3

Software Setup Procedures

This chapter describes procedures for basic software configuration.

✎
Note The procedures and tasks in this chapter assume that you are familiar with the Cisco IOS CLI (command-line interface) and that you have access to the Cisco ONS 15540 ESPx technical documentation. The technical documentation is available at the following URL:

http://www.cisco.com/en/US/products/hw/optical/ps2011/ps4002/index.html

Before You Begin

This section lists the chapter non-trouble procedure (NTPs). Turn to a procedure for applicable tasks or detailed level procedures (DLPs).

Step 1 NTP-9 Configure Management Access, page 3-2—Complete this procedure to configure network management access to the shelves in the network.

Step 2 NTP-10 Configure Interfaces, page 3-12—Complete this procedure to configure the interfaces on the line cards.

Step 3 NTP-11 Configure Patch Connections, page 3-18—Complete this procedure to configure the optical patch connections in command-line interface.

Step 4 NTP-12 Configure APS, page 3-25—Complete this procedure to configure splitter, y-cable, and trunk fiber based APS (Automatic Protection Switching).

Step 5 NTP-13 Configure SNMP, page 3-30—Complete this procedure to configure and verify SNMP trap messages.

Step 6 NTP-14 Verify the System Configuration, page 3-31—Complete this procedure to verify the system configuration before continuing.

Use the data checklist forms to record such information as IP address and host name for each node. Refer to this information when performing the procedures in this section.

Refer to the *Cisco ONS 15540 ESPx Configuration Guide* and the *Cisco ONS 15540 ESPx Command Reference* for more detailed configuration information.

NTP-9 Configure Management Access

Purpose	This procedure describes how to configure the enable password, secret password, IP access on the NME interface, and host name.
Tools/Equipment	None
Prerequisite Procedures	NTP-8 Verify Installation of Hardware, page 2-66
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

Step 1 Complete the "DLP-41 Configure the Enable Password" task on page 3-2.

Step 2 As needed, complete the "DLP-42 Configure the Enable Secret Password" task on page 3-3.

Step 3 To establish network access to the shelves in the node, complete the "DLP-43 Configure IP Access on the NME Interfaces" task on page 3-4.

Step 4 To create a meaningful name for the shelf, complete the "DLP-44 Configure Host Name" task on page 3-5.

Step 5 To set the system time and time zone, complete the "DLP-45 Configure System Time, Time Zone, and System Log Time Stamps" task on page 3-6.

Step 6 As needed, complete the "DLP-46 Configure IP on the OSC Using the Loopback Interface" task on page 3-8.

Step 7 As needed, complete the "DLP-47 Configure IP on the OSC Using the NME Fastethernet 0 Interface" task on page 3-10.

DLP-41 Configure the Enable Password

The enable password is a nonencrypted password. It can contain any number of uppercase and lowercase alphanumeric characters. Give the enable password only to users permitted to make configuration changes.

Purpose	This task configures the unencrypted enable password, which allow users to make configuration changes.
Tools/Equipment	None
Prerequisite Procedures	NTP-8 Verify Installation of Hardware, page 2-66
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **enable password** [**level** *level*] *password*	Sets the enable password. You can specify one of 16 privilege levels, using numbers 0 through 15. Level 1 is normal EXEC-mode user privileges. The default level is 15 (traditional enable privileges).

DLP-42 Configure the Enable Secret Password

Purpose	This task configures the secure, encrypted enable secret password, which prevent both configuration changes and entrance to ROM monitor mode.
Tools/Equipment	None
Prerequisite Procedures	DLP-41 Configure the Enable Password, page 3-2
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **enable secret** [**level** *level*] *password*	Configures the enable secret password. The password contains from 1 to 25 uppercase and lowercase alphanumeric characters. The first character cannot be a number. Spaces are valid password characters. Leading spaces are ignored; trailing spaces are recognized. You can specify one of 16 privilege levels, using numbers 0 through 15. Level 1 is normal EXEC-mode user privileges. The default level is 15 (traditional enable privileges). **Note** For maximum security, the enable secret password should be different from the enable password.
Step 4	Switch(config)# **privilege** *mode* {**level** *level* | **reset**} *command-string*	Configures or resets the privilege level to allow access to a specific command. **Note** Configure the password for a privilege level defined using the **privilege** command with the **enable secret** command.

DLP-43 Configure IP Access on the NME Interfaces

Purpose	This task configures IP access on the NME (network management Ethernet) interfaces on the active processor cards. This allows multiple, simultaneous remote Telnet or SNMP network management sessions.
Tools/Equipment	None
Prerequisite Procedures	DLP-41 Configure the Enable Password, page 3-2
	Obtain an IP address and IP subnet mask for the NME interface on the active processor card and a separate IP address and IP subnet mask for the NME interface on the standby processor card, if any.
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **interface fastethernet 0** Switch(config-if)#	Enters interface configuration mode on interface fastethernet 0, the NME port on the active processor card.
Step 4	Switch(config-if)# **ip address** *ip-address* *subnet-mask*	Specifies the IP address and IP subnet mask for the management port interface.
Step 5	Switch(config-if)# **speed** {**10**	**100**	**auto**}	Specifies the transmission speed. The default is **auto** (autonegotiation). (Optional)
Step 6	Switch(config-if)# **duplex** {**auto**	**full**	**half**}	Specifies the duplex mode. The default is **auto** (autonegotiation). (Optional)
Step 7	Switch(config-if)# **exit** Switch(config)#	Returns to global configuration mode.
Step 8	Switch(config)# **interface fastethernet-sby 0** Switch(config-if)#	Enters interface configuration mode on interface fastethernet-sby 0, the NME port on the standby processor card, if present.
Step 9	Switch(config-if)# **ip address** *ip-address* *subnet-mask*	Specifies the IP address and IP subnet mask for the standby management port interface. **Note** The IP address and subnet mask must be different from the IP address and subnet mask for the NME interface on the active processor.
Step 10	Switch(config-if)# **speed** {**10**	**100**	**auto**}	Specifies the transmission speed. The default is **auto** (autonegotiation).
Step 11	Switch(config-if)# **duplex** {**auto**	**full**	**half**}	Specifies the duplex mode. The default is **auto** (autonegotiation).

	Command	Purpose
Step 12	Switch(config-if)# **exit** Switch(config)#	Returns to global configuration mode.
Step 13	Switch(config)# **ip default-gateway** *ip-address*	Specifies the address of the default IP gateway node.
Step 14	Switch(config)# **end** Switch#	Returns to privileged EXEC mode. The prompt indicates that the host name has been set to the new name.
Step 15	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure IP access on the NME interface fastethernet 0:

```
Switch# configure terminal
Switch(config)# interface fastethernet 0
Switch(config-if)# ip address 192.31.7.18 255.255.255.0
Switch(config-if)# exit
Switch(config)# ip default-gateway 192.31.7.1
Switch(config)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-44 Configure Host Name

Purpose	This task configures the system host name, which allows you to keep track of the nodes in your network.
Tools/Equipment	None
Prerequisite Procedures	DLP-41 Configure the Enable Password, page 3-2
	Obtain a host name for the system.
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **hostname** *name*	Specifies the system host name.

	Command	Purpose
Step 4	*name*(config)# **end** *name*#	Returns to privileged EXEC mode. The prompt indicates that the host name has been set to the new name.
Step 5	*name*# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure the host name:

```
Switch# configure terminal
Switch(config)# hostname node1
node1(config)# end
node1# copy system:running-config nvram:startup-config
```

DLP-45 Configure System Time, Time Zone, and System Log Time Stamps

Purpose	This task configures the system time and time zone for the system, and enables time stamps for the system log entries.
Tools/Equipment	None
Prerequisite Procedures	DLP-41 Configure the Enable Password, page 3-2 Obtain a host name for the system.
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **clock set** *hh*:*mm*:*ss day month year* or Switch# **clock set** *hh*:*mm*:*ss month day year*	Sets the system clock.
Step 3	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 4	Switch(config)# **clock timezone** *zone hours-offset* [*minutes-offset*]	Sets the time zone. The *zone* argument is the name of the time zone (typically a standard acronym). The *hours-offset* argument is the number of hours the time zone is different from UTC. The *minutes-offset* argument is the number of minutes the time zone is different from UTC.

	Command	Purpose
Step 5	Switch(config)# **clock summer-time** *zone* **recurring** [*week day month hh:mm week day month hh:mm* [*offset*]] or Switch(config)# c**lock summer-time** *zone* **date** *month day year hh:mm month day year hh:mm* [*offset*] or Switch(config)# **clock summer-time** *zone* **date** *day month year hh:mm day month year hh:mm* [*offset*]	Configures a recurring summer time start and end dates. The *offset* argument is used to indicate the number of minutes to add to the clock during summer time. Configures a specific summer time start and end dates. The *offset* argument is used to indicate the number of minutes to add to the clock during summer time.
Step 6	Switch(config)# **service timestamps log datetime msec localtime show-timezone**	Enables log time stamps.
Step 7	Switch(config)# **end**	Returns to privileged EXEC mode.
Step 8	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure the host name:

```
Switch# clock set 10:30:00 1 nov 2003
Switch# configure terminal
Switch(config)# timezone pst -8
Switch(config)# clock summer-time pdt recurring last sun apr 2:00 last sun oct 2:00 60
Switch(config)# service timestamps log datetime msec localtime show-timezone
Switch(config)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-46 Configure IP on the OSC Using the Loopback Interface

Purpose	This task configures IP access on the OSC for network management using the loopback interface as a reference. The loopback interface is a software-only virtual interface that is always up and allows routing protocol sessions to stay up even if the OSC wave interface is down.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
	DLP-8 Install the Mux/Demux Motherboard, page 2-15, with OSC
	Obtain an IP address for loopback interface with a subnet separate from the NME fastethernet 0 interface.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **interface loopback 1** Switch(config-if)#	Selects the loopback interface to configure and enters interface configuration mode.
Step 4	Switch(config-if)# **ip address** *ip-address subnet-mask*	Configures the IP address and subnet for the interface.
Step 5	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 6	Switch(config)# **interface wave 0** Switch(config-if)#	Selects the first of the OSC wave interfaces
Step 7	Switch(config-if)# **ip unnumbered loopback 1**	Configures an unnumbered interface referencing the loopback interface.
Step 8	Switch(config-if)# **no shutdown**	Enables the interface.
Step 9	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 10	Switch(config)# **interface wave 1** Switch(config-if)#	Selects the second OSC wave interface, if present.
Step 11	Switch(config-if)# **ip unnumbered loopback 1**	Configures an unnumbered interface referencing the loopback interface.
Step 12	Switch(config-if)# **no shutdown**	Enables the interface.
Step 13	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.

	Command	Purpose
Step 14	Switch(config)# **ip route** *prefix prefix-mask interface*	Configures IP static routes for some or all destinations.
	or	
	Switch(config)# **router ospf** *process-id*	Configures OSPF as the routing protocol.
	Switch(config-router)# **network** *network-address wildcard-mask* **area** *area-id*	
	or	
	Switch(config)# **router eigrp** *as-number*	Configures EIGRP as the routing protocol.
	Switch(config-router)# **network** *network-number* [*network-mask*]	
	or	
	Switch(config)# **router bgp** *as-number*	Configures BGP as the routing protocol.
	Switch(config-router)# **network** *network-number* [**mask** *network-mask*]	
	Switch(config-router)# **neighbor** {*ip-address* | *peer-group-name*} **remote-as** *number*	
Step 15	Switch(config-router)# **end**	Returns to privileged EXEC mode.
Step 16	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure IP on an OSC wave interface:

```
Switch# configure terminal
Switch(config)# interface loopback 1
Switch(config-if)# ip address 192.31.7.18 255.255.255.0
Switch(config-if)# exit
Switch(config)# interface wave 0
Switch(config-if)# ip unnumbered loopback 1
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wave 1
Switch(config-if)# ip unnumbered loopback 1
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# router ospf 109
Switch(config-router)# network 192.31.20.0 0.0.0.255 area 10.9.50.0
Switch(config-router)# network 192.31.0.0 0.0.255.255 area 2
Switch(config-router)# network 192.31.10.0 0.0.0.255 area 3
Switch(config-router)# network 0.0.0.0 255.255.255.255 area 0
Switch(config-router)# end
Switch# copy system:running-config nvram:startup-config
```

Note   For detailed information about configuring routing protocols, refer to the *Cisco IOS IP and IP Routing Configuration Guide*.

DLP-47 Configure IP on the OSC Using the NME Fastethernet 0 Interface

Purpose	This task configures IP access on the OSC for network management using the NME fastethernet 0 interface as a reference.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
	DLP-8 Install the Mux/Demux Motherboard, page 2-15, with OSC
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **interface wave 0** Switch(config-if)#	Selects the first of the OSC wave interfaces
Step 4	Switch(config-if)# **ip unnumbered fastethernet 0**	Configures an unnumbered interface referencing the NME fastethernet 0 interface.
Step 5	Switch(config-if)# **no shutdown**	Enables the interface.
Step 6	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 7	Switch(config)# **interface wave 1** Switch(config-if)#	Selects the second OSC wave interface.
Step 8	Switch(config-if)# **ip unnumbered fastethernet 0**	Configures an unnumbered interface referencing the NME fastethernet 0 interface.
Step 9	Switch(config-if)# **no shutdown**	Enables the interface.
Step 10	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.

	Command	Purpose
Step 11	Switch(config)# **ip route** *prefix prefix-mask interface*	Configures IP static routes for some or all destinations.
	or	
	Switch(config)# **router ospf** *process-id*	Configures OSPF as the routing protocol.
	Switch(config-router)# **network** *network-address wildcard-mask* **area** *area-id*	
	or	
	Switch(config)# **router eigrp** *as-number*	Configures EIGRP as the routing protocol.
	Switch(config-router)# **network** *network-number* [*network-mask*]	
	or	
	Switch(config)# **router bgp** *as-number*	Configures BGP as the routing protocol.
	Switch(config-router)# **network** *network-number* [**mask** *network-mask*]	
	Switch(config-router)# **neighbor** {*ip-address*	*peer-group-name*} **remote-as** *number*	
Step 12	Switch(config)# **end**	Returns to privileged EXEC mode.
	Switch#	
Step 13	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure IP on an OSC wave interface:

```
Switch# configure terminal
Switch(config)# interface wave 0
Switch(config-if)# ip unnumbered fastethernet 0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wave 1
Switch(config-if)# ip unnumbered fastethernet 0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# router ospf 109
Switch(config-router)# network 131.108.20.0 0.0.0.255 area 10.9.50.0
Switch(config-router)# network 131.108.0.0 0.0.255.255 area 2
Switch(config-router)# network 131.109.10.0 0.0.0.255 area 3
Switch(config-router)# network 0.0.0.0 255.255.255.255 area 0
Switch(config-router)# network 0.0.0.0 255.255.255.255 area 0
Switch(config-router)# end
Switch# copy system:running-config nvram:startup-config
```

Note   For detailed information about configuring routing protocols, refer to the *Cisco IOS IP and IP Routing Configuration Guide*.

NTP-10 Configure Interfaces

Purpose	This procedure describes how to configure interfaces on the shelf.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

Step 1 As needed, complete the "DLP-48 Configure 2.5-Gbps Transponder Module Interfaces" task on page 3-12.

Step 2 As needed, complete the "DLP-49 Configure 10-GE Transponder Module Interfaces" task on page 3-15.

Step 3 As needed, complete the "DLP-50 Configure PSM Interfaces" task on page 3-17.

DLP-48 Configure 2.5-Gbps Transponder Module Interfaces

Purpose	This task configures the 2.5-Gbps transponder module interfaces for client data transmission and network topology management.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **interface transparent** *slot*/*subcard*/**0** Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.

	Command	Purpose
Step 4	Switch(config-if)# **encapsulation** {**fastethernet** | **fddi** | **gigabitethernet** | **escon**} or	Specifies Fast Ethernet, FDDI, Gigabit Ethernet, or ESCON. OFC is disabled.
	Switch(config-if)# **encapsulation sysplex clo** or	Specifies Sysplex CLO[1]. OFC[2] is disabled. Forward laser control is enabled on both the transparent and wave interfaces. OFC is disabled.
	Switch(config-if)# **encapsulation sysplex etr** or	Specifies Sysplex ETR[3]. OFC is disabled.
	Switch(config-if)# **encapsulation sysplex isc** {**compatibility** | **peer [1g** | **2g]**} or	Specifies ISC[4] compatibility mode (1 Gbps) or peer mode (1 Gbps or 2 Gbps). OFC is enabled for compatibility mode and disabled for peer mode.
	Switch(config-if)# **encapsulation ficon** {**1g** | **2g**} or	Specifies FICON encapsulation and rate. OFC is disabled.
	Switch(config-if)# **encapsulation sonet** {**oc3** | **oc12** | **oc48**} or	Specifies SONET as the signal protocol and OC-3, OC-12, or OC-48 as the transmission rate. OFC is disabled.
	Switch(config-if)# **encapsulation sdh** {**stm-1** | **stm-4** | **stm-16**} or	Specifies SDH as the signal protocol and STM-1, STM-4, or STM-16 as the transmission rate. OFC is disabled.
	Switch(config-if)# **encapsulation fibrechannel** {**1g** | **2g**} [**ofc** {**enable** | **disable**}] or	Specifies Fibre Channel as the signal protocol and 1 Gbps or 2 Gbps as the transmission rate. Enables or disables OFC. OFC is disabled by default.
	Switch(config-if)# **clock rate** *value*	Specifies the signal transmission clock rate without an associated protocol. OFC is disabled.
Step 5	Switch(config-if)# **monitor enable**	Enables protocol monitoring. Protocol monitoring is supported only for certain protocol encapsulations.
Step 6	Switch(config-if)# **topology neighbor** {**name** *node-name* | **ip-address** *node-ip-address* | **mac-address** *node-mac-address*} {**port** {**name** *port-name* | **ip-address** *port-ip-address* | **mac-address** *port-mac-address*}} [**receive** | **transmit**]	Configures the network topology information for the client equipment.
Step 7	Switch(config-if)# **topology neighbor agent ip-address** *ip-address*	Specifies the address of the network topology agent on a neighboring node.
Step 8	Switch(config-if)# **no shutdown**	Enables the interface.
Step 9	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 10	Switch(config)# **interface wave** *slot/subcard* Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.

	Command	Purpose
Step 11	Switch(config-if)# **laser frequency** *number*	Selects the frequency for the trunk transmit laser. The default is the lower channel frequency for the 2.5-Gbps transponder module in even numbered subslots and the higher channel frequency for the 2.5-Gbps transponder module in the odd numbered subslots.
Step 12	Switch(config-if)# **no shutdown**	Enables the interface.
Step 13	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 14	Switch(config)# **interface wavepatch** *slot*/*subcard*/**0** Switch(config-if)#	Selects the interface to configure and enters global configuration mode. **Note** Perform this step for both splitter and nonsplitter modules.
Step 15	Switch(config-if)# **no shutdown**	Enables the interface.
Step 16	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 17	Switch(config)# **interface wavepatch** *slot*/*subcard*/**1** Switch(config-if)#	Selects the interface to configure and enters global configuration mode. **Note** Perform this step for splitter modules only.
Step 18	Switch(config-if)# **no shutdown**	Enables the interface.
Step 19	Switch(config-if)# **end** Switch#	Returns to privileged EXEC mode.
Step 20	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

1. CLO = control link oscillator
2. OFC = open fiber control
3. ETR = external timer reference
4. ISC = InterSystem Channel links

Example

The following example shows how to configure the 2.5-Gbps transponder module interfaces:

```
Switch# configure terminal
Switch(config)# interface transparent 2/0/0
Switch(config-if)# encapsulation sonet oc48
Switch(config-if)# monitor enable
Switch(config-if)# topology neighbor ip-address 192.31.7.11 port ip-address 192.31.7.13
Switch(config-if)# topology neighbor agent ip-address 192.31.7.20
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wave 2/0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wavepatch 2/0/0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wavepatch 2/0/1
Switch(config-if)# no shutdown
Switch(config-if)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-49 Configure 10-GE Transponder Module Interfaces

Purpose	This task configures the 10-GE transponder module interfaces for client data transmission.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **interface tengigethernetphy** *slot*/*subcard* Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.
Step 4	Switch(config-if)# **no shutdown**	Enables the interface.
Step 5	Switch(config-if)# **no laser shutdown**	Turns on the client-side laser.
Step 6	Switch(config-if)# **topology neighbor** {**name** *node-name* | **ip-address** *node-ip-address* | **mac-address** *node-mac-address*} {**port** {**name** *port-name* | **ip-address** *port-ip-address* | **mac-address** *port-mac-address*}} [**receive** | **transmit**]	Configures the network topology information for the client equipment.

	Command	Purpose
Step 7	Switch(config-if)# **topology neighbor agent ip-address** *ip-address*	Specifies the address of the network topology agent on the client equipment.
Step 8	Switch(config-if)# **exit** Switch(config)#	Exits interface configuration mode and returns to global configuration mode.
Step 9	Switch(config)# **interface waveethernetphy** *slot*/*subcard* Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.
Step 10	Switch(config-if)# **no shutdown**	Enables the interface.
Step 11	Switch(config-if)# **no laser shutdown**	Turns on the ITU laser. **Note** A 10-Gbps laser must warm up for 2 minutes before carrying traffic.
Step 12	Switch(config-if)# **exit** Switch(config)	Returns to global configuration mode.
Step 13	Switch(config)# **interface wavepatch** *slot*/**0/0** Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.
Step 14	Switch(config-if)# [**no**] **shutdown**	Enables or disables the interface. Repeat Step 13 and Step 14 on **wavepatch** *slot*/**0/1** for splitter 10-GE transponder modules.
Step 15	Switch(config-if)# **end** Switch#	Returns to privileged EXEC mode.
Step 16	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure the 10-GE transponder module interfaces:

```
Switch# configure terminal
Switch(config)# interface tengigethernetphy 9/0
Switch(config-if)# no shutdown
Switch(config-if)# no laser shutdown
Switch(config-if)# exit
Switch(config)# interface waveethernetphy 9/0
Switch(config-if)# no shutdown
Switch(config-if)# no laser shutdown
Switch(config-if)# exit
Switch(config)# interface wavepatch 9/0/0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wavepatch 9/0/1
Switch(config-if)# no shutdown
Switch(config-if)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-50 Configure PSM Interfaces

Purpose	This task configures the PSM interfaces.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch(config)# **interface wdmsplit** *slot*/*subcard*/**0** Switch(config-if)#	Specifies the west wdmsplit interface and enters interface configuration mode.
Step 2	Switch(config-if)# **optical threshold power receive {low** | **high} {alarm** | **warning}** *value* [**severity {critical** | **major** | **minor** | **not alarmed** | **not reported}**]	Specifies the optical power threshold value in units of 0.1 dBm. The range is –280 to 0. The default values are as follows: Low alarm: –22 dBm Low warning: –20 dBm Alarm severity: **major** Warning severity: **not alarmed**
Step 3	Switch(config-if)# **topology neighbor {name** *node-name* | **ip-address** *node-ip-address* | **mac-address** *node-mac-address*} {**port** {**name** *port-name* | **ip-address** *port-ip-address* | **mac-address** *port-mac-address*}}	Configures the network topology information for the neighboring node.
Step 4	Switch(config-if)# **topology neighbor agent ip-address** *ip-address*	Specifies the IP address of the network topology agent on the neighboring node.
Step 5	Switch(config-if)# **no shutdown**	Enables the interface.
Step 6	Switch(config-if)# **exit** Switch(config)#	Returns to global configuration mode.
Step 7	Switch(config)# **interface wdmsplit** *slot*/*subcard*/**1** Switch(config-if)#	Specifies the east wdmsplit interface and enters interface configuration mode.
Step 8	Switch(config-if)# **optical threshold power receive {low** | **high} {alarm** | **warning}** *value* [**severity {critical** | **major** | **minor** | **not alarmed** | **not reported}**]	Specifies the optical power threshold value in units of 0.1 dBm.

Command	Purpose
Step 9 Switch(config-if)# **topology neighbor** {**name** *node-name* | **ip-address** *node-ip-address* | **mac-address** *node-mac-address*} {**port** {**name** *port-name* | **ip-address** *port-ip-address* | **mac-address** *port-mac-address*}}	Configures the network topology information for the neighboring node.
Step 10 Switch(config-if)# **topology neighbor agent ip-address** *ip-address*	Specifies the IP address of the network topology agent on the neighboring node.
Step 11 Switch(config-if)# **no shutdown**	Enables the interface.
Step 12 Switch(config-if)# **end** Switch#	Returns to privileged EXEC mode.
Step 13 Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to enable wdmsplit interfaces:

```
Switch(config)# interface wdmsplit 0/0/0
Switch(config-if)# no shutdown
Switch(config-if)# exit
Switch(config)# interface wdmsplit 0/0/1
Switch(config-if)# no shutdown
Switch(config-if)# end
Switch# copy system:running-config nvram:startup-config
```

NTP-11 Configure Patch Connections

Purpose	This procedure configures the patch connections on the CLI.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	Required
Onsite/Remote	Onsite or remote
Security Level	Privileged

Step 1   Configure the patch connections between the mux/demux modules (required).

Step 2   Configure the patch connections between the wave interface on the OSC modules and the mux/demux modules (required if using the OSC).

Step 3   Configure the patch connections between the mux/demux modules and the transponder modules (required).

Step 4   Configure the patch connection between the mux/demux modules and the PSM (required if using the PSM).

Table 3-1 describes the types of patch connections on the Cisco ONS 15540 ESPx.

Table 3-1   Patch Connection Types

Patch Connection	Description
Thru interface to wdm interface or wdm interface to thru interface	Connection between the mux/demux modules in an unprotected configuration
Thru interface to thru interface	Connection between the thru interfaces on mux/demux modules in a protected configuration
Wdmrelay interface to wdm interface or Wdm interface to wdmrelay interface	Connection between a mux/demux module and a PSM
OSC wave interface to oscfilter interface or oscfilter interface to OSC wave interface	Connection between the OSC wave interface on a mux/demux motherboard and the oscfilter interface on a mux/demux module
Wavepatch interface to filter interface or filter interface to wavepatch interface	Connection between a wavepatch interface on a transponder module and the filter interface on a mux/demux module

Figure 3-1 and Figure 3-2 show examples of 2.5-Gbps transponder module interfaces and their optical patch connections to mux/demux modules.

Figure 3-1   *Optical Patch Connection Example for Splitter Protection With 2.5-Gbps Transponder Modules*
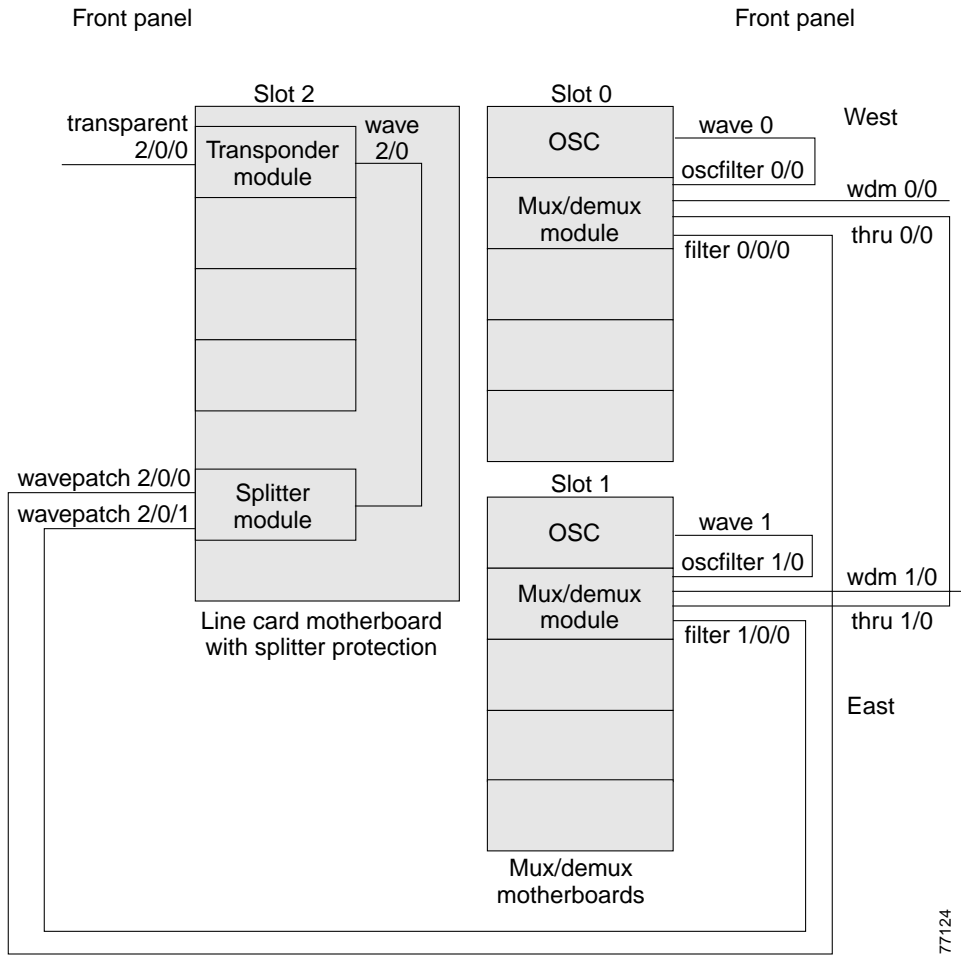
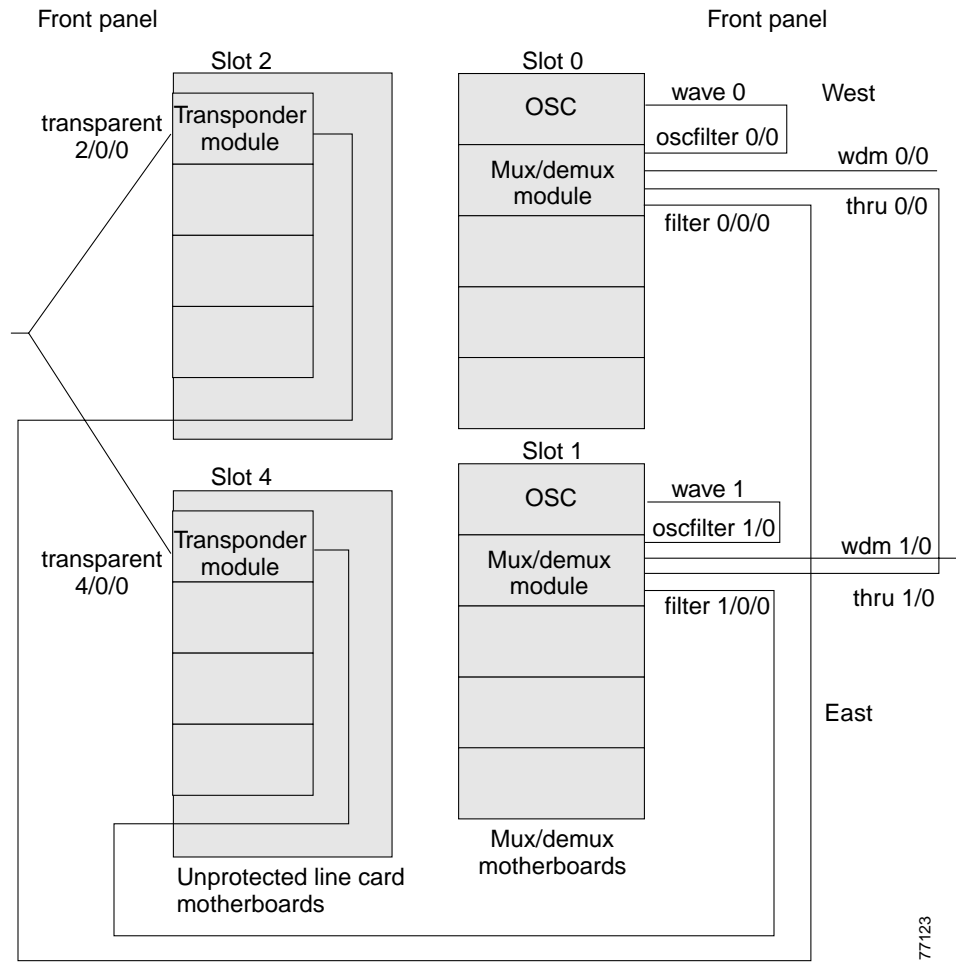*Figure 3-2   Optical Patch Connection Example for Y-Cable Protection With 2.5-Gbps Transponder Modules*

Figure 3-3 and Figure 3-4 show examples of 10-GE transponder module interfaces and their optical patch connections to mux/demux modules.

Figure 3-3   Optical Patch Connection Example for Splitter Protection With 10-GE Transponder Modules
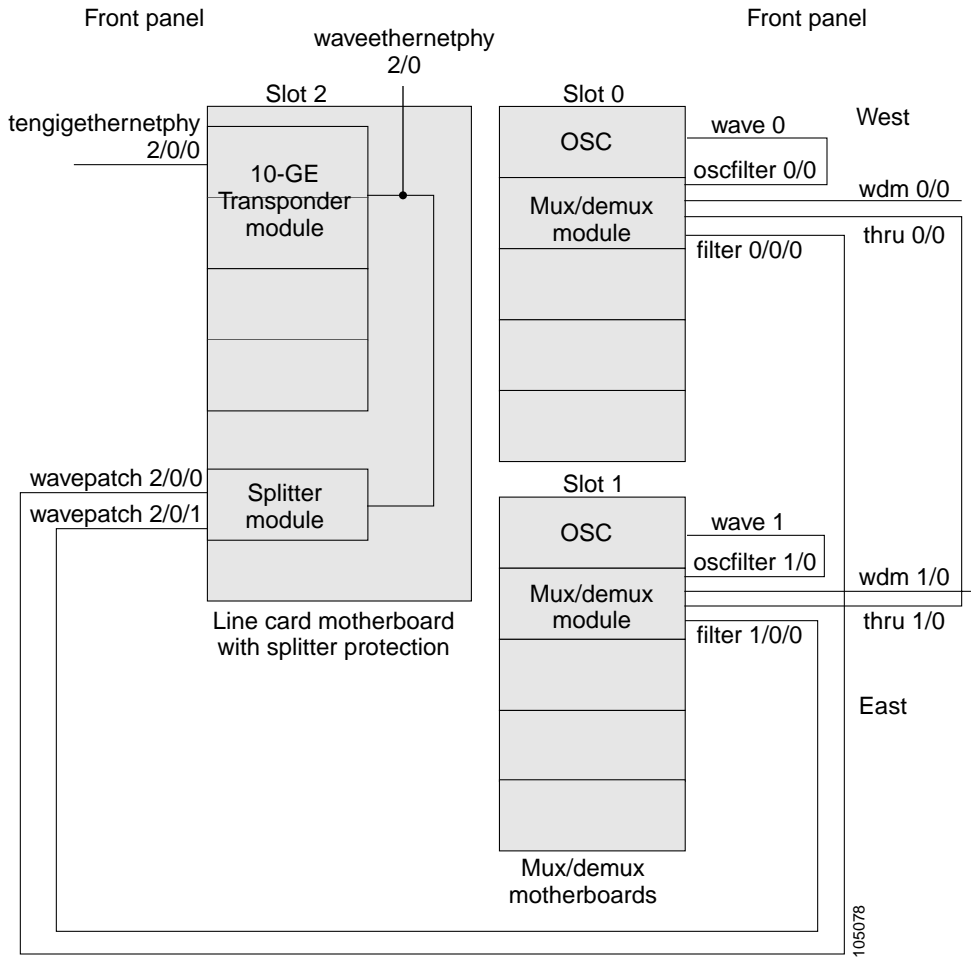
*Figure 3-4   Optical Patch Connection Example for Y-Cable Protection With 10-GE Transponder
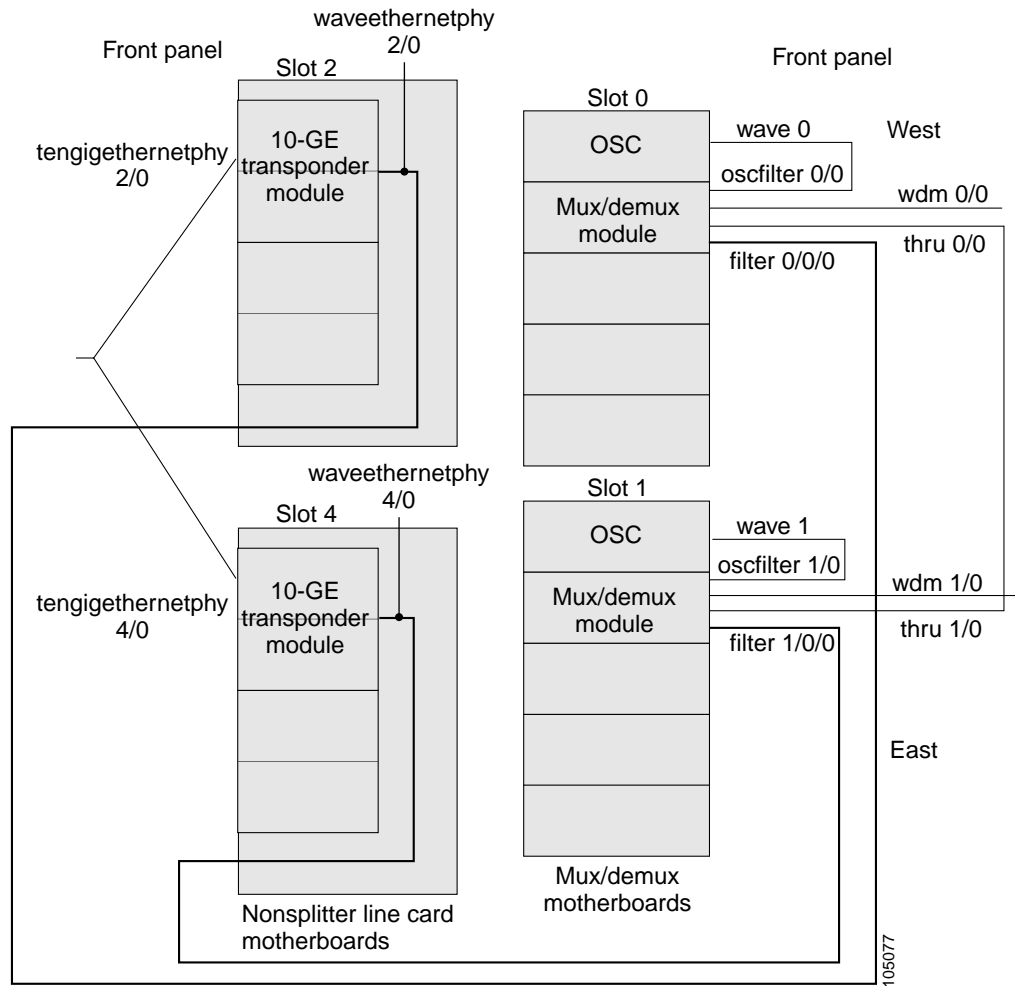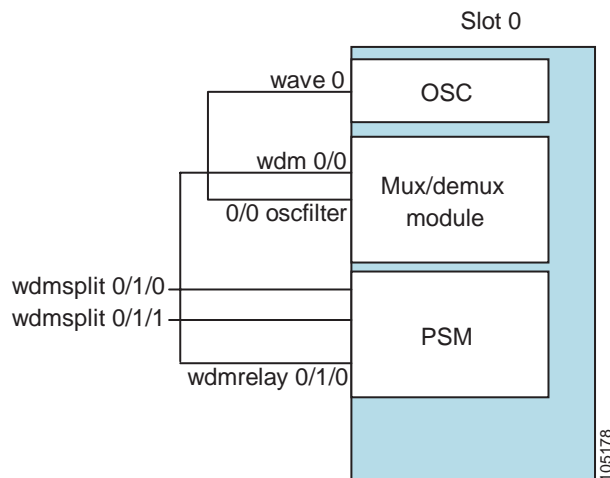Modules*

Figure 3-5 shows an example of PSM interfaces and their optical patch connections to a 4-channel or 8-channel mux/demux module.

Figure 3-5   Optical Patch Connection Example Between a PSM and a 4-Channel or 8-Channel Mux/Demux Module

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	**patch thru** *slot/subcard1* **wdm** *slot/subcard2* or **patch wdm** *slot/subcard1* **thru** *slot/subcard2*	Configures the patch connection between the mux/demux modules in an unprotected configuration.
Step 4	**patch thru** *slot/subcard1* **thru** *slot/subcard2*	Configures the patch connection between the mux/demux modules in a protected configuration.
Step 5	**patch wave** *slot* **oscfilter** *slot/subcard* or **patch oscfilter** *slot/subcard* **wave** *slot*	Configures the patch connection between the OSC wave interface on an OSC module and the oscfilter interface on a mux/demux module.
Step 6	**patch wdm** *slot/subcard1* **wdmrelay** *slot/subcard2/port* or **patch wdmrelay** *slot/subcard1/port* **wdm** *slot/subcard2*	Configures the patch connection between a PSM and a mux/demux module.

	Command	Purpose
Step 7	**patch wavepatch** *slot1*/*subcard1*/*port1* **filter** *slot2*/*subcard2*/*port2* or **patch filter** *slot1*/*subcard1*/*port1* **wavepatch** *slot2*/*subcard2*/*port2*	Configures the patch connection between a wavepatch interface on a transponder module and a filter interface on a mux/demux module.
Step 8	Switch(config)# **end** Switch#	Returns to privileged EXEC mode.
Step 9	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Note If you correctly patch your mux/demux modules, the **patch** command configuration is not necessary for the signal to pass from the client to the trunk fiber. However, without a correct **patch** command configuration, the **show topology neighbor** command will not display correct information and bidirectional path switching for APS will not function correctly. For more information on network monitoring, refer to the *Cisco ONS 15540 ESPx Configuration Guide* and the *Cisco ONS 15540 ESPx Command Reference*.

Example

The following example shows how to configure the patch connections between modules:

```
Switch# configure terminal
Switch(config)# patch thru 0/0 thru 1/0
Switch(config)# patch wavepatch 3/0/0 filter 0/0/1
Switch(config)# patch wavepatch 3/1/0 filter 1/0/1
Switch(config)# patch wave 0 oscfilter 0/0
Switch(config)# patch wave 1 oscfilter 1/0
Switch(config)# end
Switch# copy system:running-config nvram:startup-config
```

NTP-12 Configure APS

Purpose	This procedure describes how to configure APS groups for protection.
Tools/Equipment	None
Prerequisite Procedures	DLP-48 Configure 2.5-Gbps Transponder Module Interfaces, page 3-12
	DLP-49 Configure 10-GE Transponder Module Interfaces, page 3-15
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

Step 1 As needed, complete the "DLP-51 Configure Splitter Protection" task on page 3-26.

Step 2 As needed, complete the "DLP-52 Configure Y-Cable Line Card Protection" task on page 3-27.

Step 3 As needed, complete the "DLP-53 Configure Trunk Fiber Based Protection" task on page 3-28.

Step 4 As needed, complete the "DLP-54 Configure Path Switching" task on page 3-29.

For more information on APS, refer to the *Cisco ONS 15540 ESPx Configuration Guide* and the *Cisco ONS 15540 ESPx Command Reference.*

DLP-51 Configure Splitter Protection

Purpose	This task configures splitter protection, which provides facility protection.
Tools/Equipment	None
Prerequisite Procedures	DLP-9 Install the 4-Channel Mux/Demux Module, page 2-17, or DLP-10 Install the 8-Channel Mux/Demux Module, page 2-17, or DLP-11 Install the 32-Channel Terminal Mux/Demux Module, page 2-17, for two mux/demux modules
	DLP-15 Install the Type 1 SM Transponder Module, page 2-21, or DLP-16 Install the Type 1 MM Transponder Module, page 2-22, or DLP-17 Install the 10-GE Transponder Module, page 2-23, or DLP-18 Install the Type 2 Extended Range Transponder Module, page 2-24, in a splitter line card motherboard for the APS group
	NTP-10 Configure Interfaces, page 3-12
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **redundancy** Switch(config-red)#	Enters redundancy configuration mode.
Step 4	Switch(config-red)# **associate group** *name* Switch(config-red-aps)#	Specifies an APS group name and enters APS configuration mode. **Note** The group name is case sensitive.
Step 5	Switch(config-red-aps)# **aps working wavepatch** *slot/subcard/port*	Configures the working path interface.
Step 6	Switch(config-red-aps)# **aps protection wavepatch** *slot/subcard/port*	Configures the protection path interface.

	Command	Purpose
Step 7	Switch(config-red-aps)# **aps enable**	Enables APS activity between the interfaces.
Step 8	Switch(config-red-aps)# **end** Switch#	Returns to privileged EXEC mode.
Step 9	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Examples

This example shows how to associate wavepatch interfaces for splitter protection.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# associate group dallas1
Switch(config-red-aps)# aps working wavepatch 3/0/0
Switch(config-red-aps)# aps protection wavepatch 3/0/1
Switch(config-red-aps)# aps enable
Switch(config-red-aps)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-52 Configure Y-Cable Line Card Protection

Purpose	This task configures y-cable protection, which provides facility and line card protection.
Tools/Equipment	None
Prerequisite Procedures	DLP-9 Install the 4-Channel Mux/Demux Module, page 2-17, or DLP-10 Install the 8-Channel Mux/Demux Module, page 2-17, or DLP-11 Install the 32-Channel Terminal Mux/Demux Module, page 2-17, for two mux/demux modules
	DLP-15 Install the Type 1 SM Transponder Module, page 2-21, or DLP-16 Install the Type 1 MM Transponder Module, page 2-22, or DLP-17 Install the 10-GE Transponder Module, page 2-23, or DLP-18 Install the Type 2 Extended Range Transponder Module, page 2-24, for two transponder modules, each in a separate nonsplitter line card motherboard, for the APS group
	NTP-10 Configure Interfaces, page 3-12
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.

	Command	Purpose
Step 3	Switch(config)# **redundancy** Switch(config-red)#	Enters redundancy configuration mode.
Step 4	Switch(config-red)# **associate group** *name* Switch(config-red-aps)#	Specifies an APS group name and enters APS configuration mode. Note The group name is case sensitive.
Step 5	Switch(config-red-aps)# **aps working** {**transparent** *slot/subcard/port* | **tengigethernetphy** *slot/subcard*}	Configures the working path interface.
Step 6	Switch(config-red-aps)# **aps protection** {**transparent** *slot/subcard/port* | **tengigethernetphy** *slot/subcard*}	Configures the protection path interface.
Step 7	Switch(config-red-aps)# **aps y-cable**	Enables y-cable protection. The default state is no y-cable protection (disabled).
Step 8	Switch(config-red-aps)# **aps enable**	Enables APS activity between the interfaces.
Step 9	Switch(config-red-aps)# **end** Switch#	Returns to privileged EXEC mode.
Step 10	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

⚠

Caution   Do not configure y-cable protection with Sysplex CLO, Sysplex ETR, or ISC compatibility protocol encapsulation, or with the OFC safety protocol.

Example

This example shows how to associate two transparent interfaces for y-cable line card protection.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# associate group Yosemite
Switch(config-red-aps)# aps working transparent 3/0/0
Switch(config-red-aps)# aps protection transparent 4/0/0
Switch(config-red-aps)# aps y-cable
Switch(config-red-aps)# aps enable
Switch(config-red-aps)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-53 Configure Trunk Fiber Based Protection

Purpose	This task configures y-cable protection, which provides facility and line card protection.
Tools/Equipment	None
Prerequisite Procedures	DLP-28 Connect the PSM to a Remote PSM, page 2-36
	DLP-50 Configure PSM Interfaces, page 3-17
Required/As Needed	As needed

	Onsite/Remote	Onsite or remote
	Security Level	Privileged

	Command	Purpose
Step 1	Switch(config)# **redundancy** Switch(config-red)#	Enters redundancy mode.
Step 2	Switch(config-red)# **associate group** *name* Switch(config-red-aps)#	Specifies an APS group name and enters APS configuration mode. **Note** The group name is case sensitive.
Step 3	Switch(config-red-aps)# **aps working wdmsplit** *slot/subcard*	Configures the working path interface.
Step 4	Switch(config-red-aps)# **aps protection wdmsplit** *slot/subcard*	Configures the protection path interface.
Step 5	Switch(config-red-aps)# **aps message-channel** {**auto-select** | **inband dcc** | **ip** | **osc**} **far-end** *name*	Configures the name of the corresponding APS group on the other node in the topology.
Step 6	Switch(config-red-aps)# **aps enable**	Enables APS activity between the interfaces.

Examples

The following example shows how to configure trunk fiber protection:

```
Switch(config)# redundancy
Switch(config-red)# associate group psm-group
Switch(config-red-aps)# aps working wdmsplit 0/1/0
Switch(config-red-aps)# aps protection wdmsplit 0/1/1
Switch(config-red-aps)# aps message-channel ip far-end group-name psm-group ip-address
172.18.44.93
Switch(config-red-aps)# aps enable
Switch(config-red-aps)# end
Switch# copy system:running-config nvram:startup-config
```

DLP-54 Configure Path Switching

	Purpose	This task configures path switching behavior for an APS group.
	Tools/Equipment	None
	Prerequisite Procedures	DLP-51 Configure Splitter Protection, page 3-26 or DLP-52 Configure Y-Cable Line Card Protection, page 3-27 DLP-53 Configure Trunk Fiber Based Protection, page 3-28 NTP-11 Configure Patch Connections, page 3-18
	Required/As Needed	As needed
	Onsite/Remote	Onsite or remote
	Security Level	Privileged

Note   Both nodes in the network that support the APS group must have the same APS configuration. Specifically, both must have the same path switching behavior, and working and protection paths.

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **redundancy** Switch(config-red)#	Enters redundancy configuration mode.
Step 4	Switch(config-red)# **associate group** *name* Switch(config-red-aps)#	Selects the interfaces to associate and enters APS configuration mode. **Note** The group name is case sensitive.
Step 5	Switch(config-red-aps)# **aps disable**	Disables APS activity between the interfaces.
Step 6	Switch(config-red-aps)# **aps direction** {**unidirectional** | **bidirectional**}	Specifies the type of path switching. The default behavior is unidirectional.
Step 7	Switch(config-red-aps)# **aps enable**	Enables APS activity between the interfaces.
Step 8	Switch(config-red-aps)# **end** Switch#	Returns to privileged EXEC mode.
Step 9	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

This example shows how to configure bidirectional path switching.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# associate group Yosemite
Switch(config-red-aps)# aps disable
Switch(config-red-aps)# aps direction bidirectional
Switch(config-red-aps)# aps enable
Switch(config-red-aps)# end
Switch# copy system:running-config nvram:startup-config
```

NTP-13 Configure SNMP

Purpose	This procedure configures SNMP trap messages for the system.
Tools/Equipment	None
Prerequisite Procedures	DLP-43 Configure IP Access on the NME Interfaces, page 3-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

	Command	Purpose
Step 1	Switch> **enable** Password: Switch#	Enters privileged EXEC mode.
Step 2	Switch# **configure terminal** Switch(config)#	Enters global configuration mode.
Step 3	Switch(config)# **snmp-server community** *string* [**ro** | **rw**]	Defines the password-like community access string sent with the notification. The default access for the string is read-only.
Step 4	Switch(config)# **snmp-server host** *host-addr* [**traps** | **informs**] [**version** {**1** | **2c** | **3**}] *community-string* [*notification-type*]	Specifies whether to send the SNMP notifications as traps or informs, the version of SNMP to use, the security level of the notifications (for SNMPv3), and the recipient (host) of the notifications.
Step 5	Switch(config)# **snmp-server enable traps**	Enables SNMP trap notifications.
Step 6	Switch(config)# **interface** {**transparent** *slot*/*subcard*/**0** | **tengigethernetphy** *slot*/*subcard*} Switch(config-if)#	Selects the interface to configure and enters interface configuration mode.
Step 7	Switch(config-if)# **shutdown**	Disables the interface to generate an entity trap.
Step 8	Switch(config-if)# **no shutdown**	Enables the interface to generate an entity trap.
Step 9	Switch(config-if)# **end** Switch#	Returns to privileged EXEC mode.
Step 10	Switch# **copy system:running-config nvram:startup-config**	Saves your configuration changes to NVRAM.

Example

The following example shows how to configure and test SNMP functionality:

```
Switch# configure terminal
Switch(config)# snmp-server community public RO
Switch(config)# snmp-server community private RW
Switch(config)# snmp-server host 172.30.2.160 public snmp alarms
Switch(config)# snmp-server enable traps
Switch(config)# interface transparent 8/0/0
Switch(config-if)# shutdown
Switch(config-if)# no shutdown
Switch(config-if)# end
Switch# copy system:running-config nvram:startup-config
```

NTP-14 Verify the System Configuration

Purpose	This procedure describes how to verify the software configuration for the system.
Tools/Equipment	None

Prerequisite Procedures	NTP-9 Configure Management Access, page 3-2
	NTP-10 Configure Interfaces, page 3-12
	NTP-11 Configure Patch Connections, page 3-18
	NTP-12 Configure APS, page 3-25, if APS is desired
	NTP-13 Configure SNMP, page 3-30, if SNMP traps are desired
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Privileged

Step 1   Start session on the console or the LAN connection, if one is not already available.

Step 2   Enter privileged EXEC mode using the **enable** command.

Step 3   Start a session log.

Step 4   Verify that the system is correctly configured, use the **show config** command.

```
Switch# show config
Using 4489 out of 522232 bytes
!
version 12.2
no service pad
service timestamps debug datetime msec localtime
service timestamps log datetime msec localtime
no service password-encryption
service internal
!
hostname Switch
!
boot system flash bootflash:ons15540-i-mz.122-18.SV
boot bootldr bootflash:ons15540-i-mz
logging snmp-authfail
enable secret 5 $1$jCgk$nksh2kGZligtPKMnhNsZ9.
enable password lab
!
no environment-monitor shutdown fan
diag online
ip subnet-zero
no ip routing
no ip domain-lookup
!
!
redundancy
 standby privilege-mode enable
!
!
interface FastEthernet0
 ip address 172.25.22.60 255.255.255.254
 no ip route-cache
 duplex auto
 speed auto
 no cdp enable
!
interface Fastethernet-sby0
 ip address 172.25.22.61 255.255.255.254
 no ip route-cache
 duplex auto
 speed auto
!
```

```
interface Filter0/3/0
 no ip address
 no ip route-cache
!
interface Filter0/2/0
 no ip address
!
interface Filter0/0/0
 no ip address
 no ip route-cache
!
interface Oscfilter0/3
 no ip address
 no ip route-cache
!
interface Oscfilter0/2
 no ip address
!
interface Oscfilter0/0
 no ip address
 no ip route-cache
!
interface Thru0/3
 no ip address
 no ip route-cache
!
interface Thru0/2
 no ip address
!
interface Thru0/0
 no ip address
 no ip route-cache
!
interface Wave0
 no ip address
 no ip route-cache
 shutdown
!
interface Wdm0/3
 no ip address
 no ip route-cache
!
interface Wdm0/2
 no ip address
!
interface Wdm0/0
 no ip address
 no ip route-cache
!
interface WdmRelay0/1/0
 no ip address
!
interface WdmSplit0/1/0
 no ip address
 shutdown
!
interface Filter0/3/1
 no ip address
 no ip route-cache
!
interface Filter0/2/1
 no ip address
!
interface Filter0/0/1
```

```
 no ip address
 no ip route-cache
!
interface WdmSplit0/1/1
 no ip address
 shutdown
!
interface Filter0/3/2
 no ip address
 no ip route-cache
!
interface Filter0/2/2
 no ip address
!
interface Filter0/0/2
 no ip address
 no ip route-cache
!
interface Filter0/3/3
 no ip address
 no ip route-cache
!
interface Filter0/2/3
 no ip address
!
interface Filter0/0/3
 no ip address
 no ip route-cache
!
interface Filter0/2/4
 no ip address
!
interface Filter0/2/5
 no ip address
!
interface Filter0/2/6
 no ip address
!
interface Filter0/2/7
 no ip address
!
interface Filter1/0/0
 no ip address
 no ip route-cache
!
interface Filter1/3/0
 no ip address
 no ip route-cache
!
interface Oscfilter1/0
 no ip address
 no ip route-cache
!
interface Thru1/0
 no ip address
 no ip route-cache
!
interface Thru1/3
 no ip address
 no ip route-cache
!
interface Wave1
 no ip address
 no ip route-cache
```

```
 shutdown
!
interface Wdm1/0
 no ip address
 no ip route-cache
!
interface Wdm1/3
 no ip address
 no ip route-cache
!
interface WdmRelay1/1/0
 no ip address
!
interface WdmSplit1/1/0
 no ip address
 shutdown
!
interface Filter1/0/1
 no ip address
 no ip route-cache
!
interface Filter1/3/1
 no ip address
 no ip route-cache
!
interface WdmSplit1/1/1
 no ip address
 shutdown
!
interface Filter1/0/2
 no ip address
 no ip route-cache
!
interface Filter1/3/2
 no ip address
 no ip route-cache
!
interface Filter1/0/3
 no ip address
 no ip route-cache
!
interface Filter1/3/3
 no ip address
 no ip route-cache
!
interface Filter1/3/4
 no ip address
 no ip route-cache
!
interface Filter1/3/5
 no ip address
 no ip route-cache
!
interface Filter1/3/6
 no ip address
 no ip route-cache
!
interface Filter1/3/7
 no ip address
 no ip route-cache
!
interface EthernetDcc3/0/0
 no ip address
!
```

```
interface EthernetDcc3/1/0
 no ip address
 no ip route-cache
 shutdown
!
interface TenGigEthernetPhy3/0
 no ip address
!
interface TenGigEthernetPhy3/1
 no ip address
 no ip route-cache
!
interface WaveEthernetPhy3/0
 no ip address
!
interface WaveEthernetPhy3/1
 no ip address
 no ip route-cache
!
interface Wavepatch3/0/0
 no ip address
 shutdown
!
interface Wavepatch3/1/0
 no ip address
 no ip route-cache
!
interface Wavepatch3/0/1
 no ip address
!
interface Wavepatch3/1/1
 no ip address
 no ip route-cache
!
interface Transparent9/3/0
 no ip address
 encapsulation fibreChannel 2G
 monitor enable
 laser control forward enable
!
interface Wave9/3
 no ip address
 laser control forward enable
!
interface Wavepatch9/3/0
 no ip address
!
interface Wavepatch9/3/1
 no ip address
!
ip classless
no ip http server
!
!
snmp-server engineID local 8000000903000008A35D7A31
snmp-server community public RW
snmp-server enable traps tty
snmp-server enable traps rf
!
control-plane
!
!
line con 0
 exec-timeout 0 0
```

```
line aux 0
line vty 0 4
 exec-timeout 0 0
 password lab
 login
 length 0
!
!
end
```

Step 5   Close the session log and save for future reference.