

Third-Generation Wireless Wan High-Speed WAN Interface Cards

The Cisco® Third-Generation (3G) Wireless WAN (WWAN) High-Speed WAN Interface Cards (HWICs) for Cisco Integrated Services Routers provide the next generation of wireless WAN backup solutions.

Product Overview

The Cisco 3G WWAN HWICs are the first enterprise-class 3G WWAN solution. Suitable for both backup and primary applications, the Cisco 3G WWAN HWICs support the latest CDMA and GSM/UMTS standards (EVDO Rev A and HSDPA) and are backward compatible with the widely deployed networks (1xRTT, GPRS/EDGE). The Cisco 3G WWAN HWICs are tightly integrated with the services provided on the award-winning Cisco Integrated Services Routers, which deliver secure data, voice, video, and mobility services. The Cisco 3G WWAN HWICs are supported on the modular Cisco 1841 Integrated Services Router and Cisco 2800 Series and 3800 Series Integrated Services Routers.

Enterprises are looking for ways to reduce costs, increase revenue, and improve business continuity. The Cisco 3G WWAN HWICs, when coupled with a service provider wireless data plan, provide a cost-effective, rapidly deployable, reliable, and secure backup solution for remote sites and branch offices. With data rates approaching T1 speeds, 3G Networks provide an alternative to wireline backup solutions such as ISDN, cable, and DSL. In the event of a network failure, the Cisco Integrated Services Router routes mission-critical data to the Cisco 3G WWAN HWIC for transmission across the wireless infrastructure. In addition, the router can distinguish different types of traffic and allow only mission-critical traffic to flow over the backup interface.

The 3G Wireless WAN HWICs are available in two different SKUs. The CDMA SKU is called HWIC-3G-CDMA-x (where x reflects the Wireless Carrier) and the GSM SKU is called HWIC-3G-GSM. Figure 1 shows the both these cards.

Figure 1. 3G Wireless WAN HWICs for Cisco Integrated Services Routers



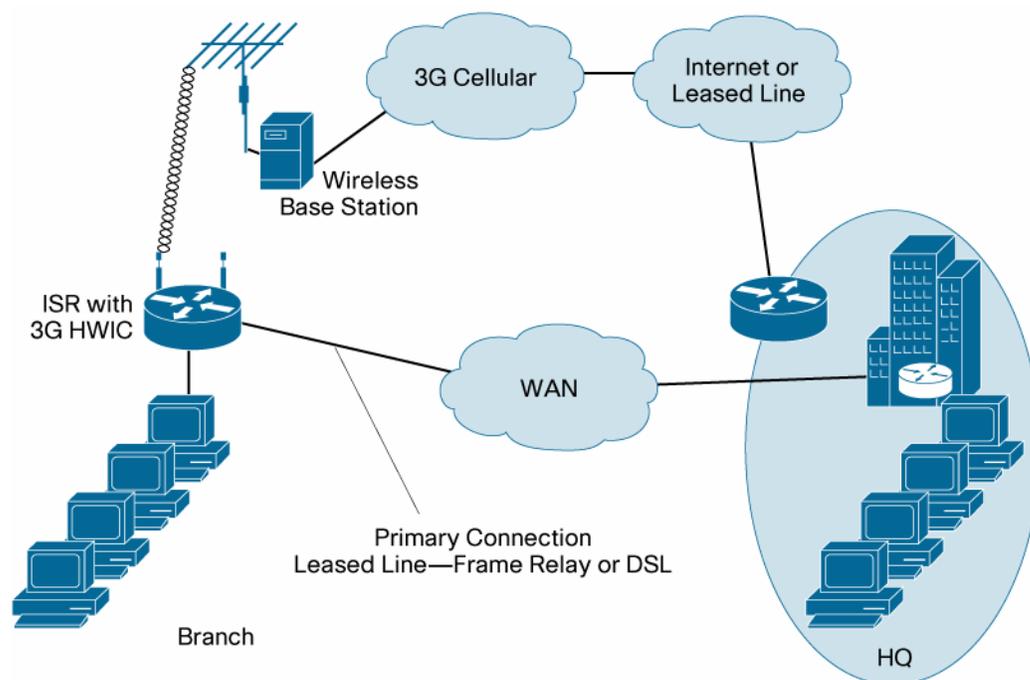
With enhanced data rates and improved latency (below 100 milliseconds), WWAN services are an ideal way to supplement traditional wireline services. 3G WWAN data services offered today have average data rates well in excess of ISDN speeds with theoretical limits in excess of 3 Mbps on the forward link. 3G WWAN can be used as a primary link for sites with lower bandwidth requirements and for mobile applications. 3G WWAN data services can also be a cost-effective alternative in areas where broadband services are not available or are very expensive. Cisco is building on these performance milestones and adding support for wireless to the company's wide variety of WAN interface alternatives.

Applications

WAN Backup

Resilient WAN access is a crucial requirement for branch offices connecting to a corporate site or the Internet. While DSL, Frame Relay, ISDN, and dialup are common choices for backup in the event of primary WAN link failure, a non-terrestrial data path such as 3G WWAN provides enhanced WAN diversity (Figure 2). Cisco 3G WWAN HWICs combined with the Cisco Integrated Services Routers offers the capability to automatically initiate connection over the 3G WWAN when the primary WAN link is unavailable. In addition, Cisco 3G WWAN HWICs can be used to provide supplemental bandwidth when the primary WAN link is overloaded.

Figure 2. Cisco 3G WWAN HWIC for WAN Backup



Primary Connectivity

For applications that have low data usage but high security requirements such as bank ATMs, gas station kiosks, and telemetry sites, the Cisco 3G WWAN HWIC offers a secure, simplified, and cost-effective WAN alternative to DSL or Frame Relay. In areas where terrestrial broadband services (cable, DSL, or T1) are not available or are expensive, 3G WWAN connectivity can be a viable alternative.

For businesses requiring rapid setup or temporary connectivity, 3G WWAN offers the capability to bring up a new site quickly and cost effectively. Using the integrated services available on the Cisco Integrated Services Routers, Cisco 3G WWAN HWICs can provide instant and mobile communications during disasters and service outages.

Key Features and Benefits

- **Integrated 3G WWAN broadband**—With the 3G WWAN modem integrated into the router, customers gain the benefit of simplified installation and management. In addition, the Cisco 3G WWAN HWICs are tightly integrated with Cisco Integrated Services Routers, which run the industry-leading Cisco IOS® Software, giving customers access to all the advanced features of Cisco IOS Software such as quality-of-service (QoS), intelligent network queuing, and robust security.
- **Short installation time**—Businesses sometimes wait for weeks or months to get data circuits installed at new locations. For temporary or seasonal sites, wireless data services allow instant connectivity anywhere there is cellular coverage, and rapid deployment allows customers to quickly set up networks with WAN connectivity
- **Network resiliency through WAN diversity**—WAN connectivity is crucial to the functioning of businesses, and any downtime means a loss of productivity and lost of opportunity. Staying connected and operational during a network outage can be vital. A wireless connection for backup to a remote site provides protection against line outages and an additional level of redundancy as the 3G WWAN infrastructure is often served by separate facilities, providing redundancy for the entire local loop.
- **Reduced cost**—The emerging 3G WWAN cellular data service plans are competitively priced with existing wire line services (ISDN, DSL, and cable). 3G WWAN solutions also allow customers to consolidate their service providers across large geographical areas instead of having service contracts with multiple service providers.
- **Portability**—Wireless routers and Cisco 3G WWAN HWICs can be easily relocated wherever coverage is available.
- **Performance**—With data usage on the rise and the proliferation of Web-based applications at remote sites, there is an increasing need for high-speed (broadband) data connections to run mission-critical applications at these sites. 3G WWAN services promise low-latency links at speeds approaching T1 connections, allowing enterprises to send and receive more mission-critical data across the WAN in backup scenarios.

Product Specifications

Table 1 provides specifications for the Cisco 3G WWAN HWICs, and Table 2 provides antenna specifications.

Table 1. Product Specifications

Item	Specification
External Interfaces	<ul style="list-style-type: none"> • RJ45 interface for use with third-party diagnostics and monitoring tools • TNC RF port for antenna connection <ul style="list-style-type: none"> ◦ HWIC-3G-CDMA-x main and diversity antenna connector ◦ HWIC-3G-GSM single antenna connector
Form Factor	Single wide Cisco 3G WWAN HWIC form factor
Physical Dimensions (H x W x D)	0.75 x 3.08 x 4.9 in. (1.9 x 7.8 x 12.4 cm)

Item	Specification
Weight	0.24 lbs (3.84 oz)
Subscriber Identity Module (SIM) Card	SIM card socket; compliant with ISO-7816-2 (SIM mechanical) and GSM 11.11
Power	4.5W maximum
Supported Platforms	Modular Cisco 1841, 2801, 2811, 2821, 2851, 3825, and 3845 Integrated Services Routers
Software Compatibility	<ul style="list-style-type: none"> Supported Cisco IOS Release 12.4(11)XV Cisco IOS Software feature set: IP Base and above
MIBs	<ul style="list-style-type: none"> ENTITY MIB IF MIB
Network Management and Diagnostics	<ul style="list-style-type: none"> In-band and out-of-band management using Telnet (IOS CLI) and Simple Network Management Protocol (SNMP), including MIB II and other extensions Industry-standard 3G diagnostics and monitoring tools (QUALCOMM CDMA Air Interface Tester [CAIT] and Spirent Universal Diagnostic Monitor [UDM])
Modem Information	<ul style="list-style-type: none"> Modem form factor: Embedded Peripheral Component Interconnect (PCI) Express mini-card HWIC-3G-CDMA-x: Sierra Wireless MC5725 HWIC-3G-GSM: Sierra Wireless MC8775
Carrier Support	For an updated list of Carriers that offer services with Cisco 3G WWAN HWIC please visit: http://www.cisco.com/go/3g
Programming Interfaces	Cisco IOS Software command-line interface (CLI)
Wireless Technologies Supported (performance and throughput)	<p>HWIC-3G-CDMA-x</p> <ul style="list-style-type: none"> CDMA 1xEV-DO Rev A¹ (forward link up to 3.1 Mbps; reverse link up to 1.8 Mbps) CDMA 1xEV-DO Rel 0 (forward link up to 2.4 Mbps; reverse link up to 153.6 Kbps) CDMA 1xRTT (forward link up to 153.6Kbps; reverse link up to 153.6Kbps) <p>HWIC-3G-GSM</p> <ul style="list-style-type: none"> HSDPA: 850, 1900, and 2100 MHz (forward link up to 3.6Mbps; reverse link up to 384 Kbps) Universal Mobile Telecommunication System (UMTS): 850, 1900, and 2100 MHz (forward link up to 2.0 Mbps; reverse link up to 384 Kbps) EDGE: 850, 900, 1800, and 1900 MHz (forward link up to 236 Kbps; reverse link up to 124 Kbps) GPRS: 850, 900, 1800, and 1900 MHz (forward link up to 80 Kbps; reverse link up to 42 Kbps)
Frequency Bands Supported	<p>HWIC-3G-CDMA-x</p> <ul style="list-style-type: none"> 800 MHz: North American cellular band 1900 MHz: North American PCS band <p>HWIC-3G-GSM</p> <ul style="list-style-type: none"> 850, 1900, and 2100 MHz UMTS Bands 850 MHz GSM, GPRS, and EDGE Band 900 MHz GSM, GPRS, and EDGE Band 1800 MHz GSM, GPRS, and EDGE Band 1900 MHz GSM, GPRS, and EDGE Band
LED Indicators	<p>HWIC-3G-CDMA-x</p> <ul style="list-style-type: none"> WWAN LED (connection status indication) Receive Signal Strength Indication (RSSI) EVDO and 1xRTT service indication <p>HWIC-3G-GSM</p> <ul style="list-style-type: none"> WWAN LED (connection status indication) RSSI HSDPA and UMTS service indication

¹ HWIC-3G-EVDOx modems will be EVDO Rev A capable, but Rev A will be suppressed until fully tested and supported.

Item	Specification
Approvals and Compliance	<p>Safety</p> <ul style="list-style-type: none"> UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, AS/NZS 60950.1, FCC Part 2.1093, RSS-102, and EN 50385 <p>EMC</p> <ul style="list-style-type: none"> FCC Part 15, Industry Canada ICES-003, EN 301 489-01, EN 301 489-07, EN 301 489-24, EN55022 (CISPR22), EN55024 (CISPR24), EN300-386, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, CNS13438, and VCCI V-3 <p>Radio</p> <ul style="list-style-type: none"> FCC Part 2, FCC Part 22, FCC Part 24, RSS 129 and RSS 133, RSS 132 and RSS 133, EN 301 511 GSM, EN 301 908-1, and EN 301 908-2 PTCRB-approved. Device id Cisco HWIC-3G-GSM

Table 2. Antenna Specifications

Item	Specification
Diversity (Dual Antenna)	<ul style="list-style-type: none"> HWIC-3G-CDMA-x: Diversity supported HWIC-3G-GSM: No diversity
Antenna 3G-ANTM1919D	<p>Description</p> <ul style="list-style-type: none"> Multiband swivel mount dipole antenna Faceplate mount (single unit included with all Cisco 3G WWAN HWICs) <p>Electrical specifications</p> <ul style="list-style-type: none"> Frequency range: 806 to 960 MHz and 1710 to 2170 MHz Maximum power: 25W Connector: TNC male Voltage standing wave ratio (VSWR): < 2.5:1 Nominal impedance: 50 ohms <p>Mechanical specifications</p> <ul style="list-style-type: none"> Antenna dimensions: 7.63 x 0.94 x 0.63 in. (19.37 x 2.34 x 1.59 cm) Temperature rating: -22 to 158°F (-30 to 70°C)
Antenna 3G-ANTM1916-CM	<p>Description</p> <ul style="list-style-type: none"> Multiband omnidirectional antenna Ceiling mount Electrical specifications Frequency range: 806 to 960 MHz and 1710 to 2170 MHz Gain : 1.5 decibels relative to isotropic (dBi) (806 to 960 MHz) and 2.5 dBi (1710 to 2170 MHz) Maximum power: 50W Connector: TNC male VSWR: < 1.8:1 (806 to 960 MHz) and < 1.6:1 (1710 to 2170 MHz) Nominal impedance: 50 ohms Polarization: Vertical Intermodulation <ul style="list-style-type: none"> < -140 decibels relative to carrier (dBc) typical (800 to 960 MHz IM3 at 2x20W) < -140 dBc (1710 to 1880 MHz IM3 at 2x20W) < -150 dBc (1920 to 2170 MHz IM7 at 2x20W) <p>Mechanical specifications</p> <ul style="list-style-type: none"> Radome material: White ABS Base material: Aluminum Cable: 086FEP conformable Dimensions: 7.09 OD x 2.44 H in. (18.00 OD x 6.20 H cm) Weight: 0.62 lb (0.28 kg) Can be used with the following cable extensions: 3G-CAB-ULL-20 and 3G-CAB-ULL-50

Item	Specification
Antenna Extension 3G-AE015-R	<p>Description</p> <ul style="list-style-type: none"> ◦ Single unit antenna extension base (15-ft (457.2 cm) cable included) <p>Electrical specifications</p> <ul style="list-style-type: none"> ◦ Frequency range : 0.8 GHz to 5.85 GHz ◦ Attenuation: < 3 decibels (dB) at or below 2.5 GHz ◦ Base connector: TNC female ◦ Pigtail connector: TNC male <p>Mechanical specifications</p> <ul style="list-style-type: none"> • Base material: UL 94 V0PC and ABS plastic • Dimensions: 2.8 x 2.4 x 1.8 in. (7.1 x 6.1 x 4.6 cm) • Weight: 6 oz (0.17 kg) • Cable: 15 ft (457.2 cm) plenum rated Pro-Flex Plus 195

Ordering Information

To place an order, consult Tables 3 and 4 and visit the [Cisco Ordering Home](#) Page.

Table 3. Table 3 Cisco 3G WWAN HWIC Ordering Information

Description	Part Number
3G WirelessWAN HWIC supporting GPRS/EDGE/UMTS/HSDPA (Global SKU)	HWIC-3G-GSM
3G WirelessWAN HWIC supporting 1xRTT, EVDO Rev A/Rel 0 (Verizon SKU)	HWIC-3G-CDMA-V
3G WirelessWAN HWIC supporting 1xRTT, EVDO Rev A/Rel 0 (Sprint SKU)	HWIC-3G-CDMA-S

Table 4. Antenna Ordering Information

Description	Part Number
Multi-Band Swivel Mount Dipole Antenna - Faceplate Mount	3G-ANTM1919D
Multi-Band Omnidirectional Antenna - Ceiling Mount	3G-ANTM1916-CM
Single Unit Antenna Extension Base (15-ft cable included)	3G-AE015-R
50-ft (15m) Ultra Low Loss LMR 400 Cable with TNC Connector	3G-CAB-ULL-50
20-ft (6m) Ultra Low Loss LMR 400 Cable with TNC Connector	3G-CAB-ULL-20

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For More Information

For more information about the Cisco 3G WWAN HWICs, visit <http://www.cisco.com/go/3G> or contact your local account representative.



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