



GSM-to-Ethernet bridge



Overview

The Necoso GSM-to-Ethernet (short: G2E) bridge is a ready-to-use protocol converter that is intended for extending the communications reach of an existing device with an ethernet interface (TCP/IP) over a wireless GSM network. For example for out-in-the-field installations, where no ethernet network is available. Or for situations where the end-user does not allow use of the local ethernet infra-structure or independence of local infra-structure is wanted. (e.g. for security or availability reasons)

Original configuration

The configuration consists of an OEM device that has an ethernet interface and PC that communicates with the OEM device locally over an intranet using the TCP/IP protocol. (using telnet, FTP, HTTP, SMTP, etc)

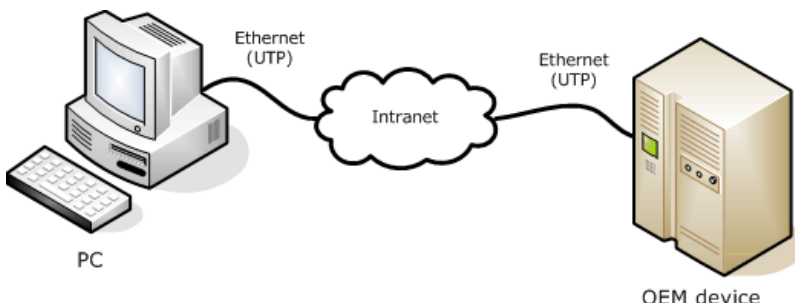


Figure 1: Original (local) configuration

Example configurations for remote access with G2E bridge

Necoso
Het Kasteel 315
7325 PE Apeldoorn
The Netherlands
Phone: +31-(0)55-3601410
Fax: +31-(0)84-7246122

All our proposals and agreements are subject to the General conditions of the FENIT, filed at the registry of the district court in The Hague on June 3rd 2003, under number 60/2003.
We will send you a copy of these conditions, at no charge, on request.

Chamber of commerce: 08091918
VAT: NL809391697.B01
E-mail: info@necoso.com
Website: www.necoso.com
ABN-AMRO bank: 57.92.71.781

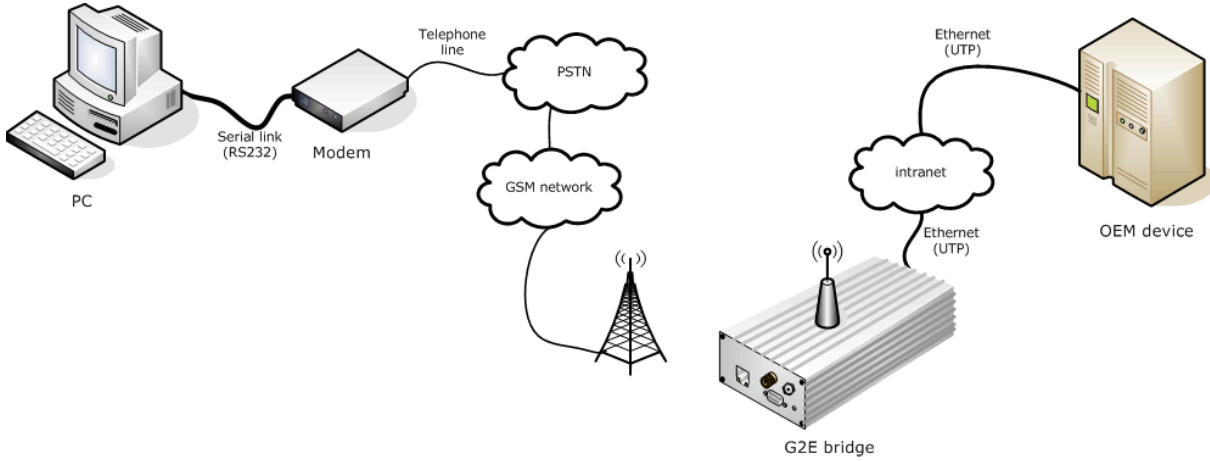


Figure 2: Dial-in access with analog modem (GSM data)

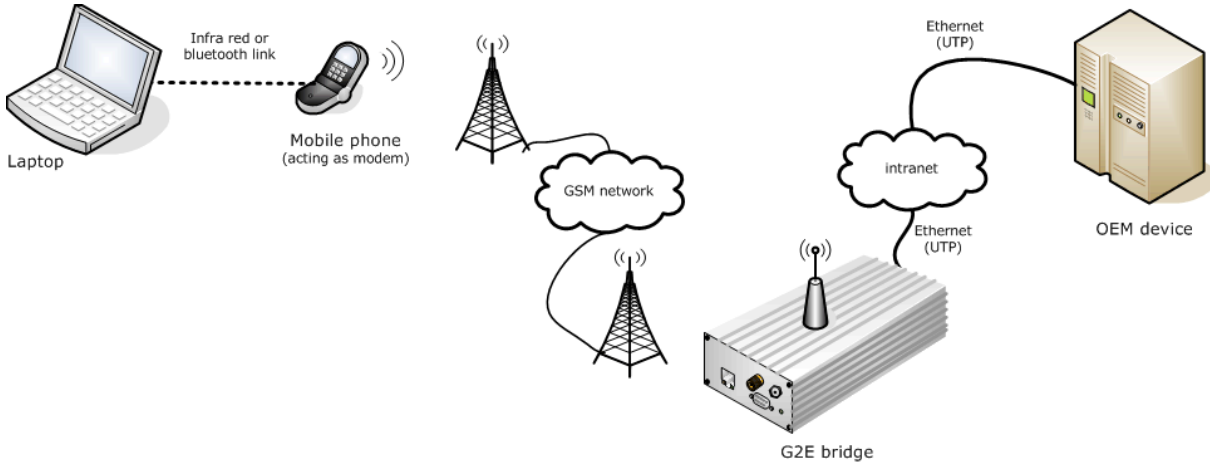


Figure 3: Mobile dial-in access with laptop and GSM phone.

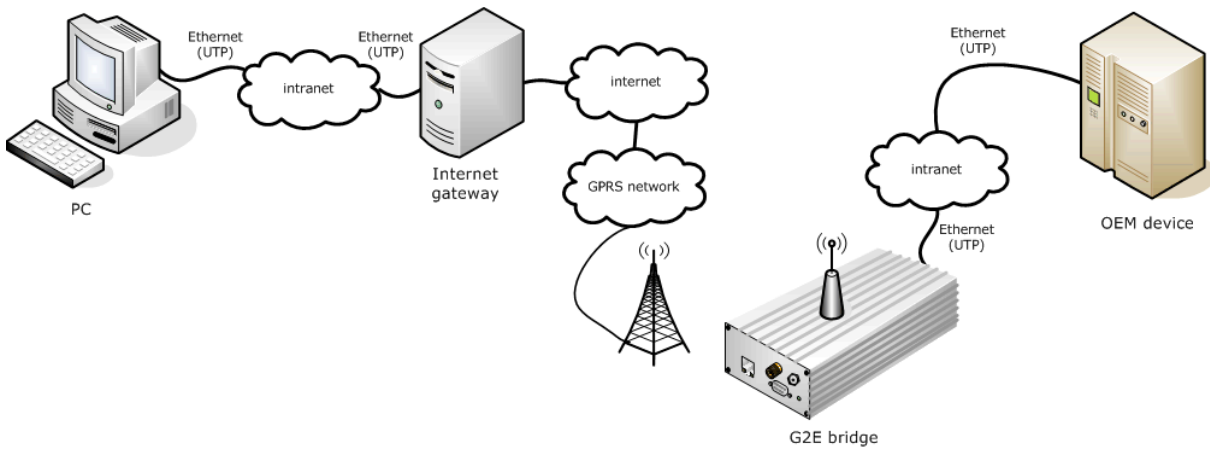


Figure 4: Direct access via public internet. (requires GPRS)

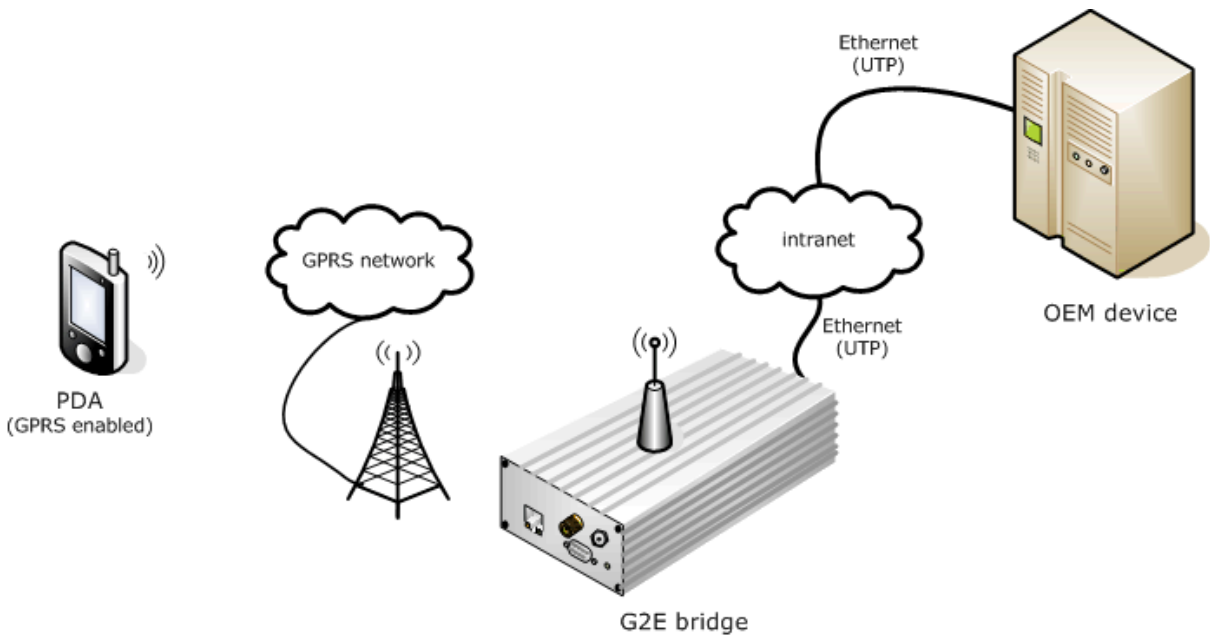


Figure 5: Direct mobile access with PDA. (requires GPRS)

With the G2E bridge TCP/IP data is 'bridged' transparently between the PC/Laptop/PDA and the OEM device, the GSM network is used as a transport channel to get the TCP/IP data to/from the OEM device. The G2E bridge supports both GSM data and GPRS as a carrier for TCP/IP based communications over a GSM network.

Using a dedicated control channel (via telnet and/or SMS) a user can dynamically switch between two or more OEM devices at the ethernet side. The control channel can also be used for remote control, diagnostics and retrieval of usage statistics.

The G2E bridge offers increased security by implementing two user-configurable white lists for filtering of unauthorized users and/or IP packets (IP source filtering). Additionally, the G2E bridge supports the unique Necoso 'smart-on' concept for even more security.



Quick comparison GSM data and GPRS

	GSM data	GPRS
Connection type	<i>Circuit switched</i>	<i>Packet switched</i>
Billing	<i>You pay for duration of the connection.</i>	<i>You pay for the amount of data that is transferred.</i>
Max speed (baud)	9600	115200 (theoretical), 38400 in real-life
Connection set up time	<i>~ 30 seconds</i>	<i>< 1 second ('always on')</i>
Direct access to device via public internet	<i>No</i>	<i>Yes, if GSM provider binds public IP address to SIM card.</i>

In general GPRS is usually more cost-effective than GSM data if the device is to be accessed frequently (> few times per day) and/or if the amount of data to be transferred is big (> few KB per visit). Contact your GSM provider for more details.

Specifications

Hardware

- Necoso NCS0402 protocol converter:
 - Housing: *Anodized aluminium*
 - Dimensions: *168 x 110 x 54 mm (l x w x h)*
 - Supply voltage: *12V DC*
 - Power consumption: *< 1000 mA*
 - Temperature range: *0 - 70° Celsius*
 - Internal processing core: *ID1021 module*
 - Internal GSM modem: *Siemens MC35iT*
 - External interfaces:
 - *1 x Ethernet, 10 Mbit, UTP (RJ45)*
 - *1 x RS232 (V.24, male DB9) – not used with G2E bridge.*
 - *8 LEDs for indicating data traffic and SMS transmission/reception*
 - *Power interface connector*
 - *1 power LED (green)*
 - *GSM antenna connector (FME)*
- Dual-band GSM antenna, with 2.5 m coax cable.
- 220V AC/DC power adapter for converting mains to 12V DC.



Optional (additional costs involved)

- Quad-band MC75 GSM modem instead of dual-band MC35iT. For use of G2S bridge outside Europe.
- Quad-band GSM antenna, with 2.5 m coax cable.

Software

- **Necoso GSM Application Suite**, consists of:
 - **GSM application**: for communications over a GSM network. Supports GSM data, GPRS and SMS. Comes with a number of helper applications for web based configuration and diagnostics.
 - **PPP application**: Implements PPP stack needed by GSM application.
 - **Log application**: for logging events.
 - **DDNS application**: enables use of fixed domain names (e.g. www.mydevice.dyndns.org) for GPRS connections.
 - **G2E application**: bridges IP packets between the ethernet and GSM interfaces of the NCS0402, performs network address translations, includes application layer gateways (ALGs) for FTP and HTTP.

All software is pre-installed on flash disk of the NCS0402

Documentation

- CD-ROM with OEM installation manual, data sheets and application notes.

Support

- One year of free software updates when they become available.

Not included

- SIM card - You must purchase a SIM card with the appropriate GSM services from a GSM provider yourself. Note that if remote device access is wanted via the public internet, then a SIM card is required that supports the GPRS service and is assigned a public IP address whenever it attaches to the GPRS network. Not all GSM providers offer this service for their SIM cards. In the Netherlands currently only KPN, Orange and T-Mobile assign public IP addresses to their SIM cards.
- Ethernet cable - the type of ethernet cable (patch cable/cross-over cable) and the length of the cable that is required for connection to the G2E bridge depends on your specific network situation.
- DynDNS account - Registration with DynDNS and acquisition of free dynamic DNS account can be done at www.dyndns.org. Only required if GPRS is to be used in combination with direct device access from the internet.



CONTACT INFORMATION

necoso



Necoso

Het Kasteel 315
7325 PE Apeldoorn
The Netherlands

Tel: +31-(0)55-3601410
Fax: +31-(0)84-7246122

E-mail: info@necoso.com
Website: <http://www.necoso.com>