



Release Notes for Cisco ONS 15540 ESP for Cisco IOS Release 12.1(11b)E

This document describes caveats for Cisco IOS Release 12.1(11b)E for the Cisco ONS 15540 ESP (Extended Services Platform).

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Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

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Introduction

The Cisco ONS 15540 ESP is an optical transport platform that employs DWDM (dense wavelength division multiplexing) technology. With the Cisco ONS 15540 ESP, users can take advantage of the availability of dark fiber to build a common infrastructure that supports data, SAN (storage area networking), and TDM (time-division multiplexing) traffic. For more information about DWDM technology and applications, refer to the *Introduction to DWDM Technology* publication and the *Cisco ONS 15540 ESP Planning and Design Guide*.

System Requirements

This section describes the system requirements for Cisco IOS Release 12.1(11b)E, and it includes the following sections:

- [Memory Requirements, page 2](#)
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Memory Requirements

The DRAM memory configuration is 128 MB, which is the default for the Cisco ONS 15540 ESP.

Hardware Supported

[Table 1](#) lists the hardware components supported on the Cisco ONS 15540 ESP and the minimum software version required. See the “[Determining the Software Version](#)” section for information on determining your software version.

Table 1 *Cisco ONS 15540 ESP Supported Hardware Modules and Minimum Software Requirements*

| Component | Part Number | Description | Minimum Software Version Required |
|----------------|---------------|-----------------------------------|-----------------------------------|
| Chassis | 15540-CHSA | 12 vertical slot chassis | 12.1(7a)EY2 |
| Power supplies | 15540-PWR-AC | 120 to 240 VAC power supply | 12.1(7a)EY2 |
| | 15540-CAB-AC | Custom AC-input power entry cable | 12.1(7a)EY2 |
| | 15540-CAB-AC | North America | 12.1(7a)EY2 |
| | 15540-CAB-ACA | Australia | 12.1(7a)EY2 |
| | 15540-CAB-ACE | Europe | 12.1(7a)EY2 |
| | 15540-CAB-CU | UK | 12.1(7a)EY2 |
| | 15540-CAB-ACI | Italy | 12.1(7a)EY2 |
| | 15540-CAB-ACR | Argentina | 12.1(7a)EY2 |

Table 1 *Cisco ONS 15540 ESP Supported Hardware Modules and Minimum Software Requirements (continued)*

| Component | Part Number | Description | Minimum Software Version Required |
|--|-----------------|---|-----------------------------------|
| Filler motherboards and filler modules | 15540-COV-01 | Mux/demux motherboard blank panel | 12.1(7a)EY2 |
| | 15540-COV-02 | Mux/demux module | 12.1(7a)EY2 |
| | 15540-COV-03 | Line card motherboard blank panel | 12.1(7a)EY2 |
| | 15540-COV-04 | Transponder module blank panel | 12.1(7a)EY2 |
| | 15540-COV-06 | Processor card cover panel | 12.1(7a)EY2 |
| Fans | 15540-FTMP | Fan tray module populated with eight fans | 12.1(7a)EY2 |
| Processor cards | 15540-CPU | Processor card without switch fabric | 12.1(7a)EY2 |
| Mux/demux motherboards | 15540-MMMB-0100 | Supports Mux/demux modules with OSC | 12.1(7a)EY2 |
| | 15540-MMMB-0200 | Supports Mux/demux modules without OSC | 12.1(7a)EY2 |
| Mux/demux modules without OSC | 15540-MDXA-04A0 | 4-channel Band A | 12.1(7a)EY2 |
| | 15540-MDXA-04B0 | 4-channel Band B | 12.1(7a)EY2 |
| | 15540-MDXA-04C0 | 4-channel Band C | 12.1(7a)EY2 |
| | 15540-MDXA-04D0 | 4-channel Band D | 12.1(7a)EY2 |
| | 15540-MDXA-04E0 | 4-channel Band E | 12.1(7a)EY2 |
| | 15540-MDXA-04F0 | 4-channel Band F | 12.1(7a)EY2 |
| | 15540-MDXA-04G0 | 4-channel Band G | 12.1(7a)EY2 |
| | 15540-MDXA-04H0 | 4-channel Band H | 12.1(7a)EY2 |
| | 15540-MDXA-08A0 | 8-channel Band AB | 12.1(7a)EY2 |
| | 15540-MDXA-08B0 | 8-channel Band CD | 12.1(7a)EY2 |
| | 15540-MDXA-08C0 | 8-channel Band EF | 12.1(7a)EY2 |
| | 15540-MDXA-08D0 | 8-channel Band GH | 12.1(7a)EY2 |
| | 15540-MDXA-16EH | 16-channel Band EH | 12.1(7a)EY2 |
| Mux/demux modules with OSC | 15540-MDXA-04A0 | 4-channel Band A | 12.1(7a)EY2 |
| | 15540-MDXB-04B0 | 4-channel Band B | 12.1(7a)EY2 |
| | 15540-MDXB-04C0 | 4-channel Band C | 12.1(7a)EY2 |
| | 15540-MDXB-04D0 | 4-channel Band D | 12.1(7a)EY2 |
| | 15540-MDXB-04E0 | 4-channel Band E | 12.1(7a)EY2 |
| | 15540-MDXB-04F0 | 4-channel Band F | 12.1(7a)EY2 |
| | 15540-MDXB-04G0 | 4-channel Band G | 12.1(7a)EY2 |
| | 15540-MDXB-04H0 | 4-channel Band H | 12.1(7a)EY2 |

Table 1 *Cisco ONS 15540 ESP Supported Hardware Modules and Minimum Software Requirements (continued)*

| Component | Part Number | Description | Minimum Software Version Required |
|----------------------------|--|---|-----------------------------------|
| Mux/demux modules with OSC | 15540-MDXB-08A0 | 8-channel Band AB | 12.1(7a)EY2 |
| | 15540-MDXB-08B0 | 8-channel Band CD | 12.1(7a)EY2 |
| | 15540-MDXB-08C0 | 8-channel Band EF | 12.1(7a)EY2 |
| | 15540-MDXB-08D0 | 8-channel Band GH | 12.1(7a)EY2 |
| | 15540-MDXB-16AD | 16-channel Band AD | 12.1(7a)EY2 |
| Line card motherboard | 15540-LCMB-0100 | Supports four transponders with protection | 12.1(7a)EY2 |
| | 15540-LCMB-0200 | Supports four transponders – East | 12.1(7a)EY2 |
| | 15540-LCMB-0201 | Supports four transponders – West | 12.1(7a)EY2 |
| MM transponder modules | 15540-TSP1-01A3 | Ch 1-2 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-03A3 | Ch 3-4 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-05A3 | Ch 5-6 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-07A3 | Ch 7-8 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-09A3 | Ch 9-10 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-11A3 | Ch 11-12 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-13A3 | Ch 13-14 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-15A3 | Ch 15-16 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-17A3 | Ch 17-18 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-19A3 | Ch 19-20 — 1310nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-21A3 | Ch 21-22 — 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-23A3 | Ch 23- 24— 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-25A3 | Ch 25-26— 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| 15540-TSP1-27A3 | Ch 27-28— 1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 | |

Table 1 *Cisco ONS 15540 ESP Supported Hardware Modules and Minimum Software Requirements (continued)*

| Component | Part Number | Description | Minimum Software Version Required |
|------------------------|--|---|-----------------------------------|
| MM transponder modules | 15540-TSP1-29A3 | Ch 29-30—1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-31A3 | Ch 31-32—1310 nm MM 16 to 622 Mbps with SC | 12.1(7a)EY2 |
| SM transponder modules | 15540-TSP1-01B3 | Ch 1-2—1310 nm SM 16 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-03B3 | Ch 3-4—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-05B3 | Ch 5-6—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-07B3 | Ch 7-8—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-09B3 | Ch 9-10—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-11B3 | Ch 11-12—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-13B3 | Ch 13-14— 310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-15B3 | Ch 15-16—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-17B3 | Ch 17-18—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-19B3 | Ch 19-20—1310nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-21B3 | Ch 21-22—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-23B3 | Ch 23- 24—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-23B3 | Ch 23- 24—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-25B3 | Ch 25-26—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-27B3 | Ch 27-28—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| | 15540-TSP1-29B3 | Ch 29-30 —1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 |
| 15540-TSP1-31B3 | Ch 31-32—1310 nm SM 16 Mbps to 2.5 Gbps with SC | 12.1(7a)EY2 | |

Table 1 *Cisco ONS 15540 ESP Supported Hardware Modules and Minimum Software Requirements (continued)*

| Component | Part Number | Description | Minimum Software Version Required |
|---|-----------------|---|-----------------------------------|
| Extended range transponder modules | 15540-TSP2-0100 | Ch 1-2 | 12.1(11b)E |
| | 15540-TSP2-0300 | Ch 3-4 | 12.1(11b)E |
| | 15540-TSP2-0500 | Ch 5-6 | 12.1(11b)E |
| | 15540-TSP2-0700 | Ch 7-8 | 12.1(11b)E |
| | 15540-TSP2-0900 | Ch 9-10 | 12.1(11b)E |
| | 15540-TSP2-1100 | Ch 11-12 | 12.1(11b)E |
| | 15540-TSP2-1300 | Ch 13-14 | 12.1(11b)E |
| | 15540-TSP2-1500 | Ch 15-16 | 12.1(11b)E |
| | 15540-TSP2-1700 | Ch 17-18 | 12.1(11b)E |
| | 15540-TSP2-1900 | Ch 19-20 | 12.1(11b)E |
| | 15540-TSP2-2100 | Ch 21-22 | 12.1(11b)E |
| | 15540-TSP2-2300 | Ch 23-24 | 12.1(11b)E |
| | 15540-TSP2-2500 | Ch 25-26 | 12.1(11b)E |
| | 15540-TSP2-2700 | Ch 27-28 | 12.1(11b)E |
| | 15540-TSP2-2900 | Ch 29-30 | 12.1(11b)E |
| 15540-TSP2-3100 | Ch 31-32 | 12.1(11b)E | |
| Pluggable transceivers for extended range transponder modules | 15500-XVRA-01A2 | ESCON and OC-3 1310-nm MM MT-RJ | 12.1(11b)E |
| | 15500-XVRA-02C1 | Gigabit Ethernet and Fibre Channel (1 Gbps) 850-nm MM MTLC | 12.1(11b)E |
| | 15500-XVRA-02C2 | Fibre Channel (2 Gbps) 850-nm MM MTLC | 12.1(11b)E |
| | 15500-XVRA-03B1 | Gigabit Ethernet and Fibre Channel (1 Gbps) 1310-nm SM MTLC | 12.1(11b)E |
| | 15500-XVRA-07B1 | SONET OC-48 1310-nm SM MTLC | 12.1(11b)E |

Determining the Software Version



Note

We strongly recommend that you use the latest available software release for all Cisco ONS 15540 ESP hardware.

To determine the version of Cisco IOS software currently running on a Cisco ONS 15540 ESP system, log in to the system and enter the **show version EXEC** command. The following sample output is from the **show version** command. The software version number is shown on the second line of the sample output.

```
Switch# show version
Cisco Internetwork Operating System Software
IOS (tm) ONS-15540 Software (ONS15540-I-M), Experimental Version 12.1(20010613:2
13834) [koj-1h 132]
```

Upgrading the System Image

To ensure proper system functioning, follow the system image upgrading procedure described in the *Cisco ONS 15540 ESP Configuration Guide and Command Reference*.



Caution

Improper system image upgrades can affect system functioning and redundancy. Always follow the recommended upgrade procedures.

Feature Set Table

The Cisco IOS Release software is packaged in feature sets (also called software images) depending on the platform. Each feature set contains a specific set of Cisco IOS features. [Table 2](#) lists the Cisco IOS software feature sets available for the Cisco ONS 15540 ESP.

Table 2 *Feature Sets Supported by the Cisco ONS 15540 ESP*

| Feature Set | 12.1(11b)E | 12.1(7a)EY2 |
|--|------------|-------------|
| Gigabit Ethernet | X | X |
| Fast Ethernet | X | X |
| Ethernet | X | X |
| ATM OC-3/STM-1, OC-12/STM-4, and OC-48/STM-16 | X | X |
| SONET ¹ /SDH ² | X | X |
| POS ³ | X | X |
| Coupling link | X | X |
| Fibre Channel (1 Gbps) | X | X |
| Fibre Channel (2 Gbps) | X | X |
| FDDI ⁴ | X | X |
| ESCON ⁵ SM (200 Mbps) | X | X |

Table 2 *Feature Sets Supported by the Cisco ONS 15540 ESP (continued)*

| Feature Set | 12.1(11b)E | 12.1(7a)EY2 |
|-----------------------------------|------------|-------------|
| FICON ⁶ (800 Mbps) | X | X |
| Token Ring | X | X |
| SNMP | X | X |
| CiscoView | X | X |
| Cisco Transport Manager | X | X |
| IP packets | X | X |
| OSCP ⁷ | X | X |
| APS ⁸ protocol packets | X | X |
| Point-to-point | X | X |
| Hubbed ring | X | X |
| Meshed ring | X | X |
| Sysplex | X | X |
| GDPS ⁹ | X | X |

1. SONET = Synchronous Optical Networking
2. SDH = Synchronous Digital Hierarchy
3. POS = Packet over SONET
4. FDDI = Fiber Distributed Data Interface
5. ESCON = Enterprise Systems Connection
6. FICON = Fiber Connection
7. OSCP = OSC Protocol
8. ASP = Automatic Protection Switching
9. GDPS = Geographically Dispersed Parallel Sysplex

New and Changed Information

This section lists new features that appear in this and previous releases of Cisco IOS Release 12.1. The new features are sorted by release number. Some releases include both platforms, others only include one platform.

New Features in Release 12.1(11b)E

The following new features are available for the Cisco ONS 15540 ESP in Cisco IOS Release 12.1(11b)E:

- Extended range transponder modules supporting the following transceivers:
 - ESCON and SONET OC-3 MM (1310 nm)
 - Gigabit Ethernet and Fibre Channel (1 Gbps) MM (850 nm)
 - Gigabit Ethernet and Fibre Channel (1 Gbps) SM (1310 nm)
 - Fibre Channel (2 Gbps) MM (850 nm)
 - SONET OC-48 SM (1310 nm)

New Features in Release 12.1(7a)EY3

The following new software features are available for the Cisco ONS 15540 ESP in Cisco IOS Release 12.1(7a)EY3:

- Cisco IOS software on the processor.
- Autoconfiguration at startup.
- Autodiscovery of network neighbors.
- Online diagnostics.
- Processor redundancy provided by arbitrations of processor status and switchover in case of failure without loss of connections.
- Autosynchronization of startup and running configurations.
- Support for in-service software upgrades.
- Support for per-channel APS (automatic protection switching) in point-to-point and ring topologies using redundant subsystems that monitor link integrity and signal quality.
- Unidirectional and bidirectional 1+1 path switching.
- System configuration and management through the CLI (command-line interface), accessible through an Ethernet connection or console terminal.
- Optical power monitoring on the transport side, digital monitoring on both client and transport side, and per-channel transponder in-service and out-of-service loopback (client and transport sides).
- Optional out-of-band management of other Cisco ONS 15540 systems on the network through the OSC (optical supervisory channel).
- Support for network management systems that use SNMP. Its capabilities include configuration management, fault isolation, topology discovery, and path trace.

New Features in Release 12.1(7a)EY2

The following new features are available for the Cisco ONS 15540 ESP in Cisco IOS Release 12.1(7a)EY2:

- Cisco IOS software on the processor.
- Autoconfiguration at startup.
- Autodiscovery of network neighbors.
- Online diagnostics.
- Processor redundancy provided by arbitrations of processor status and switchover in case of failure without loss of connections.
- Autosynchronization of startup and running configurations.
- Support for in-service software upgrades.
- Support for per-channel APS (automatic protection switching) in point-to-point and ring topologies using redundant subsystems that monitor link integrity and signal quality.
- Unidirectional and bidirectional 1+1 path switching.
- System configuration and management through the CLI (command-line interface), accessible through an Ethernet connection or console terminal.

- Optical power monitoring on the transport side, digital monitoring on both client and transport side, and per-channel transponder in-service and out-of-service loopback (client and transport sides).
- Optional out-of-band management of other Cisco ONS 15540 systems on the network through the OSC (optical supervisory channel).
- Support for network management systems that use SNMP. Its capabilities include configuration management, fault isolation, topology discovery, and path trace.

Caveats

This section lists the caveats and corrected caveats for each release. Use [Table 3](#) to determine the status of a particular caveat. In the tables, “C” indicates a corrected caveat, and “O” indicates an open caveat.

Table 3 Caveat Matrix for the Cisco ONS 15540 ESP

| DDTS Number | 12.1(11b)E | 12.1((7a)EY3 | 12.1((7a)EY2 |
|----------------------------|------------|--------------|--------------|
| CSCdv33165 | C | O | O |
| CSCdv37024 | C | O | O |
| CSCdv90351 | O | O | O |
| CSCdw26675 | C | O | O |
| CSCdw65903 | C | C | |
| CSCdw71880 | C | | |
| CSCdw82701 | O | | |
| CSCdw87421 | O | | |

This section describes the caveats in the Cisco ONS 15540 ESP.

- [CSCdv33165](#)

Symptom: If you attempt to change or edit a threshold in the threshold list that is already associated with an interface, the threshold is applied to that interface even when no changes are made to it. Usually the change in error counts are more important than the error counters themselves.

Workaround: Issue the **clear counters** command.

- [CSCdv37024](#)

Symptom: If CiscoView files are extracted on a Flash Disk (disk0: or disk1:), the package does not work.

Workaround: Install CiscoView on a Flash PC Card (slot0: or slot1:).

- [CSCdv90351](#)

Symptom: When there is a constant stream of loss of sync alarms, a port fail notification is not generated. Although both signal failure and signal degrade thresholds are applied, only signal degrade is observed. The signal failure threshold is monitored by hardware registers. When the signal failure threshold is exceeded, the hardware normally generates a port fail notification. Because the loss of sync alarms are constant, the threshold exceeded cannot generate a port fail notification. The signal degrade is reported because it is monitored by software and does not need any notifications from hardware.

Workaround: Disable and reenabling monitoring once with the **no monitor/monitor enable** command sequence to generate the port fail notification.

- [CSCdw26675](#)

Symptom: Upon switchover, the active processor card can become nonresponsive. The processor card's Active LED will remain on, even though it is no longer actively controlling the system.

Workaround: None

Remove and reinsert the processor card to correct the fault.

- [CSCdw65903](#)

Symptom: An error can occur with management protocol processing. Please use the following URL for further information:

<http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903>

Workaround: None

- [CSCdw71880](#)

Symptom: The following errors might occur:

- The 100 Mbps LED for Network Management Ethernet (NME) port might be on even if the port is connected to a 10 Mbps source. This LED should be on only when connected to a 100 Mbps source.
- The full duplex LED might not stay on even when the port is connected to a full duplex source.
- Auto negotiation of speed and duplex mode might not work when switched from a 10 Mbps source to 100 Mbps source.
- Auto negotiation of speed and duplex mode might not work when switched from a 100 Mbps source to a 10 Mbps source.

Workaround: None.

- [CSCdw82701](#)

Symptom: Loopback cannot be configured on the wave interface of an extended range transponder module if no transceiver is present. The **loopback** command is accepted but the loopback is not configured.

Workaround: Insert a transceiver before configuring the loopback on the wave interface.

- [CSCdw87421](#)

Symptom: When laser safety control is enabled on the OSC wave 0 interface or wave 1 interface, the OSC trunk laser does not shut down when a fiber cut occurs.

Workaround: None

Limitations and Restrictions

This section contains limitations and restrictions that apply to the Cisco ONS 15540 ESP.

Transponder Modules

This section contains limitations and restrictions that apply to transponder modules.

- When you insert the standby transponder module in a y-cable protected configuration, remove the cable from the transponder module before inserting the transponder module into the shelf. Failure to remove the cable might result in errors that can affect the performance of the active signal received by the client equipment.
- CRC errors may occur with 2-Gbps Fibre Channel on single-mode transponders when high input power levels are received from the client laser sources.

Data errors or link-down conditions for 2-Gbps Fibre Channel might occur when used with certain client laser sources. Transmitters in some client GBIC and SFP transceiver units might send large overshoots in optical power with signal bit transitions, causing momentary overload conditions on the transponder client side receiver. The average transmitted power level from the GBIC does not violate the overload specification of the transponder client side receiver, so a power meter does not detect the overload.

The workaround is to attenuate the signal from the client equipment to a recommended level of -12 dBm when transmitting 2-Gbps Fibre Channel services.

- If both processor cards are removed, traffic through the system is affected as follows:
 - For Type 2 extended range transponder modules, traffic is shut down.
 - For 10-GE transponder modules, traffic is shut down.
 - Type 1 SM transponder modules and MM transponder modules do not operate reliably. The traffic might be affected.
 - In the shutdown state, the Status LED on the line card motherboard turns orange.



Note

Traffic on pass through optical channels (which passively pass through the mux/demux modules) are not affected by the removal of the processor cards.

Related Documentation

Refer to the following documents for more information about the Cisco ONS 15540 ESP:

- [Cisco ONS 15540 ESP Planning and Design Guide](#)
- [Regulatory Compliance and Safety Information for the Cisco ONS 15540 ESP](#)
- [Cisco ONS 15540 ESP Hardware Installation Guide](#)
- [Cisco ONS 15540 ESP Configuration Guide and Command Reference](#)
- [Cisco ONS 15540 ESP Troubleshooting Guide](#)
- [Cisco ONS 15540 ESP MIB Quick Reference](#)
- [Glossary of Optical Networking Terms](#)

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

<http://www.cisco.com>

Translated documentation is available at the following URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

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Cisco documentation is available in the following ways:

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http://www.cisco.com/cgi-bin/order/order_root.pl
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<http://www.cisco.com/go/subscription>
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Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

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Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com is a highly integrated Internet application and a powerful, easy-to-use tool that provides a broad range of features and services to help you to

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

You can self-register on Cisco.com to obtain customized information and service. To access Cisco.com, go to the following URL:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

<http://www.cisco.com/register/>

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

This document is to be used in conjunction with the [Related Documentation](#) section.

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