



Cisco 4G LTE Wireless WAN EHWIC

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This document provides an overview of the hardware and installation information for Cisco EHWIC-4G-LTEs. Cisco EHWIC-4G-LTEs are single-wide 4G wireless WAN (WWAN) EHWICs supported on Cisco Integrated Services Routers Generation 2 (ISRs G2).

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Hardware Overview

Cisco EHWIC-4G-LTEs operate over Fourth Generation (4G) Long-Term Evolution (LTE) cellular networks and Third Generation (3G) cellular networks.

Cisco EHWIC-4G-LTEs are single-wide EHWICs supported on Cisco 1900 Series, 2900 Series, and 3900 Series ISRs G2.

The following sections describe the Cisco EHWIC-4G-LTEs:

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Cisco 4G WWAN EHWICs

Table 1 describes the Cisco 4G WWAN EHWIC product SKUs.

Table 1 Cisco 4G EHWIC by Mode, Operating Region, and Frequencies

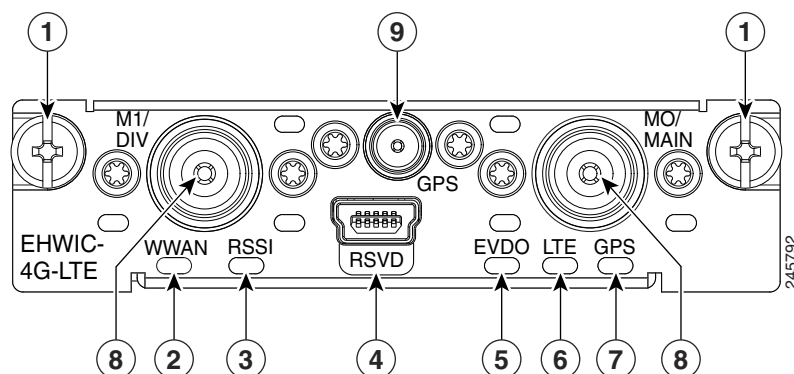
Cisco 4G EHWIC	Mode	Operating Regions	Frequency Band
EHWIC-4G-LTE-V	LTE—DOrA ¹	North America	LTE 700 MHz (band 13) CMDA ² 800, 1900 MHz UMTS WCDMA/HSDPA/HSUPA/HSPA+ 850, 900, 1900, 2100 MHz GSM, GPRS, EDGE 850, 900, 1800, 1900 MHz

1. DOrA = evolution data only (EVDO) revision A.
2. CDMA = code division multiple access.

Cisco EHWIC-4G-LTE Ports and LEDs

Figure 1 shows the EHWIC-4G-LTE front panel. Table 2 lists the ports and the LED indicators and describes their behavior. The LEDs provide a visual indication of your available services.

Figure 1 Front Panel of the Cisco EHWIC-4G-LTE



1	Mounting Screws	2	LED—WWAN
3	LED—RSSI ¹	4	RSVD (reserved) port, USB 2.0 mini type B
5	LED—EVDO ²	6	LED—LTE
7	LED—GPS ³	8	Antenna Connectors—M1/DIV, M0/MAIN
9	Antenna Connector—GPS		

1. RSSI = received signal strength indicator.
2. EVDO = evolution data only.
3. GPS = global positioning system.

Table 2 describes the Ports and LEDs for the EHWIC-4G-LTE.

Table 2 Cisco EHWIC-4G-LTE Ports and LED Indicators

Ports, Connectors	Description
RSVD	The RSVD (reserved) diagnostic port is not required for normal activation or operation. This port supports modem debug or provisioning. See the “Modem Troubleshooting Using the Diagnostic Port” section in Configuring Cisco 4G LTE Wireless WAN EHWIC for details.
Antenna Connectors	M1/DIV—Diversity antenna connector, female TNC ¹ . M0/MAIN—Main antenna connector, female TNC. GPS—GPS antenna connector, female SMA ² . See the “Supported Cisco Antennas and Cables” section on page 4 for details.
LEDs	Description
WWAN	Indicates the EHWIC modem status. Solid green —Indicates the modem is receiving power and is associated and authenticated, but not receiving or transmitting data. Fast green Blink —Indicates the modem is receiving power and is associated and authenticated. The blink rate is proportional to the transmitted and received data rate. Slow green blink —Indicates the modem is receiving power, but is not associated or authenticated and searching for service. Check the antenna, cable, SIM card, or the user account with your service provider. Off —Indicates the modem is in reset mode.
RSSI	Indicates the level of signal strength received by the EHWIC software. Solid green —Indicates a high RSSI (greater than –69 dBm). Medium green blink —Indicates a medium level RSSI (from –89 dBm to –69 dBm). Slow green blink —Indicates a low level RSSI (from –99 dBm to –89 dBm). Off —Indicates the RSSI is less than –99 dBm. Check for proper antenna attachment. Adjust antenna placement and orientation. Solid amber —Indicates no service is detected. Relocate the equipment.
EVDO	Indicates either HSDPA or EVDO is in service. Solid green —Indicates HSDPA is in service. Blinking green —Indicates EVDO service is in use. Off —Indicates that neither HSDPA nor EVDO services are in use.

Table 2 Cisco EHWIC-4G-LTE Ports and LED Indicators (continued)

LTE	<p>Indicates whether LTE is in service.</p> <p>Solid green—Indicates LTE is in service.</p> <p>Off—Indicates LTE service is not being used.</p>
GPS	<p>Indicates whether the GPS is in service.</p> <p>Solid green—GPS is active.</p> <p>Off—Indicates the GPS is not active or not detected.</p>

1. TNC = threaded Neill-Concelman.
2. SMA = subminiature version A.

Supported Cisco Antennas and Cables

Table 3 lists the Cisco antennas that are supported for use on the Cisco 4G WWAN EHWIC.

Table 3 Supported Antennas

Cisco Part Number	Description	Maximum Gain and Frequency Ranges	Notes
4G-LTE-ANTM-D	Indoor 4G dipole omnidirectional	2 dBi <ul style="list-style-type: none"> • 698-806 MHz • 824-894 MHz • 925-960 MHz • 1710-1885 MHz • 1920-1980 MHz • 2110-2170 MHz • 2500-2690 MHz 	Multiband dipole antenna. For more information, see Cisco 4G/3G Omnidirectional Dipole Antenna (4G-LTE-ANTM-D) .
4G-ANTM-OM-CM	Indoor ceiling-mount omni-directional	698 MHz-2690 MHz	Multiband omnidirectional ceiling-mount antenna. For more information, see Cisco 4G Indoor Ceiling-Mount Omnidirectional Antenna (4G-ANTM-OM-CM) .
4G-AE010-R	Extension base with integral 10-foot cable	0.7-6.0 GHz	This is the default antenna extension base. For more information, see Cisco Single-Port Antenna Stand for Multiband TNC Male-Terminated Portable Antenna (Cisco 4G-AE015-R, Cisco 4G-AE010-R) .



Note

You can use the RG-174/U type cables to adapt the modem external antenna connection to any of the EHWIC cables and antennas.

Table 4 lists loss information and operating frequency levels for the ultra-low-loss (ULL) LMR 200 cables and LMR 400 cables available from Cisco for use with Cisco 4G Wireless WAN EHWICs and Cisco 4G Wireless WAN ISR platforms.

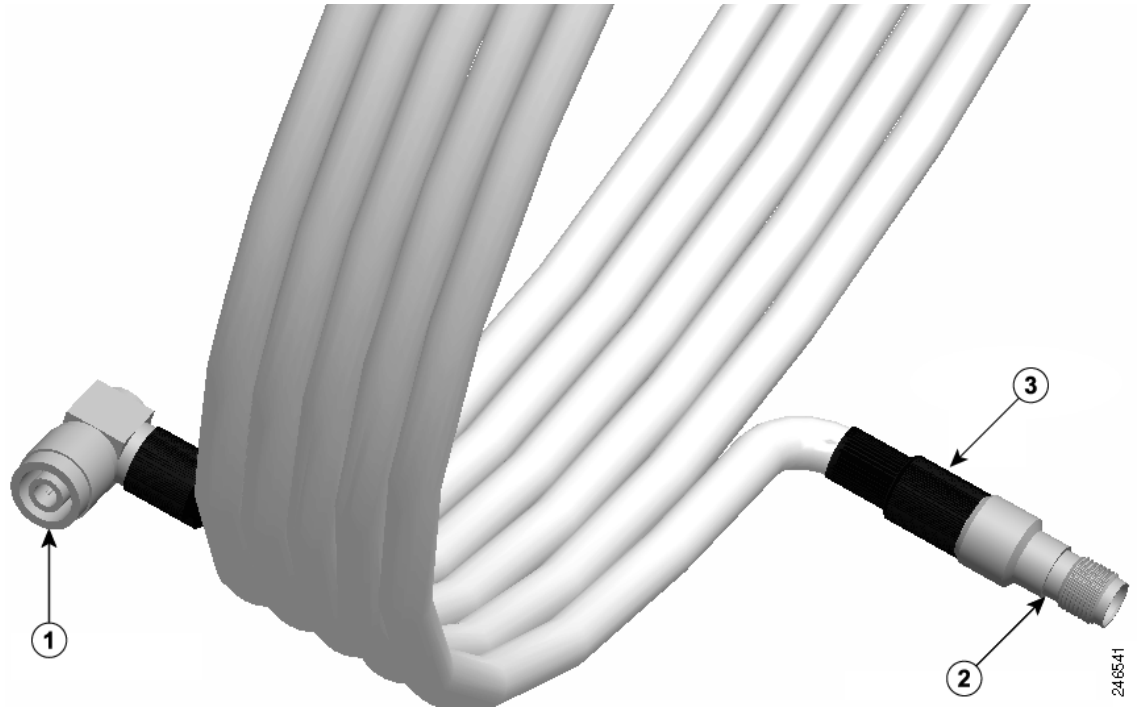
Table 4 Cisco Extension Cables for Use with 4G EHWICs

Cisco Product Number	Cable Length	Maximum Insertion Loss	Frequency (MHz)	Color	Plenum Rated? ¹
4G-CAB-ULL-20	20 ft (6 m)	1.50 dB	800–1000 MHz 1700–2600 MHz	White	Yes
4G-CAB-ULL-50	50 ft (15 m)	3.50 dB	800–1000 MHz 1700–2600 MHz	White	Yes
4G-CAB-LMR240-25	25 ft (7.5 m)	2.1 dB @ 700 MHz 4.0 dB @ 2.6 GHz	800–1000 MHz 1700–2600 MHz	Black	Yes
4G-CAB-LMR240-50	50 ft (15 m)	4.1 dB @ 700 MHz 7.4 dB @ 2.6 GHz	800–1000 MHz 1700–2600 MHz	Black	Yes
4G-CAB-LMR240-75	75 ft (23 m)	6.1 dB @ 700 MHz 11.0 dB @ 2.6 GHz	800–1000 MHz 1700–2600 MHz	Black	Yes
4G-AE010-R	10 ft (3 m)	1.4 dB @ 700 MHz 2.0 dB @ 1.9 GHz 2.1 dB @ 2.1 GHz 2.3 dB @ 2.5 GHz 2.4 dB @ 2.7 GHz	700–2600 MHz	Black	No

1. Cable can be routed within building plenum spaces.

Figure 2 shows the ULL coaxial cable recommended for Cisco 4G Wireless WAN EHWICs.

Figure 2 **Typical Coaxial Cable**

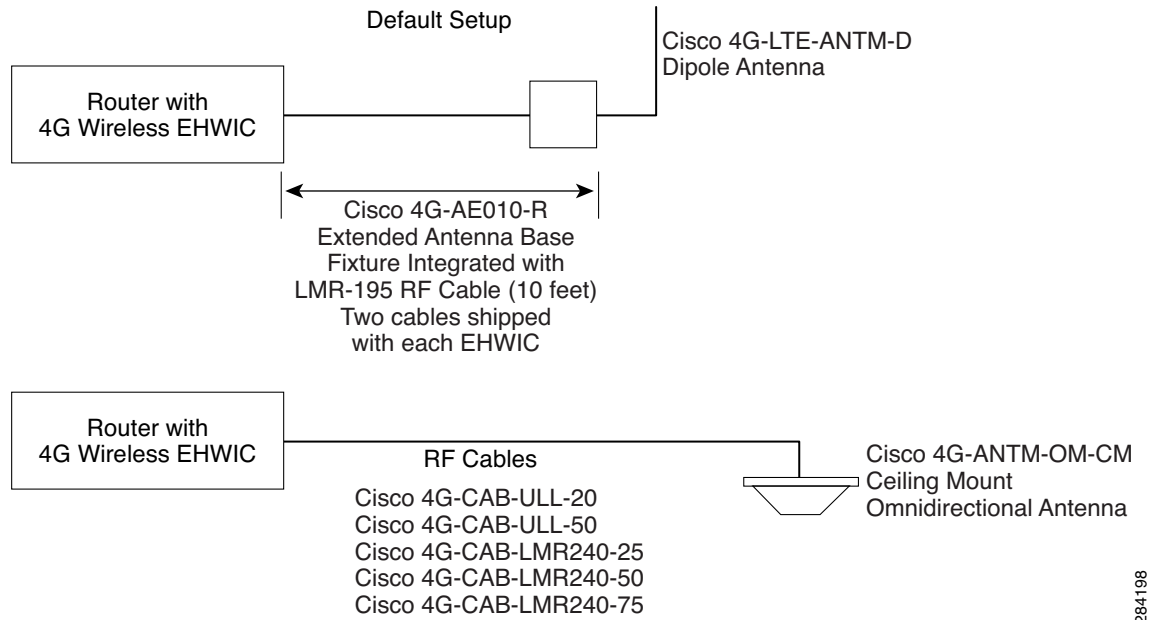


1	TNC Male RA ¹	3	Heat Shrink Tube
2	TNC Female Straight		

1. RA = Right angle.

Figure 3 shows some antenna options for the Cisco 4G Wireless WAN EHWICs.

Figure 3 **Antenna Options**

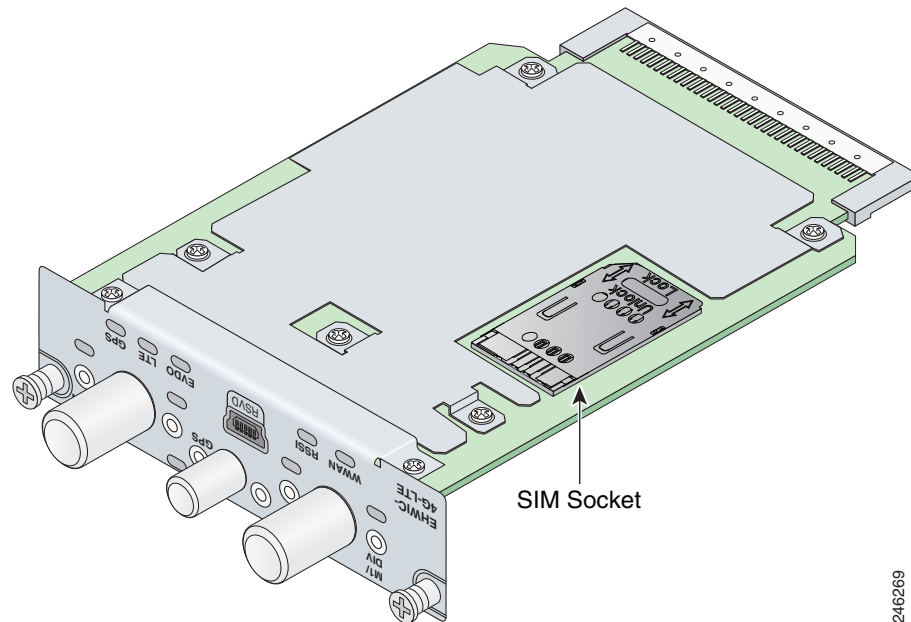


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Installing the SIM card on the Cisco EHWIC-4G-LTE

The SIM card socket is located on the bottom side of the EHWIC, as shown in [Figure 4](#). The cover of the SIM card socket contains a slot into which the SIM card is installed.

Figure 4 Location of the SIM Socket on the Bottom Side of the EHWIC

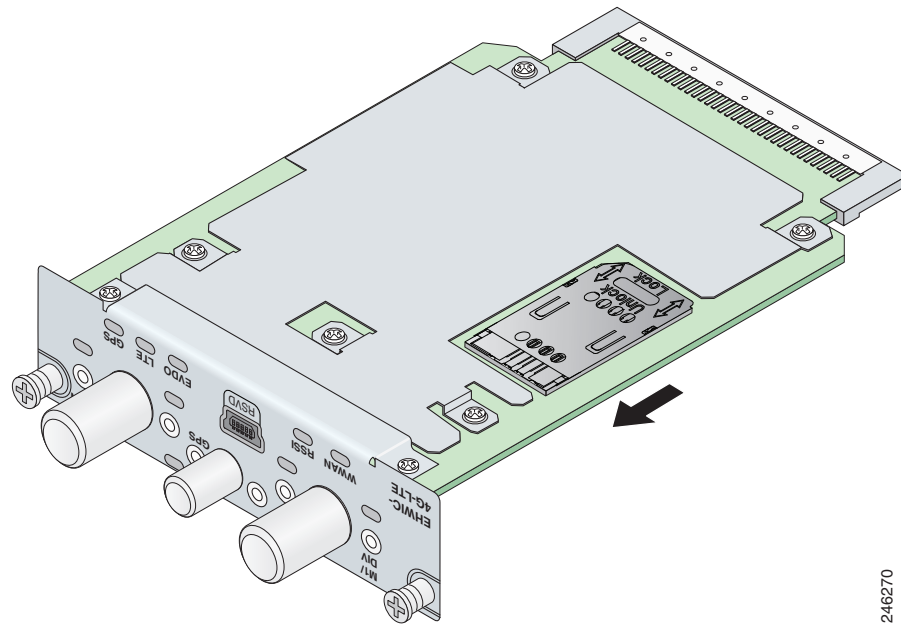


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Follow these steps to install the SIM card:

-
- Step 1** To unlock the SIM socket cover, slide the cover toward the faceplate in the direction of the unlock arrow, as shown in [Figure 5](#).

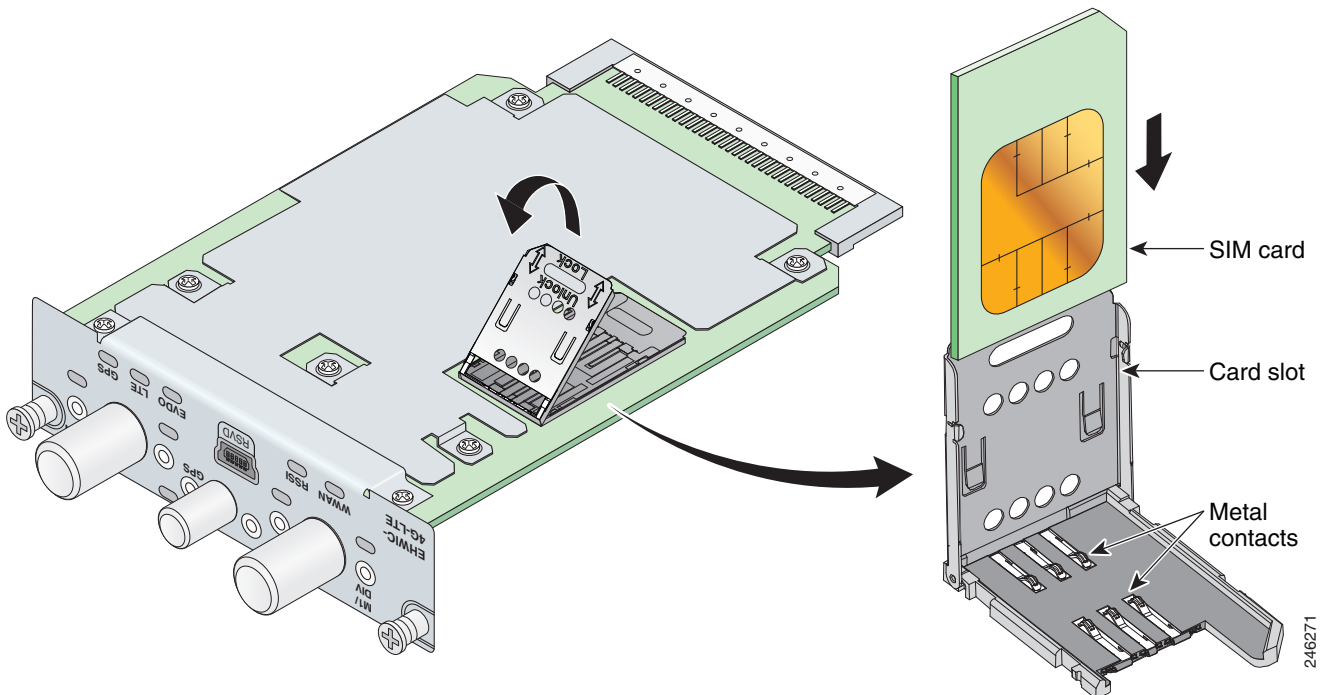
Figure 5 *Unlock the SIM Socket Cover*



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Step 2 Gently lift the cover on its hinges and slide the SIM card into the slot in the cover, as shown in [Figure 6](#).

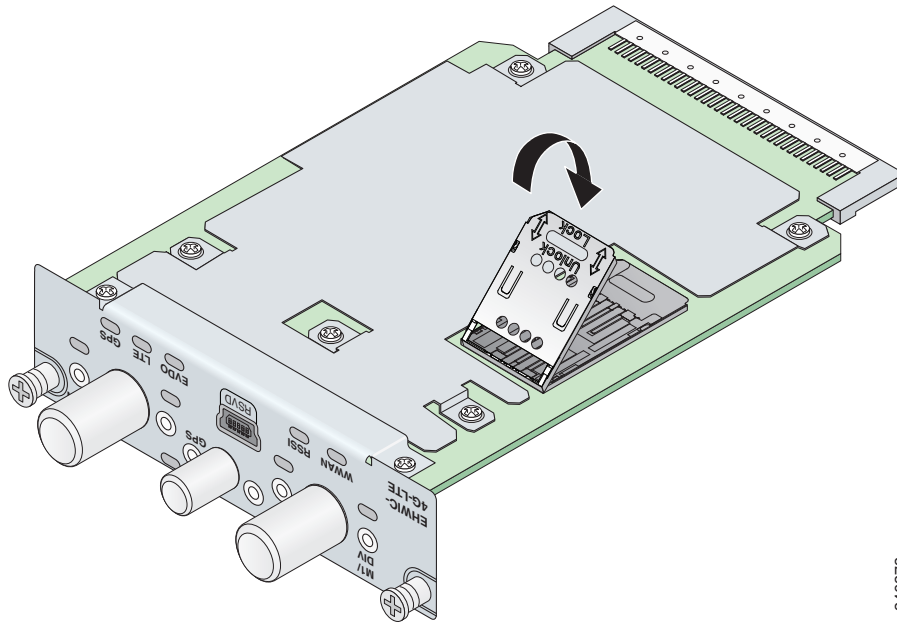
Figure 6 *Slide SIM card into Slot*



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Step 3 Gently push down the cover to close, as shown in [Figure 7](#). The SIM card will come in contact with the metal contacts in the socket.

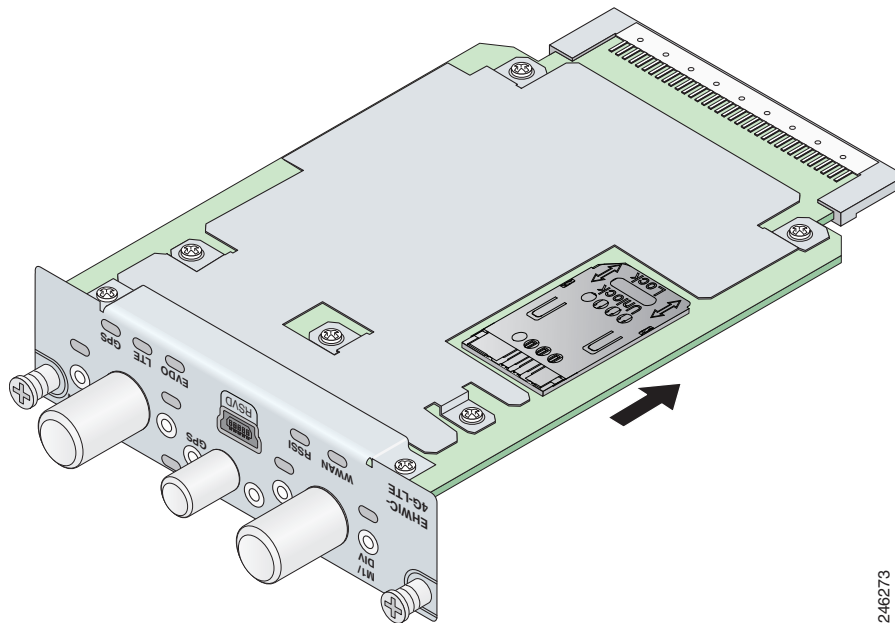
Figure 7 Close the SIM Socket Cover



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Step 4 To lock the cover, slide it away from the faceplate in the direction of the lock arrow, as shown in [Figure 8](#).

Figure 8 Lock the SIM Socket Cover



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Installing Cisco EHWIC-4G-LTE

See *Installing Cisco Interface Cards in Cisco Access Routers* for instructions on how to install a single-wide interface card in Cisco access routers.

Additional References

Related Documents

Related Topic	Document Title
Regulatory, compliance, and safety information	<ul style="list-style-type: none"> • <i>Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information</i> http://www.cisco.com/en/US/docs/routers/access/interfaces/rcsi/IOHrcsi.html
Supported Cisco antennas and cables	<ul style="list-style-type: none"> • <i>Installing Cisco Interface Cards in Cisco Access Routers</i> http://www.cisco.com/en/US/docs/routers/access/interfaces/ic/hardware/installation/guide/inst_ic.html • <i>Cisco 4G/3G Omnidirectional Dipole Antenna (4G-LTE-ANTM-D)</i> http://www.cisco.com/en/US/docs/routers/access/wireless/hardware/notes/4G3G_ant.html • <i>Cisco 4G Indoor Ceiling-Mount Omnidirectional Antenna (4G-ANTM-OM-CM)</i> http://www.cisco.com/en/US/docs/routers/access/wireless/hardware/notes/antcm4gin.html • <i>Cisco Single-Port Antenna Stand for Multiband TNC Male-Terminated Portable Antenna (Cisco 4G-AE015-R, Cisco 4G-AE010-R)</i> http://www.cisco.com/en/US/docs/routers/access/wireless/hardware/notes/4Gantex15-10r.html • <i>Cisco 4G Lightning Arrestor (4G-ACC-OUT-LA)</i> http://www.cisco.com/en/US/docs/routers/access/wireless/hardware/notes/4Glar.html
Software Feature and Configuration	<ul style="list-style-type: none"> • <i>Configuring Cisco 4G Wireless WAN EHWIC</i> http://www.cisco.com/en/US/docs/routers/access/interfaces/software/feature/guide/EHWIC-4G-LTESW.html

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

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