Installing the Cisco G.SHDSL Network Interface Module

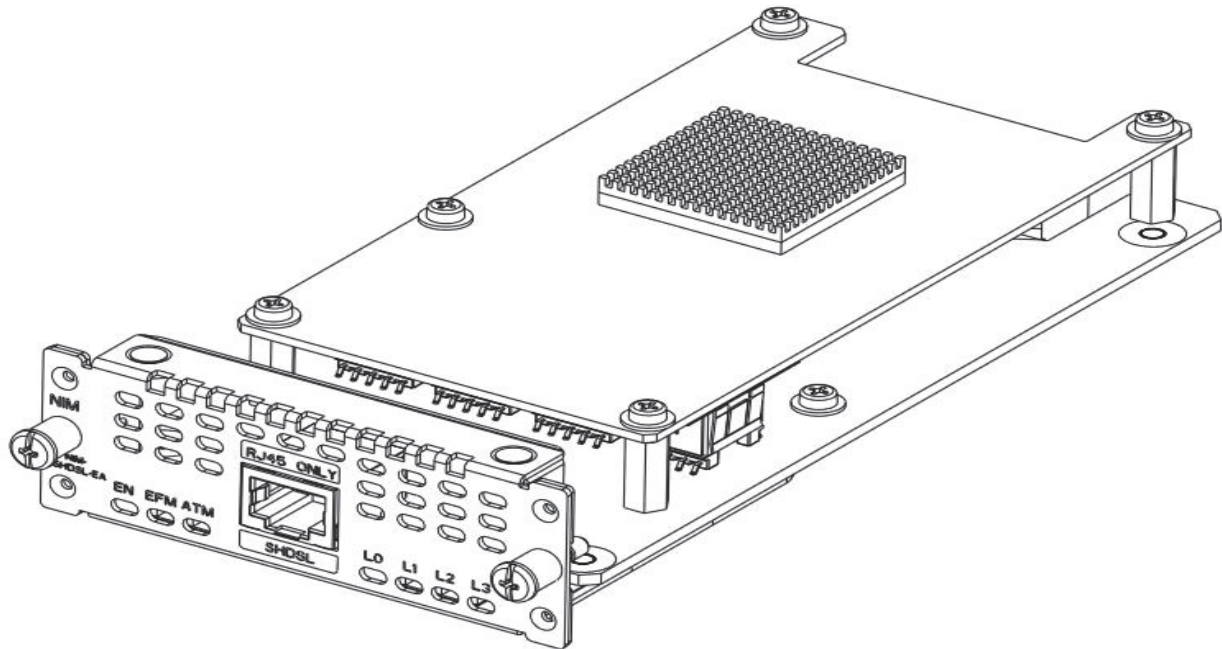**First Published:** May 24, 2018

This document provides information that you should know before and during the installation of the Cisco G.SHDSL Network Interface Module (NIM) in the Cisco 4000 Series Integrated Services Routers (Cisco 4000 Series ISRs).

Overview

The Cisco G.SHDSL NIM is inserted into the NIM slot of the Cisco 4000 Series ISRs. The Cisco G.SHDSL NIM provides reliable WAN connections for remote sites. The Cisco G.SHDSL NIM operates in Asynchronous Transfer Mode (ATM) or Ethernet In The First Mile (EFM).

Figure 1 shows the Cisco G.SHDSL NIM and Table 1 provides the description.

Figure 1   Cisco G.SHDSL NIM

Table 1   Description of the Cisco G.SHDSL NIM

Cisco G.SHDSL NIM SKU	Description
NIM-4SHDSL-EA	Multi-mode SHDSL. The NIM supports: ■ Lantiq Socrates-4e chipset ■ NXP P1021 Processor, Dual Core, 800Mhz ■ Multimode ATM traffic class ■ Dying Gasp ■ Secure Boot ■ Creation of DSL groups up to 4 ■ Selection of ATM and EFM modes ■ NIM Mechanical Form Factor ■ 1000BASE-X backplane interface ■ NGIO compliant ■ Module hot swap

Recommended Practices for Cisco G.SHDSL NIM

This section describes recommended practices for safe and effective installation of the hardware described in this document.

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Preventing Electrostatic Discharge Damage

Electrostatic discharge can damage equipment and electrical circuitry. Electrostatic discharge occurs when electronic printed circuit cards, such as those used in Cisco service modules and network modules, are improperly handled and can result in complete or intermittent equipment failure. Always observe the following electrostatic discharge damage (ESD) prevention procedures when installing, removing, or replacing any electronic printed circuit cards:

- Make sure that the router chassis is electrically connected to earth ground.

- Wear an ESD-preventive wrist strap, and make sure that it makes good contact with your skin.

- Connect the wrist strap clip to an unpainted portion of the chassis frame to channel unwanted ESD voltages to ground.

Caution: **The wrist strap and clip must be used correctly to ensure proper ESD protection. Periodically confirm that the resistance value of the ESD-preventive wrist strap is between 1 and 10 megohms (Mohm).**

- If no wrist strap is available, ground yourself by touching the metal part of the router chassis.

General Maintenance Guidelines

The following maintenance guidelines apply to the Cisco G.SHDSL NIM:

- Keep the router chassis area clear and dust-free during and after installation.

- If you remove the chassis cover for any reason, store it in a safe place.

- Do not perform any action that creates a hazard to people or makes equipment unsafe.

- Keep walk areas clear to prevent falls or damage to equipment.

- Follow installation and maintenance procedures as documented by Cisco Systems, Inc.

Safety Warnings

The following safety warning statements apply to all hardware procedures involving the Cisco G.SHDSL NIM for Cisco 4000 Series ISRs. Translations of these warnings are available in the *Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information* document, which ships with all individual Cisco G.SHDSL NIM orders, and is also available online.

Warning: **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Warning: **Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001

Warning: **Read the installation instructions before using, installing, or connecting the system to the power source.** Statement 1004

Warning: **To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Both LAN and WAN ports may use RJ-45 connectors. Use caution when connecting cables.** Statement 1021

Warning: **Hazardous network voltages are present in WAN ports regardless of whether power to the router is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the router first.** Statement 1026

Warning: **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

Warning: **Ultimate disposal of this product should be handled according to all national laws and regulations.** Statement 1040

Warning: **Installation of the equipment must comply with local and national electrical codes.** Statement 1074

Cisco G.SHDSL NIM

Figure 2 shows the front panel of the Cisco G.SHDSL NIM. The LEDs are described in Table 2.

Figure 2   Cisco G.SHDSL NIM Front Panel
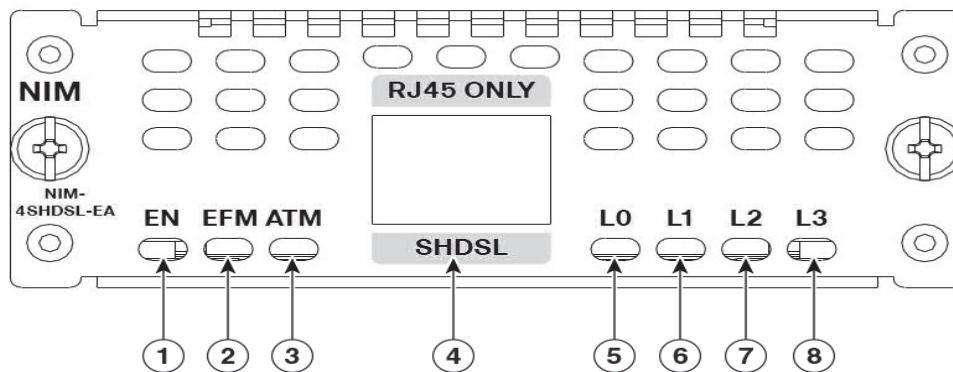
1	EN LED	2	EFM LED
3	ATM LED	4	SHDSL (RJ45 Only)
5	L0 LED	6	L1 LED
7	L2 LED	8	L3 LED

LEDs

The LEDs are located on the front panel of the Cisco G.SHDSL NIM and are described in Table 2.

Table 2   Cisco G.SHDSL NIM LEDs

LEDs	Color	Description
EN	Green	Operating System is running.
EFM	Green	Indicates EFM mode.
ATM	Green	Indicates ATM mode.
L0, L1, L2, L3	Green	Link is active.
	Off	Link is inactive or not configured.
	Amber	Link alarm.
	Blinking Green	Link is training.

Installing the Cisco G.SHDSL NIM

This section describes the installation tasks for installing the Cisco G.SHDSL NIM into a Cisco 4000 Series ISR.

Tools and Equipment Required During Installation

You will need the following tools and equipment while working with the Cisco G.SHDSL NIM:

- Number 1 Phillips screwdriver or a small flat-blade screwdriver

- ESD-preventive wrist strap

Warning: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

Installing the Cisco G.SHDSL NIM into the Cisco 4000 Series ISRs

Procedure

1. Shut down the electrical power to the slot in the router either by turning off the electrical power to the router or by issuing the online insertion and removal (OIR) commands. Leave the power cable plugged in to channel ESD voltages to ground. For more information on OIR, see "Managing Cisco Enhanced Services and Network Interface Modules" in the *Cisco 4000 Series ISRs Software Configuration Guide.*

2. Remove all network cables, including telephone cables, from the rear panel of the router.

3. Remove the blank faceplates installed over the NIM slot that you intend to use.

   Note: Save the blank faceplates for future use.

4. Align the NIM with the guides in the chassis walls or slot divider and slide it gently into the NIM slot on the router.

5. Push the NIM into place until you feel the edge connector seat securely into the connector on the router backplane. The NIM faceplate should contact the chassis rear panel.

6. Using a number 1 Phillips or flat-blade screwdriver, tighten the captive screws on the NIM.

7. Connect the NIM to the network and re-enable the power to the slot in the router.

   Note: See the Related Documents for information on locating additional hardware documentation.

Removing the Cisco G.SHDSL NIM from the Cisco 4000 Series ISRs

Procedure

1. Shut down the electrical power to the slot in the router either by turning off the electrical power to the router or by issuing the online insertion and removal (OIR) commands. Leave the power cable plugged in to channel ESD voltages to ground. For more information on OIR, see "Managing Cisco Enhanced Services and Network Interface Modules" in the *Cisco 4000 Series ISRs Software Configuration Guide.*

2. Remove all network cables, including telephone cables, from the rear panel of the router.

3. Using a number 1 Phillips or flat-blade screwdriver, loosen the captive screws on the NIM.

4. Slide the NIM out.

5. If you are not replacing the NIM, install a blank faceplate over the empty slot to ensure proper air flow.

Related Documents

Related Topic	Document Title
Information about installing the Cisco 4000 Series ISRs.	Hardware Installation Guide for the Cisco 4000 Series Integrated Services Router
Information about configuring the Cisco 4000 Series ISRs.	Cisco 4000 Series ISRs Software Configuration Guide
Information about configuring the Cisco G.SHDSL NIMs.	Configuring Cisco Multimode G.SHDSL EFM/ATM in Cisco ISR 4000 Series Routers
Information about DSLAM interoperability.	Cisco Multimode VDSL2 and ADSL2/2 Network Interface Module Data Sheet
Regulatory compliance and safety information	Cisco Network Modules, Server Modules, and Interface Cards Regulatory Compliance and Safety Information

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