



Windows Driver Release Notes

Driver Version 4.0.6.0

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Version History

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Oct 16, 2007	V05 – F2	J. Schrijvers		Driver 4.0.2.25 – updated Content of package
Nov 15, 2007	v006draft	J. Schrijvers		Driver 4.0.2.26 – draft version
Nov 16, 2007	v007ext	J. Schrijvers	D. Michiels P. Hardwick	Driver 4.0.2.26 – release for Foma
Dec 13, 2007	v008draft	J. Schrijvers		Driver 4.0.2.28 – draft version
Dec 17, 2007	v009ext	J. Schrijvers	P. Hardwick	Driver 4.0.2.28 – release for Foma, without GtDetectSc.exe
Dec 20, 2007	v010draft	J. Schrijvers		Driver 4.0.2.29 – draft version
Dec 20, 2007	v011ext		P. Hardwick	Driver 4.0.2.29 – release for all products
Jan 22, 2008	v012ext	J. Schrijvers		Driver 4.0.2.30 – release for all products
Feb 04, 2008	v013draft	J. Schrijvers		Driver 4.0.2.30 – support for Melitta added – draft version
Feb 04, 2008	v014ext		J.Vandenborre	
Feb 07, 2008	v015ext	J. Schrijvers		Driver 4.0.2.30 – added high-level limitation
Feb 25, 2008	v016draft	J. Schrijvers		Driver 4.0.2.32 – draft version
Feb 26, 2008	v017ext		P. Hardwick	Driver 4.0.2.32 – final version
Apr 11, 2008	v018ext	J. Schrijvers		Driver 4.0.2.32 – final version-updated limitation for Faema
July 10, 2008	v019ext	J. Schrijvers		Driver 4.0.5.0 – release for Etna-mPex
July 16, 2008	v020ext	J. Schrijvers		Driver 4.0.5.0 – release for Etna-mPex + commercial driver installer
July 17, 2008	v021ext	J. Schrijvers	C. Liu	Driver 4.0.5.0 – release for Etna-mPex + commercial driver installer + support for XP added
Aug 26, 2008	v022ext	J. Schrijvers		Driver 4.0.6.0 – release for Etna-mPex
Aug 28, 2008	v023ext	J. Schrijvers		Driver 4.0.6.0 – release for Etna-mPex + commercial driver installer

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REFERENCES

Ref	Document
1	Etna family Quick Install Manual
	Option N.V.

Table 1 : References

1 INTRODUCTION

1.1 Purpose of this release

This document contains the release notes for Windows driver 4.0.6.0.
For an overview of all products supported by this driver release, see Chapter 2.1.

The 4.x.x.x series of drivers are designed to achieve optimal downlink throughput on HSDPA 7.2 networks with HSDPA Cat. 8 products.

The main reason for this release is :

- Fix for possible BSOD (code 0x9F – DRIVER_POWER_STATE_FAILURE) after Resume from Standby/Hibernate, boot or reboot.

All known issues and limitations are described in Chapter 2.6.

All the solved issues and current problems will relate to Option's TestTrack bug tracking system.

1.2 High-level limitations

None.

2 RELEASE DESCRIPTION

2.1 Compatibility

This driver release is intended to be used with the following set Option products and operating systems :

- Option products :

The Option products supported can be grouped by chipset.

Qualcomm 'MSM6280' chipset :

Marketing name	Engineering name	Minimal FW version required	Supported by this driver?	Latest driver supported
GlobeTrotter HSDPA 7.2 Ready	Fuji-L	2.2.0	No	4.0.2.32
GlobeTrotter GT MAX 7.2 Ready	Fuji-GT	2.2.0	No	4.0.2.32
GlobeTrotter Express 7.2 Ready	Fuji-Ex	2.2.0	No	4.0.2.32
FOMA OP2502 HIGH-SPEED	Foma	2.2.0	No	4.0.2.32
GTM378	Scorpion	2.2.0	No	4.0.2.32
GlobeSurfer Icon 7.2	Zaltys	2.2.0	No	4.0.2.32
ICON 225	D-Racer	2.4.2	No	4.0.2.32

Table 2 : Compatibility - Qualcomm MSM6280 chipset

Qualcomm 'MSM7200' chipset :

Marketing name	Engineering name	Minimal FW version required	Supported by this driver?	Latest driver supported
GlobeTrotter GT MAX HSUPA	Etna-GT	2.4.0	No	4.0.2.32
GlobeTrotter Express HSUPA	Etna-Ex	2.4.0	No	4.0.2.32
GTM380	Etna-mPex	2.4.0	Yes	4.0.6.0
GlobeSurfer Icon HSUPA	Anaconda	2.4.0	No	4.0.2.32

Table 3 : Compatibility - Qualcomm MSM7200 chipset

A Fuji-Ex, Foma and Etna-Ex data card can be used in a laptop with a Cardbus slot by using a Cardbus-ExpressCard/34 converter - CEM

2 CEM versions exist :

CEM with NXP USB Host Controller inside

CEM with NEC USB Host Controller inside

For details on the 2 CEM versions, see Reference [3].

The Qualcomm chipset based products must have the 7.2 interface (WAN) enabled in order to work with 4.x.x.x drivers. In case they have the 3.6 interface (modem) enabled, they will only work with 3.x.x.x drivers.

Infineon 'SGold 2' chipset :

Marketing name	Engineering name	Minimal FW version required	Supported by this driver?	Latest driver supported
ICON 031	Melitta	06.06	No	4.0.2.32

Table 4 : Compatibility - Infineon SGold2 chipset

Due to there being only pre-commercial FW available at the moment of this driver release (FW 06.06.0), the driver validation for Melitta product is basic. For an overview of the known issues and limitations, see Ch. 2.6.4.

Icera '8020' chipset :

Marketing name	Engineering name	Minimal FW version required	Supported by this driver?	Latest driver supported
ICON 322	Faema	1.2.3	No	4.0.2.32

Although this driver has not been completely validated on them, it supports the following products :

- GTM501 - Mauro

The engineering names of the products will be used further on in this release note.

- Operating systems supported :
 - Windows 2000 : with SP4
 - Windows XP : with SP2 and SP3 – 32-bit and 64-bit versions
 - Windows Vista : without SP1, with SP1 – 32-bit and 64-bit versions
When SP1 is not installed, a set of Windows Vista updates are required to solve known problems (see Chapter 2.6.2).

Validation of the drivers is done on the Windows versions with the latest SP or updates available. So, in case a problem is observed and the latest SP or updates are not installed, Option highly recommends installing the latest SP or updates available and retest.

There is no support for Windows 98 and Windows ME.

2.2 Content of package

2.2.1 Signed driver package

This package is located in the “SoftwarePackage\Driver-4_0_6_0-Signed” folder.

2.2.1.1 32-bit operating system package

This package is located in the “SoftwarePackage\Driver-4_0_6_0-Signed\32” folder.

The 32-bit operating system package exists for the following operating system:

- Windows 2000
- Windows XP, 32-bit versions
- Windows Vista, 32-bit versions

Filename	Type	Version	Description / Device Name
GtDetectSc.exe	Service	3.0.0.106	see Ch. 2.3.3
gt72mdm.cat	Security Catalog		Modem Interface
gt72ndis.cat	Security Catalog		Network Interface
gt72sc.cat	Security Catalog		Smart Card Interface
gt72ser.cat	Security Catalog		Application Interface & Diagnostics Interface
gt72ubus.cat	Security Catalog		USB bus
gtfubus.cat	Security Catalog		renames USB Host Controllers ¹
gt72mdm.inf	Setup Information	4.0.6.0	Modem Interface
gt72ndis.inf	Setup Information	4.0.6.0	Network Interface
gt72sc.inf	Setup Information	4.0.6.0	Smart Card Interface
gt72ser.inf	Setup Information	4.0.6.0	Application Interface & Diagnostics Interface & GPS Interface
gt72ubus.inf	Setup Information	4.0.6.0	USB bus
GtFubus.inf	Setup Information	4.0.6.0	renames USB Host Controllers ¹
GT50lrp.sys	System file	2.0.3.20	Network Interface (Windows 2000)
Gt51lrp.sys	System file	2.0.3.20	Network Interface (Windows XP and Windows Vista)
gt72ubus2k.sys	System file	1.0.0.9	USB bus (Windows 2000)
gt72ubus.sys	System file	1.0.0.9	USB bus (Windows XP and Windows Vista)
gtptser.sys	System file	1.6.0.1	Modem Interface / Diagnostics Interface / Application Interface / Smart Card Interface / GPS Interface
gtscser.sys	System file	1.5.0.49	Smart Card Interface

Table 5 : 32-bit operating system package

¹ USB Host Controller(s) inside Fuji-L, Fuji-GT and Etna-GT get renamed to “GlobeTrotter Mobile Device”.

USB Host Controller(s) inside CEM gets renamed (if applicable, see Reference [3]) to “Mobile Bus Converter”.

2.2.1.2 64-bit operating system package

This package is located in the “SoftwarePackage\Driver-4_0_6_0-Signed\64” folder.

The 64-bit operating system package exists for the following operating system:

- Windows XP, 64-bit versions
- Windows Vista, 64-bit versions

Filename	Type	Version	Description / Device Name
GtDetectSc.exe	Service	3.0.0.106	see Ch. 2.3.3
gt72mdm_64.cat	Security Catalog		Modem Interface
gt72ndis_64.cat	Security Catalog		Network Interface
gt72sc_64.cat	Security Catalog		Smart Card Interface
gt72ser_64.cat	Security Catalog		Application Interface & Diagnostics Interface
gt72ubus_64.cat	Security Catalog		USB bus
Gtfubus_64.cat	Security Catalog		renames USB Host Controllers ²
gt72mdm_64.inf	Setup Information	4.0.6.0	Modem Interface
gt72ndis_64.inf	Setup Information	4.0.6.0	Network Interface
gt72sc_64.inf	Setup Information	4.0.6.0	Smart Card Interface
gt72ser_64.inf	Setup Information	4.0.6.0	Application Interface & Diagnostics Interface
gt72ubus_64.inf	Setup Information	4.0.6.0	USB bus
GtFubus_64.inf	Setup Information	4.0.6.0	renames USB Host Controllers ²
Gt51lrp_A64.sys	System file	2.0.3.20	Network Interface
gt72ubus_A64.sys	System file	1.0.0.9	USB bus
gtptser_A64.sys	System file	1.6.0.1	Modem Interface / Diagnostics Interface / Application Interface / Smart Card Interface / GPS Interface
GtScSer_A64.sys	System file	1.5.0.49	Smart Card Interface

Table 6 : 64-bit operating system package

² USB Host Controller(s) inside Fuji-L, Fuji-GT and Etna-GT get renamed to “GlobeTrotter Mobile Device”.

USB Host Controller(s) inside CEM gets renamed (if applicable, see Reference [3]) to “Mobile Bus Converter”.

2.2.1.3 NDIS SDK package

The following files are located in the “SoftwarePackage\Driver-4_0_6_0-Signed\NDIS sample” folder :

1. GEN-DRV-TS-NDIS_ControlPanelApplet_UserManual-v001ext.pdf : sample NDIS driver applet user guide
2. GEN-DRV-TS-NDIS_Driver_Interface_Description-v004ext.pdf : NDIS interface description document
3. GtmNicApp.cpl - v 4.0.1.13: sample NDIS driver applet
 GtmNicApp_32.cpl : to be used on 32-bit operating systems
 GtmNicApp_64.cpl : to be used on 64-bit operating systems
4. GtNdisDeviceIo.h : NDIS driver interface header file
5. NicCPApplet.zip : source code of the sample NDIS driver applet
6. defdata.reg : NDIS driver parameters configuration file
7. GEN-SPQ-WP-OPTION_7_2_Interface-v003ext.pdf : overview of call setup and teardown AT commands
8. GEN-DRV-TS-PnP_Compliant_Applications-v003ext.pdf : Windows Plug&Play rules for application development

Unlike with RAS, Windows does not contain an application that can be used by an end-user to set up a connection with the NDIS driver. Instead, a custom user mode application has to be used. This application needs to access the NDIS driver according to its interface, as described in the NDIS driver interface header file (4) and the NDIS interface description document (2).

This driver package contains such a sample application (3), including a user guide (1) and its source code (5). The rules for proper Windows Plug&Play support are described in document (8).

The default NDIS driver parameters can be overruled at installation time by the parameters defined in the ‘common area’ in the Registry. This common area can be created by running the configuration file (6) before the NDIS driver installation or by writing these parameters yourself.

Note that this sample application is an engineering application that is not intended for commercial use. Its goal is to demonstrate the NDIS driver functionality and to be used as a reference for the development of a commercial NDIS application.

The 4.x.x.x NDIS driver has a slightly different interface as the 3.x.x.x driver interface. The main difference is that the 3.x.x.x NDIS driver uses a PPP channel for call setup and teardown whereas the 4.x.x.x NDIS driver does not. The 4.x.x.x NDIS driver makes use of AT commands for call setup and teardown. These AT commands are documented in (7).

2.2.1.4 Engineering driver installer package

The following files are located in the “SoftwarePackage\Driver-4_0_6_0-Signed\engineering installer” folder :

- setup.exe : 32-bit drivers engineering installer
- setup_64.exe : 64-bit drivers engineering installer

The engineering installer needs to be copied into the corresponding \32 or \64 folder first before it will work.

Note that this installer is not supposed to be used in commercial products. It should only be used for engineering purposes only.

It does not contain uninstall functionality. It only tries to install the driver, not taking into account drivers already present on the system. The driver installer is not able to uninstall previously installed drivers. It does not perform all necessary steps needed for Zero-CD functionality.

In case of problems, clean the system before running the installer, so no old Option drivers are present. In order to have full installer's functionality, a commercial driver installer can be requested

2.2.2 Commercial driver installer package

A commercial driver installer package is located in the “SoftwarePackage\Driver-4_0_6_0-Installer” folder.

The installer has the following characteristics :

- Windows driver 4.0.6.0 gets (un)installed
- service GtDetectSc.exe (v3.0.0.106) gets (un)installed
- TCPWindowSize configuration scheme 0 is set, with GlobalMaxTcpWindowSize and TcpWindowSize set to 146000

The installer works for all the Option products and on all operating systems supported by this driver (listed in Chapter 2.1).

By running the .exe or the .msi file, the complete Windows driver 4.0.6.0 package will be (un)installed.

The msi package supports silent (un)install via the appropriate (/qn or alike) options.

For an overview of known problems and limitations of the commercial driver installer, see Chapter 2.6.5 .

2.3 Basic installation and operation

2.3.1 General

A description of the basic installation and operation of the Qualcomm MSM7200 Family products is available in Reference [1].

Note that this Quick Install Manual is based on the 3.x.x.x series drivers. Some differences exist between the 3.x.x.x and 4.x.x.x series drivers. These differences are not documented in the Quick Install Manual.

2.3.2 TCPWindowSize configuration

In order to achieve an optimal throughput performance with TCP on HSDPA networks, it is recommended to set the TCPWindowSize for the connection to a value of 146000.

On Windows 2000 and Windows XP, the TCPWindowSize has to be configured by the user (application, installer or driver).

On Windows Vista, a TCPWindowSize self-tuning algorithm is implemented. Configuration parameters defined by a user are ignored by Windows Vista.

This driver has implemented 4 TCPWindowSize configuration schemes :

1. Scheme 0 - NDIS driver sets TcpWindowSize to 146000 at global level.
2. Scheme 1 - NDIS driver sets a configurable TcpWindowSize at NDIS interface level. No global TCPWindowSize parameters are set by the driver.
3. Scheme 2 - No TCPWindowSize parameters are set by the driver.
4. Scheme 3 - Dynamic TCPWindowSize
5. Scheme 4 - NDIS driver sets TcpWindowSize to 96360 at global level.

By default, scheme 0 is selected at driver installation time.

However, the default scheme selection can be overruled at NDIS driver installation time by the following parameter defined at the 'common area' in the Registry :

HKLM\System\CCS\Services\{GT07DOT2-11ED-4329-B92E-3ADA2FCFCDD0}\Profiles\Default\TcpSchema :

- TcpSchema = 0 : scheme 0
- TcpSchema = 1 : scheme 1
- TcpSchema = 2 : scheme 2
- TcpSchema = 3 : scheme 3
- TcpSchema = 4 : scheme 4

This common area can be created by running defdata.reg or by an application/driver installer.

2.3.2.1 TCPWindowSize configuration scheme 0

The NDIS driver writes the following Registry keys at installation time and when it gets loaded :

- HKLM\System\CCS\Services\Tcpip\Parameters\GlobalMaxTcpWindowSize : 146000
- HKLM\System\CCS\Services\Tcpip\Parameters\Tcp1323Opts : 3
- HKLM\System\CCS\Services\Tcpip\Parameters\TcpMaxConnectRetransmissions : 5
- HKLM\System\CCS\Services\Tcpip\Parameters\TcpWindowSize : 146000

The NDIS driver does not change or delete other Registry keys.

The GlobalMaxTcpWindowSize and TcpWindowSize parameters (both have the same value) can be overruled at NDIS driver installation time by the following parameter defined at the 'common area' in the Registry :

HKLM\System\CCS\Services\{GT07DOT2-11ED-4329-B92E-3ADA2FCFCDD0}\Profiles\Default\TcpWindowSize.

This common area can be created by running defdata.reg or by an application/driver installer.

Note that the NDIS driver will only overrule these 2 parameters if the new value is higher than the existing value.

Since these settings are set at global level, it can affect other network connections on the system.

2.3.2.2 TCPWindowSize configuration scheme 1

The NDIS driver has a "TcpWindowSize" parameter in its software Registry key, located at :

HKLM\System\CCS\Control\Class\<Network Adapter class GUID>\<Option NDIS driver ID>\TcpWindowSize

Every time the NDIS driver loads, it checks the value of the TcpWindowSize parameter and acts upon its value :

- TcpWindowSize = 0 : No action.
- TcpWindowSize > 0 : This value is written to the TCPIP parameters at NDIS interface level in the Registry. This Registry key is located at HKLM\System\CCS\Services\Tcpip\Parameters\Interfaces\<Option NDIS connection ID>\TcpWindowSize. After writing this key it will become effective after the NDIS driver reloads.

The NDIS driver does not change or delete other Registry keys.

By default, the TcpWindowSize key in the NDIS driver software Registry key is initialized to 0 after NDIS driver installation, as defined in the NDIS driver inf file gt72ndis.inf / gt72ndis_64.inf .

However, this parameter can be overruled at NDIS driver installation time by the following parameter defined at the 'common area' in the Registry :
HKLM\System\CCS\Services\{GT07DOT2-11ED-4329-B92E-3ADA2FCFCDD0}\

Profiles\Default\TcpWindowSize.

This common area can be created by running defdata.reg or by an application/driver installer.

No global TCPWindowSize parameters are being set by the driver.

In case the NDIS driver configures a TcpWindowSize value > 64 Kbytes on NDIS interface level, window scaling needs to be enabled. This is usually done by configuring the following TCPIP parameters at global level :

- HKLM\System\CCS\Services\Tcpip\Parameters\Tcp1323Opts : set to 1 or 3 – needed for Windows XP
- HKLM\System\CCS\Services\Tcpip\Parameters\GlobalMaxTcpWindowSize : set to maximal allowed value – needed for Windows 2000 and Windows XP

The window scaling configuration is not done by the NDIS driver. It has to be done by an application/driver installer.

2.3.2.3 TCPWindowSize configuration scheme 2

The NDIS driver does not write any TCPWindowSize related parameter in the Registry. All configuration needs to be done by the driver installer or application.

2.3.2.4 TCPWindowSize configuration scheme 3

This TCPWindowSize configuration scheme has to be selected for dynamic TCPWindowSize configuration.

This scheme can only be used together with a TDI filter driver (GtTdiFiltr.sys, version 1.0.0.3 onwards).

The TDI filter driver is not part of this driver package.

The NDIS driver does not write any TCPWindowSize related parameter in the Registry. Through IOCTL_GT_NDIS_GPRS_SET_TCPWINDOWSIZE, a TCPWindowSize value is given to the NDIS driver. This value is forwarded to the TDI filter driver along with the IP address of the NDIS connection. The TDI filter driver makes sure that this TCPWindowSize value is applied for the open NDIS connection as soon as the next TCP socket session starts (after a few seconds of inactivity).

This dynamic TCPWindowSize configuration scheme will only work if the following Registry key does not exist :

HKLM\System\CCS\Services\Tcpip\Parameters\TcpWindowSize.

2.3.2.5 TCPWindowSize configuration scheme 4

The NDIS driver writes the following Registry keys at installation time and when it gets loaded :

- HKLM\System\CCS\Services\Tcpip\Parameters\Tcp1323Opts : 1
- HKLM\System\CCS\Services\Tcpip\Parameters\TcpWindowSize : 96360

The NDIS driver does not change or delete other Registry keys.

Since these settings are set at global level, it can affect other network connections on the system.

2.3.3 Service GtDetectSc.exe

When service GtDetectSc.exe is registered and started, it will detect the following system events :

- Low power transition : Standby/Hibernate/ShutDown/Restart/SafeRemove.
- Resume from a low power transition : Standby/Hibernate.

After detection of these system events, the FW will receive a trigger and takes care of appropriate actions (e.g. signalling towards the network).

The communication between the service and FW happens through the USB bus driver.

Eventually, this mechanism – consisting out of the service, drivers and FW – provides functionality described by the use cases described in chapters 2.3.3.1 / 2.3.3.2.

Note that in addition to the functionality provided by this mechanism, applications/services/drivers - running along with the Option drivers and GtDetectSc.exe service - can also trigger FW to perform actions at low power transitions/resume. E.g. an application (such as Windows DialUp, ...) can detect a low power transition and request a PDP de-activation.

Eventually FW receives these requests at different moments in time and should coordinate them accordingly. Commonly, Windows triggers instances about low power transitions/resume in a defined order : applications > services > drivers.

Further elaboration on this topic lies outside the scope of this document.

2.3.3.1 Low power transition

The registration of the service has to be done through “GtDetectSc.exe –register”.

Low power transitions : Standby/Hibernate/ShutDown/Restart/SafeRemove

After being triggered by the service/drivers, the FW takes care of the following signalling towards the network :

network detach/turn off the radio

This functionality is supported by the following FW versions :

Engineering name	Minimal FW version required
Fuji-L	2.3.2
Fuji-GT	2.3.2
Fuji-Ex	2.3.2
Foma	not supported
Scorpion	2.3.2
Zaltys	2.3.2
D-Racer	2.4.2
Etna-GT	2.7.0
Etna-Ex	2.7.0
Etna-mPex	2.7.0
Anaconda	2.7.0
Melitta	not supported

Table 7 : FW support service GtDetectSc.exe

For details about the FW responsibility in this use case, see the corresponding FW release notes.

2.3.3.2 Resume from low power transition

Low power transitions : Standby/Hibernate

After being triggered by the service/drivers, the FW will take appropriate actions. The most applicable use case is : When the system did not power off the product during a low power state (e.g. Standby, ...), the FW will turn on the radio after resume. This functionality is supported by all FW versions listed in Table 7. For details about the FW responsibility in this use case, see the corresponding FW release notes.

2.4 Solved issues

- Fix for possible BSOD (code 0x9F – DRIVER_POWER_STATE_FAILURE) after Resume from Standby/Hibernate, boot or reboot.

2.5 New features

None.

2.6 Known problems and limitations

Although this driver release is only validated on some products, the known problems and limitations listed below apply to all supported products listed in Chapter 2.1.

2.6.1 General known problems and limitations

- Limitation 1 :
 - Description: A surprise removal of a removable product is not always allowed in Windows. A user should always request the system for a Safe Remove and wait on the systems approval before removing the product. Depending on the product and operating system used, the following problems will be observed after a surprise removal:
 - Fuji-GT/Fuji-L/Fuji-Ex with CEM/Foma with CEM/Etna-GT/Etna-Ex with CEM on Windows 2000 :
Always, a BSOD.
 - Fuji-GT/Fuji-L/Fuji-Ex with CEM/Foma with CEM/Etna-GT/Etna-Ex with CEM on Windows XP (32 and 64 bit) :
Very rarely, a BSOD.
 - Fuji-GT/Fuji-L/Fuji-Ex with CEM/Foma with CEM/Etna-GT/Etna-Ex with CEM on Windows Vista (32 and 64 bit) :
Sometimes, a BSOD or other problems
(see <http://support.microsoft.com/?id=933938>).
 - Fuji-Ex without CEM/Etna-Ex without CEM/Foma without CEM/Zaltys/Anaconda/D-Racer on Windows 2000 :
An “Unsafe Remove” popup appears. When clicking “OK”, the popup disappears and normal operation can be resumed.
 - Products involved : see Description
 - Operating systems involved : see Description
 - Analysis: Windows requires removable devices to be safely removed. A user is simply not allowed to do a surprise removal.
A surprise removal of a Cardbus data card (Fuji-GT, Fuji-L, Etna-GT, CEM) actually means to Windows that a USB Host Controller got removed from the PCI bus. This can cause BSODs. The frequency of BSODs depends on the Windows version used.
A surprise removal of a USB device (Fuji-Ex/Etna-Ex/Zaltys/Anaconda) on Windows 2000 will only result in a warning.
 - Workaround: Before removing a product, request a Safe Remove from the system and wait for it's approval before removing.

- Limitation 2 :
 - Description: It's possible that products do not resume properly from Standby or Hibernate on systems with a Intel chipset.
 - Products involved : all
 - Operating systems involved : all
 - Analysis : Intel chipset drivers or laptop specific drivers can contain flaws
 - Workaround: Install the appropriate Intel Chipset Software Installation Utility at Intel's web site : <http://downloadcenter.intel.com/> and available updates on the laptop's manufacturer homepage.
- Limitation 3 :
 - Description: The service GtDetectSc.exe service and drivers will only guarantee a proper functioning mechanism if the correct FW versions are being used. For details on the FW versions to be used, see Ch. 2.3.3. At the moment of release of this driver, service GtDetectSc.exe running in mode 2 has not been validated, due to a lack of FW available. Therefore service GtDetectSc.exe should not be set in mode 2 as long as proper FW is not available.
 - Products involved : all
 - Operating systems involved : all
 - Analysis : None
 - Workaround : None
- Limitation 4 :
 - Description: TCPWindowSize configuration scheme 3 can only be used together with a TDI filter driver (GtTdiFltr.sys, version 1.0.0.3 onwards). The TDI filter driver is not part of this driver package.
 - Products involved : all
 - Operating systems involved : all
 - Analysis : None
 - Workaround : None
- Limitation 5 :
 - Description: It may happen that a Program Error on svchost.exe occurs after Resume from Standby/Hibernate while a RAS connection was established. This problem only occurs on Windows 2000 when using Windows DialUp Networking.
 - Products involved : all
 - Operating systems involved : Windows 2000
 - Analysis : In case of the error, a race conflict occurs between Windows DialUp Networking and Windows power management. At the moment the system goes into Standby/Hibernate, Windows Dialup Networking did not close completely the open connection (DTR and RTS are not dropped).
 - Workaround : Since this is a pure Windows conflict, Option cannot fix it or provide a workaround. Nevertheless, this problem only occurs when using Windows DialUp Networking and not when using a 3rd party connection manager application.

2.6.2 Windows Vista related known problems and limitations

The limitations listed in this chapter refer to Windows Vista fixes for some known issues when using Option products. However, in order to minimize the risk for other yet unknown issues caused by Windows Vista, Option highly recommends installing all available Windows Vista fixes.

Most of these fixes are also incorporated in Windows Vista SP1.

However, some fixes are not incorporated in Windows Vista SP1.

- Limitation 1 :
 - Description: When a connection (NDIS) is released and a connection (NDIS) is set up afterwards, the newly created connection can sometimes have IP related problems. These problems can manifest themselves as:
 - A popup mentioning a “Duplicate name or IP is already found on the network” appears. By closing this popup, normal operation can be resumed.
 - A Windows generated IP address “169.xxx.xxx.xxx” gets assigned. It is not possible to connect to the internet
 This problem can also occur when the laptop resumes from Standby or Hibernate.
 - Products involved : all
 - Operating systems involved : Windows Vista (32 and 64 bit)
 Analysis : This problem is caused by a flaw in the DHCP/ARP implementation of Windows Vista.
 This problem is totally due to Windows Vista and not due to Option drivers.
 - Workaround : Create a DWORD entry named ‘ArpRetryCount’ in the Registry at :
 HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
 and set it's value to 0.
- Limitation 2 :
 - Description: On Windows Vista, the throughput performance can be worse than on Windows 2000 and Windows XP.
 - Products involved : all
 - Operating systems involved : Windows Vista (32 and 64 bit)
 - Analysis: Due to the fact that Windows Vista uses a TCPWindowSize auto-tuning algorithm, the Option driver has no control over the used TCPWindowSize, as is possible with Windows 2000 and Windows XP. In the current Windows Vista versions, the auto-tuning algorithm does not work properly for WWAN devices. The selected TCPWindowSize value is too low, i.e. 30 to 50Kbytes, to guarantee good throughput performance. Microsoft acknowledged that there is a problem in Vista and provided Option with a fix which seems to work fine. However, this fix is not yet officially released by Microsoft.
 - Workaround : Install Windows Vista SP1 or fix KB940646.

- Limitation 3 :
 - Description : On Windows Vista, it may happen that the product does not Resume from Standby or Hibernate or does not work properly after Resume.
 - Products involved : all
 - Operating systems involved : Windows Vista (32 and 64 bit)
 - Analysis : Windows Vista is not respecting some USB and Plug and Play timings when resuming devices after Standby or Hibernate.
 - Workaround : Install Windows Vista SP1 or fix KB941858, KB948278, KB929762, KB947382 and USB Rollup KB941600 (includes fixes KB925528, KB935783, KB929734, KB930570, KB928631, KB928631 (also follow the post-installation instructions),)
On top of Vista SP1, the following fix needs to be installed : KB949201, KB946988, KB948278.
- Limitation 4 :
 - Description : On Windows Vista, it can happen that the product disappears from Device Manager after 30 minutes or more and therefore the product is not accessible anymore.
 - Products involved : all
 - Operating systems involved : Windows Vista (32 and 64 bit)
 - Workaround : Install Windows Vista SP1 or fix KB930568.

2.6.3 CEM related known problems and limitations

For an overview of the CEM related known problems and limitations, see Reference [3].

2.6.4 Melitta related known problems and limitations

At the moment of validation of this driver on Melitta products, the FW used was a pre-commercial version (FW 06.06).

Due to the status of the FW, the driver validation tests were limited.

The following high level problems and limitations are known :

- It is not possible to setup a NDIS connection.
- Service GtDetectSc.exe is not compatible with Melitta.

2.6.5 Commercial driver installer known problems and limitations

- Limitation 1 :
 - Description : The driver installer needs administrator rights to be installed. The package contains drivers that need to be installed in system folders. In order to be able to access these folders during installation, administrator rights are required.
 - Products involved : all
 - Operating systems involved : all
 - Workaround : none
- Limitation 2 :
 - Description : The silent (un)installer options are only usable in combination with the *.msi* installer. The *.exe* installer does not accept these options.
 - Products involved : all
 - Operating systems involved : all
 - Workaround : In case the (un) installation through *.exe* needs to run silently, a dedicated installer has to be requested in which the *.exe* calls the *.msi* with the proper silent options.

3 VERSION HISTORY

This chapter covers all 4.x.x.x driver versions that were officially released before the version that is covered in this release note.

By default, a driver version is based on the previous version with some changes on top.

For each driver version, only high level characteristics and changes compared to the previous driver version are given. For completeness sake, a reference is given to the release notes that describe the driver release completely.

3.1 Version 4.0.5.0

This driver version was tested and released for the following product : Etna-mPex.

Solved issues :

- Service GtDetectSc.exe is updated to v3.0.0.106 in order to prevent a possible error code 31 on the Network Interface port after Resume from Standby/Hibernate.
- Fix for possible failing NDIS disconnection after Resume from Standby/Hibernate/USB Selective Suspend.
- Fix for possible BSODs on the Smart Card driver.
- Fix for possible BSOD (code 0x9F – DRIVER_POWER_STATE_FAILURE) after Resume from Standby/Hibernate or Restart.
- Several fixes for Faema :
 - Proper support for data on the NDIS channel.
 - Proper USB enumeration when devices are disabled.

New features :
None.

High level limitations :

- The driver is not validated and released for Windows 2000.

For more details on driver version 4.0.5.0, see the release notes in GEN-SPQ-RN-Windows_Driver_Release_4.0.5.0-v021ext.pdf.

3.2 Version 4.0.2.32

This driver version was tested and released for the following product : Fuji-L, Fuji-GT, Fuji-Ex, Foma, Scorpion, Zaltys, D-Racer, Etna-GT, Etna-Ex, Etna-mPex, Anaconda and Melitta.

Solved issues :

- Fix for incorrect installation of the USB Host Controllers embedded in a Fuji-L - HW 1.4 and higher.
- Fix for AT commands not being sent over the Network Interface port (NDIS driver) when USB Selective Suspend is active.
- Fix for NDIS driver AutoReConnect feature.
- Fix for BSOD caused by unexpected device FW activity.
- The NDIS driver does not close an open connection at a low power transition (Standby, ...). This prevents a possible system freeze at low power transition.

New features :

- TCPWindowSize configuration scheme 3 : dynamic TCPWindowSize configuration, to be used with a TDI filter driver (GtTdiFltr.sys, version 1.0.0.3 onwards).
- The service GtDetectSc.exe and drivers trigger a PDP de-activation followed by a network detach at low power transitions (service GtDetectSc.exe running in mode 2).

High level limitations :
None.

For more details on driver version 4.0.2.32, see the release notes in GEN-SPQ-RN-Windows_Driver_Release_4.0.2.30-v018ext.pdf.

3.3 Version 4.0.2.30

This driver version was tested and released for the following product : Fuji-L, Fuji-GT, Fuji-Ex, Foma, Scorpion, Zaltys, D-Racer, Etna-GT, Etna-Ex, Etna-mPex, Anaconda and Melitta.

Solved issues :

- Corrected Modem Interface friendly name for Melitta : "GlobeTrotter Icon Edge - Modem Interface" instead of "Globetrotter Icon Edge - Modem Interface".

New features :
None.

High level limitations :
None.

For more details on driver version 4.0.2.30, see the release notes in GEN-SPQ-RN-Windows_Driver_Release_4.0.2.30-v015ext.pdf.

3.4 Version 4.0.2.29

This driver version was tested and released for the following product : Fuji-L, Fuji-GT, Fuji-Ex, Foma, Scorpion, Zaltys, D-Racer, Etna-GT, Etna-Ex, Etna-mPex, Anaconda.

Solved issues :

- Service GtDetectSc.exe is added.
The service makes sure that :
 - A product radio disable/network detach occurs before the system goes into Standby/Hibernate/ShutDown/Restart/Safe Remove during a RAS or NDIS connection.
 - The product radio gets enabled after the system Resumes when the product kept being powered during Standby/Hibernate/Restart.When using the service, no RAS error 633 and NDIS error 31 occur anymore after Resume.

New features :

- Modified friendly names for Melitta : "GlobeTrotter Icon Edge".

High level limitations :
None.

For more details on driver version 4.0.2.29, see the release notes in GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.2.29-v011ext.pdf.

3.5 Version 4.0.2.28

This driver version was tested and released for the following product : Foma.

Solved issues :

- Several Smart Card device fixes :
 - Faster driver reloading during Resume.
 - Longer SIM card detection time.
- Although listed as a driver limitation in the previous driver release notes (4.0.2.26), the fix for the failing data transfer over the Application 2 Interface port and Smart Card Interface port is implemented in the following Firmware versions :
 - MSM6280 based FW : FW 2.5.2 or later
 - MSM7200 based FW : FW 2.9.0 or later

New features :

- Modified friendly names for Foma : "FOMA OP2502".
- Modified friendly name for USB Host Controller embedded in Fuji-L, Fuji-GT and Etna-GT : "GlobeTrotter Mobile Device".
- Support for product/network initialted PDP Context de-activation in the NDIS driver.
- Added support for new devices : Melitta/Faema/Senseo/Mauro/U-Racer
- Added support for second Diagnostics Interface port. Only for Melitta, Faema and Senseo.

High level limitations :

- No service GtDetectSc.exe is included. Therefore a product radio disable/network detach does not occur before the system goes into Standby/Hibernate/Restart during a RAS or NDIS connection and the product radio does not get enabled after the system Resumes when the product kept being powered during Standby/Hibernate/Restart.

For more details on driver version 4.0.2.28, see the release notes in GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.2.28-v009ext.pdf.

3.6 Version 4.0.2.26

This driver version was tested and released for the following product : Foma.

Solved issues :

- It is possible to overrule the default TcpSchema and TcpWindowSize settings at NDIS installation time through the 'common area' in the Registry.
- The NDIS speed indication is set dynamically.

New features :

- TcpWindowSize configuration scheme 4 is added.
- In case the product stays powered during system Standby/Hibernate/ShutDown, the product radio will be enabled after Resume. This new feature only works when the service GtDetectSc.exe is installed and running.

High level limitations :

- When service GtDetectSc.exe is installed and running, a RAS connection could not be possible anymore (error code 633) after a Resume from Standby/Hibernate when the product stays connected to the system during Standby/Hibernate and Resume.
- When service GtDetectSc.exe is installed and running, the Network Interface port (NDIS) could not be working properly anymore (Device Manager shows yellow exclamation mark with error code 31) after a Resume from Standby/Hibernate when the product stays connected to the system during Standby/Hibernate and Resume.

For more details on driver version 4.0.2.26, see the release notes in GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.2.26-v007ext.pdf.

3.7 Version 4.0.2.25

This driver version was tested and released for the following product : Etna-GT.

Solved issues :

- Fix for Windows Plug&Play Manager freeze after surprise removal of Cardbus products on Windows XP and Windows Vista.

New features :

- Support for Application 2 Interface port is added.

High level limitations :

- It is not possible to overrule the default TcpSchema setting (0) at NDIS installation time through the 'common area' in the Registry. Overruling the default TcpWindowSize value (146000) for TcpSchema 0 is also not possible.

For more details on driver version 4.0.2.25, see the release notes in GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.2.25-v05-F2.pdf.

3.8 Version 4.0.2.20

This driver version was tested and released for the following product : Foma.

Solved issues :

- NDIS fix for Windows 2000.
- SESAM workaround.

New features :

- Support added for GPS Interface port.
- 3 TCPWindowSize configuration schemes are implemented.
- USB Host Controller gets renamed to "Mobile Bus Converter".
- Support for new products is added : FOMA OP2502 HIGH-SPEED
- Automatic NDIS speed indication.

High level limitations :
None.

For more details on driver version 4.0.2.20, see the release notes in
GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.2.20-v04-F1.pdf.

3.9 Version 4.0.0.19

This driver version was tested and released for the following product : D-Racer.

Solved issues :
None.

New features :

- Support for D-Racer.
- New TCPWindowSize configuration.

High level limitations :
None.

For more details on driver version 4.0.1.18, see the release notes in
GEN-SPQ-RN-MSM6280_MSM7200_Based_Driver_Release_4.0.0.19-v03-F2.pdf.

3.10 Version 4.0.1.18

This driver version was tested and released for the following product : Fuji-Ex, CEM.

Solved issues :

- The NDIS speed indication is always set to 3.6Mbps.

New features :

None.

High level limitations :

None.

For more details on driver version 4.0.1.18, see the release notes in
GEN-SPQ-RN-MSM6280_MSM7200_Based_Windows_Driver_Release_4.0.1.18-v03-
F1.pdf.

3.11 Version 4.0.0.18

This driver version was tested and released for the following products : Fuji-L, Fuji-GT,
Fuji-Ex, Etna-GT, Etna-Ex, Etna-mPex, Scorpion, Zaltys Anaconda, CEM.

Solved issues :

- ConnectString6 of NDIS driver is initialized to correct value.

New features :

- Support for latest NEC USB Host Controller.

High level limitations :

None.

For more details on driver version 4.0.0.18, see the release notes in
GEN-SPQ-RN-Fuji_Etna_Scorpion_Zaltys_Anaconda_Drivers_4.0.0.18-v02-F1.pdf.

3.12 Version 4.0.0.17

This driver version was tested and released for the following products : Etna-GT, Etna-Ex, CEM.

Solved issues :

- Fix for simultaneous downlink/uplink problem.
- The default NDIS driver parameters can be overruled at installation time by modifying and running a configuration file (defdata.reg) before the NDIS driver installation.
- GtmNicApp.cpl does not allow to insert Username and Password.

New features :

- New ZeroCD algorithm is implemented.
- SmartCard driver is added.
- Device name strings contain "HSxPA" rather than "HSDPA 7.2" or "HSDPA HSUPA 7.2".
- Support for Etna-mPex and Anaconda.

High level limitations :
None

For more details on driver version 4.0.0.17, see the release notes in GEN-SPQ-RN-Etna_Drivers_4.0.0.17-v02-F1.pdf.

3.13 Version 4.0.0.15

Initial official release of 4.x.x.x drivers.

This driver version was tested and released for the following products : Fuji-L, Fuji-GT, Fuji-Ex, Etna-GT, Etna-Ex, Scorpion, Zaltys, CEM.

For more details on driver version 4.0.0.15, see the release notes in GEN-SPQ-RN-Fuji_Etna_Scorpion_Zaltys_Drivers_4.0.0.15-v01-F1.pdf.