GSM and Windows XP SP2

1. Introduction

Microsoft(R) Windows(R) XP Service Pack 2 (SP2) is due for release as a "critical update" in August 2004. As explained on the Microsoft web-site:

http://www.microsoft.com/technet/prodtechnol/winxppro/maintain/sp2netwk.mspx

Windows XP SP2 provides various network protection technologies. We believe that some of these additional security features **may** adversely affect the behavior of GSM on this version of Windows. We will be performing a full evaluation of GSM (Windows) on Windows XP SP2. This document will be updated to publish the results of this evaluation. **UNTIL THIS EVALUATION HAS BEEN COMPLETED DO NOT ATTEMPT TO UPGRADE ANY WINDOWS XP COMPUTER THAT IS CURRENTLY RUNNING GSM TO XP SP2.**

The two aspects of Windows XP that have changed for SP2 that **may** affect GSM (Windows) are:

- Changes to TCP/IP
- RPC Interface Restriction

2. Summary of GSM components

The following table summarises the status of the Windows XP SP-2 evaluation exercise:

Component	Status
GLOBAL.EXE	Uses both RPC (to communicate to GLSERVER.EXE and SPEED*.EXE) and TCP/IP (**not** raw IP) to communicate to GSMWIN32.EXE and GXIO.EXE. Possible problems with RPC expected. No problems with TCP/IP expected. No problems with the RPC ncalrpc option (or the non-RPC gsmshm option) but, by default, fails to connect with GLSERVER.EXE or SPEEDBAS.EXE/SPEEDSQL.EXE when using the RPC ncacn_ip_tcp option. See section 3 for further details.
GLSERVER.EXE	Uses RPC (to communicate to GLOBAL.EXE). Possible problems with RPC expected. No problems with the RPC ncalrpc option (or the non-RPC gsmshm option) but, by default, fails to accep connections from GLOBAL.EXE when using the RPC ncacn_ip_tcp option. See section 3 for further details.

SPEEDBAS.EXE	Uses RPC (to communicate to GLOBAL.EXE). Possible problems with RPC expected. No problems with the RPC ncalrpc option (or the non-RPC gsmshm option) but, by default, fails to accep connections from GLOBAL.EXE when using the RPC ncacn_ip_tcp option. See section 3 for further details.
SPEEDSQL.EXE	Uses RPC (to communicate to GLOBAL.EXE). Possible problems with RPC expected. No problems with the RPC ncalrpc option (or the non-RPC gsmshm option) but, by default, fails to accep connections from GLOBAL.EXE when using the RPC ncacn_ip_tcp option. See section 3 for further details.
GX.EXE	No problems expected per se but see comments for GXIO.EXE
GXIO.EXE	Uses TCP/IP (**not** raw IP) to communicate to GLOBAL.EXE. No problems expected.
GSMWIN32.EXE	Uses TCP/IP (**not** raw IP) to communicate to GLOBAL.EXE. No problems expected.
GLCONS.EXE	Considered obsolete. Will **NOT** be certified on Windows XP SP-2
GSMCONS.EXE	Considered obsolete. Will **NOT** be certified on Windows XP SP-2

3. RPC Interface Restriction

The default interface between GLOBAL.EXE and GLSERVER.EXE (and between GLOBAL.EXE and SPEEDBAS.EXE/SPEEDSQL.EXE) is RPC. The changes to Windows XP in this area **are** expected to affect GSM (Windows).

3.1 The Scale of the Problem

A problem has been identified that only affects the GLSERVER.EXE, SPEEDBAS.EXE and SPEEDSQL.EXE server processes when the ProtocolSequence used for the connection to the client GLOBAL.EXE(s) is set to ncacn_ip_tcp. The problem is that the client is unable to connect to the server.

When the connection to a GLSERVER.EXE fails the symptom, on the Global Client screen, is normally the message "COMPUTER NOT AVAILABLE ON *uuu*" or "PLEASE MOUNT SYSRES ON A01". If Diagnostic Displays are enabled on the Global Client a Windows error code 5 (Access is denied) is displayed in the API ERROR message box.

When the connection to a SPEEDBAS.EXE or SPEEDSQL.EXE fails the symptom, on the Global Client, screen is normally a message of the form "Gateway Interface 98" (although some pre GSM SP-14 utilities display the baseline message "HOOK FAILURE = 98").

To summarise the Windows XP SP2 RPC Interface Restriction:

- The problem **only** affects GLSERVER.EXE, SPEEDBAS.EXE or SPEEDSQL.EXE running on Windows XP SP2 when ProtocolSequence=ncacn_ip_tcp;

- The problem does **not** affect GLSERVER.EXE, SPEEDBAS.EXE or SPEEDSQL.EXE running on Windows XP SP2 when ProtocolSequence=ncalrpc;

- The problem does **not** affect GLSERVER.EXE, SPEEDBAS.EXE or SPEEDSQL.EXE running on Windows XP SP2 when ProtocolSequence=gsmshm (or gsmlrpc);

- The problem does **not** affect GLOBAL.EXE running on Windows XP SP2, per se, providing that GLOBAL.EXE is not attempting to communicate via ncacn_ip_tcp to a GLSERVER.EXE, SPEEDBASE.EXE OR SPEEDSQL.EXE that is running on Windows XP SP2.

3.2 Possible Initial & Trivial Work-Around

A simple change to the Global configuration may be all that is required to avoid the problem. The ncacn_ip_tcp interface is only required if the server (GLSERVER.EXE or SPEEDBAS.EXE or SPEEDSQL.EXE) is going to accept requests from a remote PC. If the configuration just consists of one, or more, servers and a GLOBAL.EXE client on the **same** PC then changing the ProtocolSequence from ncacn_ip_tcp to ncalrpc (or better still, gsmshm) will not only solve the problem on Windows XP SP2 but will also provide a faster interface. See Technical Note IN265 for further details.

Alternatively, on some small configurations that do not use either Pervasive SQL or Microsoft SQL database, it **may** be possible to remove the GLSERVER.EXE completely avoid the use of RPC completely. See Technical Note IN214 for further details.

On those "fat client" configurations that involve a GLOBAL.EXE to GLSERVER.EXE interface between two different PC's via the ncacn_ip_tcp protocol it may be worth reconfiguring to switch to a thin-client configuration. This option is fully documented in the GSM (Windows) Configuration Notes but in a nutshell consists of:

- Running a single GLOBAL.EXE on the main server (i.e. the same server that is currently running the GLSERVER.EXE);

- Replacing all the "satellite" GLOBAL.EXE clients with either the GX.EXE or GSMWIN32.EXE thin-client.

3.3 Work-Around by Microsoft Registry Change

If it is not possible, or desirable, to avoid the use of true network connections (i.e. a GLSERVER.EXE or SPEEDBAS.EXE or SPEEDSQL.EXE using the ncacn_ip_tcp protocol sequence must run on the Windows XP SP2 PC) then a work-around is possible.

The RPC interface restriction, that is enabled by default in Windows XP SP2, can be disabled by setting the following Window registry setting to 0:

\\HKLM\SOFTWARE\Policies\Microsoft\Windows NT\RPC\RestrictRemoteClient-=0

A reboot of Windows XP is required to effect this change.

See the following page on the Microsoft web-site for full details of this setting:

http://msdn.microsoft.com/security/productinfo/XPSP2/networkprotection/restrict_remote_clients.aspx

3.4 Solution Without a MicroSoft Registry Change

Depending on the security policy imposed at a particular site it may not be possible to change the Windows registry setting described in section 3.3. If the setting must be left at 1:

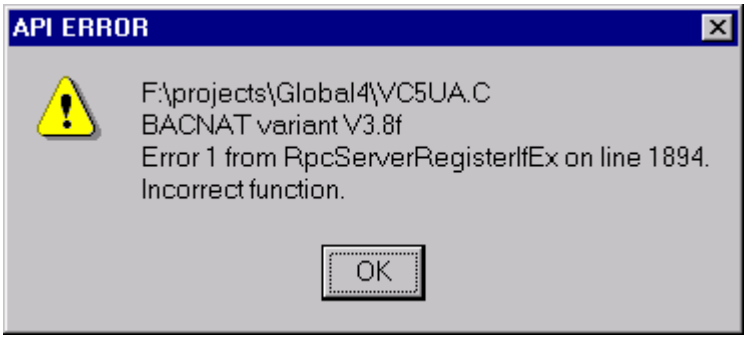
\\HKLM\SOFTWARE\Policies\Microsoft\Windows NT\RPC\RestrictRemoteClient-=1

then the following Global server components MUST be upgraded to:

GLSERVER.EXE	V3.8b, or higher
SPEEDBAS.EXE	V3.72, or higher
SPEEDSQL.EXE	V3.72, or higher

Important note: No current versions of the three Global server components listed above will operate correctly if the "RestrictRemoteClient" setting is changed from the default of 1 to 2.

Although we have tested GLSERVER.EXE V3.8b on all the other supported versions of Windows it is **just possible** that the changes required to operate on Windows XP SP2 may cause problems on strictly non-supported versions of Windows. If GLSERVER.EXE fails to configure with a message of the form:



(note that the string **RpcServerRegisterIfEx** is the crucial portion of the message) then the following registry setting must be set of "Off" to revert to the pre Windows XP SP2 behaviour:

..\Software\Global\Servers\UseServerRegisterIfEx=Off

4. Changes to TCP/IP

The changes to TCP/IP appear to only affect applications that make use of raw IP packets. No GSM components that use TCP/IP make use of raw IP packets so that the changes to Windows XP in this area are not expected to affect GSM (Windows). Our testing has confirmed this is the case.

5. Windows Firewall

Depending on the Windows XP configuration (i.e. if the Windows firewall has been enabled) it is possible that GLOBAL.EXE, GLSERVER.EXE, SPEEDBAS.EXE or SPEEDSQL.EXE may trigger the Windows Security message box. If the message "Do you want to keep blocking this program?" appears when an EXE is run, select the Unblock button to continue executing.