



CHAPTER 12

Upgrade Cards and Spans

This chapter explains how to upgrade a DS1-28/DS3-EC1-3 card to a DS1-84/DS3-EC1-3 card, and optical spans in a Cisco ONS 15310-MA.

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Troubleshooting Guide* as necessary.

Before You Begin

This section lists the chapter procedures (NTPs). Turn to a procedure for applicable tasks (DLPs).

1. [NTP-C165 Upgrade a DS1-28/DS3-EC1-3 Card to a DS1-84/DS3-EC1-3 Card, page 12-1](#)—Complete as needed.
2. [NTP-C170 Upgrade OC-N Spans Automatically, page 12-4](#)—Complete as needed.

NTP-C165 Upgrade a DS1-28/DS3-EC1-3 Card to a DS1-84/DS3-EC1-3 Card

Purpose	This task upgrades a DS1-28/DS3-EC1-3 card in a 1:1 protection scheme) to a DS1-84/DS3-EC1-3 card.
Tools/Equipment	DS1-28/DS3-EC1-3 card(s), DS1-84/DS3-EC1-3 card(s)
Prerequisite Procedures	NTP-C155 Install the Electrical Cards, page 2-20
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Caution

Protect cards must be upgraded before working cards because working cards cannot have more capabilities than their protect card.

**Note**

The ONS 15310-MA prefers to designate the cards in Slots 1 and 5 as working. If a protection group can be created with Slots 1 or 5 as the working slots, then it will do so. If Slot 1 or 5 cannot be working (due to violation of one of the other protection rules), then Slot 2 or 6 can be working. Refer to the *Cisco ONS 15310-CL and the Cisco ONS 15310-MA Reference Manual* for more information about card protection.

**Note**

During the upgrade, some minor alarms and conditions appear and then clear on their own; however, there should be no service-affecting (SA, Major, or Critical) alarms if you are upgrading protected cards. (Upgrading an unprotected card can be service affecting.) If any service-affecting alarms occur, Cisco recommends backing out of the procedure.

- Step 1** Complete the “[DLP-C29 Log into CTC](#)” task on page 17-43. If you are already logged in, continue with Step 2.
- Step 2** According to local site practice, complete the “[NTP-C102 Back Up the Database](#)” procedure on page 15-2.
- Step 3** In node view, double-click the current protect card. The card view appears.
- Step 4** Make sure the current protect card is not active:
- In card view, click the **Maintenance > Protection** tabs.
 - Select the protection group where the protect card resides.
- Step 5** If the card status is Protect/Active, perform a switch so that the protect card becomes standby:
- Click **Switch**.
 - Click **Yes** in the confirmation dialog box.
- Step 6** Physically remove the card:
- Open the card ejectors.
 - Slide the card out of the slot. This raises the IMPROPRMVL alarm, which will clear when the upgrade is complete.
- Step 7** Right-click the protect slot and change the DS1-28/DS3-EC1-3 card to the DS1-84/DS3-EC1-3 card:
- Choose **Change Card** from the drop-down list.
 - Choose the new card type (DS1_84_DS3_EC1_3) from the Change to drop-down list.
 - Click **OK**.
- Step 8** Physically insert the new DS1-84/DS3-EC1-3 card into the protect slot. Be sure to remove the plastic protective covers on rear of the card before installing the card.
- Open the ejectors on the card.
 - Slide the card into the slot along the guide rails.
 - Close the ejectors.

Wait for the IMPROPRMVL alarm to clear and the DS1-84/DS3-EC1-3 card to become standby. For more information about LED behavior during the DS1-84/DS3-EC1-3 card boot-up, see the “[NTP-C155 Install the Electrical Cards](#)” procedure on page 2-20.

- Step 9** Because the DS1-28/DS3-EC1-3 card is now active, switch traffic away from the DS1-28/DS3-EC1-3 card:
- In node view, double-click the DS1-28/DS3-EC1-3 card you are upgrading.
 - Click the **Maintenance > Protection** tabs.
 - Double-click the protection group that contains the working card.
 - Click the working card.
 - Click **Switch** and **Yes** in the Confirmation dialog box.
- Step 10** Physically remove the DS1-28/DS3-EC1-3 card you are upgrading.
- Open the card ejectors.
 - Slide the card out of the slot. This raises the IMPROPRMVL alarm, which will clear when the upgrade is complete.
- Step 11** Change the DS1-28/DS3-EC1-3 card to the DS1-84/DS3-EC1-3 card in CTC:
- Right-click the slot where you removed the DS1-28/DS3-EC1-3 card and choose **Change Card** from the drop-down list.
 - Choose the new card type from the Change to drop-down list.
 - Click **OK**.
- Step 12** Insert the DS1-84/DS3-EC1-3 card into the empty. Be sure to remove the plastic protective covers on rear of the card before installing the card:
- Open the ejectors on the card.
 - Slide the card into the slot along the guide rails.
 - Close the ejectors.
- Wait for the IMPROPRMVL alarm to clear and the card to become standby. For more information about LED behavior during DS3/EC1-48 card bootstrap, see the [“NTP-C155 Install the Electrical Cards” procedure on page 2-20](#).
- Step 13** Clear the switch you performed in [Step 9](#):
- In node view, double-click the slot where you just installed the DS1-84/DS3-EC1-3 card.
 - In the **Maintenance > Protection** tab, double-click the protection group that contains the reporting card.
 - Click the selected group.
 - Click **Switch** and click **Yes** in the confirmation dialog box.
- The protect card should now become standby.
- Step 14** As necessary, repeat Steps [3](#) through [13](#) for other DS1-28/DS3-EC1-3 cards you want to upgrade.
- Stop. You have completed this procedure.**
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NTP-C170 Upgrade OC-N Spans Automatically

Purpose	This procedure upgrades path protection spans and 1+1 protection group spans. The Span Upgrade Wizard only supports OC-N span upgrades. It does not support electrical upgrades.
Tools/Equipment	Attenuators might be needed for some applications
Prerequisite Procedures	The span upgrade procedure requires at least two technicians (one at each end of the span) who can communicate with each other during the upgrade.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher


Caution

Do not perform any other maintenance operations, such as facility or terminal loopbacks, or add any circuits during a card or span upgrade.


Note

OC-N transmit and receive levels should be in their acceptable range as shown in the specifications for each card in [Table 2-1 on page 2-29](#).


Note

During the upgrade, the IMPROPRMVL alarm might be raised. It will clear automatically.

- Step 1** Determine the type of upgrade you need to make and be sure you have the necessary cards. Valid span upgrades include:
- OC-3 to OC-12
 - OC-12 to OC-48
- Step 2** Complete the [“DLP-C29 Log into CTC” task on page 17-43](#). If you are already logged in, continue with Step 3.
- Step 3** According to local site practice, complete the [“NTP-C102 Back Up the Database” procedure on page 15-2](#).
- Step 4** Ensure that no alarms or abnormal conditions (regardless of severity), including LOS, LOF, AIS-L, signal failure (SF), signal degrade (SD), and FORCED-REQ-RING are present. See the [“DLP-C163 Check the Network for Alarms and Conditions” task on page 18-58](#) for instructions.


Note

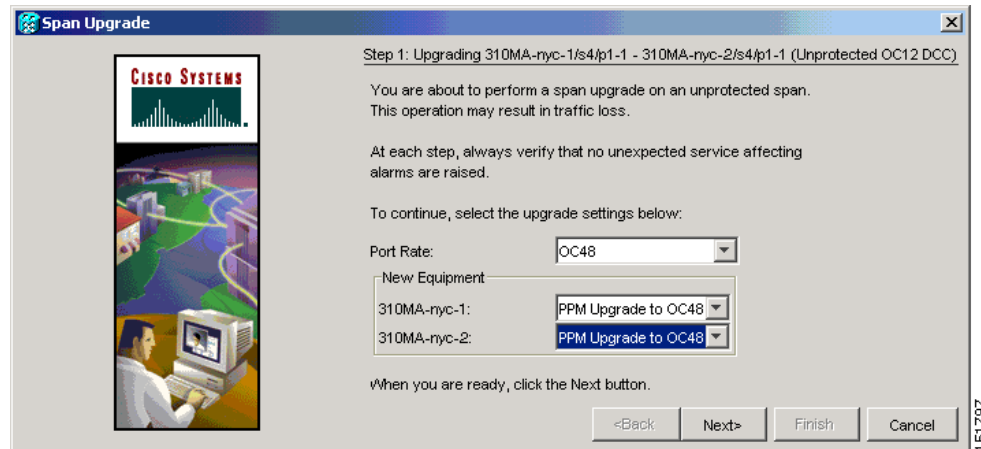
During the upgrade/downgrade some minor alarms and conditions display and then clear automatically. No service-affecting alarms (SA, Major, or Critical) should occur. Refer to the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Troubleshooting Guide* for information about alarms.

- Step 5** In network view, right-click the span you want to upgrade.
- Step 6** Choose **Span Upgrade** from the drop-down list.
- Step 7** The first Span Upgrade dialog box appears ([Figure 12-1](#)). Follow the instructions in the dialog box and the wizard will lead you through the rest of the span upgrade.



Note The Back button is only enabled in Step 2 of the wizard; because you cannot back out of an upgrade using the wizard, close the wizard and initiate the manual procedure if you need to back out of the upgrade at any point beyond Step 2.

Figure 12-1 Span Upgrade Wizard



Note The span upgrade process resets the line's CV-L threshold to factory default. The CV-L threshold is reset because the threshold is dependent on line rate.

Step 8 Repeat Steps 5 through 7 for additional spans in the ring.

Stop. You have completed this procedure.

