

G-router
GSM/GPRS to RS-232 and Ethernet Gateway
Release Notes



Author	RFI Support Team
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Revision History

Revision	Reason	Author	Date
00111	First version, covering release 1.1.1	WSM	26-11-2008
00114	Second version, covering release 1.1.2-4	PMC	26-01-2010
00122	Third version, covering release 1.2.2	FRK	23-05-2011

References

Reference	Description	Code
1	G-router Quick Install Guide v. 1.2	QIG_G-router_1.2

1 Introduction

The general purpose GSM/GPRS G-router is designed as an intelligent wireless data transmitter, which can be effectively deployed in sensor networks, smart monitoring and monitoring applications. Data can be transmitted in "Push" or "Pull" mode, stored and aggregated along preset criteria. Intelligent monitoring can be used e.g. to monitor modems, installed on corporate customer premises, providing a redundant link for wireless, backup, maintenance and support purposes. The GSM/GPRS technology will bring immediate benefits such as online connections plus cost efficient, high-speed data transmission. The optional remote power switch can be used for an effective reboot of the connected equipment.

This document provides information on the following topics:

- G-router new features for the described software version.
- G-router bug-fixes for the described software version.
- G-router known issues for the described software version.

For general G-router configuration and setup, consult the G-router Quick Installation Guide.

2 Release Notes Software Version 1.2.2

Version 1.2.2 contains the following amendments/ fixes:

- During normal use and GPRS enabled (everything works) the status led flashes once per sec. The Web interface shows "GSM Status Service Available".

When the GSM coverage is interrupted the status led will stop flashing and the web interface will show "GSM Status Service Unavailable". The GPRS LED will go out and immediately thereafter goes on again.

When the GSM coverage returns the Web interface shows "GSM Status Service Available" but the status led would not resume flashing. The G-router is normally reachable via dial-up. Only after dialing in and subsequently hanging up, the status led would start flashing again correctly. This is now fixed.

- In relation to the fix above a "refresh this page link" has been added on the status page. The page will not perform automatic refresh due to the limited-bandwidth.
- Fixed an issue in the Call list. No more than 14 entries were made visible when using PuTTY. Only the first 13 are visible. Some subsequently created entries are not to be seen.
- Fixed an issue in the Startup message. If the startup message was enabled, there were (sometimes) two or three text messages sent.
Default startup text message: EVENT = "BOOT_EVENT" HOST = hostname IMEI, IMSI, NETWORK name, Signal Strength, DATA mode
- Fixed an issue introduced in v1.2.0 whereby the Boot SMS option did no longer work.
- Fixed an issue introduced in v1.2.0 If GPRS connection was activated, login with GNOuser fails.
- Fixed an issue introduced in v1.2.0 whereby GPRS did not work anymore.
- Fixed an issue whereby the DNS server (s) was not selectable in the CLI. DNS server setting moved in schema. The DNS server is now visible in both the CLI as well as the Web interface.



Please note:
Consequence of the move is that when you upgrade the old DNS settings are deleted.

3 Release Notes Software Version 1.1.4

Version 1.1.4 contains the following amendments/ fixes:

- Case in username and password changed for VZ0 / gnouser>GNOuser and gnoadmin>GNOadmin.
- Fix added where a cli session interrupted during toggle_relay could cause the toggle to be interrupted, leaving the contact in the close state.

4 Release Notes Software Version 1.1.3

Version 1.1.3 contains the following fixes:

- The GPRS handling process did not free up resources when the GPRS connection terminated (for any reason) causing the G-router to get "hung" in ATA command.
- The DNS name servers for Ethernet IP configurations with a static IP were incorrectly parsed, causing DNS lookups on statically configured Ethernet interfaces to fail.
- The web-based upgrade process may display "Update done, Error update done error code = 0, Unknown error occurred" after upgrading the unit to a different release. While this is not an error (the unit was correctly upgraded), it may confuse the user and has been fixed.
- Several minor typographical errors were fixed in the web-based interface.

5 Release Notes Software Version 1.1.2

Version 1.1.2 contains the following fixes:

- Error on entering IP into Windows Internet Explorer V.8.0.6001.18702:
Internet Explorer cannot display the webpage. No error in Mozilla Firefox
- During normal operation the status LED flashes every second (GSM status ->service available).
 - When GSM coverage stops e.g. the antenna has been removed, the LED will stop flashing after a while (GSM status -> service unavailable).
 - When the GSM coverage returned, e.g the antenna was reconnected, the status LED did not resume flashing, whilst the GSM *is* Service Available.
- Update process for updating or downgrading software generated error code = 4. Error during flash process.

6 Release Notes Software Version 1.1.1

The following paragraphs describe the new features, bug-fixes and known issues for the G-router software release 1.1.1.

Version 1.1.1 has had a rework of the Serial Console Configuration to give more flexibility and clarity in the usage of the Serial Console of the G-router. Also, GSM Dial-In mode has been added. It is possible to allow or deny direct root login via SSH. The auto PPP grace period is settable and can be turned off. A GSM troubleshoot script has been added, for expertise troubleshooting of the GSM/SIM settings. Storage of the HTTPS certificate is fixed.

6.1 New features

G-router Software Version 1.1.1 contains the following new features:

6.1.1 Serial Console Configuration

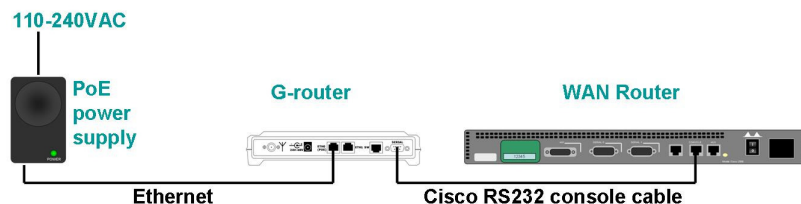
The serial console configuration has been reworked to give more flexibility and clarity in the usage of the serial console port on the G-router. Besides that, a GSM Dial-In mode has been added.

6.1.1.1 Serial Console Mode

The following options can be given for the Serial Console Mode:

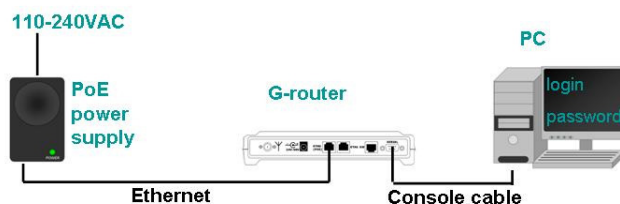
- **device:** Console directly connected to Serial Device (default option)

Used when serial console is connected to external device (i.e. WAN Router)
In this mode, the serial console input is logged in a circular buffer.



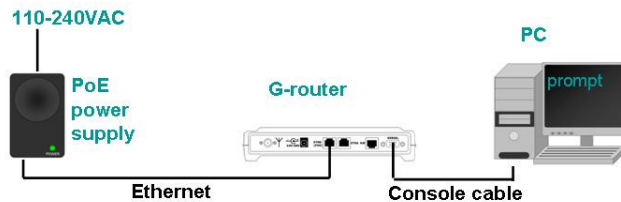
- **login:** Linux Login Shell

Gives a Linux login shell into the G-router on the serial console.
In this mode, the serial console input is not logged, and no external device can be attached.



- **shell:** Linux Shell (w/o login)

Gives a root Linux shell into the G-router on the serial console.
In this mode, the serial console input is not logged, and no external device can be attached.

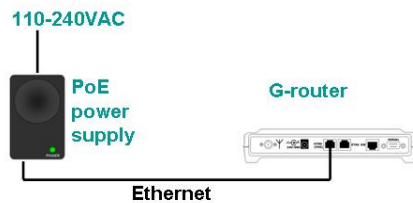


Please note:

This will give direct root user access to the G-router, without needing to provide a password. This mode is not recommended for production environments!

- **none:** No Shell

No shell or login prompt on the G-router serial port.
In this mode, the serial console input is not logged, and no external device can be attached.



6.1.1.2 GSM Dial-In mode

When dialing into the G-router, there are several options for the G-router to answer the call, depending on the setting of GSM Dial-In Mode. The options are:

- **passthrough:** Passthrough to serial device (default option)

When dialing into the G-router, the dial-in session will be directly connected to the serial console of the attached device. The following message will be displayed:

```

=====
+ Welcome RFI Engineering RFIOs (Rose)...
+ Hostname      : G-router-0080485324B8
+ System Name   : Test
+ Console Entity : WAN Router
+ System Contact : John Doe
=====
+ Version       : G-router 1.1.1 VZ0 (buildnr:0478)
+ Buildtag      : RELEASE
+ Build on      : 11/25/2008 14:17:32
=====

Escape usage: <ESC> character is <CTRL>\ or 0x1c
-----
<ESC><ESC> -> Send escape sequence
<ESC>.     -> Disconnect
<ESC>l     -> Login to GSM device
<ESC>h     -> Show this usage
<ESC>b     -> Send BREAK command to console
-----

```

This option is only available when Serial Console Mode is set to device.

- **login**: Linux Login Shell

When dialing into the G-router, the dial-in session will be directed to a login prompt into the G-router. The following message will be displayed:

```

G-router-0080485324B8 login: root
Password:

=====
+ Welcome RFI Engineering RFIOs (Rose)...
+ Hostname      : G-router-0080485324B8
+ System Name   : Test
+ Console Entity : WAN Router
+ System Contact : John Doe
=====
+ Version       : G-router 1.1.1 VZ0 (buildnr:0478)
+ Buildtag      : RELEASE
+ Build on      : 11/25/2008 14:17:32
=====
root@G-router-0080485324B8:/tmp/root$

```

- **shell**: Linux Shell (w/o login)

When dialing into the G-router, the dial-in session will be directed to a root shell prompt (without login) into the G-router. The following message will be displayed:

```

root@G-router-0080485324B8:/$ █

```



Please note:

This will give direct root user access to the G-router, without needing to provide a password. This mode is not recommended for production environments!

- **none**: No Shell

When dialing into the G-router, the dial-in session will be directed to nothing. No shell or login prompt is given.

6.1.1.3 Serial Console Baudrate

When serial console mode is set to device, the serial console baudrate needs to be set to the baudrate of the device attached to the serial console.

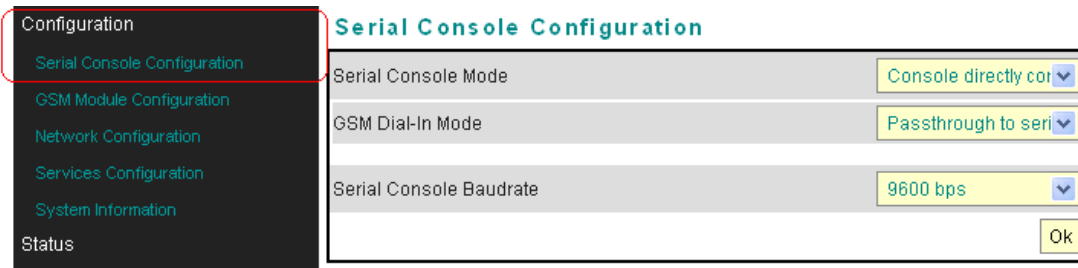
When serial console mode is set to login or shell, the serial console baudrate can be set to the baudrate of the UART application on the connected PC.

When serial console mode is set to none, the serial console baudrate is ignored.

6.1.1.4 Configuration

The Serial Console mode, GSM Dial-In mode and Serial Console Baudrate can be set via

- Web Configuration:



- Command Line Interface:

```
G-router CLI
+-----+ Serial Console : device
|+General | GSM Dial-In Mo : passthrough
|+Users   | Serial Console : 9600
|+Configuration
| | -Serial Console Conf
| | |+GSM Module Configur
| | |+Network Configurati
| | |+Services Configurati
| | ` -System Information
|+Status
```

- HIB commands:

```
/ # hibe ls /config/console/console_mode
device
login
shell
none
/ #
```

6.1.2 SSH permit root login

Added option to SSH daemon to allow or deny SSH root login.

6.1.2.1 Permit root login

Added option to set whether SSH root login is allowed. When set to "yes" root logins via SSH are allowed. When set to "no", root cannot login directly via SSH.

6.1.2.2 Configuration

The Permit root login can be set via

- Web Configuration:

Services Configuration	
GSM Daemon	
Enable GSM Daemon	Enabled
SSH Daemon	
Enable SSH Daemon	Enabled
Permit root login	No
SSH Daemon port	22
SSH Deamon keep alive	Disabled
Allow port forwarding	Yes

- Command Line Interface:

```

G-router CLI
+-----+ Enable SSH Dae : enabled
||+General      | Permit root lo : no
||+Users        | SSH Daemon por : 22
||+Configuration | SSH Deamon kee : disabled
|| |-Serial Console Conf| Allow port for : yes
|| |+GSM Module Configur| |
|| |+Network Configurati|
|| |+Services Configurati|
|| | |-GSM Daemon      |
|| | |-SSH Daemon       |
  
```

- HIB commands:

```

/ # hibc ls /config/services/sshd/sshd_enable/enabled/permit_root
yes
no
  
```

6.1.3 Auto PPP Grace Period

The G-router has the option to setup a PPP session over a dial-in session. For this, the G-router listens for PPP packets during the PPP grace period. After the grace period is over, it will not listen for PPP packets anymore during that session. The hard coded value was 20 seconds.

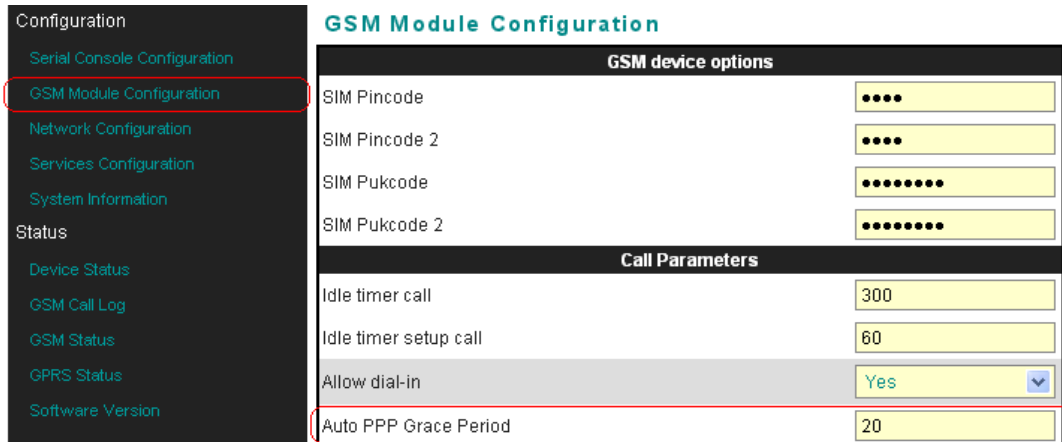
6.1.3.1 Settable Auto PPP Grace Period

The automatic PPP grace period is settable now. The default value is 20 seconds. It can be set to 0-60 seconds. Setting the grace period to 0 seconds will disable the Auto PPP option altogether.

6.1.3.2 Configuration

The Auto PPP Grace Period can be set via

- Web Configuration:



GSM Module Configuration	
GSM device options	
SIM Pincode
SIM Pincode 2
SIM Pukcode
SIM Pukcode 2
Call Parameters	
Idle timer call	300
Idle timer setup call	60
Allow dial-in	Yes
Auto PPP Grace Period	20

- Command Line Interface:

```
G-router CLI
+-----+ Idle timer cal : 300
||+General | Idle timer set : 60
||+Users | Allow dial-in : yes
||+Configuration | Auto PPP Grace : 20
|| | -Serial Console Conf| |
|| | +GSM Module Configur|
|| | | -GSM device option|
|| | | -Call Parameters |
|| | | -GPRS Parameters |
|| | ` -Boot SMS options |
```

- HIB commands:

```
/ # hibi ls /config/gsm/call/autoppp_grace_period
autoppp_grace_period
```

6.1.4 Linux shell from Command Line Interface

Non-root users will get the Command Line Interface when logging into the G-router. Sometimes it is needed to be able to go to the Linux shell. For admin and admin_status users, this is possible from the CLI.

6.1.4.1 Opening the Linux shell from the CLI

From the General page, go to Linux Shell item, go to the right pane, and press ENTER. This will open a shell prompt for the logged in user. If root permissions are needed (most commands), type the command "su" and enter the root password. This will give a prompt with root permissions.

```
G-router CLI
-----+-----+
|+General      |
| |-Status     |
| |-Open Console|
| |-Console Log|
| |-Linux Shell|
| |-Toggle Relay|
| |-Reboot     |
| `--Restore Defaults
```

6.1.4.2 Exiting Linux shell and returning to the CLI

If the command "exit" is typed, the su session (if started) will be closed. Typing exit again will return you to the CLI.

```
/tmp/home/admin $ su
Password:
/tmp/home/admin # exit
/tmp/home/admin $ exit
```

6.1.5 GSM troubleshoot script

Added a troubleshoot script for debugging the GSM module and network connection of the G-router. Sometimes it is needed to troubleshoot the GSM module and/or SIM card settings. The GSM troubleshoot script will stop the running GSM daemon and GPRS daemon. This means any dial-in session or GPRS session is terminated, so this can only be done via a local connection. The script gives access to the AT and CSD channels of the GSM module. Troubleshooting these channels is for experts only and done via AT commands.

! Please note:
Troubleshooting the module and SIM card is for experts only. Some AT commands may result in (over)writing settings of the SIM card or other unexpected or undefined behavior. RFI Engineering takes no responsibility for any damage caused.

6.1.5.1 Starting the GSM troubleshoot script

The GSM troubleshoot script is started from the Linux shell, and can only be run with root privileges. Start the script by typing the command "gsm_troubleshoot"

```

/ # gsm_troubleshoot
***** WARNING *****

This script will stop the GSM daemon and open a console to the GSM module.
If you are connected to the system via a remote GSM/GPRS connection,
the connection will be lost! In that case, do not run this script!

RUN AT YOUR OWN RISK.
***** WARNING *****
Are you sure to continue? (N/y) y

Stopping GPRS and GSM daemons...
GPRS and GSM daemons stopped

The GSM module is divided in several logical channels.

1) Is used for AT commands. (i.e. like AT&V)
2) Is used for CSD calls (i.e. RING indication)
q) Quit

Please choose the channel you want to debug,
or q to quit debugging. (1/2/q) █

```

Choose "y" to continue, or "n" when not sure.

Next, choose the channel to debug:

- 1) Is used for sending AT commands to the GSM module. Like AT&V.
- 2) Is used for CSD calls. Incoming calls are using that channel.

For example to get the active profile, choose 1 and type AT&V:

```

Please choose the channel you want to debug,
or q to quit debugging. (1/2/q) 1
Connect to /dev/gsm_dlc1 at 57600 bps
~~ send tilde
~. exit console
~b send break
~d dtr hop
~xNN enter HEX character
-----
at
OK
at&v
ACTIVE PROFILE:
E1 Q0 V1 X0 &C1 &D2 &K3 &Y0
S00:000 S01:000 S02:043 S03:013 S04:010 S05:008 S06:002 S07:030
S08:002 S09:006 S10:014 S12:020 S14:AAH S16:80H S18:000 S21:28H
S22:86H S23:1BH S25:005 S26:001 S27:09H
STORED PROFILE 0:
E1 Q0 V1 X0 &C1 &D2 &K3
S00:000 S02:043 S03:013 S04:010 S05:008 S07:030 S12:020
STORED PROFILE 1:
E1 Q0 V1 X0 &C1 &D2 &K3
S00:000 S02:043 S03:013 S04:010 S05:008 S07:030 S12:020
OK

```


To exit debugging the channel, give the command "~." This will return you to the channel selection again.

To troubleshoot incoming calls, choose option 2. By default, local echo is disabled on this channel. You can enable it by giving the command ATE1 <ENTER>

For example to enable the Cellular Result Codes, type "AT+CRC=1" and when the number is called you will see more info:

```
Please choose the channel you want to debug,
or q to quit debugging. (1/2/q) 2
Connect to /dev/gsm_dlc2 at 57600 bps
~~ send tilde
~. exit console
~b send break
~d dtr hop
~xNN enter HEX character
-----
OK
at
OK
at+crc=1
OK
+CRING: REL ASYNC
```

To exit debugging the channel, give the command "~." This will return you to the channel selection again.

6.1.5.2 Exiting the GSM troubleshoot script

Choose "q" to quit the troubleshoot script, the next question is whether to reboot the system or not, choose "y", after this the system will reboot to return to a defined state:

```
Please choose the channel you want to debug,
or q to quit debugging. (1/2/q) q
Finished debugging.
System in undefined state!
Please reboot the system
Should I reboot now? (Y/n) y
Going down for reboot, goodbye.
```



Please note:

It is important to reboot the system after GSM troubleshooting and ensure the system is operating correct after reboot. If the system is not rebooted, the GSM and GPRS daemon are not running and no dial-in calls or GPRS sessions are possible.

6.2 Bug-fixes

The following bugs are fixed:

- When upgrading from version 1.0.0 to 1.1.0 the G-router would reboot constantly because the default HTTPS certificate was not correctly stored in the HIB. This rendered the 1.1.0 version useless. Fixed the storage of the default HTTPS certificate.
- The parameter GSM Module Configuration → Call Parameters → Allow dial-in can be set to yes or no, but was not used in GSM daemon. If Allow dial-in is set to "no" the GSM daemon will hang-up any incoming call directly.
- The restore to factory defaults option was not working from the Command Line Interface when logged in as non-root user. This has been fixed.
- The Serial Console Baudrate was not taken into account, and stayed on 9600 baud. The baud rate is taken into account now.
- Fixed typos. Renamed dail to dial where misspelled. Renamed deamon to daemon where misspelled.
-

6.3 Known issues

- No known issues for this version.