default VLAN. VLAN identifiers greater than 1001 are reserved as the default VLANs for various media and for hidden VLANs generated by the device.

- Client VLAN Add button—Adds the client VLAN specified in the client side VLAN field. If you do not specify a VLAN in the Client Side VLAN field, no action will take effect.
- Client VLAN Remove button—Removes the client VLAN that is selected in the Client VLAN Table. A subdialog box is displayed asking the user to confirm the action.

### **Gateway Config Subarea**

The Gateway Config subarea allows the user to add a default gateways associated with the client VLAN specified in the Client Side VLAN field. This VLAN must already be configured as a client side VLAN.

- Gateway field—Default gateway associated with the client VLAN.
- Gateway Remove button—Removes the default gateway specified by the Gateway field and the Client Side VLAN field. You need to specify a VLAN in the Client Side VLAN field and an IP address in the Gateway field for the action to take effect.
- Gateway Add button—Adds the default gateway specified by the Gateway field and the Client Side VLAN field. You need to specify a VLAN in the Client Side VLAN field and an IP address in the Gateway field for the action to take effect.

# **Server Side VLAN Tab**

Figure 5-36 shows the Server Side VLAN tab of the C6576M SLB dialog.

C6576M SLB Module Dialog		· [
File Edit Options Window Navigation Actions		<u>H</u> elp
Image: Server Side Vian     Server Fame     Virtual Servers     Addition       Chassis     Details     Client Side Vian     Server Side Vian     Server Fame     Virtual Servers     Addition	nal Notes	
Server-side VLAN	- Server Vlan Config -	
P Address	Server Side Vlan	Server Vlan Add
		Server Van Remove
Alias	Alias Config	
Server Side Vian IP Address Netmask	IP Address	
SLB Module	Netmask	
<u> </u>	Alias Add	Alias Remove
Static Route	Static Route Config	
Server Side Vian Destination Network Destination Netm	Dest. Network	
	Dest. Netmask	
	Gateway	
		Static Route Add
		Static Route Remove
Status: C6576MChassis (normal)		Dynamic updates are enabled

Figure 5-36 Server Side VLAN Tab of the C6576M SLB Dialog Box

### **Server Side VLAN Area**

The Server Side VLAN area of the C6576M SLB dialog box provides the following information:

- Server VLAN Table—Identifies the server VLANs used by the CSM. These are the VLANs on the device to which servers will connect. The following attributes are displayed for the selected server VLANs in the table:
  - IP Address—IP address of the server VLAN.
  - Netmask—Subnet mask of the server VLAN IP address. Enabled bits indicate network addressing bits in the IP address.
- Server VLAN Alias Table—Describes the aliases of a server VLAN. If the CSM is in a different subnet from the real servers, aliases may be used to eliminate the need for a router. Only used in server mode. There may be multiple aliases associated with each server VLAN. The following attributes are displayed in the table:
  - Server Side VLAN—Unique identifier of a server VLAN on the device.
  - IP Address—IP address of the server VLAN.
  - Netmask—Subnet mask of the server VLAN alias IP address. Enabled bits indicate network addressing bits in the IP address.
- Server VLAN Static Route Table—Describes the static routes of a server VLAN. A static route is configured to reach a real server if it is more than one network hop away from the CSM. There may be multiple static routes configured for a server VLAN. The following attributes are displayed in the table:

- Server Side VLAN—Unique identifier of a server VLAN on the device.
- Destination Network—IP address of network on the server VLAN.
- Destination Netmask—Subnet mask of the network on the server VLAN. Enabled bits indicate network addressing bits in the IP address.
- Gateway—Default gateway of a server VLAN. A router to the client VLAN must have this gateway address configured and real servers must point their gateways to this address.

### Server VLAN Config Area

The Server VLAN Config area of the C6576M SLB dialog box allows you to add server side VLANs. The following attributes are configured:

- Server Side VLAN field—Unique identifier of a server VLAN on the device.
- Server VLAN Add button—Adds the server VLAN specified in the Server Side VLAN field. You need to specify a VLAN in the Server Side VLAN field for the action to take effect.
- Server VLAN Remove button—Removes the server VLAN that is selected in the Server VLAN Table. A subdialog box is displayed asking the user to confirm the action.

### **Alias Config Subarea**

This subarea allows you to add aliases associated with the server VLAN specified in the Server Side VLAN field. This VLAN must already be configured as a Server Side VLAN.

- IP Address field—IP address of the server VLAN.
- Netmask field—Subnet mask of the server VLAN alias IP address. Enabled bits indicate network addressing bits in the IP address.
- Alias Remove button—Removes the alias specified by the IP Address, Netmask, and Server Side VLAN fields. You need to specify a VLAN in the Server Side VLAN field, an IP address in the Alias IP Address field, and a subnet mask in the Alias Netmask field for the action to take effect.
- Alias Add button—Adds the alias specified by the IP Address, Netmask, and Server Side VLAN fields. You need to specify a VLAN in the Server Side VLAN field, an IP address in the Alias IP Address field, and a subnet mask in the Alias Netmask field for the action to take effect.

### **Static Route Config Subarea**

This subarea allows the user to add static routes of a server VLAN specified in the Server Side VLAN field. This VLAN must already be configured as a server side VLAN.

- Destination Network field—IP address of network on the server VLAN.
- Destination Netmask field—Subnet mask of the network on the server VLAN. Enabled bits indicate network addressing bits in the IP address.
- Gateway field—Default gateway of a server VLAN. A router to the client VLAN must have this gateway address configured and real servers must point their gateways to this address.
- Static Route Remove button—Removes the static route specified by the Destination Network, Destination Netmask, Gateway, and Server Side VLAN fields.
- Static Route Add button—Adds the static route specified by the Destination Network, Destination Netmask, Gateway, and Server Side VLAN fields.

For the Static Route Remove and Static Route Add button actions to take effect, you need to specify the static route using one of the following sets of attributes:

- Option (A)
  - A VLAN in the Server Side VLAN field
  - An IP address in the Destination Network field
  - A Subnet Mask in the Destination Netmask field
- Option (B)
  - A VLAN in the Server Side VLAN field
  - An IP address in the Gateway field
- Option (C)
  - A VLAN in the Server Side VLAN field
  - An IP address in the Destination Network field
  - A Subnet Mask in the Destination Netmask field
  - An IP address in the Gateway field

# **Server Farms Tab**

Figure 5-37 shows the Server Farms tab of the C6576M SLB dialog box.

Figure 5-37 Server Farms Tab of the C6576M SLB Dialog Box

-	C6576M SLB Module Dialog	• 🗆
File Edit Options Window Navigation	n Actions	Help
	etails Client Side Vlan Server Side Vlan Server Farms Virtual Servers Additional Notes	
CANDE DZE CHASSIS	Server Farm Server Farm Config	
	Server Farm Name	
	Server Farm Add	
	Server Farm Remove	
	Real Server Config	
	Server Farm Name Real IP Address Tcp Port Current Connection	
SLB Module	Real IP Address	
A		
	Tcp Port	
	Real Server Add	
	Real Server Remove	
Status: C6576MChassis (normal)	Dynawic updates are enab	led
## **Server Farm Area**

The Server Farm area of the C6576M SLB dialog box provides the following information:

- Server Farm Table—Describes the configured server farms. The following attributes are displayed for the selected server farm in the table:
  - Server Farm Index—Unique identifier of a server farm on the device.
  - Predictor—Load-balancing predictor algorithm. This attribute can have one of the following values:
  - roundrobin (1)
  - leastconns (2)
  - other (3) (not in write)



• A value of other (3) indicates the predictor algorithm is of a type unsupported by the C65/76M EMS. A value of other (3) is not supported for write operations.

- Real Server Table—Describes the real servers in a server farm. The following columns are displayed in the table:
  - Server Farm Name—Unique identifier of a server farm on the device.
  - Real IP Address—IP address of the real server.
  - TCP Port—Optional TCP Port translation for the real server.
  - Current Connections—Number of current connections to the real server.
  - Operation Status—The operational status of the real server. This attribute can have the following values:
  - outOfService (1)
  - operational (2)
  - failed (3)
  - Admin Status—The administrative status of the real server. When the administrative status is changed to inService (2), it enables the real server for use by SLB. This attribute can have the following values:
  - outOfService (1)
  - inService (2)
  - Admin Weight—Configured weighting value to use for virtual server predictor algorithm.
  - Current Weight—Actual real server weighting factor.
  - Minimum Connections—When the maximum connections is exceeded, no more connections will be established to the real server until the number of connections falls below this value. The valid values range from 0 to 4294967295. This value must be less than the currently configured maximum connections.
  - Maximum Connections—Maximum number of active connections on the real server at any one point. If the value is set to the maximum of 4294967295, it indicates that the maximum is infinite (not monitored). This value must be greater than the currently configured minimum connections.

#### **Server Farm Config Area**

The Server Farm Config area of the C6576M SLB dialog box allows you to add and configure server farms. The following attributes are configured:

- Server Farm Name field—Unique identifier of a server farm on the device.
- Server Farm Add button—Adds the server farm specified in the Server Farm Name field. You need to specify a name in the Server Farm Name field for the action to take effect.
- Server Farm Remove button—Removes the server farm that is selected in the Server Farm Table. A subdialog box is displayed asking the user to confirm the action.

#### **Real Server Config Subarea**

This subarea allows the user to add and remove real servers to the server farm specified in the Server Farm Name field.

- Real IP Address field—IP address of the real server.
- TCP Port—Optional TCP Port translation for the real server.
- Real Server Add button—Adds the real server specified by the Real IP Address, TCP Port, and Server Farm Name fields. You need to specify a name in the Server Farm Name field, an IP address in the Real IP Address field, and a port number in the TCP Port field for the action to take effect.
- Real Server Remove button—Removes the real server specified by the Real IP Address, TCP Port, and Server Farm Name fields. You need to specify a name in the Server Farm Name field, an IP address in the Real IP Address field, and a port number in the TCP Port field for the action to take effect.

# **Virtual Servers Tab**

Figure 5-38 shows the Virtual Servers tab of the C6576M SLB dialog box.

	C6576N	ISLB Module Dialog		r [
le Edit Options Window Navig	ttion <u>A</u> ctions			Help
Chassis	Details Client Side Vian Server Side Via Virtual Server France Server Server Currer Opera	a Server Farms Virtual Servers ress ress Farm Name ner t Connections too Status	Additional Notes     Virtual Server     Virtual Server     Virtual Server	Vartual Server Add
SLB Module	- Client Access List Virtual Server Name IP Add	ress Netmask	Mode IP Address Netmask Mode	
5				Client Add Client Remove
tus: C6576MChassis (normal)				Dynamic updates are enabled

Figure 5-38 Virtual Servers Tab of the C6576M SLB Dialog Box

#### **Virtual Server Area**

The Virtual Server area of the C6576M SLB dialog box allows the user to configure a virtual server to bring it into service.

Note

To modify attribute values, enter the desired value into the fields and press the Save icon in order for changes to take effect. Click **Refresh** to display the new settings.

The following information is provided:

- Virtual Server Table—Describes the virtual servers. The following attributes are displayed for the selected virtual server in the table:
  - Virtual Server Index—Unique identifier of a virtual server on the device.
  - IP Address—IP address of the virtual server. A value of 0.0.0 indicates that no IP address is configured.
  - TCP Port—TCP port of the virtual server. A value of 0 indicates all ports are supported. Well known port numbers include:
  - dns (53)
  - ftp (21)
  - https (443)
  - matip-a (350)
  - nntp (119)
  - pop2 (109)
  - pop3 (110)
  - smtp (25)
  - telnet (23)
  - www (80)
  - xot (1998)



This attribute cannot be nil if the virtual server IP address is set to a value other than 0.0.0.0. If virtual server IP address is set to 0.0.0.0, it indicates that no IP address has been configured and the value of the TCP port number is not applicable. On read, a value of 0 will always be returned.

- Server Farm Name—Identifies the server farm associated with the virtual server. This referenced server farm must be unique on the device.
- Idle Timer—The duration that connection information is maintained in the absence of packet activity for a connection.
- Current Connections—Number of current connections to the virtual server.
- Operation Status—The operational status of the virtual server. This attribute can have the following values:
- outOfService (1)
- operational (2)
- failed (3)

- Admin Status—The administrative status of the virtual server. This attribute can have the following values:
- outOfService (1)
- inService (2)
- Virtual Server Client Table—Describes the restricted clients of a virtual server. Client ranges are configured to permit or deny clients using the virtual server. The following columns are displayed in the table:
  - Virtual Server Name field—Unique identifier of a virtual server on the device.
  - IP Address field—IP address of a virtual server restricted client range.
  - Netmask field—Subnet mask of a virtual server restricted client range. Enabled bits indicate network addressing bits in the IP address.
  - Mode—Indicates whether or not the restricted client range defines clients that may not use the virtual server.

#### **Virtual Server Config Area**

The Virtual Server Config area of the C6576M SLB dialog box allows the user to add and configure virtual servers. The following attributes are configured:

- Virtual Server Name field—Unique identifier of a virtual server on the device.
- Virtual Server Add button—Adds the virtual server specified in the Virtual Server Name field. You need to specify a name in the Virtual Server Name field for the action to take effect.
- Virtual Server Remove button—Removes the virtual server that is selected in the Virtual Server Table. A subdialog box is displayed asking the user to confirm the action.

#### **Client Config Subarea**

- This subarea allows the user to add a client range to a virtual server definition. This action is used to restrict which clients are allowed to connect to the virtual server. The following attributes can be configured:
  - IP Address field—IP address of a virtual server restricted client range.
  - Netmask field—Subnet mask of a virtual server restricted client range. Enabled bits indicate network addressing bits in the IP address.



The IP address and netmask must specify a unique client range on the virtual server. The netmask must agree with the class of network address specified by the IP address.

- Mode button—Indicates that the restricted client range defines clients that may not use the virtual server. The client is excluded.
- Client Add button—Adds the client range to a virtual server definition. You need to specify a
  name in the Server Farm Name field, an IP address in the IP Address field, and a subnet mask
  in the Netmask field, and select a mode for the action to take effect.
- Client Remove button—Removes the client range to a virtual server definition.

# **Additional Notes Tab**

Figure 5-39 shows the Additional Notes tab of the C6576M SLB dialog box.

Cé5276M SLB Module Dialog

File Edit Options Window Havigation Actions

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Details

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Figure 5-39 Additional Notes Tab of the C6576M SLB Dialog Box

## **Notes Area**

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The Notes area is a text box that allows you to type in additional notes for the SLB.

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# C6576M ATM T3 Interface Dialog Box

This dialog box describes a physical and logical enhanced ATM T3 interface of the PA-A3-T3 port adapter on the Catalyst 6000 family switches or Cisco 7600 series Internet Routers. This dialog box is launched from the ATM port adapter or the ATM T3 interface object within the Physical view.

You can select multiple ATM T3 interfaces, port adapters, FlexWAN modules, and chassis at a time from the object list on the left side of the dialog box.

# **Status Tab**

Figure 5-40 shows the Status tab of the C6576M ATM T3 Interface dialog box.

	ATM/T3 Interface Management	· -
File Edit Options Window Navig	ation Actions	Help
Image: Second state of the second	Ativity Interface Management ation Actions Status Configuration ATM/T3 Performance Routing Protocol Additional Notes Interface Status Description Index Operational Status Administrative Status Up r Last Change Connector Present Number of Resets Performance Logging Start Stop	Help
itatus: Chassis (performance)	Bynamic updates	are enabled

Figure 5-40 Status Tab of the C6576M ATM T3 Interface Dialog Box

#### **Interface Status Area**

The Status area of the C6576M ATM T3 Interface dialog box provides the following information to describe the general characteristics of the interface.

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This is a read-only attribute.
- Operational Status—The current operational state of the interface. This is a read-only attribute. This attribute has one of the following values:
  - testing—Indicates that no operational packets can be passed.
  - unknown
  - down
  - up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing (typically, hardware) components.
  - lowerLayerDown—The interface in the lower layer is down.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - testing (read-only)—Indicates that no operational packets can be passed.
  - **–** up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last reinitialization of the local network management subsystem, then this object contains a zero value. This is a read-only attribute.
- Connector Present—Indication if a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is displayed. This is a read-only attribute. This attribute can have the following values:
  - yes—Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This is a read-only attribute.

#### **Performance Logging Area**

The Performance Logging area of the C6576M ATM T3 Interface dialog box contains the buttons to enable data logging of all the interface attributes of the interface.

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.

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The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field has the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms-CEMF lost communication with the device from the normal state.
- perflostcomms—CEMF lost communication with the device from the performance state.

# **Configuration Tab**

Figure 5-41 shows the Configuration tab of the C6576M ATM T3 Interface dialog box.

#### Figure 5-41 Configuration Tab of the C6576M ATM T3 Interface Dialog Box

	C6576M ATM T3 Interface D	Dialog	
File Edit Options Window Navigat	ion <u>A</u> ctions		Help
ATM Port Adapters	Status Configuration ATM/T3 Performance Ro General Link Up/Down Trap enabled I MAC Address 0 0 0 0 0 MTU 7788	uting Protocol Additional Notes Max. Input Queue Length Max. Output Queue Length Delay Bandwidth Layer 3 IP Address 1, 2, 0 Netmask 255, 255, 255 Clear IP Address	44 44 10 100
atus: C6576MAtmT3Interface (normal),	C6576MF	Dynamic updates	are enabled

## **General Area**

The General area contains the following information:

- Link Up/Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.
- Bandwidth—Overwrites default bandwidth in kilobits per second.



The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

• Delay-Specifies the delay in tens of microseconds for an interface or network segment.



The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

- Input Queue Length—Input queue length in packets.
- Output Queue Length—Output queue length in packets.

#### Layer 2 Area

The Layer 2 area contains the following information:

- MAC Address—Displays the MAC address of the interface.
- MTU—The size of the largest packet which can be sent/received on the interface, specified in octets.

### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the layer 3 interface.
- Netmask—Subnet mask of the interface IP address. Enabled bits indicate the network addressing bits in the IP address.
- Clear IP Address After receiving confirmation, will unset the IP address for this interface.

# ATM/T3 Tab

Figure 5-42 shows the ATM/T3 tab of the C6576M ATM T3 Interface dialog box.

Image: Bit Options Window Havington Actions     Image: Bit	-	C6576M ATM T3 Interface I	Dialog		• 🗆
Image: Image	<u>File Edit Options Window Navig</u>	ation <u>A</u> ctions			Help
Chasis  Status Configuration ATM73 Performance Routing Protocol Additional Notes  T  T  Ciock Source  pageTining  PageTinin	1 🛯 📇 🔳 💽 🖌 💡 🔍				
ATM   ATM Modules   ATM Modules   ATM Port Adapters   ATM/T3 Interfaces	Chassis	Status Configuration ATM/T3 Performance Ro	outing Protocol Additional No	otes	
ATM Modules  ATM Modules  ATM Modules  ATM Modules  ATM Modules  ATM Modules  ATM Adapters  ATM Port Adapters  ATM/T3 Interfaces  ATM/T3 Interface ATM/T3 Int					
ATM Modules ATM Modules ATM Port Adapters ATM 73 Interfaces Line Station ID Line Build-Out Length short Line Build-Out Length short ATM 73 Interfaces Status: (05/59/PortMdattr (noreal), (05/59/Fig):			T3	la antituda n	
ATM Modules  ATM Modules  Che Station ID  Che Hype  Scrambling  Line Build-Out Length  Short  Scrambling  Line Build-Out Length  Short  Che Hype  Scrambling  Line Build-Out Length  Short  Status: (S576Pforthdapter (tornel), (S576Pfle)  Denate update are enabled			Clock Source		
ATM Modules Line Build-Out Length		End-Station ID	Line Type	dsNSotnei <u>Y</u>	
ATM Pot Adapters ATM/T3 Interfaces ATM/T3 Interfaces tatus: C6576HPortAdapter (normal), C6576HT.lex	ATM Modules		Scrambling	tu» <u>Y</u>	
ATM Pot Adapters ATM 73 Interfaces			Line Build-Out Length	shori <u>y</u>	
ATM Port Adapters ATM Port Adapters ATM/T3 Interfaces Control (1997) C6576PfetMdapter (normal), C6576Pfe) Denaute updates are enabled					
ATM Port Adapters					
ATM Port Adapters					
ATM Port Adapters					
ATM/T3 Interfaces	ATM Port Adapters				
ATM/T3 Interfaces	4				
ATM/T3 Interfaces					
ATM/T3 Interfaces					
ATM/T3 interfaces					
ATM/T3 Interfaces					
tatus: C6576HPortAdapter (normal), C6576HF1e)	ATM/T3 Interfaces				
Status: (6576MPortAdapter (normal), (6576MF1e)					
Status: C6576MPortAdapter (normal), C6576MF1e> Dunanic updates are enabled					
Status: C6576MPortAdapter (normal), C6576MF1e) Dunanic updates are enabled					
Status: (5578MPortAdapter (normal), (5578MF1e) Dunamic updates are enabled					
Status: C6576MPortAdapter (normal), C6576MFle>					
	Status: C6576MPortAdapter (normal), C	:6576MF1e>		Dunamic updates are en	abled
				are up are on	

Figure 5-42 ATM/T3 Tab of the C6576M ATM T3 Interface Dialog Box

## **ATM Area**

The ATM area contains the following information:

- NSAP Address—Unique identifier of node in ATM network. This address is required if not implemented by ATM CM.
- End-Station ID—End-station ID of node in ATM network. The NSAP address prefix is provided by the switch to the router through ILMI. There must be a PVC configured for ILMI communication with the switch. This address is required if not implemented by ATM CM.

#### T3 Area

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The T3 area contains the following information:

- Clock Source—Source of the transmit clock.
  - loopTiming—Indicates that the recovered receive clock is used as the transmit clock.
  - localTiming—Indicates that a local clock source is used or that an external clock is attached to the box containing the interface.
- Line Type—Indicates DS-3 framing. The following values are possible:
  - dsx3other
  - dsx3M23
  - dsx3CbitParity
  - dsx3ClearChan
- Scrambling—Indicates whether DS-3 scrambling is enabled on the interface. Scrambling assists recovery of the clock by the receiver.
- Line Build-Out Length—Line build-out length.
  - short—0 to 50 feet
  - long—Greater than 50 feet

# **Performance Tab**

Figure 5-43 shows the Performance tab of the C6576M ATM T3 Interface dialog box.

Figure 5-43 Performance Tab of the C6576M ATM T3 Interface Dialog Box

-	C6576M ATM T3 Interfa	ce Dialog	· [
File Edit Options Window Navigat	tion <u>A</u> ctions		<u>H</u> elp
VI SS 📂 🔳 💽 🖌 💡 🔍			
Chasaia	out of a second to a second second		
Chassis	Status Configuration ATM/13 Performance	Routing Protocol Additional Notes	
A	Interface Packets/Octets Statistics		
	Bandwidth Util (%)		
	In Octets	Out Octets	
	In Unicast Pkts.	Out Unicast Pkts	
	In Packets/Sec	Out Packets/Sec	
ATM Modules	In Bits/Sec	Out Bits/Sec	
A	Interface Error Statistics		
	CRC Error Pkts.		
	In Discarded Pkts.	Out Discarded Pkts.	
	In Dropped Pkts.	Out Dropped Pkts.	
	In Ignored Pkts.		
	In Aborted Pkts.		
ATM Port Adapters	In Error Pkts.	Out Error Pkts.	
4	АТМ/ТЗ		
	C-bit Errored Secs	P-bit Errored Secs	
	C-bit Severely Err Secs	P-bit Severely Err Secs	
	C-bit Coding Violations	P-bit Coding Violations	
	Line Errored Secs	Line Coding Violations	
ATM/T3 Interfaces	Unavall Secs	Severely Err Frm Secs	
A	ATM/T3 Far End		
	C-bit Errored Secs	Flansed Secs	
	C-bit Severely Err Secs	Linovail Sace	
	C-bit Coding Violations		
$\nabla$	C-bit County violations		
tatus: C6576MPortAdapter (normal), C65	76MF1e>	Dynamic updates	are enabled

#### Interface Packets/Octets Statistics Area

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets, delivered by this sublayer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent them from being delivered to a higher-layer protocol. One possible reason for discarding such a packet is to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent them from being transmitted. One possible reason for discarding such a packet is to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors that prevented them from being deliverable to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### ATM/T3 Area

The ATM/T3 area contains the following information:

- C-bit Errored Secs—C-bit errored seconds.
- C-bit Severely Err Secs-C-bit severely errored seconds.
- C-bit Coding Violations—C-bit coding violations.
- P-bit Errored Secs—P-bit errored seconds.
- P-bit Severely Err Secs—P-bit severely errored seconds.

- P-bit Coding Violations—P-bit coding violations.
- Line Errored Secs—Line errored seconds.
- Line Coding Violations—Line coding violations
- Unavail Secs—Unavailable seconds.
- Severely Err Frm Secs—Severely errored framing seconds.

### **ATM/T3 Far End Area**

The ATM/T3 Far End area contains the following information:

- C-bit Errored Secs—Far end C-bit errored seconds.
- C-bit Severely Err Secs—Far end C-bit severely errored seconds.
- C-bit Coding Violations—Far end C-bit coding violations.
- Elapsed Secs—Number of seconds which have elapsed since the beginning of the far end current error-measurement period.
- Unavail Secs—Far end unavailable seconds.

# **Routing Protocol Tab**

Figure 5-44 shows the Routing Protocol tab of the C6576M ATM T3 Interface dialog box.

-	C6576M ATM T3 Interface Dialog	•
File Edit Options Window Naviga	ation Actions	Help
1 3 🗁 🗏 💽 🖌 📍 🍳	8	
Chassis	Status Configuration ATM/T3 Performance Routing Protocol Additional Notes	
	OSPF	
	OSPF Network Type broadcasi I Trans. Dead (sec)	
T T	Area ID Trans. Priority	
	Authentication Key Trans. Delay (sec)	
ATM Modules	Hello Interval (sec) Retrans. Interval (sec)	
	- FIGRP	
	Interface	
	Bandwidth Utilization (%)	
	Hold Time (sec)	
	Hello Interval (sec)	
ATM Port Adapters		
	IS-1S	
	ISIS Enabled Area Tag	
	Level 1 Hello Interval	
ATM/T3 Interfaces	Level 1 Metric	
	Level 1 Priority Level 2 Priority	
	Enable Disable	
Status: C6576MPortAdapter (normal), CF	6576MF1e> Dynamic updates are ena	bled

Figure 5-44 Routing Protocol Tab of the C6576M ATM T3 Interface Dialog Box

### **OSPF** Area

The OSPF area contains the following information:

- OSPF Network Type—OSPF network type. ATM is a point-to-point service; by default it is considered to be nonbroadcast by the OSPF routing process. An ATM interface can be configured as a broadcast interface. The OSPF network type also can be dependent on the ATM network configuration, whether or not the network is partially meshed or fully meshed.
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. It is ignored if OSPF Authentication Type is not "simple". This attribute is read-only.
- Hello Interval—Length of time between the hello packets sent on an OSPF interface. Must be consistent between all routers on an attached network. This attribute is read-only.

- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. In the event of a tie in this value, routers will use their router ID as a tie breaker. This attribute is read-only.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network. This attribute is read-only.
- Trans. Delay (sec)—Estimated number of seconds it takes to send a link-state update packet this interface. This attribute is read-only.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value also is used when retransmitting database description and link-state request packets. This attribute is read-only.

### **EIGRP** Area

The EIGRP area describes the EIGRP configuration of the interface on each active autonomous system. This area contains the following information:

- EIGRP Interface Table—Lists the active EIGRP routing processes on the router. Each routing process handles routing updates for a single autonomous system. The routing process only is active if it is deployed on at least one network.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.
- Bandwidth Utilization (%)—Percentage of bandwidth that may be used by EIGRP on the interface. Values greater than 100 percent may be configured; this can be useful if the bandwidth is set artificially low for other reasons.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.

## **IS-IS Area**

The IS-IS area contains the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface. This attribute is read-only.
- Area Tag—Identifies the IS-IS routing area that the interface participates in. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag. This attribute is read-only.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing. With smaller hello intervals, topological changes are detected faster, but there is more routing traffic.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 1 Priority—Level 1 priority. The priority is used to determine which router on a LAN will be the designated router or Designated Intermediate System (DIS). The router with the highest priority will become the DIS. In the case of equal priorities, the highest MAC address breaks the tie.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.

- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 2 Priority—Level 2 priority.
- Enable button—Enables IS-IS routing on the interface.



- **Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.
- Disable button—Disables IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

# **Additional Notes Tab**

Figure 5-45 shows the Additional Notes tab of the C6576M ATM T3 Interface dialog box.



Figure 5-45 Additional Notes Tab of the C6576M ATM T3 Interface Dialog Box

### **Notes Area**

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The Notes area is a text box that allows you to type in additional notes for the ATM T3 Interface.

# C6576M ATM E3 Interface Dialog Box

This dialog box describes a physical and logical enhanced ATM E3 interface of the PA-A3-E3 FlexWAN port adapter on the Catalyst 6000 family switches or Cisco 7600 series Internet Routers. This dialog box can be launched from the ATM port adapter or the ATM T3 interface object within the Physical view.

You can select multiple ATM E3 Interfaces, port adapters, FlexWAN modules, and chassis at a time from the object list on the left side of the dialog box.

# **Status Tab**

Figure 5-46 shows the Status tab of the C6576M ATM E3 Interface dialog box.

Ile     Edit     Options     Window     Navigatir       Image: State of the state of	tatus Configuration ATM/E3 Performance Routing Protocol Additional Notes  Interface Status  Description Index Operational Status	Help
Image: Second secon	tatus Configuration ATM/E3 Performance Routing Protocol Additional Notes Interface Status Description Index Operational Status	
ATM/E3 Interfaces	Administrative Status up  Last Change Connector Present Number of Resets Performance Logging Start Stop	

Figure 5-46 Status Tab of the C6576M ATM E3 Interface Dialog Box

#### **Interface Status Area**

The Status area of the C6576M ATM E3 Interface dialog box provides the following information to describe the general characteristics of the interface:

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.

- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - testing-Indicates that no operational packets can be passed.
  - unknown
  - down
  - **–** up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing (typically, hardware) components.
  - lowerLayerDown—The interface in the lower layer is down.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - testing (read-only)—Indicates that no operational packets can be passed.
  - **–** up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.
- Connector Present—Indication if a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is given. This attribute is read-only. This attribute can have the following values:
  - yes-Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.

#### **Performance Logging Area**

The Performance Logging area of the C6576M ATM E3 Interface dialog box contains the buttons to enable data logging of all the interface attributes of the interface.

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to the user through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

# **Configuration Tab**

Figure 5-47 shows the Configuration tab of the C6576M ATM E3 Interface dialog box.

#### Figure 5-47 Configuration Tab of the C6576M ATM E3 Interface Dialog Box

	C6576M ATM/E3 Interface Dialog	•
File Edit Options Window Naviga	ation Actions	Help
Chassis Chassis Chassis Chassis ATM Modules Elexwan-6 Chassis ATM Port Adapters PortAdapter 8-1 Chadapter 8-1 Chadapter 8-1 Chassis ATM/E3 Interfaces CTM-8-1-0 CTM-8-1-0	Status       Configuration       ATM/E3       Performance       Routing Protocol       Additional Notes         General       Ink Up/Down Trap       enabled       Max. Input Queue Length       44         Max       Output Queue Length       44         Delay       10       Bandwidth       500         Layer 2       Layer 3       IP Address       191, 191, 122         MTU       1500       Gear IP Address       255, 255, 0	
itatus: C6576MAtmE3Interface (normal). Status as of Thu Jun 20 16:46:42 2002	C6576₩ Dynamic updates are enabl	ed

## **General Area**

The General area contains the following information:

- Link Up/Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.
- Bandwidth—Overwrites default bandwidth in kilobits per second.



The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

• Delay-Specifies the delay in tens of microseconds for an interface or network segment.



The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

- Input Queue Length—Input queue length in packets.
- Output Queue Length—Output queue length in packets.

#### Layer 2 Area

The Layer 2 area contains the following information:

- MAC Address—Displays the MAC address of the interface.
- MTU—The size of the largest packet which can be sent/received on the interface, specified in octets.

### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the layer 3 interface.
- Netmask—Subnet mask of the interface IP address. Enabled bits indicate the network addressing bits in the IP address.
- Clear IP Address button— After receiving confirmation, will unset the IP address for this interface.

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# ATM/E3 Tab

Figure 5-48 shows the ATM/E3 tab of the C6576M ATM E3 Interface dialog box.

C6576M ATM/E3 Interface Dialog File Edit Options Window Navigation Actions <u>H</u>elp il 🏐 📥 🔳 💽 🖌 💡 🔍 Status Configuration ATM/E3 Performance Routing Protocol Additional Notes Chassis АТМ E3 NSAP Address Clock Source loopTiming End-Station ID E3 Framing geszadin <u>7</u> T E3 Scrambling irue ATM Modules ATM Port Adapters ATM/E3 Interfaces Dynamic updates are enabled

Figure 5-48 ATM/E3 Tab of the C6576M ATM E3 Interface Dialog Box

### **ATM Area**

The ATM area contains the following information:

- NSAP Address—Unique identifier of node in ATM network. This address is required if not implemented by ATM CM.
- End-Station ID—End-station ID of node in ATM network. The NSAP address prefix is provided by the switch to the router through ILMI. There must be a PVC configured for ILMI communication with the switch. This address is required if not implemented by ATM CM.

#### E3 Area

The E3 area contains the following information:

- Clock Source—Source of the transmit clock.
  - loopTiming—Indicates that the recovered receive clock is used as the transmit clock.
  - localTiming—Indicates that a local clock source is used or that an external clock is attached to the box containing the interface.
- E3 Framing—Describes E3 framing. The following values are possible:
  - g832adm
  - g751adm
  - g751plcp
- E3 Scrambling—Indicates whether or not E3 scrambling is enabled on the interface. Scrambling assists recovery of the clock by the receiver.

# **Performance Tab**

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Figure 5-49 shows the Performance tab of the C6576M ATM E3 Interface dialog box. All attributes shown in this tab are read-only.

Figure 5-49 Performance Tab of the C6576M ATM E3 Interface Dialog Box

-	C6576M ATM/E3 Interfa	ce Dialog	
File Edit Options Window Na	vigation Actions		Help
1 🛯 🗁 🔳 🗊 🗸 💡	3		
Chassis	Status Configuration ATM/E3 Performance	P Routing Protocol Additional Notes	
C7600-104-Chassis	Interface Packets/Octets Statistics		
	Bandwidth Util (%)		
	In Octets	Out Octets	
V	In Unicast Pkts.	Out Unicast Pkts	
	In Packets/Sec	Out Packets/Sec	
ATM Modules	In Bits/Sec	Out Bits/Sec	
FlexWAN-6	Interface Error Statistics		
	CRC Error Pkts.		
	In Discarded Pkts.	Out Discarded Pkts.	
	In Dropped Pkts.	Out Dropped Pkts.	
	In Ignored Pkts.		
ATM Port Adapters	In Aborted Pkts.		
PortAdapter=6=0	In Error Pkts.	Out Error Pkts.	
	DX3 Current Table		
	C-bit Errored Secs	P-bit Errored Secs	
V	C-bit Severely Err Secs	P-bit Severely Err Secs	
	C-bit Coding Violations	P-bit Coding Violations	
ATM/E3 Interfaces	Line Errored Secs	Line Coding Violations	
	Unavail Secs	Severely Err Frm Secs	
É É	DX3 Far End Current Table		
	C-bit Errored Secs	Elapsed Secs	
	C-bit Severely Err Secs	Unavail Secs	
<u> </u>	C-bit Coding Violations		
Status: C6576MAtmPortAdapter (norm	al), C6576MF	Dynamic updates	are enabled

#### **Interface Packets / Octets Statistics Area**

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets, delivered by this sublayer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec-Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets which had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent them from being deliverable to a higher-layer protocol. One possible reason for discarding such a packet is to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were simply ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

### **DX3 Current Area**

The DX3 Current area contains the following information:

- C-bit Errored Secs—C-bit errored seconds.
- C-bit Severely Err Secs—C-bit severely errored seconds.
- C-bit Coding Violations—C-bit coding violations.
- P-bit Errored Secs—P-bit errored seconds.
- P-bit Severely Err Secs—P-bit severely errored seconds.

- P-bit Coding Violations—P-bit coding violations.
- Line Errored Secs—Line errored seconds.
- Line Coding Violations—Line coding violations
- Unavail Secs—Unavailable seconds.
- Severely Err Frm Secs—Severely errored framing seconds.

## **DX3 Far End Current Area**

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The DX3 Far End Current area contains the following information:

- C-bit Errored Secs—Far end C-bit errored seconds.
- C-bit Severely Err Secs—Far end C-bit severely errored seconds.
- C-bit Coding Violations—Far end C-bit coding violations.
- Elapsed Secs—Number of seconds that have elapsed since the beginning of the far end current error-measurement period.
- Unavail Secs—Far end unavailable seconds.

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# **Routing Protocol Tab**

Figure 5-50 shows the Routing Protocol tab of the C6576M ATM E3 Interface dialog box.

Figure 5-50 Routing Protocol Tab of the C6576M ATM E3 Interface Dialog Box

-	C6576M ATM/E3 Interface Dialog	· []
File Edit Options Window Navigation	Actions	Help
1 🛯 📩 🗏 💽 🗸 💡 🔍		
Chassis Sta	tus Configuration ATM/E3 Performance Routing Protoc	Additional Notes
C7600-104-Chassis	OSPF OSPF Network Type broad(casi V Trans.	Priority
	Area ID Trans.	Dead (sec)
	Authentication Key Trans.	Delay (sec)
ATM Modules	Hello Interval (sec) Retrar	is. Interval (sec)
FlexWAN-6	EIGRP Interface Bandwidth Utilization Hold Time (sec) Hello Interval (sec)	(%)
PortAdapter-6-0	18-18	
	ISIS Enabled Area 1	ag
<b>7</b>	Level 1 Helio Interval	2 Helio Interval
	Level 1 Priority Level	2 Priority
ATM/E3 Interfaces		
		Enable Disable
Status: C6576MAtmPortAdapter (normal), C65	76₩	Dynamic updates are enabled

### **OSPF** Area

The OSPF area contains the following information:

- OSPF Network Type—OSPF network type. ATM is a point-to-point service; by default it is considered to be nonbroadcast by the OSPF routing process. An ATM interface can, however, be configured as a broadcast interface. The OSPF network type can also be dependent on the ATM network configuration, whether the network is partially meshed or fully meshed.
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. This password is ignored if OSPF Authentication Type is not "simple". This attribute is read-only.
- Hello Interval—Length of time between the hello packets sent on an OSPF interface. Must be consistent among all routers on an attached network. This attribute is read-only.

- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. In the event of a tie in this value, routers will use their Router ID as a tie breaker. This attribute is read-only.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network. This attribute is read-only.
- Trans. Delay (sec)—Estimated number of seconds it takes to send a link-state update packet this interface. This attribute is read-only.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. This attribute is read-only.

### **EIGRP** Area

The EIGRP area describes the EIGRP configuration of the interface on each active autonomous system. This area contains the following information:

- EIGRP Interface Table—Lists the active EIGRP routing processes on the router. Each routing process handles routing updates for a single autonomous system. The routing process is only active if it is deployed on at least one network.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.
- Bandwidth Utilization (%)—Percentage of bandwidth that may be used by EIGRP on the interface. Values greater than 100 percent may be configured; this can be useful if the bandwidth is set artificially low for other reasons.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.

## **IS-IS Area**

The IS-IS area contains the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface. This attribute is read-only.
- Area Tag—Identifies the IS-IS routing area that the interface participates in. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag. This attribute is read-only.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing. With smaller hello intervals, topological changes are detected faster, but there is more routing traffic.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 1 Priority—Level 1 priority. The priority is used to determine which router on a LAN will be the designated router or designated intermediate system (DIS). The router with the highest priority will become the DIS. In the case of equal priorities, the highest MAC address breaks the tie.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.

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- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 2 Priority—Level 2 priority.
- Enable button—Enable IS-IS routing on the interface.

**Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.

• Disable button—Disable IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

# **Additional Notes Tab**

Figure 5-51 shows the Additional Notes tab of the C6576M ATM E3 Interface dialog box.

C6576M ATM/E3 Interface Dialog

File Edit Options Window Navigation Actions

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Image: I

Figure 5-51 Additional Notes Tab of the C6576M ATM E3 Interface Dialog Box

#### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the ATM E3 Interface.

# C6576M ATM SONET Interface Dialog Box

This dialog box describes a physical and logical enhanced ATM OC-3 interface of a FlexWAN port adapter on the Catalyst 6000 family switches or Cisco 7600 series Internet Routers. This dialog box can be launched from the ATM Port Adapter or ATM Sonet interface object within the Physical view.

You can select multiple ATM SONET interfaces, port adapters, FlexWAN modules, and chassis at a time from the object list on the left side of the dialog box.

# **Status Tab**

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Figure 5-52 shows the Status tab of the C6576M ATM SONET Interface dialog box.

	ATM/SONET Interface Management	
<u>Edit Options Window N</u> aviga	lion <u>Ac</u> tions	<u>H</u> elp
Si 🛃 🔳 🖬 🖌 💡 🔍		
Chassis	Status Configuration ATM/Sonat Performance Pourting Protocol Additional Nates	
autoration (herein	Configuration Armisoner Penoniance Routing Porocol Aduitional Notes	
ems2950e-Chassis	Interface Status	
ems3550c-Chassis		
ems6506a-Chassis	Description	
ems6509neb-Chassis ems6513a-Chassis	Index	
ems7609a-Chassis	Operational Status	
jdp6509a-nsp-Chassis	Administrative Status	
	Last Change	
	Connector Present	
	Number of Resets	
_	ATM/SONET Status	
	SONET Section Status	
ATM/SONET Interfaces	SONET Line Status	
171	SONET Both Status	
	SONET Falli Status	
	Performance Logging	
	Start Stop	
7		
	Durante conductor and	
is; unassis (perturmance)	Lynamic updates are	enabled

Figure 5-52 Status Tab of the C6576M ATM SONET Interface Dialog Box

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#### **Interface Status Area**

The Status area of the C6576M ATM SONET Interface dialog box provides the following information to describe the general characteristics of the interface:

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - testing—Indicates that no operational packets can be passed.
  - unknown
  - down
  - up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing (typically, hardware) components.
  - lowerLayerDown—The interface in the lower layer is down.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - testing (read-only)—Indicates that no operational packets can be passed.
  - up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.
- Connector Present—Indication if a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is given. This attribute is read-only. This attribute can have the following values:
  - yes—Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.

## **ATM/SONET** Area

The ATM/SONET area of the C6576M ATM SONET Interface dialog box provides the following information:

- **SONET Section Status**—Status of the SONET Section. This status may indicate multiple simultaneous defects. This has one of the following values:
  - sonetSectionNoDefect—No defect.
  - sonetSectionLOS—Error condition, Loss Of Signal.
  - sonetSectionLOF—Error condition, Loss Of Frame.
- **SONET Line Status**—Status of the SONET Line. This status may indicate multiple simultaneous defects. This can have one of the following values:
  - sonetLineNoDefect—No defect.
  - sonetLineAIS—Line defect Alarm Indication Signal.
  - sonetLineRDI—Line defect Remote Defect Indication.
- **SONET Path Status**—Status of the SONET Path. This status may indicate multiple simultaneous defects. This can have one of the following values:
  - sonetPathNoDefect—No defect.
  - sonetPathSTSLOP—STS-Path Loss of Pointer.
  - sonetPathSTSAIS—STS-Path Alarm Indication Signal.
  - sonetPathSTSRDI—STS-Path Remote Defect Indication.
  - sonetPathUnequipped—Unequipped.
  - sonetPathSignalLabelMismatch—Signal Label Mismatch.

### **Performance Logging Area**

The Performance Logging area of the C6576M ATM T3 Interface dialog box contains buttons to enable data logging of all the interface attributes of the interface:

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field has the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF lost communication with the device from the normal state.
- perflostcomms—CEMF lost communication with the device from the performance state.

# **Configuration Tab**

Figure 5-53 shows the Configuration tab of the C6576M ATM SONET Interface dialog box.

#### Figure 5-53 Configuration Tab of the C6576M ATM SONET Interface Dialog Box

	C6576M ATM/SONET Interface Dialog	· 🗆
File Edit Options Window Navigation	Actions	Help
LISSIS 2010-Chassis Atlantic Action of the second	Configuration ATM/Sonet Performance Routing Protocol Additional Notes  General  Link la Deven Trans association 75	_
$\overline{\nabla}$	Max Input Gueue Length 40	
ATM Modules	Delay 8 Bandwidth 5000	
FlexWAN-6	Layer 2         Layer 3           MAC Address         0         0         0         IP Address         11         22         33         44           MTU         4470         Netmask         255         255         0	
ATM Port Adapters	Uear IP Address	
ATM/SONET Interfaces		
Status: C6576MAtmSonetInterface (normal), C6	57 Ikunawic updates are ena	oled

#### **General Area**

The General area contains the following information:

- Link Up/Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.
- Bandwidth—Overwrites default bandwidth in kilobits per second.



The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

• Delay—Specifies the delay in tens of microseconds for an interface or network segment.



The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

- Input Queue Length—Input queue length in packets.
- Output Queue Length—Output queue length in packets.

#### Layer 2 Area

The Layer 2 area contains the following information:

- MAC Address—Displays the MAC address of the interface.
- MTU—The size of the largest packet which can be sent or received on the interface, specified in octets.

### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the Layer 3 interface.
- Netmask—Subnet mask of the interface IP address. Enabled bits indicate the network addressing bits in the IP address.
- Clear IP Address button After receiving confirmation, will unset the IP address for this interface.

# **ATM/Sonet Tab**

Figure 5-54 shows the ATM/Sonet tab of the C6576M ATM/Sonet Interface dialog box.

Figure 5-54 ATM/Sonet Tab of the C6576M ATM /Sonet Interface Dialog Box

C6576M ATM/SONET Interface Dialog					
<u>File Edit O</u> ptions <u>Wi</u> ndow <u>N</u> aviga	tion <u>A</u> ctions	<u>H</u> elp			
	Status Configuration Animosonial Performance Routing Protocol Additional Notes				
fi l	ATM/SONET Configuration				
	Clock Source loop/Tining <u>SONET Framing</u> Sis-30 <u>T</u>				
	NSAP Address End-Station ID				
	SONET Path Width				
ATM Modules	SONET Medium Configuration				
	Type Line Type				
	Line Coding				
$\nabla$					
ATM Port Adapters					
ATM/SONET Interfaces					
	Dynamic updates are enab	oled			

## **ATM/SONET Configuration Area**

The ATM/SONET Configuration area contains the following information:

- Clock Source—Source of the transmit clock.
  - loopTiming—Indicates that the recovered receive clock is used as the transmit clock.
  - localTiming—Indicates that a local clock source is used or that an external clock is attached to the box containing the interface.
- SONET Framing—SONET framing for ATM cell transmission. The following values are possible:
  - sts-3c—Synchronous Transport Signal level 3 concatenated is the SONET (N. American) format that specifies the frame structure for a 155.52-Mbps line.
  - stm-1—Synchronous Transport Module level 1 is the SDH (European) format that specifies the frame structure for a 155.52-Mbps line.

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- NSAP Address—Unique identifier of node in ATM network. Required if not implemented by ATM CM.
- End-Station ID—End-station ID of node in ATM network. The NSAP address prefix is provided by the switch to the router through ILMI. There must be a PVC configured for ILMI communication with the switch. Required if not implemented by ATM CM.
- SONET Path Width—Width of the SONET path. This attribute is read-only. This is described by the STS-Nc SPE.
  - STS-3c/STM-1—For OC-3 signal (155.52 Mbps).
  - STS-12c/STM-4—For OC-12 signal (622.08 Mbps).

#### **SONET Medium Configuration Area**

The SONET Medium Configuration area contains the following information. All attributes in this area are read-only.

- Type—Indicates whether or not a SONET or SDH signal is used on the interface.
- Line Type—Line type of the interface. The following values are possible:
  - sonetShortSingleMode
  - sonetLongSingleMode
  - sonetMultiMode
- Line Coding—Line coding for the interface:
  - sonetMediumB3ZS—For electrical SONET/SDH signals (STS-1 and STS-3).
  - sonetMediumCMI—For electrical SONET/SDH signals (STS-1 and STS-3).
  - sonetMediumNRZ—Non-return to Zero, which is used for optical SONET/SDH signals.
  - sonetMediumRZ—Return to Zero, which is used for optical SONET/SDH signals.
  - sonetMediumOther—Other.

# **Performance Tab**

Figure 5-55 shows the Performance tab of the C6576M ATM SONET Interface dialog box. All attributes in this area are read-only.

Figure 5-55 Performance Tab of the C6576M ATM SONET Interface Dialog Box

-	C6576M ATM/	SONET Interface Dialog	· 🗆	
File Edit Options Window Navigation Actions				
1 🛯 📥 🔳 💽 🖌 💡 🍳				
Chassis	Status Configuration ATM/	Sonet Performance Routing Protocol Addition	nal Notes	
			[	
Π	Interface Packets/Oct	ets Statistics		
	Bandwidth Util (%)	0		
	In Uctets	0 Out Universit Plate	0	
	In Unicast Pkts.	U Out Unicast Pkts	0	
	In Packets/Sec	U Out Packets/Sec	0	
ATM Modules	IN BITS/Sec	U Out Bits/Sec	U	
	Interface Error Statist	lics		
	CRC Error Pkts.	0		
	In Discarded Pkts.	0 Out Discarded Pkts.	0	
	In Dropped Pkts.	0 Out Dropped Pkts.	0	
	In Ignored Pkts.	0		
	In Aborted Pkts.	0		
	In Error Pkts.	0 Out Error Pkts.	0	
	SONET Section Error	Statistics		
ATM Port Adapters	Errored Secs	0 Severely Err Secs	0	
	Coding Violations	0 Severely Err Frm Se	cs 0	
Π	- SONET Line Error Sta	tistics		
	Errored Secs	0 Severely Err Secs	0	
	Coding Violations	0 Unavail Secs	0	
	- SONET Far End Line F	mor Statistics		
	Errored Secs	0 Severely Err Secs	0	
ATM/SONET Interfaces	Coding Violations	0 Unavail Secs	0	
Anwooner menaces	SONET Path Empre Sta	atietice		
PortAdapter-6-0-ATM-6-0	Errored Secs	0 Savaralu Err Sace	0	
	Coding Violations	0 Uppupil Secs	0	
	County violations	o onavan seco		
	SONET Far End Path I	Error Statistics		
	Errorea Secs	o Severely Err Secs	0	
	Coding Violations	U Unavail Secs	0	
Status: C6576MAtmSonetInterface (norma	Dynamic updates are enabled			
Status as of Fri Jan 25 12:03:11 2002				

### **Interface Packets/Octets Statistics Area**

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets delivered by this sublayer to a higher (sub)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec-Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent them from being transmitted. One possible reason for discarding such a packet is to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets which were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### **SONET Section Error Statistics Area**

The SONET Section Error Statistics area contains the following information:

- Errored Secs—Number of errored seconds encountered by the SONET Section in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET Section in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET Section in the current 15-minute interval.
- Severely Err Frm Secs—Number of severely errored framing seconds encountered by the SONET Section in the current 15-minute interval.

#### **SONET Line Error Statistics Area**

The SONET Line Error Statistics area contains the following information:

- Errored Secs—Number of errored seconds encountered by the SONET Line in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET Line in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET Line in the current 15-minute interval.
- Unavailable Secs—Number of unavailable seconds encountered by the SONET Line in the current 15-minute interval.

#### **SONET Far End Line Error Statistics Area**

The SONET Far End Line Error Statistics area contains the following information:

- Errored Secs—Number of far end errored seconds encountered by the SONET Line in the current 15-minute interval.
- Severely Err Secs—Number of severely far end errored seconds encountered by the SONET Line in the current 15-minute interval.
- Coding Violations—Number of far end coding violations encountered by the SONET Line in the current 15-minute interval.
- Unavailable Secs—Number of far end unavailable seconds encountered by the SONET Line in the current 15-minute interval.

#### **SONET Path Error Statistics Area**

The SONET Path Error Statistics area contains the following information:

- Errored Secs—Number of errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET Path in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of unavailable seconds encountered by the SONET Path in the current 15-minute interval.

#### **SONET Far End Path Error Statistics Area**

The SONET Far End Path Error Statistics area contains the following information:

- Errored Secs—Number of far end errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of far end severely errored seconds encountered by the SONET Path in the current 15-minute interval.
- Coding Violations—Number of far end coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of far end unavailable seconds encountered by the SONET Path in the current 15-minute interval.

# **Routing Protocol Tab**

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Figure 5-56 shows the Routing Protocol tab of the C6576M ATM SONET Interface dialog box.

Figure 5-56 Routing Protocol Tab of the C6576M ATM SONET Interface Dialog B	5M ATM SONET Interface Dialog Box
-----------------------------------------------------------------------------	-----------------------------------

-	C6576M ATM/SONET Interface Dialog						
File Edit Options Window Navigation	Actions	<u>H</u> elp					
L S Chassis	tus Configuration ATM/Sonet Performance Routing Pro	tocol Additional Notes					
ATM Modules	OSPF OSPF Network Type Inbma Tran Area ID Tran Authentication Key Helio Interval (sec) Retr	is. Priority is. Dead (sec) is. Delay (sec) rans. Interval (sec)					
	EIGRP Interface Hold Time (sec) Hello Interval (sec	Llon (%)					
ATM Port Adapters							
	IS-IS ISIS Enabled false Area Level 1 Hello Interval 10 Lev Level 1 Metric 10 Lev Level 1 Priority 64 Lev	a Tag el 2 Hello Interval 10 el 2 Metric 10 el 2 Priority 64					
ATM/SONET Interfaces		Enable Disable					
Status: C6576MAtmSonetInterface (normal),	2657	Dynamic updates are enabled					

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#### **OSPF** Area

The OSPF area contains the following information:

- OSPF Network Type—OSPF network type. ATM is a point-to-point service; by default it is considered to be nonbroadcast by the OSPF routing process. An ATM interface can be configured as a broadcast interface. The OSPF network type also can be dependent on the ATM network configuration, whether the network is partially meshed or fully meshed.
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. It is ignored if OSPF Authentication Type is not "simple". This attribute is read-only.
- Hello Interval—Length of time between the hello packets sent on an OSPF interface. Must be consistent between all routers on an attached network. This attribute is read-only.
- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. In the event of a tie in this value, routers will use their router ID as a tie breaker. This attribute is read-only.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network. This attribute is read-only.
- Trans. Delay (sec)—Estimated number of seconds it takes to send a link-state update packet this interface. This attribute is read-only.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value also is used when retransmitting database description and link-state request packets. This attribute is read-only.

#### **EIGRP** Area

The EIGRP area describes the EIGRP configuration of the interface on each active autonomous system. This area contains the following information:

- EIGRP Interface Table—Lists the active EIGRP routing processes on the router. Each routing process handles routing updates for a single autonomous system. The routing process only is active if it is deployed on at least one network.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.
- Bandwidth Utilization (%)—Percentage of bandwidth that may be used by EIGRP on the interface. Values greater than 100 percent may be configured; this can be useful if the bandwidth is set artificially low for other reasons
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.

#### **IS-IS Area**

The IS-IS area contains the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface. This attribute is read-only.
- Area Tag—Identifies the IS-IS routing area that the interface participates in. If multiyear IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag. This attribute is read-only.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing. With smaller hello intervals, topological changes are detected faster, but there is more routing traffic.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 1 Priority—Level 1 priority. The priority is used to determine which router on a LAN will be the designated router or designated intermediate system (DIS). The router with the highest priority will become the DIS. In the case of equal priorities, the highest MAC address breaks the tie.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (interarea) route calculation.
- Level 2 Priority—Level 2 priority.
- Enable button-Enables IS-IS routing on the interface.



To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.

• Disable button—Disables IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

# **Additional Notes Tab**

Figure 5-57 shows the Additional Notes tab of the C6576M ATM SONET Interface dialog box.

-	C6576M ATM/SONET Interface Dialog	•	
<u>File Edit Opt</u>	tions <u>Window Navigation Actions</u>	He	lp
Chassis	Status Configuration ATM/Sonet Performance Routing Protocol Additional Notes  Notes  es		
ATM Port Ac	dapters	Z	
Status: C6576MAt	tmSonetInterface (normal), C657 Dynamic updates are enab	led	02.067

Figure 5-57 Additional Notes Tab of the C6576M ATM SONET Interface Dialog Box

#### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the ATM SONET Interface.

# C6576M OSM GE-WAN Interface Dialog Box

This dialog box describes a physical and logical Gigabit Ethernet WAN (GE-WAN) interface on the OSM-4GE-WAN-GBIC module. This dialog box can be launched from the OSM object or OSM GE-WAN Interface object within the Physical view.

You can select multiple OSM GE-WAN Interfaces, OSMs, and chassis at a time from the object list on the left side of the dialog box.

# **Status Tab**

Figure 5-58 shows the Status tab of the C6576M OSM GE-WAN Interface dialog box.

File Edit Outing Uterdam Navin	GE-N	AN Interface Management	•   - 
			Help
Chassis	Status Configuration Performance	Routing Protocol HSRP Additional Notes	
Cyber350a-Chassis em:350a-Chassis em:350a-Chassis em:650aa-Chassis em:650aa-Chassis em:650aa-Chassis em:650aa-Chassis em:650aa-Chassis jdp0509a-nsp-Chassis jdp0509a-nsp-Chassis jdp0509a-nsp-Chassis jdp0509a-nsp-Chassis CSM GE-WAN Interfaces	Status Description Index Speed Operational Status Administrative Status Last Change Connector Present Number of Resets	GE-WAN4/1 100000000 down down 00:0046 unknown 1	
itatus: OsBroker (nativeios), OsmGeWar	Interface (performance), OsmGeWanMod	ule	Dynamic updates are enabled

Figure 5-58 Status Tab of the C6576M OSM GE-WAN Interface Dialog Box

#### **Status Area**

The Status area of the C6576M OSM GE-WAN Interface dialog box provides the following information to describe the general characteristics of the interface:

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.
- Type—Describes the physical interface type. This attribute is read-only.
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:

- other
- ok
- minorFault
- majorFault
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - testing (read-only)—Indicates that no operational packets can be passed.
  - up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.
- Connector Present—Indication if a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is given. This attribute is read-only. This attribute has the following values:
  - yes—Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field has the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

# **Configuration Tab**

Figure 5-59 shows the Configuration tab of the C6576M OSM GE-WAN Interface dialog box.

Figure 5-59 Configuration Tab of the C6576M OSM GE-WAN Interface Dialog Box

	C6576M OSM GE-WAN Interface Dialog	•
File Edit Options Window Navigation	Actions	Help
1 🛯 📇 🔳 🖳 🖌 💡 🔍		
Chassis State	us Configuration Performance Routing Protocol HSRP Additional Notes	
Cat6500-Chassis		
	General	
	Duplex half 🔟 Max Input Queue Length 75	
	Link Up/Down Trap enabled 🗹 Max Output Queue Length 40	
	Bandwidth 1000000 Delay 1	
Optical Service Modules		
OSM-9	Laver 2 Laver 3	
	MAC Address 00 06 52 48 6A 3C IP Address 32 . 33 . 35 . 2	
	MTH 1500 Network 255 255 0	
	Clear IP Address	
OSM GE- WAN Interfaces		
GE-WAN-S-T		
Status: C6576MOsBroker (hybridos), C6576MOs	anGe Dynamic updates	are enabled
Status as of Thu Jun 20 15:09:27 2002		

#### **General Area**

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The General area of the C6576M OSM GE-WAN Interface dialog box provides the following information:

Speed—The desired speed of this port in bits per second. This attribute should have this value: ٠ - 1 Gb/s



If an unsupported speed is selected, an error is reported.

- Duplex—Displays the duplex mode for the port. This attribute should have this value:
  - full-duplex
- Input Queue Length—Displays the input queue length in packets.
- Output Queue Length—Displays the output queue length in packets.
- Link Up/Down Trap—Indicates if link up or link down traps are being generated. This list contains the following values:
  - enabled
  - disabled
- Delay-Specifies the delay in tens of microseconds for an interface or network segment.



Note	The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.
	• Bandwidth—Overwrites default bandwidth in kilobits per second.
Note	The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.
Layer 2 Area	
	The Layer 2 area of the C6576M OSM GE-WAN interface dialog box provides the following information:
	• MAC Address—Displays the MAC address of the interface.
	• MTU—The size, specified in octets, of the largest datagram (frame) that can be sent on the interface.
Note	A GE interface that is using a nondefault MTU cannot be added to an EtherChannel with GE interfaces using the default MTU. If the interface MTU is changed for one interface, the change is applied to all interfaces (GE and GE EtherChannel) using a nondefault MTU.



**IOS 12.1(8a)E5 caveat**: Jumbo frame support is incompatible with the IS-IS routing protocol. Leave the MTU size at the default value on any interface where IS-IS provides routing.

#### Layer 3 Area

The Layer 3 area of the C6576M Ethernet Interface dialog box provides the following information:

- IP Address—Displays the IP address of the layer 3 interface.
- Netmask—Subnet mask of the interface IP address. Enabled bits indicate the network addressing bits in the IP address.
- Clear IP Address button—After receiving confirmation, will unset the IP address for this interface.

# **Performance Tab**

Figure 5-60 shows the Performance tab of the C6576M OSM GE-WAN Interface dialog box. All attributes in this area are read-only.

e <u>E</u> dit Options <u>Window N</u> avigation <u>A</u> c	lions				Help
S 🚰 🔳 💽 🖌 💡 🔍					
Chassis Status	Configuration Performance Routin	q Protocol HSRP	Additional Notes		
C7600-104-Chassis		,			
	Packets/Octets Statistics —				
	Bandwidth Util (%)	0			
	In Octets	178042795	Out Octets	233202336	
	In Unicast Pkts.	554694	Out Unicast Pkts	2062129	
Optical Service Modules	In Packets/Sec	0	Out Packets/Sec	1	
OSM-2	In Bits/Sec	0	Out Bits/Sec	1000	
	Error Statistics				
	CRC Error Pkts.	0			
	In Discarded Pkts.	0	Out Discarded Pkts.	0	
	In Dropped Pkts.	0	Out Dropped Pkts.	0	
OSM GE-WAN Interfaces	In Ignored Pkts.	7			
OSM=2-Port=1 OSM=2-Port=2	In Aborted Pkts.	0			
OSM-2-Port-3 OSM-2-Port-4	In Error Pkts.	7	Out Error Pkts.	0	
	Performance Logging				
	Start	Stop	r		
			]		
us: C6576MOswGeWanInterface (normal), C657				Dynamic updates are	enabled

Figure 5-60 Performance Tab of the C6576M OSM GE-WAN Interface Dialog Box

#### **Packets/Octets Statistics Area**

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets, delivered by this sublayer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Error Statistics Area**

The Interface Error Statistics area contains the following information:

• CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.

- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being delivered to a higher-layer protocol. One possible reason for discarding such a packet is to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet is to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### **Performance Logging Area**

The Performance Logging area of the C6576M OSM GE-WAN Interface dialog box contains buttons to enable data logging of all the interface attributes of the interface:

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

# **Routing Protocol Tab**

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Figure 5-61 shows the Routing Protocol tab of the C6576M OSM GEWAN Interface dialog box.



— C6576M OSM GE–WAN Interface Dialog 🛛 🕹 🗖					
File Edit Options Window Navigation Act	ions				Help
NI Si 🎦 🔳 🖬 🖌 💡 🔍					
Chassis Status	Configuration Performance	Routing Protocol HSRF	Additional Notes		
C7600-104-Chassis					
	OSPF				
	Network Type	broadcast	Trans. Priority	1	
<b>_</b>	Area ID	0.0.0.0	Trans. Dead (sec)	40	
	Authentication Key		Trans. Delay (sec)	1	
Optical Service Modules	Hello Interval (sec)	10	Retrans. Interval (sec)	5	
OSM-2					
	EIGRP Autonomous Syste	em Configuration			
	Interface		Bandwidth Utilization (%)	60	
	1313				
			Hold lime (sec)	800	
			Hello Interval (sec)	5	
OSM GE-WAN Interfaces					
OSM-2-Port-1	1313				
OSM-2-Port-2 OSM-2-Port-3	ISIS Enabled	true	Area Tag	1	
OSM-2-Port-4	Level 1 Hello Interval	10	Level 2 Hello Interval	10	Enable
	Level 1 Metric	10	Level 2 Metric	10	Disable
	Level 1 Priority	64	Level 2 Priority	64	
atus: C6576MOsmGeWanInterface (normal), C657				Dynamic upo	lates are enabled

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#### **OSPF** Area

The OSPF area of the C6576M OSM GE-WAN Interface dialog box provides the following information. All the attributes in this area are read-only.

- Network Type—OSPF interface type. OSPF network type can be nonbroadcast multiaddress (NBMA) even on a broadcast media such as Ethernet. This attribute can have one of the following values:
  - broadcast
  - nbma
  - pointToPoint
  - pointToMultipoint
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. It is ignored if Authentication Type is not "simple".
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets.
- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. If more than one router has the same value for this field, the routers use their router ID as a tie breaker.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network.
- Trans. Delay (sec)—The estimated number of seconds it takes to transmit a link-state update packet over this interface.

#### **EIGRP** Area

The EIGRP Area of the C6576M OSM GE-WAN Interface dialog box provides the following information:

- EIGRP Interface Table—Describes the EIGRP configuration of the interface on each active autonomous system. The EIGRP parameters of the interface on an autonomous system may be explicitly configured even if EIGRP routing updates in the autonomous system are not currently carried on the interface.
- Bandwidth Utilization (%) —The percentage of the interface bandwidth that the EIGRP protocol can use.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.

#### **ISIS** Area

The ISIS area of the C6576M Ethernet Interface dialog box provides the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface. This attribute is read-only.
  - true—ISIS routing is enabled.
  - false—ISIS routing is disabled.
- Area Tag—The IS-IS routing area in which the interface participates. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag. This attribute is read-only.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 1 Priority—The priority is used to determine which router on a LAN will be the designated router or designated intermediate system (DIS).
- Level 2 Priority—The priority is used to determine which router on a LAN will be the designated router or DIS.
- Enable button—Enable IS-IS routing on the interface.



**Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.

• Disable button—Disable IS-IS routing on the interface.

# **HSRP** Tab

Figure 5-62 shows the HSRP tab of the C6576M OSM GE-WAN Interface dialog box. The attributes in this tab are read-only. To modify the attributes, click the **Modify** button.

Figure 5-62 HSRP Tab on the C6576M OSM GE-WAN Interface Dialog Box

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N 🖇 🎦 🗉 💽 🖌 💡 🔍	
Chassis Status Configuration Performance Routing Protocol HSRP Additional Notes	
C7600-104-Chassis	
HSRP Group	
Virtual IP 8.8.8.8	
D         A         Preempt         true           I         I1         V         I1         V	
Ontical Service Montules	
Priority 88	
Hello Interval 0	
Configure Hold Interval 0	
Secondary IP	
OSM GE-WAN Interfaces Group Number Secondary IP	
OSM-2-Port-1 0 22.6.6.36	
OSM-2-P0It-2 OSM-2-Port-3	
OSM-2-Port-4	
Modify	
itatus: C6576HDsmGeWanInterface (normal), C657 Dyna	mic updates are enabled
Status as of Fri Jan 25 13:01:56 2002	

- Modify button—Figure 5-63 shows the subdialog box that is displayed when you click the **Modify** button. This subdialog box is used to modify the following C6576M OSM GE-WAN Interface attributes of a given HSRP group:
  - Secondary IP
  - Virtual IP
  - Preempt
  - Delay Minimum
  - Priority
  - Hello Interval
  - Hold Interval

e Edit Options Window Nav	rigation Actions			Het
	<u> </u>			
Chassis ems3550c-Chassis	Group Number			
ems6006a-Chassis ems6506a-Chassis	Secondary IP		Add	Remove
Aodule Ethernet-3	Virtual IP		Modify	Remove
Supervisor-1	Preempt	Irua Z	Modify	
themet Interfaces	Priority		Modify	Default
	Hello Interval		Modify	Remove
	Hold Interval			
tus: OsBroker (hybridos), EtherI	fModule (performance)	, Chassis (performance)	Dynami	c updates are enabled

Figure 5-63 HSRP Secondary IP Modify Subdialog Box

#### **HSRP** Area

The HSRP area of the C6576M OSM GE-WAN Interface dialog box provides the following information:

• HSRP Group Table—Describes HSRP groups deployed on an interface.



There may be multiple groups deployed on an interface. Using a group number on one logical or physical interface does not preclude using it on another.

- Virtual IP—Primary virtual IP address of the HSRP group. If this address is not configured, the agent attempts to discover the virtual address through a discovery process which scans the hello messages.
- Preempt—If enabled, the current router attempts to overthrow a lower priority active router and attempts to become the active router. If disabled, this router becomes the active router only if there is no such router or the active router fails.
  - true—Preempt enabled.
  - false—Preempt disabled.
- Delay Minimum—Time difference (in seconds) between a router power up and the time it can start preempting the currently active router. This value is only applicable when preemption is enabled.
- Priority—Metric used to select the active and standby routers. 0 is lowest priority, 255 is highest. Router with highest priority is selected to be the active router.
- Hello Interval—Hello interval in milliseconds. If this value is not configured, it can be learned from the active router.
- Hold Interval—Hold interval in milliseconds. If this value is not configured, it can be learned from the active router.

- Configure button—Enables HSRP for IP on an interface. Figure 5-64 shows the subdialog box displayed when you click the **Configure** button. The following is displayed in the subdialog box:
  - Group Number—Unique identifier of an HSRP group.
  - IP Address—The HSRP group may optionally be assigned a primary IP address. If no address
    is explicitly assigned, the device attempts to discover the virtual IP address from the active
    server using hello messages.
  - Add button—Adds an HSRP group on the interface.
  - Remove button—Removes an HSRP group on the interface.

Figure 5-64 HSRP Group Configure Subdialog Box

_	Etherne	t Interface M	lanagement - Config	ure HSRP Grou	IP.	• □
<u>File</u> <u>E</u> dit	Options	<u>Window</u> <u>Na</u>	vigation <u>A</u> ctions			<u>H</u> elp
Chassis Cyber355 ems2950 ems35500	50a-Chassis le-Chassis lc-Chassis a <b>-Chassis</b>	sis	Group Number			1
Module Ethernet Supervis	-3 or-1		Virtual IP Add			
Ethernet	Interfaces			J 1		
Status: OsB	roker (hyb	ridos), Ether	IfModule (performa	nce), Chassi:	s (performan	ce)

#### **Secondary IP Area**

The Secondary IP area of the C6576M OSM GE-WAN Interface dialog box provides the following information:

- HSRP Secondary Address Table—Describes secondary IP addresses of HSRP groups deployed on the interface. Data is displayed in the following columns:
  - Group Number—Unique identifier of an HSRP group.
  - Secondary IP—Secondary IP address of HSRP group.

# **Additional Notes Tab**

Figure 5-65 shows the Additional Notes tab of the C6576M OSM GE-WAN Interface dialog box.

Figure 5-65 Additional Notes Tab of the C6576M OSM GE-WAN Interface Dialog Box

# C6576M OSM CE-WAN Interface Dialog File Edit Options Window Navigation Actions Help Image: I

#### **Notes Area**

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The Notes area is a text box that allows you to type in additional notes for the OSM GE-WAN Interface.

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# C6576M OSM Channelized SONET Interface Dialog Box

This dialog box describes a physical and logical channelized OC-12 (Ch-OC12) or OC-48 (Ch-OC48) SONET interface on an OSM. This dialog box can be launched from the OSM Channelized SONET Module or Interface object within the Physical view.

You can select multiple OSM Channelized SONET Interfaces, OSMs, and chassis at a time from the object list on the left side of the dialog box.

## **Status Tab**

Figure 5-66 shows the Status tab of the C6576M OSM Channelized SONET Interface dialog box.

- Channelized SONET Interface Management						
File Edit Options Window Naviga	tion <u>A</u> c	tions				Help
1 S 👌 🗏 📮 🗣 💡 🔍						
Chassis	Status	Configuration	Performance	Routing Protocol	Additional Noes	
Chassis	Status	Configuration Interface Status Descripti Type Index Operation Administr Last Cha Connecto Number of SONET Status SONET Status SONET L Performance Log	Performance on al Status ative Status ative Status or Present of Resets iection Status ine Status igging Status Status	Routing Protocol 70 SONET7/2 down up 00:01:32 unknown 1 1 1	Additional Nees	
Status: OsmChSonetInterface (normal),	OsaChSon	etModule (norma)	l), Chassis (p	erf	Dyr	namic updates are enabled

Figure 5-66 Status Tab of the C6576M OSM Channelized SONET Interface Dialog Box

#### **Interface Status Area**

The Status area of the C6576M OSM Channelized SONET Interface dialog box provides the following information to describe the general characteristics of the interface.

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Type—Describes the type of allocated channel. This attribute is read-only.

- t3—A DS3 channel is provisioned as a serial subinterface with T3 (DS3) content formatting.
- e3—A DS3 channel is provisioned as a serial subinterface with E3 (DS3) content formatting.
- pos—An OC-3 channel is provisioned as a POS subinterface.
- Index—String index of the interface. This attribute is read-only.
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - testing-Indicates that no operational packets can be passed.
  - unknown
  - down
  - **–** up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing (typically, hardware) components.
  - lowerLayerDown—The interface in the lower layer is down.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - **–** up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.
- Connector Present—Indicates whether or not a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is given. This attribute is read-only. This attribute has the following values:
  - yes—Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.

#### **SONET Status Area**

The ATM/SONET area of the C6576M OSM Channelized SONET Interface dialog box provides the following information:

- **SONET Section Status**—Status of the SONET Section. This status may indicate multiple simultaneous defects. This attribute is read-only. This can have one of the following values:
  - sonetSectionNoDefect—No defect.
  - sonetSectionLOS—Error condition, Loss Of Signal.
  - sonetSectionLOF—Error condition, Loss Of Frame.
- **SONET Line Status**—Status of the SONET Line. This status may indicate multiple simultaneous defects. This attribute is read-only. This can have one of the following values:
  - sonetLineNoDefect—No defect.

- sonetLineAIS—Line defect Alarm Indication Signal.
- sonetLineRDI—Line defect Remote Defect Indication.

#### **Performance Logging Area**

The Performance Logging area of the C6576M OSM Channelized SONET Interface dialog box contains buttons to enable data logging of all the interface attributes of the interface:

- **Start**—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

# **Configuration Tab**

Figure 5-67 shows the Configuration tab of the C6576M OSM Channelized SONET Interface dialog box.

C6576M OSM Channelized SONET Interface Dialog Box

um Acunns				L la l
Status Configura	tion Performance	Additional Note	8]	
opeeu	022000000		Link Up/Down Trap	enabled 🔀
DS-3/0C-3	i Channel Table ——		SONET	
2 3 4 10	2 3 4-6 10-12	t3 t3 pos pos	Clock Source Loopback Mode Framing SONET Medium Type Line Type	IoopTiming I
Provision	Channels for Serial	POS Interface	Line Coding	sonetMediumRZ
	Status Configura General Speed DS-3/OC-3 ID 2 3 4 10 Provision	Status       Configuration       Performance         General       Speed       622000000         DS-3/OC-3 Channel Table       Image       Image         2       2       3       3         4       4-6       10       10-12         Provision Channels for Serial	Status       Configuration       Performance       Additional Note         General       Speed       622000000       622000000         DS-3/OC-3 Channel Table       ID       Range       Type         2       2       t.3       3       t.3         4       4-6       pos       10       10-12       pos         10       10-12       pos       10       10-12       pos	Status       Configuration       Performance       Additional Notes         General       Speed       622000000       Duplex         Link Up/Down Trap       Link Up/Down Trap         DS-3/OC-3 Channel Table       SONET         D       Range       Type         2       2       t3         3       3       t3         4       4-6       pos         10       10-12       pos         SONET Medium         Type       Line Type         Line Type       Line Coding

Figure 5-67 Configuration Tab of the C6576M OSM Channelized SONET Interface Dialog Box

#### **General Area**

The General area contains the following information:

- Speed—The desired speed of the port in bits per second.
- Duplex—SONET interfaces are by definition full duplex.
- Link Up/Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.

#### **SONET Area**

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The SONET area contains the following information:

- Description—Description of the SONET interface.
- Clock Source—Source of the transmit clock.
  - loopTiming—Indicates that the recovered receive clock is used as the transmit clock.
  - loopTimingPrimary—Indicates that loop timing is used and the SONET controller provides the first priority clock for internal circuitry.

- loopTimingSecondary—Indicates that loop timing is used and the SONET controller provides the clock if the primary clock source fails.
- Primary—Indicates that the SONET controller provides the first priority clock for internal circuitry. Secondary indicates that the SONET controller provides the clock if the primary clock source fails.
- localTiming—Indicates that the transmit clock source is generated internally.
- localTimingPrimary—Indicates that local timing is used and the SONET controller provides the first priority clock for internal circuitry.
- localTimingSecondary—Indicates that local timing is used and the SONET controller provides the clock if the primary clock source fails.
- Loopback Mode—Indicates whether or not SONET loopback mode is enabled. The possible values are:
  - None—Indicates that the loopback is disabled.
  - Internal—Indicates data is looped from the transmit path to the receive path allowing diagnostics to send data to itself without relying on any external connections. To enable internal loopback, you must first set the clock source to internal.
  - Line—(external) Indicates data is looped from the external port to the transmit port and back out the external port.
- Framing—Framing for optical digital transmission.

Note

SDH framing is currently unsupported on the channelized SONET modules even though IOS CLI allows the interface to be configured for SDH framing.

#### **SONET Medium Area**

The SONET Medium area contains the following information. All attributes in this area are read-only.

- Type—Indicates whether a SONET or SDH signal is used on the interface.
- Line Type—Line type of the interface. The following values are possible:
  - sonetShortSingleMode
  - sonetLongSingleMode
  - sonetMultiMode
- Line Coding—Line coding for the interface.
  - sonetMediumB3ZS—For electrical SONET/SDH signals (STS-1 and STS-3).
  - sonetMediumCMI—For electrical SONET/SDH signals (STS-1 and STS-3).
  - sonetMediumNRZ—Non-return to zero, which is used for optical SONET/SDH signals.
  - sonetMediumRZ—Return to zero, which is used for optical SONET/SDH signals.
  - sonetMediumOther—Other.

#### DS-3/OC-3 Channel Table Area

• DS-3/OC-3 Channel Table—Lists the DS3 and OC-3 channels that have been provisioned on the SONET interface. The following items are listed in the table:

- ID—Unique identifier of a channel on the SONET interface. This coincides with the number of the first sts-1 service payload envelope (SPE) allocated in the channel. It is also the subinterface number of the serial or POS interface representing the DS3 or OC-3 channel. Numbering is 1-based.
- Range—Range of allocated channels. Numbering is 1-based. A DS3 subinterface has a width
  of sts-1 and it occupies a single channel. An OC-3 subinterface has a width of sts-3c and it
  occupies three consecutive channels.
- Type—Describes the type of allocated channel. A DS3 channel is provisioned as a serial subinterface with E3 or T3 (DS3) content formatting. An OC-3 channel is provisioned as a POS subinterface.
- Provision Channels for Serial/PoS Interface button—Launches a subdialog box to provision a DS3 or OC-3 channel from the SONET interface's constituent sts-1 service payload envelopes (SPEs).
   Figure 5-68 shows the Channel Provision subdialog box of the C6576M OSM Channelized SONET Interface dialog box. The following items are displayed:
  - Channel ID field—Unique identifier of a channel on the SONET interface.
  - Channel Type field—Describes the type of allocated channel.
  - Free Channel button—Frees a provisioned DS3 or OC-3 channel from the SONET interface.
  - Provision Channel button—Provisions the interface.



The provisioned sts-1 SPEs cannot be in use by any other channel on the interface.



- Channelized SONET Interfa	ace Management - Channel Provision	· □]
File Edit Options Window Navigation	Actions	<u>H</u> elp
1 3 🗏 📮 🖌 💡 🔍		
Chassis		
ems7609a-Chassis	Channel ID	
Channelized OSM	Channel Type	
OSM-7	Free Channel Provision Channel	
Channelized OSM SONET IF		
SONET-7-2		
Status: OsmChSonetInterface (normal), OsmCh	SonetModule (normal), Chassis (perf are enabl	ed _

## **Performance Tab**

Figure 5-69 shows the Performance tab of the C6576M OSM Channelized SONET Interface dialog box.

File Edit Options Window Navigation Actions Help रे। 🚳 📥 🔳 💽 🖌 💡 🍳 Status Configuration Performance Additional Notes Chassis Interface Packets/Octets Statistics Bandwidth Util (%) In Octets Out Octets 0 0 In Unicast Pkts. Out Unicast Pkts 0 In Packets/Sec n Out Packets/Sec n. In Bits/Sec Out Bits/Sec 0 Interface Error Statistics Optical Service Modules CRC Error Pkts. OSM-9 Out Discarded Pkts. In Discarded Pkts. 0 0 In Dropped Pkts. 0 Out Dropped Pkts. 0 In Ignored Pkts. 0 In Aborted Pkts. n. In Error Pkts. Out Error Pkts 0 0  $\nabla$ SONET Section Error Statistics Severely Err Secs Errored Secs 0 Coding Violations Severely Err Frm Secs 0 0 OSM Channelized SONET Interface: SONET Line Error Statistics OSM-9-ChSonet-1 Errored Secs Severely Err Secs n Unavail Secs Coding Violations 0 0 SONET Far End Line Error Statistics Severely Err Secs 0 Errored Secs Coding Violations 0 0 Unavail Secs Status: C6576MOsmChSonetInterface (normal), C6 Dynamic updates are

Figure 5-69 Performance Tab of the C6576M OSM Channelized SONET Interface Dialog Box

#### **Interface Packets/ Octets Statistics Area**

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The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters. ٠
- In Unicast Pkts.—The number of packets delivered by this sublayer to a higher (sub)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec-Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec-Five-minute exponentially decayed moving average of output bits per second.



#### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet is to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet is to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because osteopath queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### **SONET Section Error Statistics Area**

The SONET Section Error Statistics area contains the following information:

- Errored Secs—Number of errored seconds encountered by the SONET section in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET section in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET section in the current 15-minute interval.
- Severely Err Frm Secs—Number of severely errored framing seconds encountered by the SONET section in the current 15-minute interval.

#### **SONET Line Error Statistics Area**

The SONET Line Error Statistics area contains the following information:

- Errored Secs—Number of errored seconds encountered by the SONET line in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET line in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET line in the current 15-minute interval.
- Unavailable Secs—Number of unavailable seconds encountered by the SONET line in the current 15-minute interval.

#### **SONET Far End Line Error Statistics Area**

The SONET Far End Line Error Statistics area contains the following information:

- Errored Secs—Number of far end errored seconds encountered by the SONET line in the current 15-minute interval.
- Severely Err Secs—Number of severely far end errored seconds encountered by the SONET line in the current 15-minute interval.
- Coding Violations—Number of far end coding violations encountered by the SONET line in the current 15-minute interval.
- Unavailable Secs—Number of far end unavailable seconds encountered by the SONET line in the current 15-minute interval.

## **Additional Notes Tab**

Figure 5-70 shows the Additional Notes tab of the C6576M OSM Channelized SONET Interface dialog box.

C6576M OSM Channelized SONET Interf	ace Configure Dialog
le <u>E</u> dit <u>Options</u> <u>Window</u> <u>Navigation</u> <u>Actions</u>	Hel
Chassis Status Configuration Performance Addition	al Notes
C7600-104-Chassis	1
Notes	
otical Service Modules	
SM-9	
SM Channelized SONET Intenaces	
SM-9-ChSonet-1	
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	Durania undates ana scalilad

Figure 5-70 Additional Notes Tab of the C6576M OSM Channelized SONET Interface Dialog Box

#### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the OSM Channelized SONET Interface.

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# C6576M OSM POS Interface Dialog Box

This dialog box describes a physical and logical PoS interface on an OSM. This dialog box can be launched from the OSM POS Module or Interface object within the Physical view.

You can select multiple OSM POS Interfaces, OSMs, and chassis at a time from the object list on the left side of the dialog box.

# **Status Tab**

Figure 5-71 shows the Status tab of the C6576M OSM POS Interface dialog box.

Figure 5-71 Status Tab of the C6576M OSM POS Interface Dialog Box

Image: Speed     End of the speed     End of the speed       Image: Speed     Status     Configuration     ATM/SONET     Performance     Routing Protocol     Additional Notes       Image: Speed     Description     K to AOL and UUNET     Index     POS6/1       Image: Speed     B1200000       OSM POS Interfaces     Operational Status     up       Image: Speed     B1200000       Image: Speed     B1200000       Operational Status     up       Administrative Status     up       Administrative Status     up       Image: Speed     Description       Image: Speed     B12000000       Operational Status     up       Administrative Status     up	File Edit Ontions Window Navin	POS Interface	Management	Holm
	File       Edit       Options       Window       Navig         File       Edit       Options       Window       Navig         Image: State and State an	POS Interface ation Actions	tenagement  rformance   Routing Protocol   Additional Notes    k to AOL and UUNET  POS6/1  612000000  up  up  up x 00.01.53 yes 3	<u>H</u> olp

#### **Interface Status Area**

The Status area of the C6576M OSM POS Interface dialog box provides the following information to describe the general characteristics of the interface:

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.
- Type—Describes the physical interface type. This attribute is read-only. The possible values of this attribute are:

- posOc12mm
- posOc12smi
- posOc12sml
- posOc48mm
- posOc48smi
- posOc48sml
- posOc3mm
- posOc3smi
- posOc3sml
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - other
  - ok
  - minorFault
  - majorFault
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - **–** up
  - down
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.
- Connector Present—Indicates whether or not a cable is connected to the interface. If the ifAdminStatus is down, then this value cannot be determined and an "unknown" message is given. This attribute is read-only. This attribute has the following values:
  - yes—Cable is connected to the interface.
  - no—Cable is not connected to the interface.
  - unknown—Cannot determine if a cable is connected to the interface.
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.

#### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms-CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

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## **Configuration Tab**

Figure 5-72 shows the Configuration tab of the C6576M OSM POS Interface dialog box.

Figure 5-72 Configuration Tab of the C6576M OSM POS Interface Dialog Box

	C6576M OSM POS Interface Dialog	
e <u>E</u> dit <u>O</u> ptions <u>Wi</u> ndow <u>N</u> aviga	lation <u>Ac</u> tions	<u>H</u> elp
IS 📥 🗏 🖪 🖌 📍 🦉		
Chassis	Status Configuration ATM/SONET Performance Bouting Protocol Additional Notes	
Cat6500-Chassis	Concert	
7	Duplex 1134 7 Max Input Gueue Length 75	
	Link Up/Down Trap enabled I Max. Output Queue Length 40	
OSM POS Modules	Bandwidth 2488000 Delay 10	
	Layer 3	
	MIU 4470 IP Address 3, 22, 110, 4	
	Netmask 200 . 200 . 0	
	Clear IP Address	
OSM POS Interfaces		
POS-11-1		
<u> </u>		

#### **General Area**

The General area contains the following information:

- Speed—The desired speed of the port in bits per second.
- Duplex—SONET interfaces are by definition full duplex.
- Link Up / Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.
- Input Queue Length—Displays the input queue length in packets.
- Output Queue Length—Displays the output queue length in packets.
- Delay—Specifies the delay in tens of microseconds for an interface or network segment.



The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

• Bandwidth—Overwrites default bandwidth in kilobits per second.



The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

#### Layer 2 Area

The Layer 2 area contains the following information:

• MTU—The size of the largest datagram (frame) which can be sent or received on the interface, specified in octets.

#### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the layer 3 interface.
- Netmask—Subnet mask of the IP address. Enabled bits indicate network addressing bits in the IP address.
- Clear IP Address button—After receiving confirmation, will unset the IP address for this interface.

### **ATM/SONET** Tab

Figure 5-73 shows the ATM/SONET tab of the C6576M OSM POS Interface dialog box.

Figure 5-73 ATM/SONET Tab of the C6576M OSM POS Interface Dialog Box

	C65761	M OSM POS Int	erface Dialog			· 🗆
File Edit Options Window Navigation	n <u>A</u> ctions					<u>H</u> elp
ti Si 📩 🗏 💽 🗸 ? 🔍 Chassis Sta	atus Configuration ATM/S	SONET Performanc	Routing Protocol	Additional Notes		
	CRC [	crc-16 <u>5</u>	SONET	Overhead J0 Byte	00 00 00 CC	
OSM POS Modules	Encapsulation	hdic <u>5</u>	SONET	Overhead C2 Byte		207
	Framing Pauload Scrambling	sonet <u>5</u>	SONET	Overhead S1 S0 Bits	00 00 00 00	
	Transmit Clock Source	loopTiming 3	3			
OSM POS Interfaces						
Status: C6576H0smPosInterface (normal), C6	65781				Dynamic upd	ates are enabled
Status as of Fri Jan 25 13:03:08 2002						

#### **ATM Area**

The ATM area contains the following information:

- CRC—Cyclical redundancy check (CRC) word size. The CRC is an error-checking technique that uses a calculated numeric value to detect errors in transmitted data.
- Encapsulation—Indicates whether HDLC or PPP encapsulation is used on the interface.
- Framing—Framing for optical digital transmission. SONET is the North American standard, SDH is the European standard.
- Payload Scrambling—Indicates whether or not SONET payload scrambling is enabled on the interface. Payload scrambling ensures that there is sufficient bit-transition density to maintain the transmit clock for synchronous signalling. Both ends of the connection must use the same scrambling algorithm.
- Transmit Clock Source—Source of the transmit clock.
  - loopTiming—Indicates that the recovered receive clock is used as the transmit clock.
  - localTiming—Indicates that the transmit clock source is generated internally.

#### **SONET Area**

The SONET area contains the following information:

- SONET Overhead J0 Byte—Value of the SONET overhead section trace byte. A value of 0x10 is for interoperability with some Synchronous Digital Hierarchy (SDH) devices in Japan. This attribute is read-only.
- SONET Overhead C2 Byte—Value of the SONET overhead path signal identifier. This attribute is read-only. These are possible values:
  - 0xCF = PPP or HDLC
  - 0x13 = ATM
- SONET Overhead S1 S0 Bits—Value of the SONET overhead S1 & S0 bits. These bits are part of the payload pointer byte. This attribute is read-only. These are possible values:
  - 0 = OC-3c
  - 2 = AU 4

## **Performance Tab**

I

Figure 5-74 shows the Performance tab of the C6576M OSM POS Interface dialog box. All the attributes in this tab are read-only.

Figure 5-74 Performance Tab of the C6576M OSM POS Interface Dialog Box

Edit Options Window Naviga	tion <u>Actions</u>				Hel
Se 🔳 🖬 🖌 💡 🍳					
nassis	Status Configuration	ATM/SONET Performance	Routing Protocol	Additional Notes	
7600-104-Chassis	Packets/Octets S	tatistics			
	Bandwidth Util (%)	0			
	In Octets	0	Out Octets	0	
SM POS Modules	In Unicast Pkts.	0	Out Unicast Pkts	0	
	In Packets/Sec	0	Out Packets/Sec	0	
	In Bits/Sec	0	Out Bits/Sec	0	
	5				
	CRC Error Bits	0			
	CHC EII0I PRIS.				
	In Discarded Pkts.	0	Out Discarded Pkts.	. 0	
SM POS Interfaces	In Dropped Pkts.	0	Out Dropped Pkts.	0	
SM-8-POS-1	In Ignored Pkts.	0			
	In Aborted Pkts.	0			
	In Error Pkts.	0	Out Error Pkts.	0	
	Performance Logg	ing			
	Start	Stop			

#### **Packets/Octets Statistics Area**

The Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets delivered by this sublayer to a higher (sub)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec-Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

#### **Error Statistics Area**

The Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet is to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet is to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

#### **Performance Logging Area**

The Performance Logging area of the C6576M OSM POS Interface dialog box contains buttons to enable data logging of all the interface attributes of the interface:

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.


The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

## **Routing Protocol Tab**

Figure 5-75 shows the Routing Protocol tab of the C6576M OSM POS Interface dialog box.

Figure 5-75 Routing Protocol Tab on the C6576M OSM POS Interface Dialog Box

C6576M OSM POS Interface Dialog			
File Edit Options Window Navigation	Actions	<u>H</u> elp	
11 📽 🎦 🔳 💽 🖌 💡 🔍			
Chassis Sta	tus Configuration ATM/SONET Performance Routing Protocol Additional Notes		
C7600-104-Chassis	OSPF Network Type pointToPoint Polling Interval (sec) 120		
	Admin Status disabled Trans. Priority 1		
	Area ID 0.0.0.0 Trans. Dead (sec) 40		
OSM POS Modules	Authentication Key Trans. Delay (sec) 1		
OSM-8	Hello Interval (sec) 10 Retrans. Interval (sec) 5		
	EIGRP Interface Bandwidth Utilization (%) 50		
	1313 Hold Time (sec) 15		
J J	Helio Interval (sec) 5		
OSM POS Interfaces	ISIS		
OSM-8-ROS-1	ISIS Enabled false Area Tag		
	Level 1 Hello Interval 10 Level 2 Hello Interval 10 Enable		
	Level 1 Metric 10 Level 2 Metric 10		
	Level 1 Priority 64 Level 2 Priority 64 Disable		
<b>V</b>			
Status: C6576HOsmPosInterface (normal), C6	576M Dynamic updates are enal	oled	
Status as of Fri Jan 25 13:03:38 2002			

### **OSPF** Area

I

The OSPF area of the C6576M OSM POS Interface dialog box provides the following information. All the attributes in this area are read-only.

- Network Type—OSPF interface type. By default, a POS interface is point-to-point, however, the OSPF network type may be modified to accommodate different types of network configurations. This attribute can have one of the following values:
  - broadcast
  - nbma
  - pointToPoint
  - pointToMultipoint
- Admin Status—The desired state of the interface.

- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. It is ignored if Authentication Type is not "simple".
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Polling Interval—Polling interval in seconds.
- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. If more than one router has the same value for this field, the routers use their router ID as a tie breaker.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network.
- Trans. Delay (sec)—The estimated number of seconds it takes to transmit a link state update packet over this interface.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets.

### **EIGRP** Area

The EIGRP Area of the C6576M OSM POS Interface dialog box provides the following information:

- EIGRP Interface Table—Describes the EIGRP configuration of the interface on each active autonomous system. The EIGRP parameters of the interface on an autonomous system may be explicitly configured even if EIGRP routing updates in the autonomous system are not currently carried on the interface.
- Bandwidth Utilization (%) —The percentage of the interface bandwidth that the EIGRP protocol can use.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.

### **ISIS** Area

The ISIS area of the C6576M OSM POS Interface dialog box provides the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface:
  - true—ISIS routing is enabled.
  - false—ISIS routing is disabled.
- Area Tag—The IS-IS routing area in which the interface participates. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag.

- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 1 Priority—Determines which router on a LAN will be the designated router or Designated Intermediate System (DIS).
- Level 2 Priority—Determines which router on a LAN will be the designated router or Designated Intermediate System (DIS).
- Enable button—Enables IS-IS routing on the interface.

### 

- **Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.
- Disable button—Disables IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

## **Additional Notes Tab**

Figure 5-76 shows the Additional Notes tab of the C6576M OSM POS Interface dialog box.

Figure 5-76 Additional Notes Tab of the C6576M OSM POS Interface Dialog Box

C6576M OSM POS Interface Dialog	· · [
File Edit Options Window Navigation Actions	Help
Image: Status     Configuration     ATM/SONET     Performance     Routing Protocol     Additional Notes	
Notes	]
OSM POS Modules	
OSM POS Interfaces	
ØSM-8-POS-1	Ĩ
Status: C6576MDsmPosInterface (normal), C6576P Dynamic updates are en	abled
Status as of Fri Jan 25 13:03:08 2002	

3260

### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the OSM POS Interface.

# C6576M OSM Serial Subinterface Dialog Box

This dialog box describes a logical DS3 channel on a channelized OC-12 (ChOC-12) or OC-48 (ChOC-48) SONET interface of an Optical Service Module (OSM). A DS3 channel of a SONET interface is provisioned as a logical Serial interface. This dialog box can be launched from the OSM Channelized SONET Module or Interface object or the Serial Subinterface object within the Physical view.

You can select multiple OSM serial subinterfaces, OSM Channelized SONET interfaces, OSMs, and chassis at a time from the object list on the left side of the dialog box.

Note

E3 serial subinterfaces can be configured through the CLI, but the OSM Channelized SONET cards do not support SDH (E3) content formatting. The EMS will discover these interfaces but does not support any operations against them.

## **Status Tab**

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Figure 5-77 shows the Status tab of the C6576M OSM Serial Subinterface dialog box.

	Serial Subinterface Management - Configuration	· -
File Edit Options Window Naviga	tion <u>Actions</u>	Help
XIS⇔ ≡ ◘ ✓ ? ♥		
Chassis	Status Configuration DS-3 Performance DS-3 Statistics Routing Protocol Additional Notes	
ems6509neb-Chassis ems6513a-Chassis ems7609a-Chassis jdp6509a-nsp-Chassis	Interface Status Description Index	
Channelized OSM	Operational Status	
OSM-2	Administrative Status up	
A A		
OSM Serial Subinterfaces		
Status: OsmChSonetModule (perflostcomm	ns), Chassis (normal) Dynamic updates are	enabled

Figure 5-77 Status Tab of the C6576M OSM Serial Subinterface Dialog Box

### **Interface Status Area**

The Status area of the C6576M OSM Serial Subinterface dialog box provides the following information to describe the general characteristics of the interface:

- Description—Comment or a description to help you remember what is attached to this interface. The description is put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - unknown
  - down
  - **–** up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing components (typically hardware).
  - lowerLayerDown—Indicates that the primary channelized SONET interface has failed.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - up
  - down
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.
- Connector Present—Displays if a cable is attached to the parent interface (the OSM Channelized SONET Interface). These are the values:
  - yes
  - **–** no
  - unknown—This value is used when the Administrative Status is not set to "up". In this case, it cannot be determined if a connection is present or not.
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field has the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.
- perflostcomms—CEMF has lost communication with the device from the performance state.

## Interface Configuration Tab

Figure 5-78 shows the Interface Configuration tab of the C6576M OSM Serial Subinterface dialog box.

-	C6576M OSM Serial Subinterface Configuration Dialog				
<u>File Edit Options Window Naviga</u>	ation <u>Actions</u>	<u>H</u> elp			
1 🛯 📩 🗏 🖸 🗸 💡 🔍	۹ 				
Chassis	Status Configuration DS-3 Performance DS-3 Statistics Routing Protocol Additional Notes				
Cisco7600-Chassis	General				
	Link Up/Down Trap enabled 🔽 Max. Input Queue Length 75				
	Max. Output Queue Length 40				
Channelized OSM	Delay 20				
0.000	Bandwidth 34010				
	Layer 2 Layer 3				
Channelized OSM SONET IF	MTU 4470 IP Address 12 . 23 . 34 . 45				
SONET-9-1	Netmask 255 . 255 . 0				
	Clear IP Address				
OSM Serial Subinterfaces					
Serial-9-1-1					
Status: C6576MOsmSerialSubinterface (r	normal), Dynamic updates are ena	bled			
Status as of Thu Jun 20 15:13:29 2002	2				

Figure 5-78 Interface Configuration Tab of the C6576M OSM Serial Subinterface Dialog Box

### **General Area**

The General area contains the following information:

• Bandwidth—Overwrites default bandwidth in kilobits per second.

The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

Delay—Specifies the delay in tens of microseconds for an interface or network segment.

Note

The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

- Input Queue Length—Displays the input queue length in packets.
- Output Queue Length—Displays the output queue length in packets.
- Link Up / Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.

Note

### Layer 2 Area

The Layer 2 area contains the following information:

• MTU—The size of the largest datagram (frame) which can be sent or received on the interface, specified in octets.

### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the Layer 3 interface.
- Netmask—Subnet mask of the IP address. Enabled bits indicate network addressing bits in the IP address.
- Clear IP Address button—After receiving confirmation, will unset the IP address for this interface.

## **DS-3 Configuration Tab**

Figure 5-79 shows the DS-3 Configuration tab of the C6576M OSM Serial Subinterface dialog box.

Figure 5-79 DS-3 Configuration Tab of the C6576M OSM Serial Subinterface Dialog Box

Pile Edit Options Madow Mavigation Actions Help   Image: Status Configuration   DS-3 Status Configuration DS-3 Status Configuration DS-3   Status Configuration DS-3 Status Configuration DS-3 Status Configuration   Channelized OSM Status Configuration DS-3 Encapsulation Status Configuration   DSU Mode Status Configuration DSU Payload Scrambling Twee   Channelized OSM Status Configuration DSU Status Configuration Status Configuration   OSM-9-ChSonet-1 DSU Mode Status Configuration Status Configuration Status Configuration   OSM-9-ChSonet-2 SONET Path Header (C2) SONET Path Header (C1) Expected Label   Transmit Size Transmit Label Modify SONET Path Header (J1)		C6576M OSM Serial Subinterface Configuration Dialog	
Solution                                                                              <	<u>File Edit Options Window Naviga</u>	ation <u>Actions</u>	<u>H</u> elp
Chassis       Status       Configuration       DS-3       Statistics       Routing Protocol       Additional Notes         Channelized OSM       Framing       Image: CRC	1 🛯 📥 🔳 🗊 🖌 💡 🍳		
Chanselized OSM       Solution       DSU Solution       Payload Scrambling       twe       Image: Constraint of the solution of th	Chassis		
OS-3 Serial Interface       Framing       Channelized OSM       OSM-Serial Subinterface       SONET Path Header (C2)       SONET Path Header (C2)       SONET Path Header (C1)       DSM-Se-ChSonet-3       OSM-Se-ChSonet-5       OSM Serial Subinterfaces	Crassis	Status Configuration DS-3 Performance DS-3 Statistics Routing Protocol Additional No	Ies
Framing       x-bit       y       Payload Scrambling       true       y         Channelized OSM       CRC       pr:-10       y       Encapsulation       http://w       y         DSU Mode       weitens       y       DSU Bandwidth       p       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y       y		DS-3 Serial Interface	
Channelized OSM Channelized OSM Channelized OSM OSM=3 Channelized OSM Solver IF OSM=3-ChSonet-3 OSM=3-ChSonet-3 OSM=3-ChSonet-5 OSM=3-ChSonet-5 OSM=3-ChSonet-5 OSM=3-ChSonet-5 OSM=3-ChSonet-4 OSM=3-ChSonet-		Framing C-Dit Z Payload Scrambling true	<u> </u>
Channelized OSM       DSU Mode     attiffen     DSU Bandwidth       DSM-S     SONET Path Header (C2)       SONET Path Header (C1)     SONET Path Header (C1)       DSM-S-ChSonet-1     SONET Path Header (C1)       DSM-S-ChSonet-3     Sonet Path Header (C1)       DSM-S-ChSonet-4     Expected Label       Transmit Size     Transmit Label       Modify SONET Path Header (J1)     Modify SONET Path Header (J1)		CRC cm-16 Z Encapsulation httlc	<u> </u>
DSM-S       Near End Loopback Mode       Isabled       Far End Loopback Mode       Isabled       I         SONET       SONET Path Header (22)       SONET Path Header (21)       SONET Path Header (21)       Expected Label         OSM-S-ChSonet-1       Sonet - 2       Sonet - 2       Sonet - 2       Sonet - 2         OSM-S-ChSonet-3       Sonet - 4       Sonet - 2       Sonet - 4       Sonet - 4         OSM-S-ChSonet-4       Sonet - 4       Sonet - 2       Sonet - 4       Sonet - 2         OSM Serial Subinterfaces       Modify Sonet Path Header (J1)       Modify Sonet - 4       Sonet - 4	Channelized OSM	DSU Mode adiran Z DSU Bandwidth	
Obinitial     Note the dependence of the control of the		Near End Loonback Mode disabled V Ear End Loonback Mode disable	ad V
SONET Path Header (C2)         SONET Overhead C2         SONET Path Header (J1)         OSM-9-ChSonet-1         OSM-9-ChSonet-4         OSM-9-ChSonet-4         OSM-9-ChSonet-4         OSM-9-ChSonet-4         OSM Serial Subinterfaces			
Channelized OSM SONET IF SONET Overhead C2 SONET Path Header (J1) Expected Size Expected Label Transmit Size Transmit Label OSM -3- ChSonet-4 OSM -3- ChSonet-5 OSM Serial Subinterfaces Modify SONET Path Header (J1)		SONET Path Header (C2)	
Channelized OSM SONET IF OSM-9-ChSonet-1 OSM-9-ChSonet-2 OSM-9-ChSonet-4 OSM-9-ChSonet-5 OSM Serial Subinterfaces Modify SONET Path Header (J1)		SOMET Overhead C2	
SOME Text Header (J1)         DSM-3-ChSonet-1         OSM-3-ChSonet-3         OSM-3-ChSonet-5         OSM-3-ChSonet-5         OSM Serial Subinterfaces		Solici ovenlead cz	
OSM-9-ChSonet-3 OSM-9-ChSonet-3 OSM-9-ChSonet-5 OSM-9-ChSonet-5 OSM-9-ChSonet-5 OSM-9-ChSonet-5 OSM-9-ChSonet-5 OSM Serial Subinterfaces	Channelized OSM SONET IF	SONET Path Header (J1)	
OSM-9-ChSonet-3 OSM-9-ChSonet-4 OSM-9-ChSonet-5 OSM Serial Subinterfaces	OSM-9-ChSonet-2	Expected Size Expected Label	
OSM-3-ChSonet-5     Modify SONET Path Header (J1)       OSM Serial Subinterfaces	OSM-9-ChSonet-3	Transmit Size Transmit Label	
OSM Serial Subinterfaces	OSM-9-ChSonet-5		
OSM Serial Subinterfaces		Modify SONET Path Header (J1)	
	OSM Serial Subinterfaces		
Status: C6576MDsmChSonetInterface (normal), CE Dynamic updates are enabled	Status: C6576HOsmChSonetInterface (nor	rma1), CE Dyna	mic updates are enabled
Service invocation succeeded	Service invocation succeeded		

### **DS-3 Serial Interface Area**

The DS-3 Serial Interface area contains the following information:

• Framing—Framing for optical digital transmission. SONET is the North American standard; SDH is the European standard.

- CRC—Cyclical redundancy check (CRC) word size. The CRC is an error-checking technique that uses a calculated numeric value to detect errors in transmitted data.
- DSU Mode—Data Service Unit (DSU) mode. This enables interoperability with other DSUs. The local interface configuration must match the remote configuration. This attribute can have the following values:
  - adtran
  - cisco
  - digital-link
  - larscom
  - verilink
  - kentrox (6)



The Kentrox DSU/CSU mode is configurable in the CLI but is currently not supported. The C6576M EMS will allow a user to configure this value, but it will log a warning message indicating that the value is unsupported by IOS.

- Near End Loopback Mode—Near end channel loopback mode. This mode can have the following values:
  - disabled
  - local—Sets the loopback after going through the framer toward the terminal.
  - network—Puts the near end in network loopback.
- Far End Loopback Mode—Far end channel loopback mode. If enabled, this mode puts the far end in loopback by sending far-end alarm control (FEAC). This mode has the following values:
  - disabled
  - remote
- Payload Scrambling—Indicates whether or not SONET payload scrambling is enabled on the interface. Payload scrambling ensures that there is sufficient bit-transition density to maintain the transmit clock for synchronous signalling. Both ends of the connection must use the same scrambling algorithm.
- Encapsulation—Indicates whether HDLC or PPP encapsulation is used on the interface.
- DSU Bandwidth—DSU subrate bandwidth in kilobits per second. This attribute reduces the DS3 bandwidth by padding the T3 frame.

#### SONET Path Header (C2) Area

The SONET Path Header (C2) area contains the following information:

- SONET Overhead C2 Byte—Value of the SONET overhead Path Signal Label (C2), which indicates the contents of the SONET STS-SPE Higher Order VC. This attribute is read-only. These are possible values:
  - 207 (0xCF) = PPP or HDLC with no payload scrambling
  - 22(0x16) = PPP or HDLC with payload scrambling

### **SONET Path Header (J1) Area**

The SONET Path Header (J1) area contains the following information:

- Expected Size—Maximum length of the expected receive SONET Path overhead message in bytes.
- Transmit Size—Maximum length of the transmitting SONET Path overhead message in bytes.
- Expected Label—The expected receive SONET Path overhead message. If the expected label is longer than the expected size, it will be truncated.
- Transmit Label—Transmitting SONET Path overhead message. If the transmitting label is longer than the transmitting size, it will be truncated.
- Modify SONET Path Header (J1) button—Launches a subdialog box to modify the expected receive and transmit SONET Path overhead message. Figure 5-80 shows the subdialog box launched by this button. The following items are displayed in the subdialog box:
  - Expected Size
  - Transmit Size
  - Expected Label
  - Transmit Label
  - Modify button—Sets the specified values of the attributes given in the subdialog box.



In 12.1(11b)E and later the values for the Expected Size and the Transmit Size should be the same since the Tx and Rx message sizes cannot be independently configured. If the received values are different, the J1 Path Overhead message size will be set to the larger of the two values.

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e <u>E</u> dit <u>O</u> ptions <u>Wi</u> ndow	Navigation Actions	Help
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Chassis		
ems6513a-Chassis	Expected Size	
	Expected Label	
Channelized OSM		
OSM-2	Transmit Size skiken <u>y</u>	
	Transmit Label	
Channelized OSM SONET II	-	
	Modify	
OSM Serial Subinterfaces		
us: osmichsonethodule (perfl	ustcomms/, triassis (normal/	Jates are enabled

Figure 5-80 SONET J1 Modify Subdialog Box of the C6576M OSM Serial Subinterface Dialog Box

## **Performance Tab**

Figure 5-81 shows the Performance tab of the C6576M OSM Serial Subinterface dialog box. All the attributes shown in this tab are read-only.

Figure 5-81 Interface Performance Tab of the C6576M OSM Serial Subinterface Dialog Box

-	C6576M OSM Serial Subi	nterface Configuration Dialog	· []
<u>File Edit Options Window Naviga</u>	tion <u>A</u> ctions		<u>H</u> elp
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Chassis	Status Configuration DS-3 Perfor	mance DS_3 Statistics Routing Protocol Additional Notes	
C7600-104-Chassis	Interface Products (Ontotal Object)		
	Interface Packets/Octets Statu	sucs	
	Bandwidth Util (%)		
	In Octets	Out Octets	
Channelized OSM	In Unicast Pkts.	Out Unicast Pkts	
OSM-9	In Packets/Sec	Out Packets/Sec	
	In Bits/Sec	Out Bits/Sec	
-			
	Interface Error Statistics		
Channelized OSM SONET IE	CRC Error Pkts.		
	In Discarded Pkts.	Out Discarded Pkts.	
OSM-9-ChSonet-2	In Dropped Pkts.	Out Dropped Pkts.	
OSM-9-ChSonet-3	In Ignored Pkts.		
OSM-9-ChSonet-5	In Aborted Pkts.		
	In Error Pkts.	Out Error Pkts.	
OSM Serial Subinterfaces			
	Performance Logging		
	Start	Stop	
Status: C6576MOsmChSonetInterface (norm	mal), CE	Dynamic updates are	enabled

### **Interface Packets/Octets Statistics Area**

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets delivered by this sublayer to a higher (sub)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and that were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec-Five-minute exponentially decayed moving average of output bits per second.

### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

- CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.
- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

### **Performance Logging Area**

The Performance Logging area of the C6576M OSM Serial Subinterface dialog box contains these buttons to enable data logging of all the interface attributes of the interface:

- Start—Turns on performance data logging.
- **Stop**—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

## **DS-3 Statistics Tab**

Figure 5-82 shows the DS-3 Statistics tab of the C6576M OSM Serial Subinterface dialog box.

C6576M OSM Serial Subinterface Configuration Dialog File Edit Options Window Navigation Actions Help 1 🛯 📥 🔳 🗊 🖌 💡 🍳 Chassis Status Configuration DS-3 Performance DS-3 Statistics Routing Protocol Additional Notes C7600-104-Chas DS-3 Erro C-bit Errored Secs P-bit Errored Secs C-bit Severely Err Secs P-bit Severely Err Secs C-bit Coding Violations P-bit Coding Violations Channelized OSM Line Errored Secs Line Coding Violations OSM-9 Severely Err Frm Secs Unavail Secs DS-3 Far End Error C-bit Errored Secs C-bit Severely Err Secs C-bit Coding Violations Elapsed Secs Channelized OSM SONET IF DSM-9-ChSonet-1 OSM-9-ChSonet-2 OSM-9-ChSonet-3 Unavail Secs SONET Path Error OSM-9-ChSonet-4 SONET Path Status SONET Path Width OSM-9-ChSonet-5 Errored Secs Severely Err Secs Unavail Secs Coding Violations OSM Serial Subinterfaces SONET Far End Path Error Errored Secs Severely Err Secs Unavail Secs Coding Violations itatus: C6576MOsmChSonetInterface (normal), C6 Dynamic updates are enabled 33

Figure 5-82 DS-3 Statistics Tab on the C6576M OSM Serial Subinterface Dialog Box

### **DS-3 Error Area**

The DS-3 Error area contains the following information:

- C-bit Errored Secs—C-bit errored seconds.
- C-bit Severely Err Secs—C-bit severely errored seconds.
- C-bit Coding Violations—C-bit coding violations.
- P-bit Errored Secs—P-bit errored seconds.
- P-bit Severely Err Secs—P-bit severely errored seconds.
- P-bit Coding Violations—P-bit coding violations.
- Line Errored Secs—Line errored seconds.
- Line Coding Violations—Line coding violations.
- Unavail Secs—Unavailable seconds.
- Severely Err Frm Secs—Severely errored framing seconds.

### **DS-3 Far End Error Area**

The DS-3 Far End Error area contains the following information:

- C-bit Errored Secs—Far end C-bit errored seconds.
- C-bit Severely Err Secs—Far end C-bit severely errored seconds.
- C-bit Coding Violations—Far end C-bit coding violations.
- Elapsed Secs—Number of seconds that have elapsed since the beginning of the far end current error-measurement period.
- Unavail Secs—Far end unavailable seconds.

### **SONET Path Error Area**

The SONET Path Error area contains the following information:

- SONET Path Status—Status of the SONET Path. This status may indicate multiple simultaneous defects. There are possible Path defects:
  - STS-Path Loss of Pointer
  - STS-Path Alarm Indication Signal
  - STS-Path Remote Defect Indication
  - Unequipped
  - Signal Label Mismatch
- SONET Path Width—Width of the SONET path. This is described by the STS-Nc SPE. A DS3 channel has a width of STS-1 (55.84 Mbps).
- Errored Secs—Number of errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET Path in the current 15-minute interval.
- Coding Violations—Number of coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of unavailable seconds encountered by the SONET Path in the current 15-minute interval.

### **SONET Far End Path Error Area**

The SONET Far End Path Error area contains the following information:

- Errored Secs—Number of far end errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of far end severely errored seconds encountered by the SONET Path in the current 15-minute interval.
- Coding Violations—Number of far end coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of far end unavailable seconds encountered by the SONET Path in the current 15-minute interval.

## **Routing Protocol Tab**

Figure 5-83 shows the Routing Protocol tab of the C6576M OSM Serial Subinterface dialog box.

-	C6576M OSM Serial Subinterface Configuration Dialog											
File	<u>E</u> dit <u>O</u>	ptions	Window	<u>N</u> avi	gation	Actions					<u>!</u>	<u>H</u> elp
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0	Chassis				Sta	atus Configuration	DS-3 Performance	DS-3 Statistics	Routing Protocol	Additional Notes		
	C7600-10	04-Chas	sis	- 8		- OSPF						
						Area ID		Trai	ns. Dead (sec)			
	~					Network Type		Tra	ns. Priority			
	~			2		Authentication	n Key	Trai	ns. Delay (sec)			
0	Channelize	ed OSM				Hello Interval (	(sec)	Ret	ans. Interval (sec)			
[	OSM-9			A		EIGRP						
						Interface		Donduidth Litil	instion (%)		- I	
				H.			A	Bandwidth Oth	. [			
	$\triangleleft$			2				Hold lime (sec	)			
C	Channelize	MCO he	SONET I	F				Hello Interval	(sec)			
- [	OSM-9-0	ChSonet	-1									
	OSM-9-0	ChSonet	-2			18-18						
	OSM-9-0	ChSonet	-3			ISIS Enabled		Are	a Tag			
	OSM-9-0	ChSonet	-5			Level 1 Hello	Interval	Lev	el 2 Hello Interval			
	$\leq$		ſ	2		Level 1 Metric		Lev	el 2 Metric			
c	DSM Seria	d Subint	erfaces			Level 1 Priorit	v	Lev	el 2 Priority		_	
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									Enable	Disable		
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State	us: C6576M	10smChSo	netInterf	ace (n	ormal)	), CE				Dynamic up	dates are enabled	_

Figure 5-83 Routing Protocol Tab on the C6576M OSM Serial Subinterface Dialog Box

### **OSPF** Area

The OSPF area of the C6576M OSM POS Interface dialog box provides the following information. All the attributes in this area are read-only.

- Network Type—OSPF interface type. By default, a POS interface is point-to-point, however, the OSPF network type may be modified to accommodate different types of network configurations. This attribute has one of the following values:
  - broadcast
  - nbma
  - pointToPoint
  - pointToMultipoint
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if the interface is a Layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. Ignored if Authentication Type is not "simple".
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.

- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. If more than one router has the same value for this field, the routers use their router ID as a tie breaker.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network.
- Trans. Delay (sec)—The estimated number of seconds it takes to transmit a link state update packet over this interface.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets.

### **EIGRP Area**

The EIGRP Area of the C6576M Ethernet Interface dialog box provides the following information:

- EIGRP Interface Table—Describes the EIGRP configuration of the interface on each active autonomous system. The EIGRP parameters of the interface on an autonomous system may be explicitly configured even if EIGRP routing updates in the autonomous system are not currently carried on the interface.
- Bandwidth Utilization (%) —The percentage of the interface bandwidth that the EIGRP protocol can use.
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Hold Time (sec)—Hold time during which the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.

### **ISIS Area**

The ISIS area of the C6576M Ethernet Interface dialog box provides the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface:
  - true—IS-IS routing is enabled.
  - false—IS-IS routing is disabled.
- Area Tag—The IS-IS routing area in which the interface participates. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 1 Priority—The priority is used to determine which router on a LAN will be the designated router or designated intermediate system (DIS).

- Level 2 Priority—The priority is used to determine which router on a LAN will be the designated router or DIS.
- Enable button—Enables IS-IS routing on the interface.

- **Note** To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.
- Disable button—Disables IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

## **Additional Notes Tab**

Figure 5-84 shows the Additional Notes tab of the C6576M OSM Serial Subinterface dialog box.



	C6576M OSM Serial Subinterface Configuration Dialog	•
File Edit Options Window Naviga	ion <u>A</u> ctions	Help
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Channelized OSM	Notes	
Channelized OSM SONET IF OSM-9-ChSonet-2 OSM-9-ChSonet-3 OSM-9-ChSonet-3 OSM-9-ChSonet-5 V		
OSM Serial Subinterfaces		
Status: C6576MOsmChSonetInterface (norm	al), CE Dynamic updates are enal	led

### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the OSM Serial Subinterface.

S.

# C6576M OSM POS Subinterface Dialog Box

This dialog box describes a logical OC-3 channel on a channelized OC-12 (ChOC-12) or OC-48 (ChOC-48) SONET interface of an Optical Service Module (OSM). An OC-3 channel of a SONET interface is provisioned as a logical packet over SONET (POS) interface. This dialog box can be launched from the OSM Channelized SONET Module or Interface object or the POS Subinterface within the Physical view.

You can select multiple OSM POS subinterfaces, OSM Channelized SONET interfaces, OSMs, and chassis at a time from the object list on the left side of the dialog box.

## **Status Tab**

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Figure 5-85 shows the Status tab of the C6576M OSM POS Subinterface dialog box.

	POS Sub-interface Management - Configuration	<u>-</u>
File Edit Options Window Navig	nation Actions	Help
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Chassis	Status Configuration POS Performance POS Statistics Routing Protocol Additional Notes	
ems509neb-Chassis	Interface Status Description Index Type Operational Status Administrative Status Up Vir Number of Resets Connector Present Last Change	
OSM POS Subinterfaces		
Status: OsmChSonetModule (perflostcom	ws), Chassis (normal) Dynamic updates are enal	oled

Figure 5-85 Status Tab of the C6576M OSM POS Subinterface Dialog Box

### **Interface Status Area**

The Status area of the C6576M OSM POS Subinterface dialog box provides the following information to describe the general characteristics of the interface.

- Description—Comment or a description to help you remember what is attached to this interface. The description is only put in the configuration to help you remember what specific interfaces are used for.
- Index—String index of the interface. This attribute is read-only.
- Type—Indicates the type of interface distinguished by the physical and link layer protocols on the interface.
- Operational Status—The current operational state of the interface. This attribute is read-only. This attribute has one of the following values:
  - unknown
  - down
  - up
  - dormant—Interface is waiting for external actions (such as a serial line waiting for an incoming connection)
  - notPresent—Interface has missing (typically, hardware) components.
  - lowerLayerDown—Indicates that the primary channelized SONET interface has failed.
- Administrative Status—The desired state of the interface. This attribute has one of the following values:
  - up
  - down
- Number of Resets—Number of times the interface internally reset. This attribute is read-only.
- Connector Present—Displays if a cable is attached to the parent interface (the OSM Channelized SONET Interface). These are the values:
  - yes
  - **–** no
  - unknown—This value is used when the Administrative Status is not set to "up". In this case, it cannot be determined if a connection is present or not.
- Last Change—The value (in seconds) of sysUpTime at the time the interface entered its current operational state. If the current state was entered before the last reinitialization of the local network management subsystem, then this object contains a zero value. This attribute is read-only.

### **Status Field**

The display-only Status field located at the bottom of the window indicates the current state of the object. This field can have the following values:

- decommissioned—CEMF is not actively monitoring the object attributes.
- normal—Presence polling is performed periodically.
- performance—Some attributes are collected periodically for trending purposes.
- normallostcomms—CEMF has lost communication with the device from the normal state.

• perflostcomms—CEMF has lost communication with the device from the performance state.

## **Interface Configuration Tab**

Figure 5-86 shows the Interface Configuration tab of the C6576M OSM POS Subinterface dialog box.

Figure 5-86 Interface Configuration Tab of the C6576M OSM POS Subinterface Dialog Box

ile Edit Ontione USuday, Novigetion	C6576M OSM POS Subinterface Confi	gure Dialog	
	Petuons		<u>u</u> eib
Chassis Sta	tus Configuration POS Performance POS Statisti	cs Routing Protocol Additional Notes	_
	Link Up/Down Trap enabled 🗵	Max. Input Queue Length 75	
OSM-9		Max. Output Queue Length 40	
		Delay 20	
Channelized OSM SONET IF		Bandwidth 155000	
SONET-9-1	Layer 2 MTU 4470	Layer 3 IP Address 111, 22, 35, 53 Netmask 255, 255, 0	
		Clear IP Address	
DSM POS Subinterfaces			
tus: C6576HOsmPosSubinterface (normal),	CGE	Dynamic updates are enabl	ed

### **General Area**

The General area contains the following information:

• Bandwidth—Overwrites default bandwidth in kilobits per second.

Note

The Bandwidth attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP, EIGRP, and OSPF); you cannot adjust the actual bandwidth of an interface with this command.

• Delay-Specifies the delay in tens of microseconds for an interface or network segment.

# <u>Note</u>

The Delay attribute is an informational parameter used only to communicate the current bandwidth to the higher-level protocols (such as IGRP and EIGRP); you cannot adjust the actual delay of an interface with this command.

- Input Queue Length—Displays the input queue length in packets.
- Output Queue Length—Displays the output queue length in packets.
- Link Up/Down Trap—Enables or disables linkUp and linkDown trap generation for the interface.

### Layer 2 Area

The Layer 2 area contains the following information:

• MTU—The size of the largest datagram (frame) which can be sent or received on the interface, specified in octets.

### Layer 3 Area

The Layer 3 area contains the following information:

- IP Address—Displays the IP address of the Layer 3 interface.
- IP MTU—Layer 3 MTU. The size of the largest datagram (packet) that can be sent/received on the interface. Cannot exceed the size of the largest layer 2 datagram on the interface. If the Layer 2 MTU is updated, the Layer 3 MTU must be adjusted so that it does not exceed the new Layer 2 MTU.
- Netmask—Subnet mask of the IP address. Enabled bits indicate network addressing bits in the IP address.
- Modify IP button—Launches a subdialog box to modify the IP address of the interface. Figure 5-87 shows the subdialog box that is displayed when the Modify IP button is selected. The subdialog box contain the following:
  - IP Address—Primary IP address of interface.
  - Netmask—Subnet mask for the interface.
  - Modify IP button—Modify the IP address.

#### Figure 5-87 Modify IP Subdialog Box

C6576M OSM POS Subinter	face IP Address Modify I	Dialog 🕝 🗌
File Edit Options Window Navigation	Actions	Help
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Chassis		
may-Chassis	IP Address	
Channelized OSM	Netmask	<b>□</b> • <b>□</b>
	Modify IP	
Channelized OSM SONET IF		_
OSM POS Subinterfaces		
Status: C6576MChassis (normal)		nabled
Status as of Wed May 1 01:00:14 2002		

## **POS Tab**

Figure 5-88 shows the POS tab of the C6576M OSM POS Subinterface dialog box.

C6576M OSM POS Subinterface Configure Dialog	
File Edit Options Window Navigation Actions	Help
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Chassis Statue Continuation POS Parformance POS Statistice Routing Protocol Additional Nates	
C7600-104-Chassis	
PUS Interface	
Channelized OSM	
Encapsulation http://www.communication.com/	
Path Message (C2)	
SONET Overhead C2 Byte	
Channelized OSM SONET IF	
Path Message (J1)	ī II
Expected Size Expected Label	
Transmit Size Transmit Label	
Modify Path Message (.11)	
OSM POS Subinterfaces	
Status: C6576HOsmChSonetHodule (normal), C6576 Dynamic updates are en	nabled

Figure 5-88 POS Tab of the C6576M OSM POS Subinterface Dialog Box

### **POS Interface Area**

The POS Serial Interface area contains the following information:

- CRC—Cyclical redundancy check (CRC) word size. The CRC is an error-checking technique that uses a calculated numeric value to detect errors in transmitted data.
- Payload Scrambling—Indicates whether or not SONET payload scrambling is enabled on the interface. Payload scrambling ensures that there is sufficient bit-transition density to maintain the transmit clock for synchronous signalling. Both ends of the connection must use the same scrambling algorithm.
- Encapsulation—Indicates whether HDLC or PPP encapsulation is used on the interface.

### Path Message (C2) Area

The Path Message (C2) area contains the following information:

- SONET Overhead C2 Byte—Value of the SONET overhead Path Signal Label (C2), which indicates the contents of the SONET STS-SPE Higher Order VC. This attribute is read-only. These are possible values:
  - 207 (0xCF) = PPP or HDLC with no payload scrambling
  - 22(0x16) = PPP or HDLC with payload scrambling

### Path Message (J1) Area

The SONET Path Header (J1) area contains the following information:

- Expected Size—Maximum length of the expected receive SONET Path overhead message in bytes.
- Transmit Size—Maximum length of the transmitting SONET Path overhead message in bytes.
- Expected Label—The expected receive SONET Path overhead message. If the expected label is longer than the expected size, it will be truncated.
- Transmit Label—Transmitting SONET Path overhead message. If the transmitting label is longer than the transmitting size, it will be truncated.
- Modify Path Message (J1) button—Launches a subdialog box to modify the expected receive and transmit SONET Path overhead message. Figure 5-89 shows the subdialog box launched by this button. The following items are displayed in the subdialog box:
  - Expected Size
  - Transmit Size
  - Expected Label
  - Transmit Label
  - Modify button—Sets the specified values of the attributes given in the subdialog box.



In 12.1(11b)E and later the values for the Expected Size and the Transmit Size should be the same since the Tx and Rx message sizes cannot be independently configured. If the received values are different, the J1 Path Overhead message size will be set to the larger of the two values.

- P09	6 Sub-interface - Modify POS	5 J1 -
<u>File Edit Options Window N</u>	avigation <u>A</u> ctions	<u>H</u> elp
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Chassis	Expected Size	bylestó 🗵
	Expected Label	
Channelized OSM	Transmit Size	bylestó 🗵
OSM-2	Transmit Label	
Channelized OSM SONET IF	<b>,</b>	
		Modify
OSM POS Subinterfaces	1	
	i	
tatus: OsmChSonetModule (perflos	tcomms), Chassis (normal)	: enabled

Figure 5-89 SONET J1 Modify Subdialog Box of the C6576M OSM POS Subinterface Dialog Box

## **Performance Tab**

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Figure 5-90 shows the Performance tab of the C6576M OSM POS Subinterface dialog box. All the attributes shown in this tab are read-only.

	C6576M OSM POS Subinterface Configure Dia	log
<u>Edit Options Window Navi</u>	ation <u>A</u> ctions	Help
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hassis	Status Configuration POS Performance POS Statistics Rouing	Protocol Additional Notes
27600-104-Chassis	Interface Deskets/Octate Statistics	
	Bandwidth Itil (%)	
hannalized OSM	In Octats Out Octa	ate
	In Unicast Pkts Out Unic	ast Pikts
	In Packets/Sec Out Pack	xets/Sec
	In Bits/Sec Out Bits/	Sec
	Interface Error Statistics	
nannelized USM SUNET IF	CRC Error Pkts.	
A .	In Discarded Pkts. Out Disc	arded Pkts.
	In Dropped Pkts. Out Drop	ped Pkts.
	In Ignored Pkts.	
	In Aborted Pkts.	
	In Error Pkts. Out Error	r Pkts.
SM POS Subinterfaces		
	Performance Logging	
	Start Stop	
	,	
us: C6576MOsmChSonetModule (norm	al), C6576	Dynamic updates are enabled

Figure 5-90 Performance Tab of the C6576M OSM POS Subinterface Dialog Box

#### **Interface Packets/Octets Statistics Area**

The Interface Packets/Octets Statistics area contains the following information:

- Bandwidth Util (%)—Percentage of bandwidth utilization.
- In Octets—Total number of received octets including framing characters.
- Out Octets—Total number of transmitted octets including framing characters.
- In Unicast Pkts.—The number of packets delivered by this sublayer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sublayer.
- Out Unicast Pkts.—The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sublayer, including those that were discarded or not sent.
- In Packets/Sec—Five-minute exponentially decayed moving average of input packets per second.
- Out Packets/Sec—Five-minute exponentially decayed moving average of output packets per second.
- In Bits/Sec—Five-minute exponentially decayed moving average of input bits per second.
- Out Bits/Sec—Five-minute exponentially decayed moving average of output bits per second.

### **Interface Error Statistics Area**

The Interface Error Statistics area contains the following information:

• CRC Error Pkts.—Number of input packets that had cyclic redundancy checksum errors.

- In Discarded Pkts.—The number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.
- Out Discarded Pkts.—The number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
- In Dropped Pkts.—The number of packets dropped because the input queue was full.
- Out Dropped Pkts.—The number of packets dropped because the output queue was full.
- In Ignored Pkts.—Number of input packets that were ignored by this interface.
- In Aborted Pkts.—Number of input packets that were aborted.
- In Error Pkts.—The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Out Error Pkts.—Number of outbound packets that could not be transmitted because of errors.

### **Performance Logging Area**

The Performance Logging area of the C6576M OSM POS Subinterface dialog box contains buttons to enable data logging of all the interface attributes of the interface.

- Start—Turns on performance data logging.
- Stop—Turns off performance data logging.



The logged data is available to you through the CEMF Performance Manager. Refer to the *Cisco Element Management Framework User Guide* for more information about the Performance Manager.

## **POS Statistics Tab**

Figure 5-91 shows the POS Statistics tab of the C6576M OSM POS Subinterface dialog box.

Figure 5-91 POS Statistics Tab on the C6576M OSM POS Subinterface Dialog Box

C657	5M OSM POS Subint	erface Configure Dialog	·
e Eart Options window Navigation Actions			Helt
Chassis Status Conf	guration POS Performan	ce POS Statistics Rouing Protocol Additional Notes	1
C7600-104-Chassis	Path Error		
SON	ET Path Status	SONET Path Width	
Channelized OSM Error	ed Secs	Severely Err Secs	
OSM-9 Unav	ail Secs	Coding Violations	
SONET	Far End Path Error		
	ad Secs	Severely Err Secs	
Channelized OSM SONET IE Unav	ail Secs	Coding Violations	
OSM POS Subinterfaces			
atus: C6576MOsmChSonetModule (normal). C657F		Tunani	c updates are enabled
		2 grant	

### **SONET Path Error Area**

The SONET Path Error area contains the following information:

- SONET Path Status—Status of the SONET Path. This status may indicate multiple simultaneous defects. These are possible path defects (bitmask):
  - No defects (1)
  - STS-Path Loss of Pointer (2)
  - STS-Path Alarm Indication Signal (4)
  - STS-Path Remote Defect Indication (8)
  - Unequipped (16)
  - Signal Label Mismatch (32)
- SONET Path Width—Width of the SONET path. This is described by the STS-Nc SPE. A DS3 channel has a width of STS-1 (55.84 Mbps).
- Errored Secs—Number of errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of severely errored seconds encountered by the SONET Path in the current 15-minute interval.

- Coding Violations—Number of coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of Unavailable Seconds encountered by the SONET Path in the current 15-minute interval.

### **SONET Far End Path Error Area**

The SONET Far End Path Error area contains the following information:

- Errored Secs—Number of far end errored seconds encountered by the SONET Path in the current 15-minute interval.
- Severely Err Secs—Number of far end severely errored seconds encountered by the SONET Path in the current 15-minute interval.
- Coding Violations—Number of far end coding violations encountered by the SONET Path in the current 15-minute interval.
- Unavailable Secs—Number of far end unavailable seconds encountered by the SONET Path in the current 15-minute interval.

## **Routing Protocol Tab**

Figure 5-92 shows the Routing Protocol tab of the C6576M OSM POS Subinterface dialog box.

#### Figure 5-92 Routing Protocol Tab on the C6576M OSM POS Subinterface Dialog Box

	C6576M OSM POS Subinterface Configure Dialog	$\overline{ } \cdot \Box$
File Edit Options Window Naviga	tion Actions	Help
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Chassis	Status Configuration POS Performance POS Statistics Rouing Protocol Additional Notes	
C7600-104-Chassis	C OSPF	
	Area ID Trans. Dead (sec)	
Channelized OSM	Network Type Trans. Priority	
OSM-9	Authentication Key Trans. Delay (sec)	
$\overline{\nabla}$	Hello Interval (sec) Retrans. Interval (sec)	
	FIGRP	
Channelized OSM SONET IF	Interface     Bandwidth Utilization (%)       Hold Time (sec)       Hello Interval (sec)	
	IS-IS	
OSM POS Subinterfaces	ISIS Enabled Area Tag Level 1 Helio Interval Level 2 Helio Interval Level 1 Metric Level 2 Metric Level 1 Priority Level 2 Priority	
	Enable Disable	
Status: C6576MOsmChSonetModule (normal	), C657€ Dynamic updates are enab	oled

### **OSPF** Area

The OSPF area of the C6576M OSM POS Interface dialog box provides the following information. All the attributes in this area are read-only.

- Network Type—OSPF interface type. By default, a POS interface is point-to-point, however, the OSPF network type may be modified to accommodate different types of network configurations. This attribute has one of the following values:
  - broadcast
  - nbma
  - pointToPoint
  - pointToMultipoint
- Area ID—The predefined ID uniquely identifying the area to which the interface connects. It can be specified as either a decimal value or as an IP address. Value is 0.0.0.0 if interface is a Layer 2 (no IP address assigned) interface. This attribute is read-only.
- Authentication Key—Password to be used by neighboring OSPF routers on a network segment that is using OSPF simple password authentication. It is ignored if Authentication Type is not "simple".
- Hello Interval (sec)—Frequency at which the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Trans. Priority—The priority of this interface. Used in multiaccess networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network. If more than one router has the same value for this field, the routers use their router ID as a tie breaker.
- Trans. Dead (sec)—Number of seconds that a device's hello packets must not have been seen before its neighbors declare the OSPF router down. Must be consistent among all routers on an attached network.
- Trans. Delay (sec)—The estimated number of seconds it takes to transmit a link state update packet over this interface.
- Retrans. Interval (sec)—The number of seconds between link-state advertisement retransmissions for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets.

### **EIGRP** Area

The EIGRP Area of the C6576M Ethernet Interface dialog box provides the following information:

- EIGRP Interface Table—Describes the EIGRP configuration of the interface on each active autonomous system. The EIGRP parameters of the interface on an autonomous system may be explicitly configured even if EIGRP routing updates in the autonomous system are not currently carried on the interface.
- Bandwidth Utilization (%) —The percentage of the interface bandwidth that the EIGRP protocol can use.
- Hello Interval (sec)—Frequency at that the device will send hello packets on the specified interface and EIGRP autonomous system number.
- Hold Time (sec)—Hold time during that the device will wait for a hello packet to be received on the specified interface and EIGRP autonomous system number. The hold time should be at least three times the hello interval.

### **ISIS Area**

The ISIS area of the C6576M Ethernet Interface dialog box provides the following information:

- ISIS Enabled—Indicates whether or not IS-IS routing is enabled on the interface:
  - true—IS-IS routing is enabled.
  - false—IS-IS routing is disabled.
- Area Tag—The IS-IS routing area in which the interface participates. If multiarea IS-IS is configured on the device, the IS-IS area must be named; otherwise, this value may be an implicit null tag.
- Level 1 Hello Interval—Length of time between hello packets generated on the interface for level 1 routing.
- Level 2 Hello Interval—Length of time between hello packets generated on the interface for level 2 routing.
- Level 1 Metric—Cost of the interface for IS-IS level 1 (intra-area) route calculation.
- Level 2 Metric—Cost of the interface for IS-IS level 2 (inter-area) route calculation.
- Level 1 Priority—Determines which router on a LAN will be the designated router or designated intermediate system (DIS).
- Level 2 Priority—Determines which router on a LAN will be the designated router or DIS.
- Enable button—Enables IS-IS routing on the interface.



To enable IS-IS on an interface, the user must specify an IS-IS routing process that is already deployed on the device. If the process does not exist, the action will fail.

• Disable button—Disables IS-IS routing on the interface.



By default, all interfaces are configured as IS-IS Circuit-type Level 1-2.

## **Additional Notes Tab**

Figure 5-93 shows the Additional Notes tab of the C6576M OSM POS Subinterface dialog box.

C6576M OSM POS Subinterface Configure Dialog	• E
Edit Options Window Navigation Actions	<u>H</u> elp
Image: Second	
Annelized OSM SONET IF	
s: C6570HUsmChSonetHodule (normal), C6576 Dynamic updat	es are enabled

Figure 5-93 Additional Notes Tab of the C6576M OSM POS Subinterface Dialog Box

### **Notes Area**

The Notes area is a text box that allows you to type in additional notes for the OSM POS Subinterface.