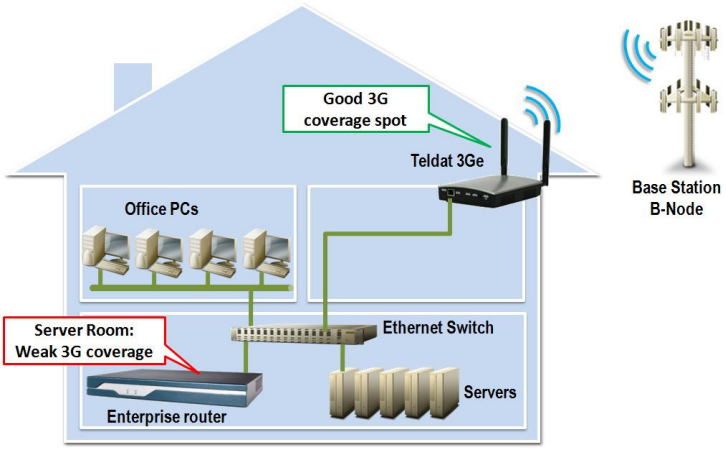
The ultimate 3G peripheral for enterprise routers

"Enable your existing enterprise router with 3G connectivity, easily solving coverage problems and minimizing installation costs"

The Teldat 3Ge is an external Interface Card (i.e. an external WIC[1]) that enables the enterprise router with 3G. This cutting-edge peripheral does not require additional Interface Card slots nor PCMCIA or USB slots in the router. The unique interface between the Teldat 3Ge and the router is Ethernet.

But the Teldat 3Ge is not a router, it is the interface that grants the Wireless WAN access to the router. The management of this new 3G interface is seamlessly integrated into the router engine, so that the service intelligence offered by the router for the land-line WAN service are fully available for the new Wireless WAN service. The standard-based communication on Ethernet between the Teldat 3Ge and the router guarantees the compatibility with a vast range of existing enterprise routers.

This innovative device offers an easy and cost effective solution for boosting the 3G in indoor scenarios. Enterprise routers are hosted in the Server Room or in the Data Center Room where typically there is lack of 3G coverage or, if present, the radio signal is not strong enough to guarantee broadband speeds at high 3G frequency bands. Addressing this challenge, the Teldat 3Ge is placed outside the server room to the spot with the best 3G coverage and delivers the 3G service to the router over the corporate Ethernet network. This new approach overrides the need of expensive coaxial cables and repeaters to boost the 3G coverage.



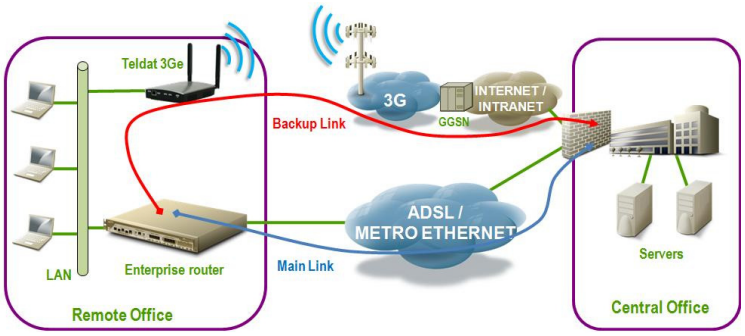
Some Teldat 3Ge models include a VoIP to GSM Mediagateway so the office VoIP calls can be transmitted to the GSM network. The firm not only benefits from a least-cost call routing policy, but also its VoIP Disaster Recovery plan is improved with the option of local VoIP call breakin/breakout into the GSM network on emergency.

ADVANTAGES

- **Cost reduction and easy indoor 3G upgrade**. No expensive coaxial wiring nor amplifiers is required to link the enterprise network platform to the 3G antenna, just the existing firm's Ethernet wiring.
- **Reuse of the enterprise router installed base**. No need for free expansion slots in the router.
- **Compatible with third party enterprise routers**. The standard-based communication with the router guarantees the compatibility with a large range of third party enterprise routers.
- **Fully managed from the enterprise router engine**. The Teldat 3Ge is fully configured and monitored from the router.
- **Ready for Converged Services**. Flexible traffic flow distribution policies can be implemented in the router for the efficient use of the router land-line WAN and Wireless WAN (Teldat 3Ge) resources. The Wireless WAN access can also be shared with Voice traffic, thanks to the Teldat 3Ge Voice support[2] for least-cost call forwarding and emergency call breakin/breakout during disasters.
- **Easy migration to future cellular technologies**. The enterprise cellular technology is upgraded by just replacing the Teldat 3Ge.
- **Best in class Scalability**. A single router can manage multiple Teldat 3Ge devices, allowing for the coexistence of independent Wireless WAN services in the enterprise for Disaster Recovery.

[1] **WIC: WAN Interface Card**
[2] **Voice support available on Teldat 3Ge/HSDPA models**

APPLICATION SCENARIO



In the left figure the corporate branch office ADSL router is equipped with a Teldat 3Ge. When the enterprise router detects a failure in its Main Link, then it forwards the IP traffic to the HSPA service.

A new virtual Point-to-Point interface is configured into the router. Upon the successful attachment of the Teldat 3Ge into the WWAN network, the negotiated IP address is assigned to the router virtual interface. All the WWAN service intelligence (IP forwarding, IP link quality supervision, QoS, VPN, etc) is centralized in the router engine.

The right figure illustrates the Teldat 3Ge VoIP to GSM Mediagateway capabilities. The enterprise router is featured with a SIP Proxy and the Teldat 3Ge formats the VoIP call into a GSM audio call.

The SIP Proxy serves the office call requests and forwards them to the Central ToIP server or to the Teldat 3Ge so they can be placed is GSM calls. The Teldat 3Ge can also receive calls to its SIM card phone number and forward them inside to the Proxy Server so they can reach the appropriate destination.

Upon a significant degradation of the IP connection ot the Central ToIP Server, the SIP Proxy Dial Plan is modified so all external calls are sent to the Teldat 3Ge and converted to GSM calls.

Call destination	Route to
Coporate fixed phone	Central ToIP server (ADSL)
External fixed phone	Central ToIP server (ADSL)
International	Central ToIP Server (ADSL)
Mobile phones	Local GSM (3Ge)
Emergency (ADSL failure)	All through GSM (3Ge)

PRODUCT FEATURES

- **Auto-provisioning (No Teldat 3Ge manual programming required)**. A new Point-to-Point interface is configured into the router to manage the Teldat 3Ge. When the Teldat 3Ge boots up, it receives the full Ethernet and 3G programming on DHCP.
- **Advanced 3G failure detection & reporting**. Detection mechanisms based on control traffic flow tracking and inactivity timers, permits the Teldat 3Ge to report back to the router the cause of the 3G failure.
- **Teldat's World Class 3G diagnostics**. The most complete radio interface monitoring information is available for an accurate service quality audition and accounting, such as the signal strength history report on the past hour, the serving and neighbor cell received instant power, transmission speed, detailed UTRAN info and AT Command Line Interface.
- **VoIP Mediagateway** (SIP and RTP/RTCP to GSM audio).
- **Small form-factor**, Desktop or wall mounted.
- Powered by PoE (IEEE 802.3af) or by an external power supply (included).
- **SMA external antenna port**[3] allows for the use of a wide range of external RF antennas.
- External SIM card tray with anti-theft protection.

[3] **Teldat 3Ge/HSUPA models support Dual antenna for diversity**

TECHNICAL SPECIFICATIONS

General Hardware & Mechanical features

Interfaces and connectors
1 x 10/100 FastEthernet interface, POE 802.3af client, RJ-45F
1 x 3G interface (HSDPA, HSUPA or CDMA-EVDO, depends on model)
1 x SIM tray (HSDPA & HSUPA models)
1 x SMA port for radio antenna[4]
3 x status LEDs

Power Supply
12 VDC, 1500 mA; 3 mm connector jack (2 mm internal pin)
Includes an external universal transformer AC 110v – 220v; 50/60Hz

PoE 802.3af Client
POE 802.3af client in RJ45 FastEthernet connector
POE Class 0: 12,95W maximum

Dimensions and weight
Length x Width x Height: 130 x 165 x 38 mm
Desktop or wall mounted form-factor
Approximate weight: 450 gr

Environmental specifications
Temperature:
- Operating normally: -20ºC to 65ºC
- Restricted operation: -30ºC to 75ºC

Storage: -40ºC to 85ºC
Relative Humidity: 5% to 85%
Barometric pressure: 860 mbar to 1060 mbar

3G wireless-WAN Interface features

	Teldat 3Ge/HSDPA	Teldat 3Ge/HSUPA	Teldat 3Ge/EV-DO
Technologies	GSM, GPRS, EDGE, UMTS, HSDPA	GSM, GPRS, EDGE, UMTS, HSDPA, HSUPA	CDMA 2000 1xRTT, EV-DO rev 0, EV-DO rev A
Frequency Bands (MHz)	GSM/GPRS/EDGE: 850/900/1800/1900 UMTS/HSDPA: 850/1900/2100	GSM/GPRS/EDGE: 850/900/1800/1900 UMTS/HSDPA/HSUPA: 850/1900/2100	CDMA: 800/1900
Diversity	N/A	2100/850 MHz	N/A
Baseband processor	Qualcomm MSM6280™	Qualcomm MSM7200™	Qualcomm MSM6800™
Data services (PS)	GPRS/EDGE: Multi-slot class 10 CS1-CS4, MCS1-MCS9 HSDPA Cat 6: 3.6 Mbps DL, 384 kbps UL	GPRS/EDGE: Multi-slot class 12 CS1-CS4, MCS1-MCS9 HSDPA Cat 8: 7.2 Mbps DL, 384 kbps UL HSUPA Cat 4: 2.0 Mbps UL	CDMA 1xEV-DO Rev A (IS-856-A) DL up to 3.1 Mbps UL up to 1.8 Mbps CDMA 1xEV-DO Rev 0(IS-856) DL up to 2.4 Mbps UL up to 153.6 Kbps CDMA 1xRTT (IS-2000) DL and UL up to 153.6Kbps
CSD	64 Kbps DL and UL	64 Kbps DL and UL	N/A

Software features

WWAN features
Automatic handover
3G failure detection based on packet tracking & inactivity timers
Instant bitrate
GSM Data calls (CSD)
Real-time WWAN monitoring: RSSI serving & neighbor cells), UTRAN info, module info, etc
Detailed WWAN information right into the router CLI
Historical RSSI report in the past hour
AT Command Line Interface
GPRS/3G Dual-context (depends on the model)

Management
SMS-based management protocol[5]
Zero-configuration
TFTP firmware upgrade (Teldat 3Ge and 3G module)
Authenticated DHCP client
Command Line Interface
Telnet and Web servers for monitoring purposes
Event Logging System for detailed troubleshooting

Voice features[6]
SIP Gateway
RTP,RTCP
G.711 coding

The Teldat 3Ge is an external interface card. All communication protocols and functionalities supported by the existing router can be seamlessly applied on this new interface, such as Quality of Service, VPN and Security features, queuing algorithms, interface monitoring and statistics, etc.

[4] **Teldat 3Ge/HSUPA models are equipped with 2 x SMA radio antenna ports for WWAN diversity**
[5] **Feature under development**
[6] **Only for voice models**

THIRD-PARTY ROUTER COMPATIBILITY CHART

The following table gives an orientation on the different Cisco router models and software versions that interoperate with the Teldat 3Ge.

Model	IOS	Min Feature Set	Memory (RAM/FLASH)	Comments
836/837	12.3(2)XA	IP/FW 3DES	32MB / 8MB	TCL not supported
87x	12.4(2)T	Advanced Security	128MB / 24MB	S870ASK9-12402T Advanced Security is the basic Feature Set for the 870 series
180x	12.4(4)T	IP Broadband	128MB / 32MB	S180BB-12404T IP Broadband is the basic Feature Set for the 180x series
1811/1812	12.4(2)T	Advanced IP Services	128MB / 20MB	Advanced IP Services is the basic Feature Set for the 181x series
1841	12.3(8)T4 12.4(2)T1 12.4(2)T1	IP Base Enterprise Base SP Services	128MB / 32MB 128MB / 32MB 128MB / 64MB	S184IPB-12308T IP Base is the basic Feature Set for the 1841 series S184EBK9-12402T S184SPSK9-12402T
1861	12.4(11)XW4	SP Services	256MB / 128MB	S186SPSK9-12411XW SP Services is the basic Feature Set for the 1861 series
2801	12.4(2)T1	IP Base	128MB / 64MB	S280IPBK9-12402T IP Base is the basic Feature Set for the 2801 series
2811/2821 /2851	12.4(2)T1	IP Base	256MB / 64MB	S28NIPBK9-12402T IP Base is the basic Feature Set for the 2811, 2821 and 2851 series

ORDERING INFORMATION

Part no.	Teldat 3Ge Model	HSDPA	HSUPA	EV-DO
RCAEH1U1	TELDAT 3Ge/HSDPA	✓		
RCAEH1U2	TELDAT 3Ge/HSUPA	✓	✓	
RCAEH1C1	TELDAT 3Ge/EV-DO			✓

Part no.	Wireless-WAN external antenna model
RCAEAAM1	MULTI BAND 900-1800-2100 3G DIPOLE ANTENNA, 90 DEGREES MOUNT
RCAEAAM2	MULTI BAND 900-1800-2100 3G DIPOLE ANTENNA, MAGNETIC BASE MOUNT, 1.5M CABLE
RCAEAAM3	MULTI BAND 900-1800-2100 3G DIPOLE ANTENNA, CEILING MOUNT
RCAEAAM4	CDMA MULTI BAND 800-1900 DIPOLE ANTENNA, 90 DEGREES MOUNT
RCAEAAM5	MULTI BAND 900-1800-2100 3G DIPOLE ANTENNA, WALL MOUNT, OUTDOORS, 5M CABLE
RCAEAAM6	MULTI BAND 900-1800-2100 3G DIPOLE ANTENNA, WALL MOUNT, OUTDOORS, 10M CABLE
RCAEAEM1	EXTENSION BASE FOR MULTI BAND 900-1800-2100 3G ANTENNA, SMA CONNECTOR

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