Release Notes for Cisco ONS 15540 ESPx for Cisco IOS Release 12.1(12c)EV2

This document describes caveats for Cisco IOS Release 12.1(12c)EV2 for the Cisco ONS 15540 ESPx.

Date: June 16, 2004

Text Part Number: OL-3404-05

Contents

This document includes the following information:

Introduction

The Cisco ONS 15540 ESPx is an optical transport platform that employs DWDM (dense wavelength division multiplexing) technology. With the Cisco ONS 15540 ESPx, users can take advantage of the availability of dark fiber to build a common infrastructure that supports data, SANs (storage area networks), and TDM (time-division multiplexing) traffic. The system uses an enhanced chassis with front fiber optic cable access for optical interconnections between transponder modules and optical mux/demux modules. For more information about DWDM technology and applications, refer to the *Introduction to DWDM Technology* publication and the *Cisco ONS 15540 ESPx Planning Guide*.

CISCO SYSTEMS

System Requirements

This section describes the system requirements for Cisco IOS Release 12.1(12c)EV2 and includes the following sections:

Memory Requirements

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

Hardware Supported

Table 1 lists the hardware components supported on the Cisco ONS 15540 ESPx and the minimum software version required. See the "Determining the Software Version" section on page 9.

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

Component	Part Number	Description	Minimum Software Version Required
Chassis	15540-CHSB=	Chassis external connection system —19" RM, 14 U, 12 slots	12.1(10)EV1
Power supplies and spare power supply cables	15540-PWR-AC	120 to 240 VAC power supply	12.1(10)EV1
	15540-CAB-AC	Custom AC-input power entry cable	12.1(10)EV1
	15500-CAB-AC	North America	12.1(10)EV1
	15500-CAB-ACA	Australia	12.1(10)EV1
	15500-CAB-ACE	Europe	12.1(10)EV1
	15500-CAB-CU	UK	12.1(10)EV1
	15500-CAB-ACI	Italy	12.1(10)EV1
	15500-CAB-ACR	Argentina	12.1(10)EV1
Blank motherboards and blank modules	15540-COV-07	Mux/demux motherboard blank panel	12.1(10)EV1
	15540-COV-08	4 / 8 Ch. mux/demux blank panel	12.1(10)EV1
	15540-COV-09	Line card motherboard blank panel	12.1(10)EV1
	15540-COV-10	Transponder module blank panel	12.1(10)EV1
Fans	15540-FTMP=	Fan tray module populated with eight fans	12.1(10)EV1
Processor cards	15540-CPU	Processor card	12.1(10)EV1
Flash PC Cards	15500-PCMCIA16=	PCMCIA memory card 16 MB	12.1(10)EV1
	15500-PCMCIA20=	PCMCIA memory card 20 MB	12.1(10)EV1

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

Component	Part Number	Description	Minimum Software Version Required
Mux/demux motherboards	15540-MMMB-1100	Supports mux/demux modules with OSC	12.1(10)EV1
	15540-MMMB-1200	Supports mux/demux modules without OSC	12.1(10)EV1
Mux/demux modules without OSC	15540-MDXC-04A0	4-channel Band A	12.1(10)EV1
	15540-MDXC-04B0	4-channel Band B	12.1(10)EV1
	15540-MDXC-04C0	4-channel Band C	12.1(10)EV1
	15540-MDXC-04D0	4-channel Band D	12.1(10)EV1
	15540-MDXC-04E0	4-channel Band E	12.1(10)EV1
	15540-MDXC-04F0	4-channel Band F	12.1(10)EV1
	15540-MDXC-04G0	4-channel Band G	12.1(10)EV1
	15540-MDXC-04H0	4-channel Band H	12.1(10)EV1
	15540-MDXC-08A0	8-channel Band AB	12.1(10)EV1
	15540-MDXC-08B0	8-channel Band CD	12.1(10)EV1
	15540-MDXC-08C0	8-channel Band EF	12.1(10)EV1
	15540-MDXC-08D0	8-channel Band GH	12.1(10)EV1
Mux/demux modules with OSC	15540-MDXD-04A0	4-channel Band A	12.1(10)EV1
	15540-MDXD-04B0	4-channel Band B	12.1(10)EV1
	15540-MDXD-04C0	4-channel Band C	12.1(10)EV1
	15540-MDXD-04D0	4-channel Band D	12.1(10)EV1
	15540-MDXD-04E0	4-channel Band E	12.1(10)EV1
	15540-MDXD-04F0	4-channel Band F	12.1(10)EV1
	15540-MDXD-04G0	4-channel Band G	12.1(10)EV1
	15540-MDXD-04H0	4-channel Band H	12.1(10)EV1
	15540-MDXD-08A0	8-channel Band AB	12.1(10)EV1
	15540-MDXD-08B0	8-channel Band CD	12.1(10)EV1
	15540-MDXD-08C0	8-channel Band EF	12.1(10)EV1
	15540-MDXD-08D0	8-channel Band GH	12.1(10)EV1
	15540-MDXD-32A0	32-channel AH	12.1(10)EV1
Line card motherboards	15540-LCMB-1100	Supports four transponders with protection or four extended range transponders with protection	12.1(10)EV1
	15540-LCMB-1200	Supports four transponders without protection or four extended range transponders without protection	12.1(10)EV1
	15540-LCMB-1400	Supports two 10-GE transponders with protection	12.1(10)EV2
	15540-LCMB-1401	Supports two 10-GE transponders without protection	12.1(10)EV2

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

Component	Part Number	Description	Minimum Software Version Required
MM transponder modules	15540-TSP1-01A3	Ch 1-2 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-03A3	Ch 3-4 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-05A3	Ch 5-6 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-07A3	Ch 7-8 — 310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-09A3	Ch 9-10 — 1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-11A3	Ch 11-12 — 1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-13A3	Ch 13-14 — 1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-15A3	Ch 15-16 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-17A3	Ch 17-18 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-19A3	Ch 19-20 —1310nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-21A3	Ch 21-22 —1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-23A3	Ch 23- 24—1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-25A3	Ch 25-26—1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-27A3	Ch 27-28—1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-29A3	Ch 29-30—1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
	15540-TSP1-31A3	Ch 31-32—1310-nm MM 16 to 622 Mbps with SC	12.1(10)EV1
SM transponder modules	15540-TSP1-01B3	Ch 1-2—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-03B3	Ch 3-4—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-05B3	Ch 5-6—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-07B3	Ch 7-8—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-09B3	Ch 9-10—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-11B3	Ch 11-12—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-13B3	Ch 13-14— 1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-15B3	Ch 15-16—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-17B3	Ch 17-18—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-19B3	Ch 19-20—1310nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-21B3	Ch 21-22—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-23B3	Ch 23- 24—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-23B3	Ch 23- 24—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-25B3	Ch 25-26—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-27B3	Ch 27-28—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-29B3	Ch 29-30 —1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1
	15540-TSP1-31B3	Ch 31-32—1310-nm SM 16 Mbps to 2.5 Gbps with SC	12.1(10)EV1

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

Component	Part Number	Description	Minimum Software Version Required
Extended range transponder modules supporting SFP optics	15540-TSP2-0100	Ch 1-2	12.1(10)EV1
	15540-TSP2-0300	Ch 3-4	12.1(10)EV1
	15540-TSP2-0500	Ch 5-6	12.1(10)EV1
	15540-TSP2-0700	Ch 7-8	12.1(10)EV1
	15540-TSP2-0900	Ch 9-10	12.1(10)EV1
	15540-TSP2-1100	Ch 11-12	12.1(10)EV1
	15540-TSP2-1300	Ch 13-14	12.1(10)EV1
	15540-TSP2-1500	Ch 15-16	12.1(10)EV1
	15540-TSP2-1700	Ch 17-18	12.1(10)EV1
	15540-TSP2-1900	Ch 19-20	12.1(10)EV1
	15540-TSP2-2100	Ch 21-22	12.1(10)EV1
	15540-TSP2-2300	Ch 23-24	12.1(10)EV1
	15540-TSP2-2500	Ch 25-26	12.1(10)EV1
	15540-TSP2-2700	Ch 27-28	12.1(10)EV1
	15540-TSP2-2900	Ch 29-30	12.1(10)EV1
	15540-TSP2-3100	Ch 31-32	12.1(10)EV1

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

Component	Part Number	Description	Minimum Software Version Required
Single port 10-Gigabit Ethernet transponder modules	15540-10GE-03B301	10-GE 1310nm SM Client with SC and ITU Laser Ch 1	12.1(10)EV2
	15540-10GE-03B302	10-GE 1310nm SM Client with SC and ITU Laser Ch 2	12.1(10)EV2
	15540-10GE-03B303	10-GE 1310nm SM Client with SC and ITU Laser Ch 3	12.1(10)EV2
	15540-10GE-03B304	10-GE 1310nm SM Client with SC and ITU Laser Ch 4	12.1(10)EV2
	15540-10GE-03B305	10-GE 1310nm SM Client with SC and ITU Laser Ch 5	12.1(10)EV2
	15540-10GE-03B306	10-GE 1310nm SM Client with SC and ITU Laser Ch 6	12.1(10)EV2
	15540-10GE-03B307	10-GE 1310nm SM Client with SC and ITU Laser Ch 7	12.1(10)EV2
	15540-10GE-03B308	10-GE 1310nm SM Client with SC and ITU Laser Ch8	12.1(10)EV2
	15540-10GE-03B309	10-GE 1310nm SM Client with SC and ITU Laser Ch 9	12.1(10)EV2
	15540-10GE-03B3010	10-GE 1310nm SM Client with SC and ITU Laser Ch 10	12.1(10)EV2
	15540-10GE-03B3011	10-GE 1310nm SM Client with SC and ITU Laser Ch 11	12.1(10)EV2
	15540-10GE-03B3012	10-GE 1310nm SM Client with SC and ITU Laser Ch 12	12.1(10)EV2
	15540-10GE-03B3013	10-GE 1310nm SM Client with SC and ITU Laser Ch 13	12.1(10)EV2
	15540-10GE-03B3014	10-GE 1310nm SM Client with SC and ITU Laser Ch 14	12.1(10)EV2
	15540-10GE-03B3015	10-GE 1310nm SM Client with SC and ITU Laser Ch 15	12.1(10)EV2
	15540-10GE-03B3016	10-GE 1310nm SM Client with SC and ITU Laser Ch 16	12.1(10)EV2
	15540-10GE-03B3017	10-GE 1310nm SM Client with SC and ITU Laser Ch 17	12.1(10)EV2
	15540-10GE-03B3018	10-GE 1310nm SM Client with SC and ITU Laser Ch 18	12.1(10)EV2
	15540-10GE-03B3019	10-GE 1310nm SM Client with SC and ITU Laser Ch 19	12.1(10)EV2
	15540-10GE-03B3020	10-GE 1310nm SM Client with SC and ITU Laser Ch 20	12.1(10)EV2
	15540-10GE-03B3021	10-GE 1310nm SM Client with SC and ITU Laser Ch 21	12.1(10)EV2
	15540-10GE-03B3022	10-GE 1310nm SM Client with SC and ITU Laser Ch 22	12.1(10)EV2
	15540-10GE-03B3023	10-GE 1310nm SM Client with SC and ITU Laser Ch 23	12.1(10)EV2
	15540-10GE-03B3024	10-GE 1310nm SM Client with SC and ITU Laser Ch 24	12.1(10)EV2
	15540-10GE-03B3025	10-GE 1310nm SM Client with SC and ITU Laser Ch 25	12.1(10)EV2
	15540-10GE-03B3026	10-GE 1310nm SM Client with SC and ITU Laser Ch 26	12.1(10)EV2
	15540-10GE-03B3027	10-GE 1310nm SM Client with SC and ITU Laser Ch 27	12.1(10)EV2
	15540-10GE-03B3028	10-GE 1310nm SM Client with SC and ITU Laser Ch 28	12.1(10)EV2
	15540-10GE-03B3029	10-GE 1310nm SM Client with SC and ITU Laser Ch 29	12.1(10)EV2
	15540-10GE-03B3030	10-GE 1310nm SM Client with SC and ITU Laser Ch 30	12.1(10)EV2
	15540-10GE-03B3031	10-GE 1310nm SM Client with SC and ITU Laser Ch 31	12.1(10)EV2
	15540-10GE-03B3032	10-GE 1310nm SM Client with SC and ITU Laser Ch 32	12.1(10)EV2

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

Component	Part Number	Description	Minimum Software Version Required
Pluggable SFP optics for extended range transponder modules	15500-XVRA-01A2	ESCON and OC-3 1310-nm MM MT-RJ	12.1(10)EV1
	15500-XVRA-03B1	Gigabit Ethernet and Fibre Channel (1 Gbps) 1310-nm SM MTLC	12.1(10)EV1
	15500-XVRA-03B2	Fibre Channel (1 Gbps and 2 Gbps) 1310-nm SM MTLC	12.1(10)EV1
	15500-XVRA-02C1	Gigabit Ethernet and Fibre Channel (1 Gbps) 850-nm MM MTLC	12.1(10)EV1
	15500-XVRA-02C2	Fibre Channel (2 Gbps) 850-nm MM MTLC	12.1(10)EV1
	15500-XVRA-07B1	SONET OC-12 1310-nm SM MTLC	12.1(10)EV1
	15500-XVRA-07B1	SONET OC-48 1310-nm SM MTLC	12.1(10)EV1
Protection switch module	15540-PSM-01	ONS 15540 protection switch module	12.1(12c)EV
Optical cross connect	15500-CCDK01	ONS 15500 cross connect drawer kit	12.1(10)EV1
	15500-CSDK01	ONS 15500 cable storage drawer kit	12.1(10)EV1
	15500-VCGK01	ONS 15500 vertical cable guide kit	12.1(10)EV1
	15500-CAB-MU-ADTR=	ONS 15540 MU-MU insertion adapter	12.1(10)EV1
	15500-CAB-TL01=	Cable installation and removal tool. SFP removal tool.	12.1(10)EV1
Optical cable kits	15500-CAB-KIT1	Cable kit 1 - (order 1x for LCMB without splitter, order 2x for line card motherboardwith splitter): 2x MTP-8MU, 2x MU adapter, 8x MU-MU	12.1(10)EV1
	15500-CAB-KIT2	Cable Kit 2 - 10G Lower Channels - (order 1x for every 10G line card motherboard with w/o splitter, order 2x for line card motherboard with w/ splitter): 1x MTP-8MU, 1x MTP-4MU, 2x MU Adapter, 4x MU-MU	12.1(10)EV1
	15500-CAB-KIT3	Cable Kit 3 - 10G Higher Channels - (order 1x for every 10G line card motherboardwith w/o splitter, order 2x for LCMB w/ splitter): 1x MTP-8MU, 1x MTP-4MU, 2x MU Adapter, 4x MU-MU	12.1(10)EV1

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

Component	Part Number	Description	Minimum Software Version Required
MTP cables	15500-CAB-MTP-01=	86" MTP to MTP cable - 2.5-Gbps line card motherboard	12.1(10)EV1
	15500-CAB-MTPMU-M	86" MTP to 8 MU optical cable - mux/semux to cross connect drawer - (Gray)	12.1(10)EV1
	15500-CAB-MTPMU-L	86" MTP to 8 MU optical cable - linecard to cross connect drawer - (Green)	12.1(10)EV1
	15500-CAB-MTPMU-1	86" MTP to 4 MU optical cable-10G Ch 1/2 (Aqua)	12.1(10)EV1
	15500-CAB-MTPMU-2	86" MTP to 4 MU optical cable- 10G Ch 3/4 (Rose)	12.1(10)EV1
	15500-CAB-MTP-01,	86" MTP to MTP cable- 2.5G linecard motherboard (Blue)	12.1(10)EV1
	15500-CAB-MTP-02	86" MTP to MTP cable - 10G linecard motherboard- Ch. 1/2 (Aqua)	12.1(10)EV1
	15500-CAB-MTP-03	86" MTP to MTP cable - 10G linecard motherboard- Ch. 3/4 (Rose)	12.1(10)EV1
	15500-CAB-MTP-04	86" MTP to 2x MTP cable - 10G linecard motherboard Y-cable (Violet)	12.1(10)EV1
Optical trunk cables (simplex)	15500-CAB-MSC01=	1.0m Tuned Low Loss MU to SC SM Patch Cable	12.1(10)EV1
	15500-CAB-MSC02=	3.0m Tuned Low Loss MU to SC SM Patch Cable	12.1(10)EV1
	15500-CAB-MST03=	1.0m Tuned Low Loss MU to ST SM Patch Cable	12.1(10)EV1
	15500-CAB-MST04=	3.0m Tuned Low Loss MU to ST SM Patch Cable	12.1(10)EV1
Optical OADM and intra chassis cables (simplex)	15500-CAB-MMU-01=	0.25m (10") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-02=	0.35m (14") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-03=	0.45m (17") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-04=	0.5m (20") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-05=	1.0m (40") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-09=	1.16m (46") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-06=	1.5m (60") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-07=	2.0m (79") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1
	15500-CAB-MMU-08=	2.5m (98") tuned low loss MU to MU SM OADM patch cable	12.1(10)EV1

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

Component	Part Number	Description	Minimum Software Version Required
Optical client cables (simplex)	15500-CAB-SC11=	1.0m SC to SC 62.5/125um MM cable	12.1(10)EV1
	15500-CAB-SC19=	1.0m SC to SC 50/125um MM cable	12.1(10)EV1
	15500-CAB-SC12=	1.0m SC to SC SM cable	12.1(10)EV1
	15500-CAB-SC13=	3.0m SC to SC 62.5/125um MM cable	12.1(10)EV1
	15500-CAB-SC20=	3.0m SC to SC 50/125um MM cable	12.1(10)EV1
	15500-CAB-SC14=	3.0m SC to SC SM cable	12.1(10)EV1
	15500-CAB-ST15=	1.0m SC to ST 62.5/125um MM cable	12.1(10)EV1
	15500-CAB-ST21=	1.0m SC to ST 50/125um MM cable	12.1(10)EV1
	15500-CAB-ST16=	1.0m SC to ST SM cable	12.1(10)EV1
	15500-CAB-ST17=	3.0m SC to ST 62.5/125um MM cable	12.1(10)EV1
	15500-CAB-ST22=	3.0m SC to ST 50/125um MM cable	12.1(10)EV1
	15500-CAB-ST18=	3.0m SC to ST SM cable	12.1(10)EV1
Optical y-cables	15500-CAB-YMM-SC=	50/125um multimode y cable with SC for channel protection	12.1(10)EV1
	15500-CAB-YMM2-SC=	62.5/125um multimode y cable with SC for channel protection	12.1(10)EV1
	15500-CAB-YSM-SC=	single mode y cable with SC for channel protection	12.1(10)EV1
	15500-CAB-YMM-SC=	50/125um multimode y cable with SC for channel protection	12.1(10)EV1

Determining the Software Version

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

To determine the version of Cisco IOS software currently running on a Cisco ONS 15540 ESPx system, log in to the system and enter the **show version** EXEC command.

Upgrading the System Image

To ensure proper system functioning, follow the system image upgrading procedure described in the *Cisco ONS 15540 ESPx Software Upgrade Guide*.

Note   Always set the configuration register to 0x2102 when upgrading the system image using the **config-reg 0x2102** command in configuration mode.

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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 software features. Table 2 lists the Cisco IOS software feature sets available for the Cisco ONS 15540 ESPx.

Table 2   Feature Sets Supported by the Cisco ONS 15540 ESPx

Feature Set	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
Gigabit Ethernet	X	X	X	X	X	X
Fast Ethernet	X	X	X	X	X	X
Ethernet	X	X	X	X	X	X
ATM OC-3/STM-1, OC-12/STM-4, and OC-48/STM-16	X	X	X	X	X	X
SONET[1]/SDH[2]	X	X	X	X	X	X
POS[3]	X	X	X	X	X	X
Fibre Channel (1 Gbps)	X	X	X	X	X	X
Fibre Channel (2 Gbps)	X	X	X	X	X	X
FDDI[4]	X	X	X	X	X	X
ESCON[5] SM (200 Mbps)	X	X	X	X	X	X
FICON[6] (800 Mbps)	X	X	X	X	X	X
Token Ring	X	X	X	X	X	X
SNMP	X	X	X	X	X	X
CiscoView	X	X	X	X	X	X
Cisco Transport Manager	X	X	X	X	X	X
CDP[7]	X	X	X	X	X	X
IP packets	X	X	X	X	X	X
OSCP[8]	X	X	X	X	X	X
APS[9] protocol packets	X	X	X	X	X	X
Point-to-point	X	X	X	X	X	X
Hubbed ring	X	X	X	X	X	X
Meshed ring	X	X	X	X	X	X
IBM GDPS[10] ETR/CL[11]	X	X	X	X	X	X
IBM GDPS[10] coupling link	X	X	X	X	X	X
Unidirectional path switching	X	X	X	X	X	X

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

Feature Set	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
Bidirectional path switching	X	X	X	X	X	X
CDL over 10 GE	X	X	X	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. CDP = Cisco Discovery Protocol
8. OSCP = Optical Supervisory Channel Protocol
9. APS = Automatic Protection Switching
10. GDPS = Geographically Dispersed Parallel Sysplex
11. ETR/CLO = external timer reference/control link oscillator

New and Changed Information

This section lists new features that appear in Cisco IOS Release 12.1.

New Features in Release 12.1(12c)EV2

The following new feature is available for the Cisco ONS 15540 ESPx in Cisco IOS Release 12.1(12c)EV2:

- **show optical interface brief** command

New Features in Release 12.1(12c)EV1

The following new feature is available for the Cisco ONS 15540 ESPx in Cisco IOS Release 12.1(12c)EV1:

- Supports TL1 commands

New Features in Release 12.1(12c)EV

The following new feature is available for the Cisco ONS 15540 ESPx in Cisco IOS Release 12.1(12c)EV:

- The Cisco ONS 15540 Protection Switch Module (PSM) allows a customer to protect the entire fiber path by splitting an optical signal from one fiber trunk into two redundant fiber paths. This offers customers a cost-effective protection option and added protection against fiber cuts in the network.

New Features in Release 12.1(10)EV3

No new features are available for the Cisco ONS 15540 ESPx in Cisco IOS Release 12.1(10)EV3.

New Features in Release 12.1(10)EV2

The following new features are available for the Cisco ONS 15540 ESPx in Cisco IOS Release 12.1(10)EV2:

- Hardware:
  - Non-protected dual subslot motherboard for Cisco ONS 15540 ESPx
  - Splitter protected dual subslot motherboard for Cisco ONS 15540 ESPx
  - 10 GE transponder module
- Software:
  - CDL over 10-GE

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 table, "C" indicates a corrected caveat, and "O" indicates an open caveat.

Table 3   Caveat Matrix for the Cisco ONS 15540 ESPx

DDTS Number	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
CSCdu53656	C					
CSCdx07666	C	O	O	O	O	O
CSCdx32438	C	C	O	O	O	O
CSCdx37144	C	C	C	C	C	C
CSCdx42463	C	C	C	C	C	C
CSCdx70683	C	C	C	C	C	C
CSCdx80175	C	C	C	C	C	C
CSCdx80804	C	C	C	C	C	C
CSCdx85761	C	C	C	C		
CSCdx87061	C	C	C	C	C	C
CSCdx89540	C	C	C	C	C	C
CSCdy03245	C	C	C	C		
CSCdy08228	C	C	C	C		
CSCdy20002	C	C	C	C		
CSCdy20010	C	C	C	C		
CSCdy20022	C	C	C	C		
CSCdy20792	C	C	C	C	C	
CSCdy30497	C	C	C	C		
CSCdy40352	C	C	C	C	O	O
CSCdy40429	C	C	C	C	C	C
CSCdy40465	C	C	C	C	C	C
CSCdy40864	C	C	C	C		
CSCdy40882	C	C	C	C		
CSCdy44129	C	C	C	C	O	
CSCdy49146	C	C	C	C	C	C
CSCdy49249	C	C	C	C		
CSCdy53288	C	C	C	C		
CSCdy58197	C	C	C	C	O	
CSCdy61641	C	C	C	C		
CSCdy62752	C	C	C	C		
CSCdy63359	C	C	C	C		
CSCdy65411	C	C	C	C		

Table 3   Caveat Matrix for the Cisco ONS 15540 ESPx (continued)

DDTS Number	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
CSCdy78546	C	C	C	C		
CSCdy79161	C	C	C	C	O	
CSCdy79659	C	C	C	C		
CSCdy79812	C	C	C	C	O	
CSCdy81888	C	C	C	C	O	
CSCdy83757	C	C	C	C		
CSCdy85563	C	C	C	C		
CSCdy87237	C	C	C	C		
CSCdy88154	C	C	C	C		
CSCdz00116	C	C	C	C		
CSCdz02296	C	C	C	C		
CSCdz02340	C	C	C	C		
CSCdz03989	C	C	C	C		
CSCdz06004	C	C	C	C		
CSCdz06602	C	C	C	C		
CSCdz08774	C	C	C	C		
CSCdz12919	C	C	C	C		
CSCdz13538	C	C	C	C		
CSCdz13673	C	C	C	C		
CSCdz14420	C	C	C	C		
CSCdz18757	C	C	C	C		
CSCdz18815	C	C	C	C		
CSCdz19099	C	C	C	C		
CSCdz20508	C	C	C	C		
CSCdz22455	C	C	C	C		
CSCdz25739	C	C	C	O		
CSCdz28582	C	C	C	C		
CSCdz28903	C	C	C	C		
CSCdz29723	O	O	O	O		
CSCdz31593	O	O	O	O		
CSCdz33752	C	C	C	C		
CSCdz36420	C	C	C	C		
CSCdz36424	C	C	C	O		
CSCdz36823	C	C	C	C		
CSCdz37698	C	C	C	C		
CSCdz37968	C	C	C	C		

Table 3   Caveat Matrix for the Cisco ONS 15540 ESPx (continued)

DDTS Number	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
CSCdz38075	C	C	C	C		
CSCdz38448	C	C	C	O		
CSCdz38968	C	C	C	C		
CSCdz39112	C	C	C	O		
CSCdz39793	C	C	C	O		
CSCdz40675	C	C	C			
CSCdz41160	C	C	C	O		
CSCdz42547	C	C	C	O		
CSCdz42565	C	C	C	O		
CSCdz43279	C	C	C	O		
CSCdz56523	C					
CSCdz58866	C	C	C			
CSCdz60081	C	C				
CSCdz62296	C	O	O			
CSCdz62553	C	C	C			
CSCdz66609	O	O	O			
CSCdz75109	C	C	C			
CSCdz76974	C	C				
CSCdz77034	C	C				
CSCdz79336	O	O	O			
CSCdz80042	O	O	O			
CSCdz83169	C	C	O			
CSCdz85458	C	C	O			
CSCea03957	C	C				
CSCea04546	C	C				
CSCea13361	C	C				
CSCea16511	C	O	O	O	O	O
CSCea28131	C					
CSCea41710	C	C				
CSCea50863	C	C	O			
CSCea60957	C	O				
CSCea92296	C	O	O	O	O	O
CSCeb20229	O					
CSCeb31264	O					
CSCeb37281	O					
CSCeb54866	O					

Table 3   Caveat Matrix for the Cisco ONS 15540 ESPx (continued)

DDTS Number	12.1(12c)EV2	12.1(12c)EV1	12.1(12c)EV	12.1(10)EV3	12.1(10)EV2	12.1(10)EV1
CSCeb55150	O					
CSCeb55151	O					
CSCeb55159	O					

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

- CSCdu53656

  A Cisco device running IOS and enabled for the Border Gateway Protocol (BGP) is vulnerable to a Denial of Service (DOS) attack from a malformed BGP packet. The BGP protocol is not enabled by default, and must be configured in order to accept traffic from an explicitly defined peer. Unless the malicious traffic appears to be sourced from a configured, trusted peer, it would be difficult to inject a malformed packet. BGP MD5 is a valid workaround for this problem.

  Cisco has made free software available to address this problem. For more details, please refer to this advisory, available at http://www.cisco.com/warp/public/707/cisco-sa-20040616-bgp.shtml.

- CSCdx07666

  Symptom: Loss of signal might occur before SD (signal degrade) and SF (signal failure) thresholds are exceeded and traffic may still continue to pass transparently.

  The loss of signal detection is taken from the O-E (optical to electrical) conversion subsystem, which is different from the source of the SD and SF counters. The loss of light sensitivity is a characteristic of the OE conversion unit, and it may vary from unit to unit but is always < –30 dBm.

  Workaround: None.

- CSCdx32438

  Symptom: When the Rx port fiber is removed from the 2.5-Gbps transponder module, ingress alarms are reported and cleared repeatedly. The alarm should not clear and the alarm should be reported only once.

  Workaround: None

- CSCdx37144

  Symptom: The processor card is not responsive.

  Workaround: None

- CSCdx42463

  Symptom: The processor card is not responsive for an extended period of time, during which time the ACTIVE and STANDBY LEDs might not indicate the correct active and standby state.

  Workaround: If the processor card has not been reset by the redundant processor card, the nonresponsive processor card can be removed and reinserted in the chassis. This may cause a brief disruption to data traffic, but the redundant processor card should take over and bring the system back up.

- CSCdx70683

  Symptom: Reprogramming the standby processor card fails.

  Workaround: Run the reprogram on the active processor card, enable the processor switchover after switchover, and then run the reprogram on the new active processor card. Remove and reinsert the processor card for the new functional image to become effective.

- CSCdx80804

  Symptom: The **encapsulation fastethernet** command fails on multimode transponder modules. The **clock rate 100000** command succeeds but then pings over the signal fail intermittently.

  Workaround: None.

- CSCdx80175

  Symptom: The **show interfaces** command output for a wave interface displays an UP state, but the signal quality shows loss of sync.

  Workaround: None.

- CSCdx85761

  Symptom: Multiple %METOPT-2-PORTFAIL messages are seen when using the y-cable APS configuration with single auto-failover. However, this does not affect the functionality.

  Workaround: None.

- CSCdx87061

  Symptom: CiscoView might display a different receive LED status on 2.5-Gbps transponder modules from what is actually seen on the device.

  Workaround: None.

- CSCdx89540

  Symptom: Inserting a transponder module with the client equipment connected and transmission enabled disrupts y-cable clients.

  Workaround: Remove client transmit fiber (y-cable leg) from the standby transponder module before reinserting. Connect it back a few seconds after reinsertion of the standby transponder module.

- CSCdy03245

  Symptom: Topology neighbor configuration is lost on mux-demux motherboard online removal and reinsertion.

  Workaround: The topology neighbor is viewable after reconfiguring the wdm interface.

- CSCdy08228

  Symptom: Interface reports up/up even when there is no light source connected.

  Workaround: Perform a **shutdown** /**no shutdown** command sequence on the interface.

- CSCdy20002

  Symptom: A transparent interface carrying Gigabit Ethernet traffic and configured with 1-Gbps Fibre Channel encapsulation shows good quality signal on the **show interfaces transparent** command output and does not assert any ingress alarms. The wave interface assert loss of lock and loss of sync alarms.

  Workaround: Removing and reinserting the 2.5-Gbps transponder module will bring it to the correct state.

- CSCdy20010

  Symptom: The LOF alarms do not reassert in the **show facility-alarm status** command output after a **shutdown/no shutdown** command sequence.

  Workaround: Disabling and reenabling the monitoring for the transparent interface brings back the alarms.

- CSCdy20022

Symptom: The **show facility-alarm status** command output does not report existing LoF/LoSync/LoLock alarms after online removal and reinsertion or a **hw-module subslot power off/hw-module subslot power on** command sequence.

Workaround: Disable and enable monitoring back reasserts existing alarms in the **show facility-alarm status** command output.

- CSCdy20792

Symptom: After removing and reinserting (OIR) a 2.5-Gbps transponder module, the laser frequency is not programmed correctly, resulting in a wavelength filter mismatch and the wavelength not coming out of the filter.

Workaround: Configure the wave interface for the alternate frequency and then program it back to the desired frequency using the **laser frequency** command.

- CSCdy30497

Symptom: The line card motherboard functional image version in the **show hardware** command output should return the hexadecimal value.

Workaround: None.

- CSCdy40352

Symptom: The processor card becomes nonresponsive waiting for the console UART TxReady to be set. Normally a watchdog timeout forces recovery, but in some instances the standby processor card does not recover on its own.

Workaround: Remove and reinsert the standby processor card.

- CSCdy40429

Symptom: Under some situations the erratas of the system controller used on the processor card (GT64120A) can cause the following conditions:

  – Software forced crash due to memory ECC errors

  – Bus error exception

  – Corruption of data

Workaround: None.

- CSCdy40465

Symptom: Processor card becomes nonresponsive and does not respond to an NMI.

Workaround: Update processor card functional image to version 1.25 or higher.

- CSCdy40864

Symptom: A compatibility problem was detected in the released images that caused them to reject communication with the new images with a different cpu_red client version. This causes the active processor card to reset the peer processor card.

Workaround: Because this problem comes into existence only if the cpu_red client version is different between two images, this problem doesn't exist in the old released images. Because the new images with the incremented capered client version contains the fix for compatibility as well, this bug should not cause any impact in the field.

- CSCdy40882

Symptom: Information appears in **show hardware** command output for processor cards that have been removed.

Workaround: None.

- CSCdy44129

  Symptom: If a client interface is configured for CDL but is connected to a non-CDL device, the CDL message channel is down.

  Workaround: Ensure that the client interface is configured correctly.

- CSCdy49146

  Symptom: Under some circumstances, single bit ECC errors occur and are corrected by the system controller, but are not recorded; the user is unaware of these occurrences.

  Workaround: None.

- CSCdy49249

  Symptom: If a module is inserted during a processor card switchover, then the module and its interfaces might not come up properly.

  Workaround: Remove and reinsert module after switchover is complete.

- CSCdy53288

  Symptom: The system might crash when using the **is_optical_ifstatus_up** command; this is an intermittent problem.

  Workaround: None.

- CSCdy58197

  Symptom: In a configuration where a Cisco ONS 15540 ESPx has 10-GE downlinks to two Cisco ONS 15530 systems, the tengigethernetphy interface is administratively shut down and the ESCON ports associated with the first Cisco ONS 15530 are also shut down. However, the ESCON ports connected to the second Cisco ONS 15530 remain up.

  Workaround: Shut down the tengigethernetphy interface associated with the second Cisco ONS 15530.

- CSCdy61641

  Symptom: Following a processor card crash and switchover, if a **show redundancy** command is issued on the new active processor card, it currently shows "Reported Switchover Reason" as "Not known". If a **show version** is issued on the standby processor card that crashed, it shows additional troubleshooting information.

  Workaround: None.

- CSCdy62752

  Symptom: The active processor card becomes nonresponsive and cannot be enabled from the standby processor.

  Workaround: Remove and reinsert the active processor card.

- CSCdy63359

  Symptom: A **getmany** command on the ifMIB hangs in a loop.

  Workaround: None.

- CSCdy65411

  Symptom: Mode-mismatch events or traps are set or generated 15 minutes after the misconfiguration that causes it is configured on the system.

  Workaround: None.

- CSCdy78546

Symptom: From SNMP, **ptopoConnEntry** can be created with **entPhysicalIndex**, which does not correspond to any valid interface on the system.

Workaround: None.

- CSCdy79161

Symptom: Configuring both the client side and the trunk side for loopback on the 10-GE transponder module disrupts the traffic flow.

Workaround: Reconfigure the 10-GE transponder module with loopback only on the client side or the trunk side, not both. Remove and reinsert the 10-GE transponder module to restore traffic.

- CSCdy79659

Symptom: Incorrect OPM alarm status information for the standby wavepatch interface displays in the **show interfaces** command output.

Workaround: None.

- CSCdy79812

Symptom: CDL HEC counters are displayed in the **show interfaces tengigethernetphy** command output when CDL is disabled.

Workaround: None.

- CSCdy81888

Symptom: Traffic disruption on bootup or switchover occurs if 10-Gbps ITU trunk card client side is CDL disabled but has **cdl defect-indication force hop-endpoint** configured on both the client and trunk.

Workaround: Use the **no cdl defect-indication force hop-endpoint** command on the client side.

- CSCdy83757

Symptom: Unable to manage a system configured with EIGRP after a processor card switchover.

Workaround: Connect to the console port and remove the passive-interface config in EIGRP configuration.

- CSCdy85563

Symptom: The DI error message does not indicate DI bit status.

Workaround: None.

- CSCdy87237

Symptom: Line laser failure is not reported in the **show facility-alarm status** command output when the SFP optics in an extended range transponder module is removed and inserted online.

Workaround: None.

- CSCdy88154

Symptom: Some interfaces are not available to the NMS station because the agent does not create them when the module is removed and reinserted.

Workaround: Reload the system after removal and reinsertion of the modules.

- CSCdz00116

Symptom: APS message channel configured for UDP/IP does not work over more than two IP hops. The UDP/IP packet is dropped at the end of the second hop.

Workaround: None.

- CSCdz02296

Symptom: The **show patch detail** command output does not reflect the correct patch status for the ITU direct insertion module and the mux/demux module after the online removal and insertion of a 10-GE transponder module.

Workaround: None.

- CSCdz02340

Symptom: Traceback @optical_idb_wave_ethernet_phy_report.

Workaround: None.

- CSCdz03989

Symptom: Both active and standby lasers in a bidirectional y-cable APS configuration on modules in subslot 0 turn on erroneously.

Workaround: This bug has been fixed by using the correct format for programming the switchover-command register.

- CSCdz06004

Symptom: The **redundancy reload shelf** command on the active processor card can cause a switchover if the peer processor card is in ROM monitor mode.

Workaround: Use the **reload** command to reload the active processor card, if the peer processor card is in ROM monitor mode.

- CSCdz06602

Symptom: All OPM interval entries are not returned by the **getnext** command.

Workaround: None.

- CSCdz08774

Symptom: ciscoFlashDeviceChangeTrap is not generated when a removable Flash device is removed or inserted.

Workaround: None.

- CSCdz12919

Symptom: When the forward laser control is enabled on the 10-GE transponder module and the waveethernetphy interface laser is shut by this safety feature, the laser soft-start procedure has to be followed when the laser is enabled again.

Workaround: None.

- CSCdz13538

Symptom: The egress loss of signal alarm is not reasserted in the **show facility-alarm status** command output after using a **hw-module subslot power** command to turn the module power off or on.

Workaround: None.

- CSCdz13673

Symptom: The wave interface remains down when the signal quality is GOOD after using a **hw-module subslot power** command to turn the module power off or on.

Workaround: None.

- CSCdz14420

Symptom: The Rx power display in some cases is off by 4dBm in comparison with the real reading using power meter.

Workaround: Use a calibrated transponder module.

- CSCdz18757

Symptom: The default laser frequencies of the 2.5-Gbps transponder modules in an odd numbered subslots (for example, x/1 or x/3) are not restored correctly after the second online removal and insertion. The laser frequencies are stored correctly for the first online removal and insertion only.

For example, when inserting a 2.5-Gbps transponder module (channel n and channel n+1) to subslot x/1 the first time, the default laser frequency is n+1 (correct). Remove this 2.5-Gbps transponder module and insert another (channel m and channel m+1); the default laser frequency becomes m (incorrect; it should be m+1).

Workaround: Remove and reinsert the 2.5-Gbps transponder module.

- CSCdz18815

Symptom: While performing an **aps switch force** command on a splitter APS group for 10-GE transponder modules, an erroneous alarm clear message displays for a different slot/subslot card that is not part of the APS group.

Workaround: None.

- CSCdz19099

Symptom: The Rx power display in some cases is off by 4dBm in comparison with the real reading using a power meter.

Workaround: Use calibrated 2.5-Gbps transponder modules.

- CSCdz20508

Symptom: The wavepatch interfaces are stuck in the down state after using the **shutdown/no shutdown** command sequence on the corresponding wave interface with splitter APS after loss of light occurs.

Workaround: None.

- CSCdz22455

Symptom: System crashes due to PCI master abort while doing a Sandisk removal and insertion.

Workaround: None.

- CSCdz25739

Symptom: The low warning threshold alarm is not cleared in the **show facility-alarm status** command output.

Workaround: None.

- CSCdz28582

Symptom: After a fiber cut, the OSC interface remains up with signal quality good.

Workaround: Issue the **shutdown/no shutdown** command.

- CSCdz28903

Symptom: For the Sysplex protocol, forward laser control does not work after removing and reinserting the 2.5-Gbps transponder module and reprogramming the functional image.

Workaround: Using the **no encapsulation** and **encapsulation sysplex etr** commands on the transparent interface programs it correctly.

- CSCdz29723

Symptom: When APS communication goes down, and an APS failure is subsequently detected, APS may switch over even though the communication is down. Based on this type of failure, there may be a unidirectional switchover. For IBM Sysplex CLO/ETR applications, unidirectional switchover may lead to data corruption.

Workaround: None.

- CSCdz31593

Symptom: In a point-to-point bidirectional configuration, when the trunk Rx on both NEs are pulled and one of them is later replaced, APS might fluctuate between working and protection. Under certain conditions the driver declares both working and protection as down when the wave interface goes down.

In bidirectional APS this essentially means that the local side may inform the remote side that working/protection is down when it is not really down. APS has the ability to settle down on the good side; however, due to the bidirectional message (DO-NOT-REVERT in this case) from the far side; the local side switches away from the good side, and the cycle repeats. Note that this problem does not always happen, and requires certain timing for it to happen.

Workaround: Usea force switch or lockout to force the receive to the good side or temporarily change the direction from bidirectional to unidirectional after disabling the APS group.

- CSCdz33752

Symptom: In bidirectional APS, if both NEs have the same priority request, the master/slave determination fails, leading to both claiming the control and resulting in not sending a REVERSE-REQUEST.

Workaround: None.

- CSCdz36420

Symptom: In a preconfigured APS group (when the interfaces do not exist), if the group is configured for revertive mode, it cannot be enabled.

Workaround: Enable the group after the interfaces are defined in the APS group are created or remove the revertive configuration from the preconfigured APS group and then enable the group.

- CSCdz36424

Symptom: Attempting to read a Flash card formatted on another system causes advisory messages to be continuously printed to the console.

Workaround: None.

- CSCdz36823

Symptom: Attempting to read a Flash device formatted on another system causes advisory messages to be continuously printed to the console.

Workaround: None.

- CSCdz37698

Symptom: Both working and protection client Tx are active in a y-cable APS configuration.

Workaround: None.

- CSCdz37968

Symptom: The **hw-module subslot power on/off** command should not be supported for 10-GE transponder modules.

Workaround: None.

- CSCdz38075

Symptom: Data traffic is disrupted during the processor card switchover when the splitter APS is configured.

Workaround: None.

- CSCdz38448

Symptom: In y-cable bidirectional APS configuration using 10-GE transponder modules, whenever many CVRD errors are received on the standby trunk due to a bad signal (but still signal quality is GOOD in **show interfaces** command output), all four FDI-H/E and BDI-H/E bits in the DECCSR register might get latched. This generates interrupts and the console is flooded with messages for that interface such as the following:

```
00:15:17: %APS-3-PORT_FAIL: External Port Fail On WaveEthernetPhy10/1
```

Workaround: Improve the quality of the signal by removing some attenuation and/or cleaning the optical connectors so that CVRD errors are not seen.

- CSCdz38968

Symptom: Spurious memory access occurs on online removal and reinsertion of a 10-GE transponder module.

Workaround: None.

- CSCdz39112

Symptom: When an invalid channel number is detected by the OSCP client while it processes the client message received from peer, OSCP does not free the message buffer. This results in buffer starvation over a period of time and connectivity through the Network Management interface and backplane Ethernet (IPC and OSCP) interface are lost.

Workaround: None.

- CSCdz39793

Symptom: The optical alarms are not asserted or cleared correctly when the wave is in the administrative down state.

Workaround: Issue the **shutdown/no shutdown** command sequence on the active wavepatch, or issue the **no shutdown** command on wave interface to clear the false alarms.

- CSCdz40675

Symptom: Receiver power low alarm and warning are not asserted on the wavepatch interface after switchover from the active wavepatch interface to the standby wavepatch interface.

Workaround: None.

- CSCdz41160

Symptom: Continuous "SRC poll failure" messages are generated after removing a calibrated 2.5-Gbps transponder module and inserting an uncalibrated 2.5-Gbps transponder module or ITU direct insertion module.

Workaround: None.

- CSCdz42547

Symptom: Using the **no shutdown** command on the tengigethernetphy or waveethernetphy interfaces (which is DOWN due to loss of lock) brings the interface state to UP, even though the loss of lock is still asserted.

Workaround: Issue the **shutdown/no shutdown** command sequence on the interface for it to show the DOWN state.

- CSCdz42565

Symptom: Loss of sync is not reasserted on a tengigethernetphy interface after a **shutdown/no shutdown** command sequence has been issued on the interface, or on an online removal and reinsertion of the 10-GE transponder module.

Workaround: None.

- CSCdz43279

Symptom: The ethernetdcc interface for 10-GE transponder module is not in the administrative down state on the initial online removal and reinsertion of the module.

Workaround: None.

- CSCdz56523

Symptom: Loss of lock persists on a client interface that runs Sysplex CLO/ETR protocols.

Workaround: Issue the **shutdown/no shutdown** command sequence on the client interface to clear the loss of lock.

- CSCdz58866

Symptom: Threshold group line is missing in the **show interfaces waveethernetphy** command output.

Workaround: None.

- CSCdz60081

Symptom: The hardware reports spurious LoLock when the signal quality is good for the ETR encap after OIR (Online Insertion and Removal) of the transponder.

Workaround: Issue a **no encapsulation** command and configure the encapsulation back to Sysplex ETR.

- CSCdz62296

Symptom: PSMs are incorrectly recognized as a mux/demux module with system images that do not support the PSM.

Workaround: Upgrade software to 12.1(12c)EV.

- CSCdz62553

Symptom: The tengigEthernetPhy interface is getting BDI_H while the in-band message channel is disabled.

Workaround: None.

- CSCdz66609

Symptom: Traffic loss of 30 to 45 seconds may occur when a y-cable APS configuration with protection switchover is used with the Catalyst 6000 family.

Workaround: Disable autonegotiation and enable debounce timer with a 100-ms delay on Catalyst 6000 family using the **set port debounce mod/port enable** command.

- CSCdz75109

Symptom: When y-cable APS is configured, shutting off the power to the transponder module using the **hw-module subslot power off** command brings the power back on again immediately.

Workaround: Remove the APS configuration and perform power off.

- CSCdz76974

Symptom: The signal monitoring information is missing for the GE encapsulation in the **show interfaces** command output.

Workaround: None.

- CSCdz77034

   Symptom: When both wavepatch interfaces are in an ADMIN DOWN state, the signal quality is unknown but the **show facility-alarm status** command reports Loss of Signal.

   Workaround: None.

- CSCdz79336

   Symptom: APS switchover time (50 ms) is not guaranteed for loss of lock, loss of sync, or loss of frame. It is only guaranteed for loss of light.

   Workaround: None.

- CSCdz80042

   Symptom: The output of the **show waveethernetphy interface** command sometimes shows a high receive power value when there is no input signal connected to the card.

   Workaround: OIR the card.

- CSCdz83169

   Symptom: Could not get a wave interface power reading graph with CiscoView 2.0/2.1 for an uncalibrated transponder module.

   Workaround: Use a calibrated transponder module.

- CSCdz85458

   Symptom: When the 10-GE transponder module (waveethernetphy) laser is down due to a forward laser control action, removing the forward laser control configuration does not turn the laser back on.

   Workaround: None.

- CSCea03957

   Symptom: OPM (optical power monitoring) feature does not work on uncalibrated 2.5-Gbps transponder modules.

   Workaround: None.

- CSCea04546

   Symptom: Cannot disable SNMP-server traps for TTY messages on a global basis.

   Workaround: Configure traps on a per SNMP-server host basis.

- CSCea13361

   Symptom: An internal error and a traceback result when a threshold group with transmit-CRC failure and transmit-CRC degrade is modified such that the index reaches 63 and the new Tx-CRC threshold is attempted to be added.

   Workaround: None.

- CSCea16511

   Symptom: The standby processor card in the CiscoView shelf display shows a 100-Mbps connection even though the NME port is connected to a 10-Mbps hub or switch.

   Workaround: None.

- CSCea28131

  A Cisco device running IOS and enabled for the Border Gateway Protocol (BGP) is vulnerable to a Denial of Service (DOS) attack from a malformed BGP packet. The BGP protocol is not enabled by default, and must be configured in order to accept traffic from an explicitly defined peer. Unless the malicious traffic appears to be sourced from a configured, trusted peer, it would be difficult to inject a malformed packet. BGP MD5 is a valid workaround for this problem.

  Cisco has made free software available to address this problem. For more details, please refer to this advisory, available at http://www.cisco.com/warp/public/707/cisco-sa-20040616-bgp.shtml.

- CSCea41710

  Symptom: The optical power monitoring alarms and configuration are missing across a 2.5-Gbps transponder module online removal and insertion.

  Workaround: None.

- CSCea50863

  Symptom: Both active and standby lasers are on for a few seconds on a y-cable. This condition can cause Brocade ports to be disabled requiring a manual intervention to enable the ports.

  Workaround: None.

- CSCea60957

  Symptom: A spurious memory access at manopt_tl1_report_aps_defect occurs during the processor switchover when APS is configured.

  Workaround: None.

- CSCea92296

  Symptom: The transponder module traceback messages might flood the console, causing processor usage to increase to the point that it becomes unresponsive to the console and to network access.

  Workaround: OIR the transponder module (or the entire line card motherboard if all the transponder modules on the line card motherboard are failing. Ensure that all modules and line cards are seated properly and locked or screwed down.

- CSCeb20229

  Symptom: When a client loss of signal (loss of light/loss of lock) condition occurs on an extended range transponder module, typically by disconnecting the client from the transponder module or when the client device halts transmission briefly during an initialization sequence, the following might occur:

  - Laser degrade or laser wavelength deviation alarms may be asserted by the system and displayed on the console. These messages can be ignored.

  - The laser output power might drop for a few seconds and then recover. This might cause loss of light conditions at the far-end trunk receiver. The ITU laser power might fluctuate up and down until the client signal is reconnected.

  Neither of these conditions affect the functioning or life span of the laser. The laser power output will stabilize and return to normal operation when a valid client signal is connected.

  Workaround: Enable forward laser control using the **laser control forward enable** command on the wave interface. Or keep the wave interface shutdown when there is no client signal, but issue the **no shutdown** command on the wave interface when the client signal is reconnected.

- CSCeb31264

Symptom: The extended range transponder configured with FDDI encapsulation when connected with FDDI ports on a Catalyst 5000 causes the Catalyst 5000 port to take more than seven seconds to initialize if an Rx fiber break and insertion is done at the transponder client receive end.

Workaround: None.

- CSCeb37281

Symptom: With particular OC48 SFPs in a Y cable APS setup with extended range transponders, the Tx default on the SFP does not allow the client laser to enable because of the BLC.

Workaround: None.

- CSCeb54866

Symptom: MPL for splitter and y cable APS protection schemes should indicate losync/loframe/lolock instead of lolight

Workaround: None

- CSCeb55150

Symptom: The OPM alarms (low warning and low alarm) are not being reasserted after issuing a the shutdown/no shutdown command sequence on the wavepatch x/y/0 interface.

Workaround:OIR the subcard to reassert the alarms.

- CSCeb55151

Symptom: Enabling CDL on the tengigethernetphy interface on the 10-Gbps transponder module might result in traceback messages. This does not affect the system.

Workaround: None.

- CSCeb55159

Symptom: Inserting the 10-Gbps transponder module and reloading IOS results in SRC %SRC-3-LC_CMI_INTF_FAULT error messages.

Workaround: None.

Limitations and Restrictions

This section provides limitations and restrictions for Cisco ONS 15540 ESPx hardware and software.

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 occur with 2-Gbps Fibre Channel on single-mode transponder modules 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 on single-mode transponder modules 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 module client side receiver. The average transmitted power level from the GBIC does not violate the overload specification of the transponder module 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.

- Error-free transmission of some D1 video signals (defined by the SMPTE 259M standard) and test patterns (such as Matrix SDI) cannot be guaranteed by the Cisco 15500 Series because of the pathological pattern in D1 video. This well-known limitation is usually overcome by the D1 video equipment vendor, who uses a proprietary, second level of scrambling. No standards exist at this time for the second level of scrambling

- 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 ESPx:

- *Regulatory Compliance and Safety Information for the Cisco ONS 15500 Series*
- *Cisco ONS 15540 ESPx Planning Guide*
- *Cisco ONS 15540 ESPx Hardware Installation Guide*
- *Cisco ONS 15540 ESPx Optical Transport Turn-Up and Test Guide*
- *Cisco ONS 15540 ESPx Cleaning Procedures for Fiber Optic Connections*
- *Cisco ONS 15540 ESPx Configuration Guide*
- *Cisco ONS 15540 ESPx Command Reference*
- *Cisco ONS 15540 ESPx System Alarms and Error Messages*
- *Cisco ONS 15540 ESPx Troubleshooting Guide*
- *Network Management for the Cisco ONS 15540 ESPx*
- *Cisco ONS 15540 ESPx TL1 Commands*
- *MIB Quick Reference for the Cisco ONS 15500 Series*
- *Cisco ONS 15540 ESPx Software Upgrade Guide*

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

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

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this 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 may have shipped with your product. The Documentation CD-ROM is updated regularly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual or quarterly subscription.

Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

All users can order monthly or quarterly subscriptions through the online Subscription Store:

http://www.cisco.com/go/subscription

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. On the Cisco Documentation home page, click **Feedback** at the top of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) website, as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC website, including TAC tools and utilities.

Cisco.com

Cisco.com offers a suite of interactive, networked services that let you access Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com provides a broad range of features and services to help you with these tasks:

- 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

To obtain customized information and service, you can self-register on Cisco.com at this URL:

http://tools.cisco.com/RPF/register/register.do

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: the Cisco TAC website and the Cisco TAC Escalation Center. The type of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration. There is little or no impact to your business operations.
- Priority level 3 (P3)—Operational performance of the network is impaired, but most business operations remain functional. You and Cisco are willing to commit resources during normal business hours to restore service to satisfactory levels.

- Priority level 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively impacted by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

- Priority level 1 (P1)—An existing network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Cisco TAC Website

The Cisco TAC website provides online documents and tools to help troubleshoot and resolve technical issues with Cisco products and technologies. To access the Cisco TAC website, go to this URL:

http://www.cisco.com/tac

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website require 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 this URL to register:

http://tools.cisco.com/RPF/register/register.do

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

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

If you have Internet access, we recommend that you open P3 and P4 cases online so that you can fully describe the situation and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. 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 automatically opens a case.

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

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

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

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:

  http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: *Internetworking Terms and Acronyms Dictionary, Internetworking Technology Handbook, Internetworking Troubleshooting Guide,* and the *Internetworking Design Guide.* For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access *Packet* magazine at this URL:

  http://www.cisco.com/go/packet

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

  http://www.cisco.com/en/US/learning/le31/learning_recommended_training_list.html

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