



Installation

This chapter describes how to unpack, install, cable, and run the power-on self-test (POST) on the GigaStack GBIC. After power on, you can manage GBIC ports as you would manage fixed ports on the switch, through the web-based Cluster Management Suite (CMS), or through the console port or a Telnet connection to access the IOS command-line interface.

Inspecting the Packing List

Before you install a GigaStack GBIC, ensure that these items are included in the package:

- GigaStack GBIC
- 50-cm cable
- GBIC clip

If anything is missing, contact your Cisco Systems customer service representative.



Note

You can order a 1-m cable separately.

EMC Regulatory Statements

This section lists international regulatory information for the GigaStack GBIC.

U.S.A.

U.S. regulatory information for this product is in the front matter of this manual.

Taiwan

This is a Class A Information product. When used in a residential environment, it may cause radio frequency interference. Under such circumstances, the user may be requested to take appropriate countermeasures.

這是甲類資訊產品，在居住環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japan

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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Korea



Warning

This is a Class A Device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this type was sold or purchased by mistake, it should be replaced with a residential-use type.

주의 A급 기기 이 기기는 업무용으로 전자파 적합 등록을 한 기기이
오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약
잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Hungary

This equipment is a Class A product and should be used and installed properly according to the Hungarian EMC Class A requirements (MSZEN55022). Class A equipment is designed for typical commercial establishments for which special conditions of installation and protection distance are used.

Figyelmeztetés a felhasználói kézikönyv számára:

Ez a berendezés "A" osztályú termék, felhasználására és üzembe helyezésére a magyar EMC "A" osztályú követelményeknek (MSZ EN 55022) megfelelően kerülhet sor, illetve ezen "A" osztályú berendezések csak megfelelő kereskedelmi forrásból származhatnak, amelyek biztosítják a megfelelő speciális üzembe helyezési körülményeket és biztonságos üzemelési távolságok alkalmazását.

Avoiding Electrostatic Discharge

Before you install the GigaStack GBIC, ground yourself by touching the metal part of the chassis to avoid electrostatic discharge (ESD). You should also keep the GigaStack GBIC in its antistatic shielded bag until you are ready for installation.

Installing a GigaStack GBIC

Gigabit Ethernet switches are shipped without the GigaStack GBIC. However, you can install the GBIC into GigaStack GBIC slots, as shown in [Figure 2-1](#).

Install a GigaStack GBIC as follows:

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- Step 1** Remove the GigaStack GBIC from its protective packaging.
 - Step 2** If you want to use the GigaStack cable connector (hereafter referred to as the clip), see the [“Attaching the GBIC Clip”](#) section on page 2-6.
 - Step 3** Grip the sides of the GBIC with your thumb and forefinger, and insert it into the GBIC slot on a switch front panel, as shown in [Figure 2-1](#), or the Catalyst 2900 XL 1000BASE-X module slot, as shown in [Figure 2-2](#).
The GigaStack GBIC is keyed to prevent incorrect insertion.
 - Step 4** Slide the GigaStack GBIC through the flap covering the opening into the slot until you hear a click. The click means the GigaStack GBIC is locked into the slot.

Figure 2-1 Inserting the GigaStack GBIC into a Switch Module Slot

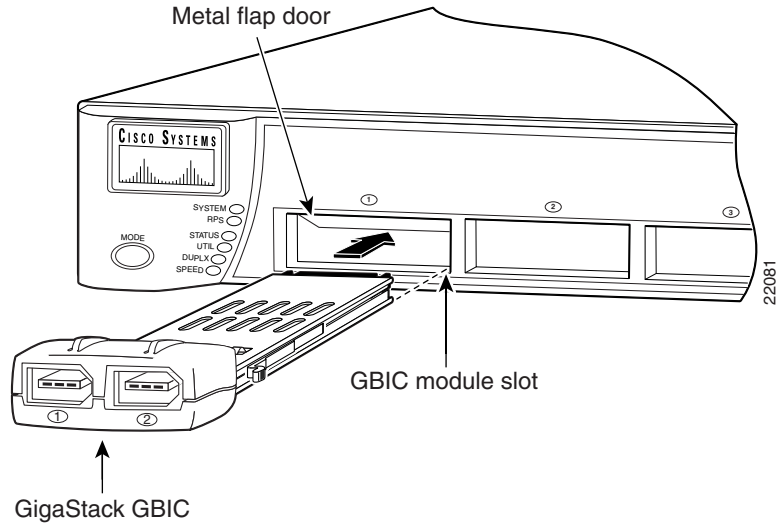
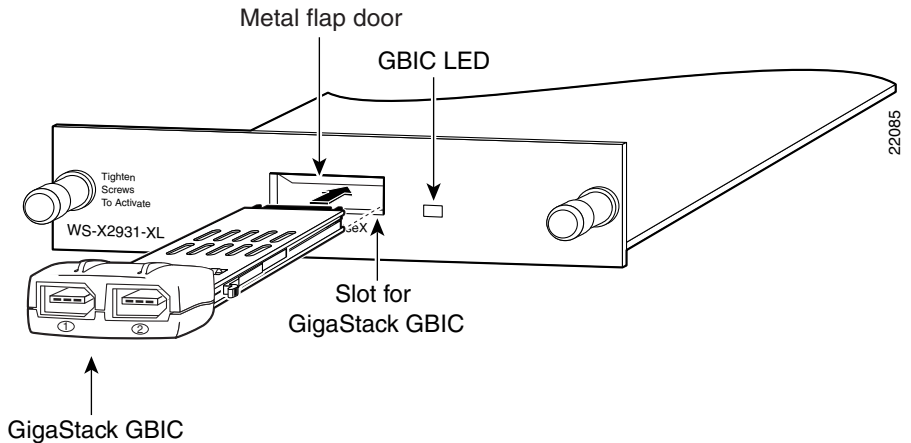


Figure 2-2 Inserting the GigaStack GBIC into a 1000BASE-X Module



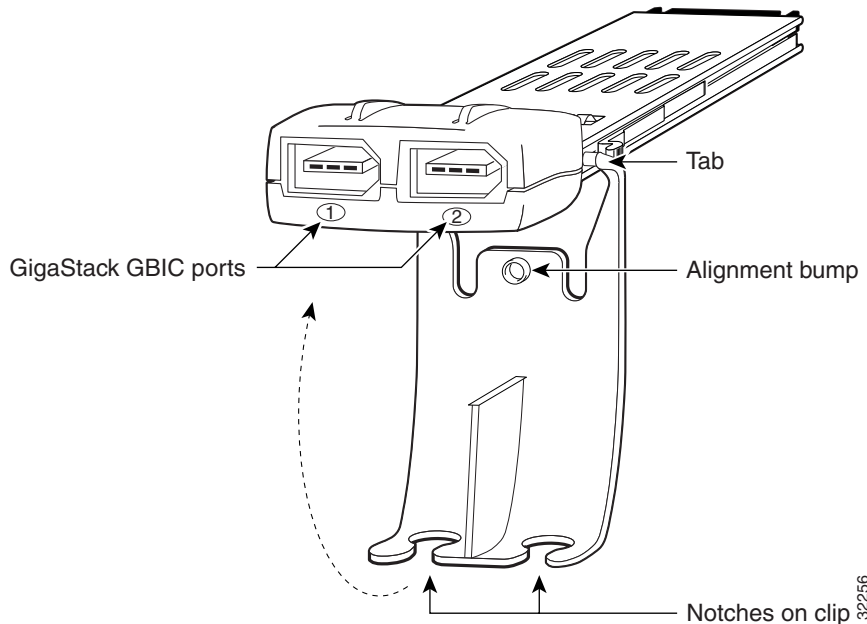
Attaching the GBIC Clip

Each GigaStack GBIC ships with a removable clip that can be attached to provide extra security against accidental cable removal. If you use the clip, you must attach it before inserting the GBIC into the slot.

Attach the clip as follows:

- Step 1** Attach the clip to the GBIC by carefully inserting the clip tabs into the slots on either side of the GBIC, in the orientation shown in [Figure 2-3](#). Slide the clip toward the port side of the GBIC.

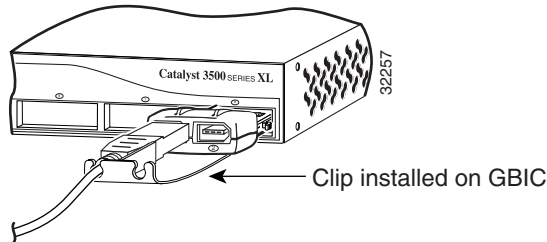
Figure 2-3 Attaching the GBIC Clip



- Step 2** Insert the cable connector into the GBIC port according to your configuration.
- Step 3** Swing the GBIC clip up toward the GBIC so that the alignment bump in the clip seats in the indentation on the GBIC bottom.

Step 4 Secure the cable in a clip notch as shown in [Figure 2-4](#).

Figure 2-4 Securing the Cables in the GBIC Clip



Step 5 Insert the GBIC into the slot. Follow the steps in the “[Installing a GigaStack GBIC](#)” section on page 2-4.

Recommended Configuration

All ports are set to autonegotiate the duplex mode for your GigaStack GBIC. You must keep this default setting; autonegotiation must not be disabled.

For information about the supporting switches and software, see the “[Switches Supporting the GBIC](#)” section on page 1-6 and the “[Minimum IOS Release for Redundant Loop Configurations](#)” section on page 1-7.

Connecting to GigaStack GBIC Ports

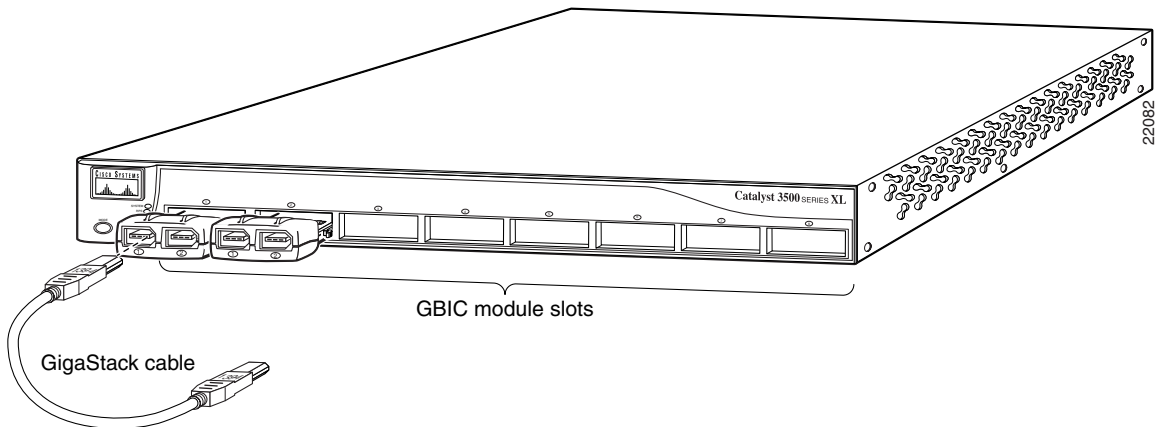
Insert the GigaStack cable connector into the GigaStack GBIC port, as shown in [Figure 2-5](#).



Note

The GBIC module slot LED is amber while the Spanning Tree Protocol discovers the topology and searches for loops. This takes about 30 seconds. The port status LED then turns green.

Figure 2-5 Inserting the Cable in a GigaStack GBIC



Note

Always use a GigaStack cable to connect a GigaStack GBIC to any device. For more information, see the [“GigaStack GBIC Cabling”](#) section on page B-1.

Creating Connections

You can create these configurations:

- Point-to-point
- Cascaded stack
- Cascaded stack with a redundant link

In a point-to-point configuration or cascaded stack configuration, the GigaStack GBIC can use the ports listed in [Table 2-1](#) to connect to other devices.

Table 2-1 Available GBIC Ports in a Point-to-Point Configuration

Device	Available GigaStack GBIC Ports
1000BASE-X module (for modular 2900 XL switches)	2
3500 XL switches	2
2950 switches	2
3550 multilayer switches	2

**Note**

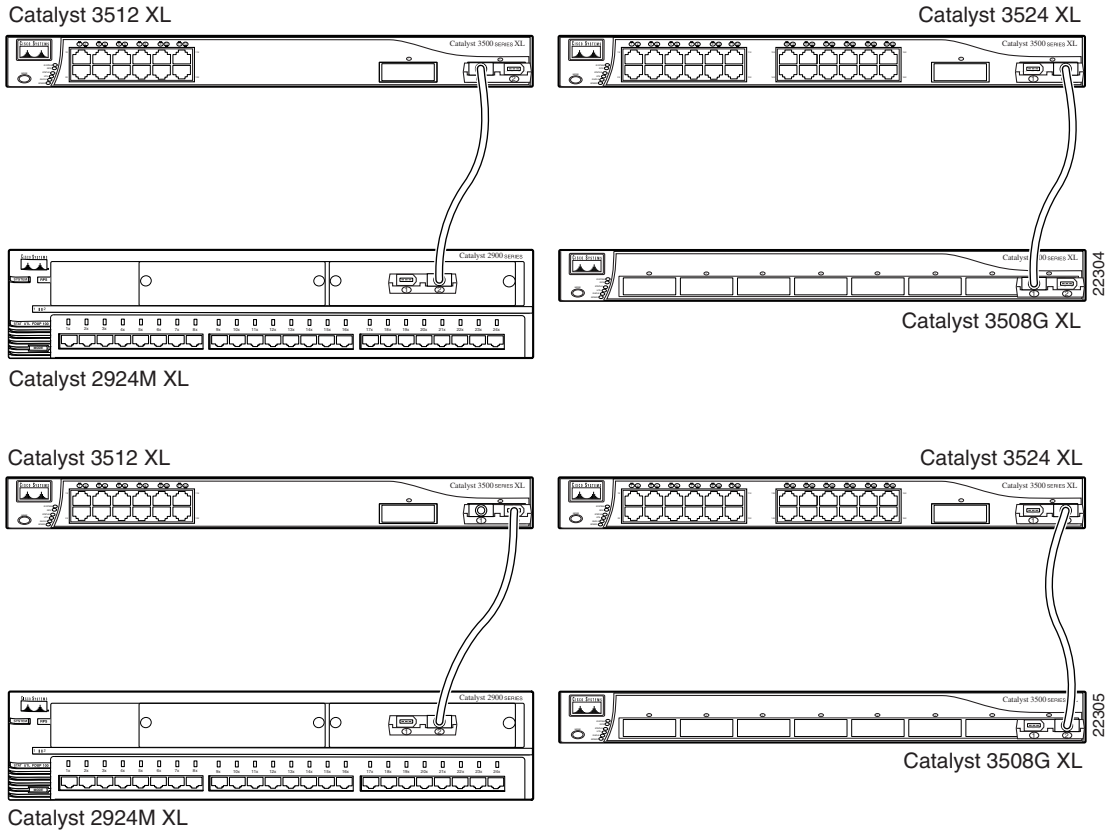
The GigaStack GBIC supports setting a trunk to IEEE 802.1Q or Inter-Switch Link (ISL) encapsulation. All GigaStack GBIC interfaces in the cascaded stack should be configured as trunk interfaces (**switchport mode trunk** interface configuration command) and to use the same encapsulation method (**switchport trunk encapsulation {isl | dot1q}** interface configuration command). For more information on these commands, refer to the command reference for your switch.

For more information, see the [“Point-to-Point Connections”](#) section on page 2-10, the [“Cascaded Stack Connections”](#) section on page 2-11, and the [“Cascaded Stack Connections with a Redundant Link”](#) section on page 2-12.

Point-to-Point Connections

A point-to-point connection operates in full-duplex mode. [Figure 2-6](#) shows an example of supporting switches with point-to-point connections.

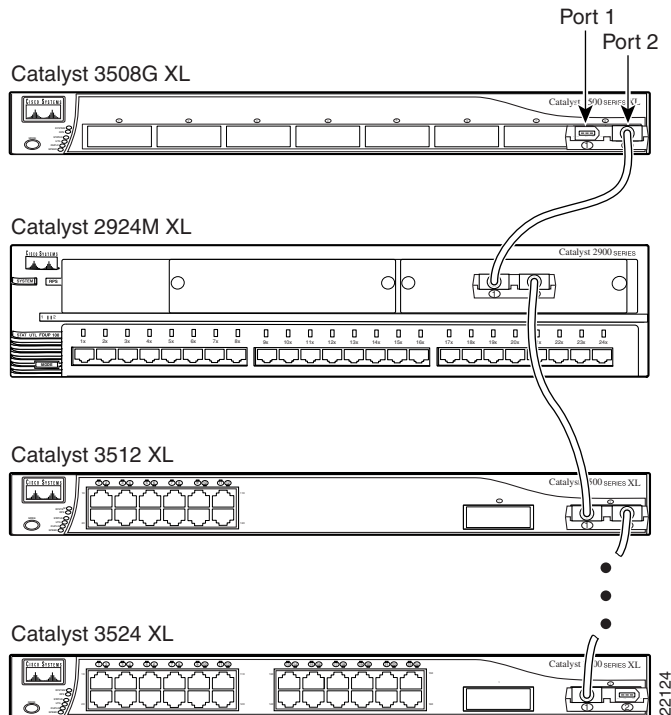
Figure 2-6 Point-to-Point Connections



Cascaded Stack Connections

You can connect from three to nine switches in a cascaded stack configuration. The cascaded stack operates in half-duplex mode. [Figure 2-7](#) shows the connections on some supporting switches.

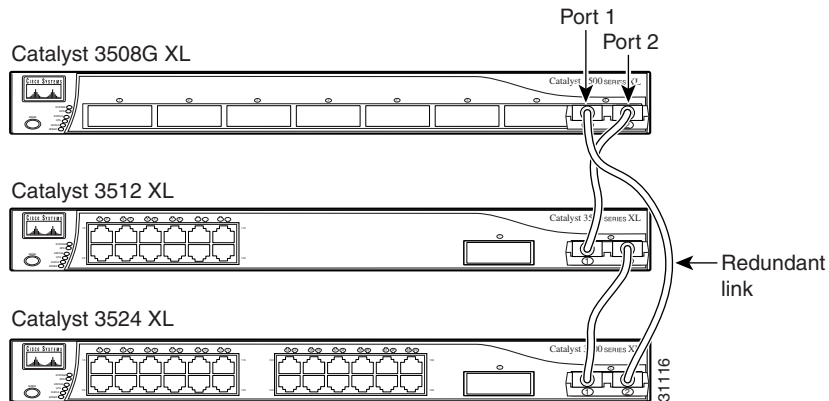
Figure 2-7 Cascaded Stack Connections



Cascaded Stack Connections with a Redundant Link

You can form a redundant link by connecting the open ports on the top and bottom GigaStack GBICs within the same stack, as shown in [Figure 2-8](#).

Figure 2-8 Cascaded Stack Connections with a Redundant Link



The GigaStack GBIC software detects the loop configuration by the way the cables are connected and the number of switches used in the stack. The software uses one of the GigaStack GBIC links as the redundant link, which is disabled for data transmission while all the other links in the stack are up. When any other link in the stack is down, the redundant link is automatically enabled for data transmission. To ensure continued connectivity, the software periodically checks for changes in the stack and invokes the loop detection algorithm if a new link is added to the cascaded stack or if a link is removed from the cascaded stack.

GigaStack GBICs installed in a stack support a loop configuration only if *every* Catalyst 2900 XL and 3500 XL switch in the stack is running IOS software Release 12.0(5)XU or later, Release 12.1(6)EA2 or later for Catalyst 2950 switches, and Release 12.1(4)EA1 or later for Catalyst 3550 switches.

For Catalyst 2900 XL and 3500 XL switches running IOS software earlier than Release 12.0(5)XU, an illegal loop is created under these conditions:

- A GigaStack GBIC is connected to two other GBIC ports in the same stack.
- A single GigaStack GBIC cable is inserted in port 1 and port 2 of the same GBIC.

**Caution**

A loop causes excessive collision errors on the port and can cause the link to become unstable. This instability decreases performance on the links, and communication between the switches in the stack is adversely affected.

If a Catalyst switch is connected through its GigaStack GBIC to another switch's GigaStack GBIC that does not support loop detection, the GBIC LEDs turn these colors:

- The GigaStack GBIC LED on the switch *without* loop detection turns green almost immediately.
- The GigaStack GBIC LED on the switch *with* loop detection flashes green for 15 seconds and then turns green.

As a result, all GBIC links are enabled if no loop is created. If a loop is present, the software does not detect it, excessive collisions occur on these ports, no traffic passes through the stack, and the GigaStack GBIC LEDs remain green.

To avoid problems with loop configurations, make sure that all switches in your stack are running the appropriate IOS release as shown in [Table 1-5 on page 1-8](#). For more information, see the [“Minimum IOS Release for Redundant Loop Configurations” section on page 1-7](#). For switch software upgrade information, refer to the release notes for your switch.

Removing a GigaStack GBIC

Remove a GigaStack GBIC as follows:

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- Step 1** Release the GigaStack GBIC from the slot by simultaneously squeezing the two plastic tabs (one on each side of the GigaStack GBIC).
- Step 2** To remove, slide the GigaStack GBIC out of the slot. A flap drops down to protect the internal connector.

- Step 3** If you are using the GBIC clip to secure the GBIC cables, remove the clip from the GigaStack GBIC by pulling the tabs from the slots on the GBIC. Remove the cables from the notches in the clip.
- Step 4** Disconnect the cable from the GigaStack GBIC port.
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**Warning**

Ultimate disposal of this product should be handled according to all national laws and regulations.

Power-On Self-Test

All supporting switches perform a power-on self-test (POST) on the GigaStack GBIC. When you insert the GigaStack GBIC into the switch or module slot, the port LED on the switch or module turns amber while STP checks for possible loops and then turns green. When you insert a GigaStack GBIC cable into the GBIC port, the GigaStack GBIC port turns green if there is network connectivity; no additional configuration is needed. For more information about the LED meanings, see the [“GigaStack GBIC LEDs”](#) section on page 1-2 and the [“GBIC Module Slot LEDs”](#) section on page 1-3.