

## GSM (Windows) BACNAT Variants

This document describes the various repackages of the Global System Manager (Windows) BACNAT software in chronological order.

Some versions were never released, eg there is a gap between 3.2C and 4.0

The variant of a Global System Manager (Windows) BACNAT module can be determined from the About option of the Help menu on the main Global System Manager window.

BACNAT variants are normally independent of the revision of Global System Manager V8.1. Any exceptions to this rule are documented in the relevant section of this note.

In general, when a new variant of a BACNAT component is released the **variant number** (*n.n*) will be increased. Very rarely, in special circumstances, you may be using an "Internal Release" version of a BACNAT component. Internal Release BACNAT components are normally only used within Global Business Systems for internal testing but may occasionally be released externally for informal evaluation, beta-tests or during the course of a problem investigation. Internal Release BACNAT components are not supported and are never generated by our Production Department although they were available on the BBS & later the website, from time-to-time. Internal Release BACNAT components are always referred to by a **lower-case version letter** (e.g. V2.1m etc.).

### GSM (Windows) BACNAT variant 2.2

The V2.2 BACNAT repackaging for Global System Manager (Windows) includes the following features:

- The Global Client GLOBAL.EXE module has been enhanced to include an RPC interface to the Speedbase Btrieve Gateway (SPEEDBAS.EXE). See Appendix D for a full description of the Speedbase Btrieve Gateway;

- The GLREGED.EXE Registry Editor utility has been enhanced to recognise the new sub-keys and ValueNames required by the Speedbase Btrieve Gateway. See sections D.4 and D.5 for a full description of the new Registry keys and ValueNames;
- The SETUP.EXE installation utility has been enhanced to allow the installation of a single Speedbase Btrieve Gateway and to establish the RPC connections between a Global Client and one, or more, Speedbase Btrieve Gateways. See sections D.4 and D.5 for a full description of the Speedbase Btrieve Gateway installation procedure;
- A new console controller, NETWORK, has been implemented to allow between 1 and 99 "thin clients" to be connected via a TCP/IP telnet protocol to a Global Client. The "thin client" terminal emulator must be the Global Windows Workstation (GUI) operating in "TCP/IP external host" mode. A "thin client" configuration will provide a considerable performance improvement over the traditional LAN "fat-client" configuration on low-bandwidth wide-area networks. A "thin-client" configuration may also outperform a "fat-client" configuration on small local area networks.

The terms "fat client" and "thin client" are best described by reference to a simple network consisting of a single "server" and one, or more, "workstations". In the "fat client" paradigm the Global Server process (i.e. GLSERVER.EXE) runs on the server; a separate "single-user" Global Client process (i.e. GLOBAL.EXE) runs on each of the workstations (the Global Clients are termed "single-user" because each configuration file includes a single GUI console controller). All processing is performed **locally** on each workstation. All access to shared files involves a **network** RPC request from the Global Client to the Global Server.

In the "thin client" paradigm both the Global Server (i.e. GLSERVER.EXE) and a "multi-user" Global Client (i.e. GLOBAL.EXE) run on the server (the Global Client is termed "multi-user" because one, or more, NETWORK console controllers (see below) augment the GUI console controller). Each workstation runs the Global Windows Workstation (GUI) to provide a network terminal emulator connecting

to a TCP/IP socket created by the NETWORK console controller. All processing is performed **centrally** on the server. All access to shared files involves a **local** RPC request from the Global Client to the Global Server.

Any combination of "fat client" and "thin client" is possible. On a complex network configuration some workstations run the Global Client (i.e. GLOBAL.EXE) in "fat client" mode while other workstations run the Global Windows Workstation (i.e. GSMWIN.EXE) in "thin client" mode. Furthermore, although a standard "thin client" configuration will include a GUI console in addition to one, or more, NETWORK consoles, the GUI console is not mandatory and can be removed thus allowing the GLOBAL.EXE process to effectively run as a "background terminal server". Note that if the GUI console controller is removed from the Global Client configuration file an empty Global window will still appear (change the properties of the Program Item/Shortcut to automatically run minimised).

Disk access in a "thin client" configuration can be improved by using the local RPC protocol (i.e. ncalrpc) instead of a network RPC protocol (e.g. ncacn\_ip\_tcp). This will maximise the data transfer rate between the Global Client and the Global Server running on the server computer. However, this option will prevent the Global Server from being accessed by any "fat clients" running on other computers on the network.

Disk access in a "thin client" configuration can be further improved by configuring a "local DDF" on the Global Client. Direct disk access from the Global Client is always faster than the RPC interface between a Global Client and Global Server. However, this option will also prevent the central data from being accessed by any "fat clients" running on other computers on the network (i.e. the Global Client running on the server cannot provide the server functionality to other Global Clients on the network).

To add a "thin client" console to an existing Global Client configuration use CFUPDATE to add a NETWORK controller in the USER DISPLAY ATTRIBUTES section of the Global Client configuration file (see section 8.3 of the V8.1 Global Operating Manual (Windows)). The TYPE AHEAD BUFFER LENGTH, DISPLAY

BUFFER LENGTH, FUNCTION KEY BUFFER LENGTH, SCREEN IMAGE WIDTH, SCREEN IMAGE DEPTH, NUMBER OF STORED ATTR' BYTES, NUMBER OF VIRTUAL PARTITIONS, CHARACTER TRANSLATION ENABLED and CONSOLE EXECUTIVE FLAG BYTE are all described in section 2.4 of the V8.1 Global Configurator Manual. The "Screen Number" must match the following numeric sub-key in the Registry:

`$GLMACH\Client\Screens\Network\nn`

where *nn* is a double-digit network console number between 01 and 99 (note that leading zeroes are mandatory for console numbers between 1 and 9).

The parameters specified by the following ValueNames under the:

`$GLMACH\Client\Screens\Network`

sub-key of the Registry affect all NETWORK consoles:

ReceivePollDivisor	This setting is fully described in section 8.3.2.2.1 of the V8.1 Global Operating Manual (Windows);
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TransmitPollDivisor	This setting is fully described in section 8.3.2.2.1 of the V8.1 Global Operating Manual (Windows).
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The parameters specified by the following ValueNames under the:

`$GLMACH\Client\Screens\Network\nn`

sub-key of the Registry only affect a single NETWORK console:

Port	This parameter allows the TCP/IP port number to be changed from the default of 23. The Global Windows Workstation (GUI) currently only attempts to open a TCP/IP socket on port number 23.
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Consequently, this option should not be used and is reserved for future use;

OperatorID	This 4 character string specifies the Global System Manager operator-id for the user accessing the network screen;
TerminalType	This 4 character string specifies the Global System Manager Terminal Type for the network screen (e.g. 711);
DisplayBufferSize	This value allows the size of the internal Display Buffer used by the NETWORK console controller to be altered from the default value of 512. Increasing the size of the display buffer <b>may</b> improve the "transmit character" performance of the NETWORK console controller under some circumstances.

- All Global System Manager (Windows) configuration files have been simplified to include just a single WINPRINT printer controller at unit address 500 (the configuration files released with the V2.1 BACNAT software contained a DOSPRINT controller (unit 500) and a WINPRINT controller (unit 501)). The SETUP.EXE installation utility has been modified to install a single WINPRINT sub-key in the Registry;
- The Global Client (GLOBAL.EXE) loader now closes the GL-IPL.DLV file once the start-up information has been read. This change allows multiple Global Clients to share the same GL-IPL.DLV file;
- The Global Client (GLOBAL.EXE) recognises the following new ValueNames under the:

\$GLMACH\Client

sub-key of the Registry:

**MaximumMemory** This value allows the amount of dynamic memory (in Mb's) allocated by the Global Client to be changed from the default value of 4Mb. This option is only required if very large multi-user configurations require a Global \$\$SWAPxx Swap File;

**DisableHibernation** Enabling this option prevents the GLOBAL.EXE process from relinquishing control to Windows NT (and will result in GLOBAL.EXE "hogging" all the CPU resources). This option should only be required in exceptional conditions when the Global Client is the only process running on the Windows NT computer.

- The bug that causes the Global Client to crash when <SYSREQ> . is key has been fixed. The <SYSREQ> . key combination is now ignored;
- The BACNAT variant (i.e. V2.2) is now displayed correctly by \$S;
- The obsolete \$.711 Terminal Attribute Program (TAP) that was distributed with the initial release of Global System Manager (Windows) has been replaced by the version which supports the 132-wide option;
- The Registry key handling in both the Global Client and the Global Server inverting the meaning of the "True" and "False" strings. Both processes now accurately honour the various options listed in section 7.2.1 of the V8.1 Global Operating Manual (Windows);
- A problem that caused a severe degradation in the performance of the Global Client when using terminal type 712 has been fixed by enabling the following new ValueName under the:

\$GLMACH\Client\Screens\GUI

sub-key of the Registry:

**EnableStartAccept**      Enabling this option will reduce the performance overhead that may result if the default terminal type (i.e. 711) is changed to 712. If this option is enabled the screen is not updated for each character that is displayed. Instead, the screen is only updated when a Start Accept operation is initiated. This reduction in the frequency of screen refreshes can often result in improved overall performance.

- The "This will end your Global session prematurely..." Dialogue Box that appears when an attempt is made to close the Global Client without running \$BYE when using terminal type 711 now appears when terminal type 712 is used;
- A problem that caused the "pound symbol" to appear as a graphics box character when "pound-to-hash" translation was enabled (e.g. when terminal type 714 was being used) has been fixed;
- The server node-id (e.g. "A", "B" etc.) is displayed at the start of the server name when this text appears on the taskbar. This is to prevent the crucial server node-id information from disappearing when the Global server text is truncated on a crowded taskbar;
- The Global Client "GUI front-end" now explicitly loads the required text fonts from the DOSAPP.FON file. This modification fixes various screen and character corruption programs that were observed when a WideModeFont (or non-default NarrowModeFont) setting was used;
- A problem in the serial console controller that was responsible for random hangs, particularly when the serial interface involved copious XON/XOFF flow-control, has been fixed;
- It is now possible to include more than 9 serial consoles in a Global Client configuration. **THIS CHANGE HAS RESULTED IN AN INCOMPATIBLE CHANGE TO THE GLOBAL SECTION OF THE REGISTRY:** All single digit sub-keys below the

\$GLMACH\Client\Screens\Serial key must be prefixed with a leading zero. Although the SERIAL console controller will recognise single-digit sub-keys with or without a leading zero, the V2.2 GLREGED.EXE utility will not recognise single digit sub-keys without a leading zero (any such existing sub-keys can only be amended or deleted using REGEDIT.EXE or REGEDT32.EXE);

- A problem in the RPC interface, that could result in misleading error messages when attempting to access non-existent servers, has been fixed. Furthermore, an API error will be reported for all executive operations (including the Reset operation) if the DiagnosticDisplays option (see section 8.9.3 of the V8.1 Global Operating Manual (Windows)) is enabled. In addition, the problem in the V2.1i internal release BACNAT that resulted in an "Out of Resources" error when \$BYE is run, has been fixed;
- Both the DDF and IDF simulated volume controllers open the appropriate Windows files in "shared mode" thus allowing Global data files to be shared with other Windows applications (e.g. ODBC drivers);
- A problem in the WINPRINT printer handling, that caused the "Print Dialogue Box" to appear spuriously when the Windows printer name is defined in the Registry, has been fixed. A further problem that results in an API error (from the CGetMemory function) if no local Windows printers are available, has also been fixed. Furthermore, the problem that results in irrecoverable NOT READY errors, after a genuine NOT READY error, has been fixed;
- The Global Client (GLOBAL.EXE) now recognises the following new ValueNames under the:

\$GLMACH\Client\Printers\WinPrint\5nn

sub-key of the Registry:

Timeout

This value allows a "close printer timeout" to be specified in seconds. Any value between 1 and 60 is allowed (a value of 0 implies no timeout). When the



timeout period elapses the Windows printer is closed to allow Stationery Alignment patterns to be printed in real-time;

**DisableValidation**      Enabling this option causes the WinPrint controller to ignore the validation of the printer name (see section 8.5.2.2 of the V8.1 Global Operating Manual (Windows)). This option is expected to be of use if access to a Windows printer that exists in another Windows domain or workgroup is required. This option will also be useful if the computer to which the printer is attached is not running Windows when the Global client is initiated.

Note that a network printer must be addressed using its "share name" (e.g. "\\tismdtpc\hp") under Windows NT; or its locally defined printer name (e.g. "\\tismdtpc\hp printer") under Windows 95;

- A problem in the DOSPRINT printer controller that caused the file-mode flags specified by the "CreateNew" and "LFToLFCR" value-names under the:

`$GLMACH\Client\Printers\DOSPrint\5nn`

sub-key of the Registry to be ignored, has been fixed;

- The Global Client has been enhanced to allow Global System Manager (Windows) to be installed from a post-box area on a hard-disk. This change is required for future enhancements that will allow Global System Manager to be installed from media other than diskettes;
- The Global Client (GLOBAL.EXE) now recognises the following new ValueNames under the:

`$GLMACH\Client\Screens\Serial\nn`

sub-key of the Registry:

ImmediateInput	Enabling this option <b>may</b> improve the "receive character" performance of the SERIAL console controller under some circumstances;
DisplayBufferSize	This value allows the size of the internal Display Buffer used by the SERIAL console controller to be altered from the default value of 512. Increasing the size of the display buffer <b>may</b> improve the "transmit character" performance of the SERIAL console controller under some circumstances.

- The Global Client process has been enhanced to inform all the relevant Global Servers that a connection has been broken by an operator closing the client without running \$BYE. This closure is normally performed by clicking on the "close window box" and selecting the "OK" button in the Dialogue Box that appears. The effect of this change is that the "Global Client is already running" Dialogue Box should only appear when a genuine operator error has occurred (i.e. when an attempt is made to load more than one copy of the Global Client on a particular computer) and should not occur spuriously after a Global Client has been closed without running \$BYE. However, this change does not affect the status of the Global files that are flagged as "open by the Global Client" on a Global Server;
- The V8.1 Global Operating Manual (Windows) contains a number of serious errors. On page 2-11, the table of Protocols and Endpoints should be as follows (the changes to the published manual are embolden):

<i>Protocol</i>	<i>Endpoint</i>
LOC or ncalrpc	<b>Free-format (but must not be blank)</b>
TCP or ncacn_ip_tcp	1024 to 5000
SPX or ncacn_spx	32768 to 65535
ncacn_np	\pipe\pipe_name

ncadg_ip_udp	1024 to 5000
ncacn_nb_tcp	33 to 255
ncacn_nb_nb	33 to 255
ncadg_ipx	32768 to 65535

On page 2-16, the Address Format for the ncacn\_nb\_tcp and ncacn\_nb\_nb protocols should be the "server name" and not <blank>.

## GSM (Windows) BACNAT variant 2.3

The V2.3 BACNAT repackaging for Global System Manager (Windows) includes the following features:

- Both the Global Client, GLOBAL.EXE, and the Global Server, GLSERVER.EXE, validate the "type" of the Values defined in the Global section of the Registry. This extra checking is required to prevent the unpredictable results that may occur if values of an incorrect type are added to the Global section of the Registry when using the standard Windows Registry editor. This inconsistency can never occur if GLREGED.EXE is used to maintain the Global section of the Registry;
- The problem that caused the Global Client to hang if the "DisplayBufferSize" option is defined in the Registry has been fixed;
- SVC-61 has been enhanced to allow direct calls to an RPC Server. Details of this interface are beyond the scope of this document;
- The problem that allowed the Global Client to be closed, without a Confirmation Box appearing, has been fixed. This problem only occurs when \$.712 is used in the same Global Client session as \$.711 (i.e. sign-on using terminal type 711; run \$E; sign-on using terminal type 712; close the Global Client);
- The problem that caused a "display latency" when using the Global Client on Windows NT Server has been addressed in BACNAT V2.3. However, an improved solution has been implemented in BACNAT V2.5 (see section 5.5, below);

- The problem that caused the "EnableStartAccept" option to be ignored has been fixed;
- The problem that caused the Global Client to crash if the Master Server is closed has been fixed. Note that this problem only occurs if Status Line Polling is enabled;
- The V2.3 BACNAT software includes the V2.1D GUI module. This version of the GUI module (which is a pre-release version of GUI V2.2) is incompatible with the released Global Windows Workstation V2.1A.

## **GSM (Windows) BACNAT variant 2.4**

The V2.4 BACNAT repackaging for Global System Manager (Windows) includes the following features:

- The problem that caused a severe performance degradation if "thin client" NETWORK consoles (see section 5.2, above) are restarted (i.e. using the \$STATUS RES command) or cancelled (i.e using the \$STATUS CAN command) has been fixed;
- The V2.4 BACNAT software includes the V2.1D GUI module. This version of the GUI module (which is a pre-release version of GUI V2.2) is incompatible with the released Global Windows Workstation V2.1A.

## **GSM (Windows) BACNAT variant 2.5**

The V2.5 BACNAT repackaging for Global System Manager (Windows) includes the following features:

- The Global Client "display latency" problem has been fully resolved with BACNAT V2.5;
- The V2.5 BACNAT software includes the V2.1E GUI module. This version of the GUI module is, by default, compatible with the released Global Windows

Workstation V2.1A. However, the "GUI V2.2" mode can be enabled by setting the following ValueName under the:

`$GLMACH\Client\Screens\GUI\Miscellaneous`

sub-key of the Registry:

**VGACompatibility**      Set this parameter to "Off" to enable the GUI V2.2 features of the V2.5/V2.1E BACNAT software. This feature is provided for evaluation purposes only.

- The Console Executive has been enhanced to support 2 new escape sequences that allow the "GUI mode" to disabled/re-enabled under program control. This feature may be used by future versions of the Menu Handler. The Console Executive also supports a new operation that allows Character Translation to be disabled/re-enabled (i.e. the Character Translation that is determined by the TRANSLATIONS section of the TAP and/or the contents of the \$\$TR~~ttt~~ file, created and maintained by <SYSREQ> B).

The changes to the Console Executive that were added to support the Global System Manager language translation mechanism (see section 3.4) have been rescinded. This has been necessary to prevent problems with Speedbase applications when text-strings containing the tilde character (0x7e) are displayed and accepted. Note that the Global System Manager language translation mechanism, which has not been fully implemented, should not be confused with the Console Executive Character Translation facility described in the previous paragraph.

The bug that caused characters to be lost occasionally when swapping partitions on a "GUI screen" has been fixed.

- SVC-18 has been enhanced to support the extended interface required for the version of the Open TFAM Access Method that supports a block size larger than 256 bytes (see section 2.6).

## GSM (Windows) BACNAT variant 2.6

The V2.6 BACNAT repackaging for Global System Manager (Windows) includes the following features:

- Disk partitions larger than 4Gb are supported (this change was first implemented in BACNAT variant V2.5A). **Important note:** Although Windows filing system partitions larger than 4Gb are supported, the maximum size of a simulated domain (e.g. A00) remains at 2Gb. However, multiple Global simulated domains can be configured on a particular Windows partition to allow more than 2Gb to be accessed. For example, domains B00, C00, D00 and E00 can be configured on an 8Gb filing system (via 4 Global Servers "B", "C", "D" and "E") to provide Global applications up to 8Gb of data. This technique can be extended to provide up to 52Gb of Global data, with other simple customisations possible to increase this capacity even further;
- The Console Executive and the various console controllers have been enhanced to recognise the following new option in the registry (this change was first implemented in BACNAT variant V2.5B):

```
..\Screens\Network\mm\GlobalWindowsWorkstation
..\Screens\Serial\mm\GlobalWindowsWorkstation
..\Screens\GUI\GlobalWindowsWorkstation
```

The GlobalWindowsWorkstation registry option is reserved for future use;

- The Printer Executive has been enhanced to allow "pooled printing". A pool of printers can be specified by the bottom 4 bits of the printer DEVICE CHARACTERISTICS BYTE:

<i>Bit</i>	<i>Meaning</i>
3	0 = Normal printer; 1 = Pooled printer
2,1,0	Pool number (0 to 7)

For example:

<i>Printer</i>	<i>Value</i>	<i>Description</i>
500	#00	Normal printer
501	#08	Pooled printer, pool-0
502	#08	Pooled printer, pool-0
503	#09	Pooled printer, pool-1
504	#09	Pooled printer, pool-1
505	#0F	Pooled printer, pool-7
506	#0F	Pooled printer, pool-7

If any printer in a particular pool is IN USE, printing will automatically switched to another printer in the same pool. The Pooled Printer option allows simultaneous printing, with a single \$PR assignment, without the need to run the Global spooler, \$SP;

- The Global Client executable file, GLOBAL.EXE, is developed as Windows "Window" application, which prohibits the option to operate in "full screen" mode. An alternative Global Client executable file, GLCONS.EXE, has been developed as a "Console" application to allow Global applications to be run in "full screen" mode **with some restrictions** (see below). GLCONS.EXE is a "slot-in" replacement for GLOBAL.EXE, supporting all the standard options (e.g. Windows printing, thin-client option etc.) – only the front-end is different.

Although, GLCONS.EXE, is copied from the distribution media (i.e. diskette or CD) to the Global run-time directory by the setup process, a shortcut is NOT established for this option. Replacing GLOBAL.EXE by GLCONS.EXE must be done "by hand" after installation. No configuration file or registry changes are required. All the registry options in the following key, recognised by GLOBAL.EXE, are ignored by GLCONS.EXE:

..\Screens\GUI

The following new registry setting is recognised by GLCONS.EXE and allows the size of the cursor to specified (as a percentage of a full size cursor, with a default of 20):

..\Screens\GUI\CursorSize

The following special TAP's must be used with the GLCONS.EXE option:

\$.730 80\*24; 132\*24 for GLCONS.EXE on Windows NT

\$.731 79\*24 only for GLCONS.EXE on Windows 95

**Important Note-1:** 132-wide operation is only available with Windows NT.

**Important Note-2:** Changing the Terminal Type to 730 or 731 (i.e. from 711) may involve modifying the ..\Client\TerminalType value in the registry.

The window displayed by GLCONS.EXE can be toggled between "windowed" and "full screen" mode by keying <ALT><ENTER>. The properties of the window (e.g. font size etc.) can be modified "on the fly" using normal Windows techniques. The default operating mode (i.e. "windowed" or "full screen") can be customised into the Windows NT shortcut.

There are a number of important differences between GLCONS.EXE on Windows 95 and GLCONS.EXE on Windows NT. The various options are summarised below:

<i>Option</i>	<i>Win-95</i>	<i>Win-NT</i>
80th column position available	No	Yes
full screen mode supported	Yes	Yes
full screen at start-up possible	No	Yes
132 wide window supported	No	Yes
132 wide full screen supported	No	No



- The V2.6 GLOBAL.EXE includes the V2.2 Global Windows Workstation module (revision V2.2g). Please refer to the V2.2 Global Windows Workstation Notes for further details;
- The algorithm used to hibernate GLOBAL.EXE when all Global users are inactive has been improved. Global System Manager will only utilise CPU resource when Global users are active. The small (5 second) latency between the last active Global user becoming inactive and CPU usage reducing to a minimal value, typically 1–2%, has been removed;
- The NETWORK controller has been enhanced to return the current status of the TCP/IP connection. The "line connection" status is displayed by the \$STATUS command:

LINE DOWN                      the console channel is waiting for a thin-client to connect;

SCREEN I/O ERROR      an unexpected network error has occurred.

Thus, \$STATUS can be used to determine the status of the NETWORK consoles. In particular, the LINE DOWN condition can be used to determine the state of the connection:

<i>Operator-id?</i>	<i>Line status</i>	<i>Description</i>
No	LINE DOWN	Waiting for a "thin client" to make a connection i.e. the channel is available for a thin client connection either at initial start-up or after a user has run \$E and closed the GUI;
No	NOT SIGNED ON	\$E or \$STATUS/RES has been used to restart the user but the GUI has not been closed;

Yes	ACTIVE etc.	Normal operation – a thin client is connected to Global System Manager;
Yes	LINE DOWN	An operator has closed down the Global Windows Workstation <b>without</b> running \$E. This connection will be unusable until \$STATUS/RES is used to restart the user.

The NETWORK controller will display one of the following error messages when a thin client connection cannot be made:

**No more screens available on port *nn***

This message indicates that all NETWORK entries in the configuration are connected.

**Restart a user on port *nn* before continuing**

This message indicates that some of the NETWORK connections are unusable because one, or more, operators have closed down the Global Windows Workstation without running \$E. This message will occur on "pure" NETWORK configurations;

**The last user to use this connection did not sign-off correctly.**

**This user must be restarted before the connection can be established.**

**Use \$STATUS to restart the user on console number *nn*, break this connection and retry the connection again.**

This message indicates that some of the NETWORK connections are unusable because one, or more, operators have closed down the Global Windows Workstation without running \$E. This message will occur on NETWORK configurations that include at least one other type of console (e.g. GUI or SERIAL).

**Important note:** The "console number" in the last message refers to a simple console index, counting from 1. It does NOT refer to USER NUMBER displayed by \$STATUS.

- If the Endpoint value for ncacn\_ip\_tcp Client-Server connections is removed from the registry the recommended values (e.g. 3000 for server "A", 3001 for server "B" etc.) will be used automatically by both the Global Client and the Global Server. This option is recognised by GLOBAL.EXE, GLSERVER.EXE and GLSSTART.EXE;
- The following registry option:

..\Client\NodeID

can be overridden by the value associated with the /EN command line argument. This feature allows the Symmetric Multiple Client (SMC) option to be configured. Please refer to the Global System Manager V8.1 (Windows) Global Configuration Notes for further details;

- A problem in SVC 70 that can result in a General Protection Error if the supplied pathname is invalid has been fixed;
- A problem that prevented the use of the letter "V" for (unofficial and unsupported) End-User System Request has been fixed;
- GLOBAL.EXE has been enhanced to accept pathnames quoted in matching double-quotes. This allows pathnames that include space characters to be used. Note that some of the other Global System Manager (Windows) utilities (e.g. SETUP.EXE and GLDFMAIN.EXE) have NOT been upgraded to supported quoted filenames;
- GLOBAL.EXE uses the value associated with the /W command line argument as a delay (in seconds) before closing the main window after \$BYE or an unexpected termination. For example, to delay for 10 seconds, to allow a \$57 INITIATION ERROR to be read, include /W=10 in the GLOBAL.EXE command line;

- The name of the configuration file can be overridden using the /EC command line argument. THIS OPTION SHOULD NOT BE USED AND IS RESERVED FOR FUTURE EXPANSION;
- If the NetworkAddress value for ncacn\_ip\_tcp Client-Server connections is removed from the registry the /IP command line argument can be used to specify the IP address of one, or more, Global Servers;
- Further enhancements have been made to the NETWORK controller to improve the performance of thin-client configurations;
- A new option in the DOSPRINT controller, for use when creating files on a "spooled directory", is now available. The new option which is enabled by the following option in the registry causes the filename suffix to automatically wrap from .999 to .000 (instead of returning a DIRECTORY FULL error message):

..\Printers\DOSPrint\5nn\SuffixWrap

- A new option in the DOSPRINT controller, for use with the Pooled Printer option (see above) when creating files in a "spooled directory", is now available. The new option which is enabled by the following option in the registry changes the algorithm used to form the filename of the file in the "spooled directory":

..\Printers\DOSPrint\5nn\PooledPrinter

When this option is enabled, the name of the file is:

*xxxxxxpp.nnn*

where *xxxxxx* are the first six characters of the Global filename; *pp* is the printer unit minus 500 (e.g. 00 for printer 500; 01 for printer 501, etc.); *nnn* is the auto-incrementing file suffix (i.e. 000, 001, to 999).

- The deliberate restriction that prevented a Global Client being configured with a node-id between "A" and "Z" has been removed. The GLOBAL.EXE /X command line argument allows the Global Client NodeID in the registry to be set to any value between 1 and 26 (corresponding to "A" to "Z"). **Important note:** Although this option allows a Global Client to be allocated a notional file server node-id (e.g. "A") the Global Client cannot be accessed as a file server by other Global Clients on a network;
- The NETWORK controller has been enhanced to include some of the functionality of a general-purpose telnet host. The following new registry options are available:

```
..\Screens\Network\mn\IgnoreIACSequences
..\Screens\Network\mn\LogIACSequences
```

**Important note:** These changes have been implemented for internal use only when connecting GSM(Windows) to a 3<sup>rd</sup> party telnet emulator. The "thin client" NETWORK controller is only supported externally with the 16-bit Global Windows Workstation (i.e. GSMWIN.EXE) operating in "TCP/IP external host" mode or the 32-bit Global Windows Workstation (i.e. GSMWIN32.EXE) operating in "telnet" mode;

- The following reserved option has been added to the registry:

```
..\Data\RAMDisk\RAMDiskSizeKb
```

## GSM (Windows) BACNAT variant 2.6 (revised August-1998)

During August 1998 the V2.6 BACNAT software for Global System Manager (Windows) was revised to include updated versions of the following components:

<i>File</i>	<i>File released with original V2.6</i>	<i>File released with updated V2.6</i>
-------------	---	--

GLCONS.EXE 5-May-1998; filesize 344,064 bytes 18-Aug-1998; filesize  
340,992 bytes  
SPEEDBAS.EXE Version V1.31 Version V1.56

The revised GLCONS.EXE includes the following features:

- GLCONS.EXE now functions correctly on Windows 98. The version released with the original V2.6 BACNAT failed to recognise the 4 cursor movement keys or the Insert, Home, Page-Up, Delete, End and Page-Down keys when running on Windows 98;
- GLCONS.EXE now recognises the <SHIFT><TAB> key when running on Windows 95 and Windows 98;
- GLCONS.EXE now recognises the “£” character when running on Windows NT Workstation;
- The problem that caused the screen to scroll unexpectedly, resulting in the status-line being over-written by the top line of the application screen after a baseline clear, has been fixed. This problem occurred in a variety of utilities and Cobol applications. For example, in \$CUSP after <ESC> is keyed to the baseline prompt of the Printer Maintenance screen.

The revised SPEEDBAS.EXE includes the following features:

- The option to hold Speedbase Btrieve databases in Btrieve 7.x format when using Pervasive SQL (aka Btrieve 7) is now supported. This option is fully described in sections C.12 and D.11. Mixed Btrieve configurations (i.e. combinations of Btrieve 6.x and 7.x format databases) are supported.

**Important note:** Any site that is currently using an unofficial pre-V1.56 SPEEDBAS.EXE to access Btrieve 7.x format databases MUST rebuild all existing V7.x Btrieve format Speedbase databases immediately after installing the V1.56 SPEEDBAS.EXE: As soon as the V1.56 SPEEDBAS.EXE has been installed and

loaded all V7.x Btrieve databases must be rebuilt, using \$BADN option 2, before any attempt is made to access the databases using a Speedbase application;

- SPEEDBAS.EXE has been enhanced to include the “change path to database” functionality. However, \$BADN does **NOT** currently support the “Change path to database” option (i.e. option 6) on GSM (Windows);
- A serious problem, that results in severe database corruption when two, or more, (fast) database rebuilds and/or (fast) conversions are attempted simultaneously, has been fixed. This problem will only occur with the (evaluation) V1.53c SPEEDBAS.EXE;
- SPEEDBAS.EXE now supports the “fast” database conversion/rebuild mode. This option is enabled by default and cannot be disabled;
- SPEEDBAS.EXE supports a special diagnostic operation that is reserved for future use.

## GSM (Windows) BACNAT variant 2.7

The V2.7 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE:

- The GUI controller in GLOBAL.EXE (i.e. for “fat client” installations) is fully compatible with the V2.3 Global Windows Workstation (GUI) product. These changes have resulted in a large number of new Registry settings and new options in the GLOBAL.INI file. Please refer to the V2.3 Global Windows Workstation Notes (MGUNV2.3) and Global System Manager (Windows) Configuration Notes (C5661 and C5663) for further details;
- The V2.3 Global Windows Workstation (GUI) product (i.e. GSMWIN32.EXE for “thin client” configurations) is now distributed with the V2.7 Global System Manager (Windows) software. For diskette configurations the GUB (GUI installation) diskette is distributed with the B5661 and X5661 diskettes; for CD configurations the GUA and GUB installation directories are distributed on

the Global System Manager (Windows) CD. Please refer to the V2.3 Global Windows Workstation Notes (MGUNV2.3) for further details;

- The SVC-67 module in GLOBAL.EXE and GLCONS.EXE now supports the new operation required by Global System Manager V8.1i, Global 3000 V4.5 and Global Reporter V1.4. **GLOBAL 3000 V4.5 WILL ONLY OPERATE ON THE V2.7, OR LATER, GLOBAL SYSTEM MANAGER (WINDOWS NT) BACNAT VARIANT;**
- The SERIAL controller in GLOBAL.EXE and GLCONS.EXE now supports serial consoles on Windows 95 and Windows 98 (see below);
- The SERIAL controller in GLOBAL.EXE and GLCONS.EXE has been enhanced to recognise the following new registry option to select the serial port mode:

..\Screens\Serial\*nn*\Mode

The default mode is 9600,N,8,1,X (i.e. 9600 baud, No parity, 8 data bits, 1 stop bit, X-on/X-off protocol).

If the Mode setting is not specified on Windows NT, Global System Manager will reprogram the serial mode as specified in the Windows control panel for the specified COM device. If the Mode setting is not specified on Windows 95 or Windows 98, Global System Manager will NOT attempt to reprogram the serial port (i.e. the last port setting, or the Windows default if no other application has used the serial port, will be used);

- The DOSPRINT controller in GLOBAL.EXE and GLCONS.EXE has been enhanced to recognise the following new registry option to select the serial port mode:

..\Printers\DOSPrint\5*nn*\Mode

The default mode is 9600,N,8,1,X (i.e. 9600 baud, No parity, 8 data bits, 1 stop bit, X-on/X-off protocol).



If the Mode setting is not specified on Windows NT, Global System Manager will reprogram the serial mode as specified in the Windows control panel for the specified COM device. If the Mode setting is not specified on Windows 95 or Windows 98, Global System Manager will NOT attempt to reprogram the serial port (i.e. the last port setting, or the Windows default if no other application has used the serial port, will be used).

- A problem in the TRAMS interpreter in GLOBAL.EXE and GLCONS.EXE has been fixed to allow \$COBOL to be used on multi-user Global System Manager (Windows) configurations. The symptom of this problem was a large number of unexplained compilation errors when using \$COBOL;
- A problem in GLOBAL.EXE and GLCONS.EXE that causes the Global System Manager system date to advance by up to several years if the Global client has been running continuously for more than 49.7 days, has been fixed;
- A problem with the “switch GUI mode off” handling in GLOBAL.EXE has been fixed. The symptom of this problem was a performance degradation when running applications or utilities (e.g. \$BAGDN) in “non GUI mode” on terminal type \$.711, \$.714 etc.;
- The Global System Manager (Windows) File Executive in GLOBAL.EXE, GLSERVER.EXE and GLCONS.EXE has been enhanced to include the new operations supported by the \$UNLOCK and \$CLOSE utilities. Note that the \$UNLOCK and \$CLOSE utilities have NOT yet been released with external versions of Global System Manager.
- The Discrete Data File (DDF) controller in GLOBAL.EXE, GLSERVER.EXE and GLCONS.EXE has been enhanced to recognise the following new (highly-specialised) registry option:

..\Data\DiscreteDatafiles\DDF $n$ \WriteThroughCache

When this option is enabled the Windows NT cache is effectively used as a Write-Through buffer. For most installations it should never be necessary to enable this option.

- The DISKETTE controller in GLOBAL.EXE, GLSERVER.EXE and GLCONS.EXE has been enhanced to recognise a number of new values for the 'Diskette' registry value. The following values are now recognised:

0	Diskette disabled
1	Diskette enabled (using physical locking)
2	Diskette enabled (using volume locking)
3	Diskette enabled (no locking)
>4	Same as 1

The new values (i.e. 2 and 3) MAY overcome some problems experienced when using some type of diskette drives on Windows 95 and Windows 98.

In addition, if the 'DiagnosticDisplays' option is enabled the DISKETTE controller displays the error code returned by the DOS-compatible diskette operation (i.e. the operation that is used to access the diskette drive on Windows 95 and Windows 98).

Furthermore, the error code returned when a 'media change' error is reported has been changed from the non-retryable error "H" to a retryable error -1;

- The status-line handling in GLSERVER.EXE has been enhanced to allow up to 255 Global Clients (the limit was 228). This change fixes the unexpected errors that may occur when Global Clients are configured with node-id's 'A' to 'Z';
- The status-line handling in GLSERVER.EXE has been enhanced to fix a problem that results in a spurious 'Binding Handle is Invalid' error if the Global System Manager 'Master NodeID' is set to a (strictly invalid) value outside the range 'A' to 'Z';

- The client-server logic in GLOBAL.EXE and GLCONS.EXE has been enhanced to recognise the following new (highly-specialised) registry option:

..\Global\Client\RPCWriteReadOp

When this option is enabled the Global Client uses a Write/Read RPC opcode instead of a Read RPC opcode, where appropriate. Enabling this option will reduce the number of Windows NT page faults that may be generated by the Global Server (sic) under some conditions.

## GSM (Windows) BACNAT variant 2.8

The V2.8 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE.

**Important Note:** Due to the rapid development of GSM (Windows) the released V2.8 BACNAT variant is expected to be quickly replaced by newer versions. Please check the Technology pages on the Global web-site for details of updates to the GSM (Windows) BACNAT software.

- The GSM (Windows) nucleus in both GLOBAL.EXE and GLCONS.EXE includes support for the 32-bit GSM run-time system. Please see Appendix F for further details.
- True concurrency is now supported on GSM (Windows) when a “GUI mode” TAP (e.g. \$.711) is being used. Until this enhancement, although true concurrency (i.e. multiple partitions executing concurrently), was supported on “text mode” TAP’s (e.g. \$.712 & \$.716), background partitions would suspend on “GUI mode” TAP’s (e.g. \$.711). The following registry option must be set to “On” to allow true concurrency:

..\Global\Client\Nucleus\ConcurrentGUI

**Important Note:** This registry option is subject to change in future versions of GSM (Windows).

This option affects all the screens configured on the Global Client (i.e. the fat-client via the “GUI” console controller as well as any thin-client screens connected via either the “Network” or “Serial” console controllers);

- The Global Server automatically listens on BOTH “Local RPC” and the RPC interface specified in the registry. This feature allows a Global Server to service requests from both a local Global Client (via the “Automatic-Local RPC connection”) and remote Global Client(s) (via the RPC connection specified in the registry i.e. normally ncacn\_ip\_tcp). When this feature is enabled, the following message will appear on the GLSERVER.EXE messages screen:

Enabling additional local RPC connection, GLSERVER\_x

This feature allows the intra-computer Global Client to communicate with the Global Server using the ncalrpc protocol which is always faster than the ncacn\_ip\_tcp protocol. The Endpoint used by the Global Server for the “Automatic-Local RPC” connection is always “GLSERVER\_x” where *x* is the server node-id e.g. GLSERVER\_A for server “A” etc.). Note that if the Endpoint key is missing from Global Client section of the registry the default Endpoint appropriate for the local Global Server will be used. For example, the ValueNames under the key for server “L” in the Client section of the registry can contain either:

```
..\Global\Client\Servers\L\ProtocolSequence = ncalrpc
..\Global\Client\Servers\L\NetworkAddress = <blank>
..\Global\Client\Servers\L\Endpoint = GLSERVER_L
```

or:

```
..\Global\Client\Servers\L\ProtocolSequence = ncalrpc
..\Global\Client\Servers\L\NetworkAddress = <blank>
```

- In addition to the Automatic-Local RPC connection the Global Server can be customised to use an additional non-RPC interface to communicate with a Global Client running on the same PC. This extra functionality, which supplements the Standard RPC interface (i.e. the RPC interface specified in the

..\Global\Servers section of the registry) and Automatic-Local RPC (described above) is enabled by setting the following registry entry:

..\Global\Servers\x\EnableGSMRPC

where *x* is the server node-id (e.g. A, B, etc.). If this option is enabled, the following message will appear on the GLSERVER.EXE messages screen:

Enabling gsmlrpc connection

To configure a local Global Client to use the GSMRPC interface, which is much faster than Local RPC and very much faster than intra-computer TCP/IP RPC, the following registry option must be set:

..\Global\Client\Servers\x\ProtocolSequence = gsmlrpc

The following registry option must be present but must be set to <blank>:

..\Global\Client\Servers\x\NetworkAddress

The following registry option can either be absent or, if specified, must be set to "GLSERVER\_*x*" (where *x* is the server node-id):

..\Global\Client\Servers\x\Endpoint

**Important Note 1:** The new Server registry ValueName is "EnableGSMRPC" whereas the new Global Client registry Value for the ProtocolSequence ValueName is "gsmlrpc". This subtle difference is deliberate.

**Important Note 2:** At the time of writing, only a single "local" Global Client can connect to a Global Server using the "gsmlrpc" protocol. Thus, this new option is not currently available for Symmetric Multiple Client (SMC) configurations. This restriction is being addressed.

- The DOSPrint printer controller has been enhanced to recognise the following new options in the Global\Client\Printers\DOSPrint\5nn section of the registry:

PostCloseProgramName	This option specifies the name of an optional Windows program to be invoked immediately after the Windows print file has been closed. This option only applies to the DOSPrint “print to file” or “print to spool directory” options – it does NOT apply to the “print to DOS device” option;
AppendFileNameAfterClose	If the PostCloseProgramName option has been specified (see above) this option determines whether the name of the nascent Windows print file should be passed as a command line parameter to the program identified by the PostCloseprogramName option;
CreateTempFileName	If the PostCloseProgramName option has been specified (see above) this option determines whether the name of the Windows print file should remain fixed thus allowing the name of the intermediate print file to be re-used. If this option is enabled, the name of the print file is always temp $xxhh$ .txt (where $xx$ is the Global Client node-id and $hh$ is the User Number);
PostCloseAlias	By default, if the AppendFileNameAfterClose option is enabled the name of the file appended to the PostCloseProgramName is the full pathname of the nascent Windows print file. This file-name may not be

appropriate in thin-client configurations where the Windows program is initiated on the thin-client PC (i.e. rather than the server) and the share-name of the print spool directory is different from the name specified in the “Name” key in the registry. For example, if the “Name” option is set to “C:\gsmnt\prints\” on the PC running GLOBAL.EXE and this directory is mapped to “\\tisgsmmpc\prints” on the PC running the thin-client (i.e. the PC on which the invoked program will be running) then the PostCloseAlias option should be set to “\\tisgsmmpc\prints\”;

- The WinPrint printer controller has been enhanced to recognise the following new options in the Global\Client\Printers\WinPrint\5nn section of the registry:

#### FlushOnAlignment

If this option is enabled the Printer Executive informs the WinPrint controller immediately (i.e. rather than waiting for the Timeout period to elapse) that the contents of print file must be flushed out to the printer because a Stationery Alignment Message has been displayed;

#### FaxInterface

This option allows the WinPrint option to interface directly to the LG-Fax product. Further details are available upon request;

#### PrintViaSeparateThread

This option is reserved for future use.

Furthermore, a problem in the WinPrint controller that caused an “Error 6 from EndDocPrinter – The handle is invalid” if either the Timeout or

FlushOnAlignment options are enabled in the WinPrint section and the DiagnosticDisplay option, has been fixed.

- Auxiliary (i.e. back-of-screen) printing is now supported in GSM (Windows). To enable this option changes to both the Global Configuration File and the Windows registry are required. The following example dialogue adds an Aux. Printer (controller name \$AUXPRI) to the configuration file (provided the date of the A.W1 Action File is 15/02/99, or later):

```
CONTROLLER [ 4] (      ) :$AUXPRI SCREEN AUXILIARY PRINTER
UNIT NUMBER ( 521):
DESCRIPTION (SCREEN AUXILIARY PRINTER ) :
HARDWARE FORM FEED (Y):
MAXIMUM PAGE WIDTH ( 132):
TIME-OUT IN TENS OF SECONDS ( 2):
SPOOLER CONTROL BITS (#00):
PRINTER EXECUTIVE FLAG BYTE (#FF):
```

Note the absence of controller options in the CFUPDATE dialogue.

The following options in the Global\Client\Printers section of the registry must be added:

**AuxPrint\5nn\ConsoleNumber** This must specify the Console Number of the screen to which the Aux. Printer is attached. The console controller must be either "Serial" or "Network". A value of 0 indicates a "floating" Auxiliary Printer, in which case all the other options are ignored (the options actually used are taken from the registry settings of the "real" Aux. Printer that the "floating" Aux. Printer is mapped to);

**AuxPrint\5nn\ScreenType** This option specifies the screen type:



0	Invalid
1	PCWS
2	TCL Nyce and Wyse-60
3	TVI range
4	Reserved for diagnostics (reverse video)
5	Reserved for Global Windows Workstation
6	Reserved for diagnostics (transparent)
7 – 9	Reserved for future use
10 – 19	Reserved for Global Windows Workstation

**Important note:** At the time of writing, the released version of the Global Windows Workstation does **NOT** support Auxiliary Printing although evaluation versions that do support Aux. Printing may be down-loaded from the Technology section of the Global web-site.

AuxPrint\5nn\PrintingMode    This option specifies the printing mode:

0	Invalid
1	Printing has higher priority than displays
2	Printing has lower priority than displays

Note that an “ImmediateError” option is not supported.

- The Global System Manager (Windows) SETUP.EXE utility has been enhanced in several areas:
- SETUP allows the choice between the Speedbase Btrieve Gateway (SPEEDBAS.EXE) or the Speedbase SQL Server Gateway (SPEEDSQL.EXE and SPEEDGAT.EXE – see Appendix E). If the Speedbase SQL Server option is selected the SQL User, Password and default database size can be configured;

- SETUP allows the choice between a Global 3000 style colour scheme and a Global 2000 style colour scheme. If the Global 3000 style is selected, the default text colour combination for non Speedbase applications will be “black on grey”. If a Global 2000 style is selected the default text colour combination for non Speedbase applications will be “green on black”. See Appendix B, and section A.4.2, of the Global Windows Workstation V2.3 Notes for further details;
- The current installation directory is preserved over the sequential installation of the Global Client, Global Servers and Speedbase Gateway;
- GLSSTART.EXE is no longer installed for a Global Client only installation;
- The “gsmlrpc” Protocol Sequence (short-hand form = “GSM”) is allowed during the Global Client installation;
- The “EnableGSMRPC” setting can be specified during the Global Server installation.
- The File Executive module in both the Global Client and the Global Server has been enhanced to support an extended 32-bit Lock operation. A problem with Sense Message displayed when a GSM disk or diskette I/O Error is reported, has been fixed. Furthermore, the File Executive has been upgraded to support User Numbers up to 250 (the previous limit was 99);
- The Printer Executive module in the Global Client has been enhanced to support User Numbers up to 250 (the previous limit was 99);
- The Console Executive module in the Global Client has been enhanced to support a number of new options:

`..\Global\Client\Nucleus\CheckGWWFLag` When this option is enabled the TAP load mechanism will check that the setting of the GlobalWindowsWorkstation flag

in the registry for the Serial or Network controller (see section 5.6) agrees with the setting of the “GWW” flag in the TAP (see section 2.8). If a mismatch is detected an INVALID TAP (GUI) error message will be displayed. This option has been introduced to prevent an inappropriate TAP from being used with the Global Windows Workstation;

..\Global\Client\Nucleus\ConsoleDiagnostics When this option is enabled all the

characters displayed on the first console, until the TAP is loaded, are written to a diagnostic file conslog.bin in the Global directory. This option can be used to diagnose fatal GSM Load errors;

..\Global\Client\Nucleus\ConsoleLogging When this option is enabled all the characters displayed on the first console are written to a diagnostic file conslog.bin in the Global directory;

..\Global\Client\Nucleus\LogKeystrokes When this option is enabled all keystrokes processed by the Console Executive are written to a diagnostic file keylog\_*nn*.bin (where *nn* is the Console Index) in the Global directory;

The Console Executive also supports the option to display Status Line messages in a Windows Dialogue box (for use with TAP's \$.751 and \$.754 – see section 2.8). Furthermore, the Console Executive now supports a highly-specialised play-back mechanism which is implemented by reading characters from the file gsmjob\_XX.txt (where XX is the Global Client node-id).

- The \$TAPE controller for GSM (Windows) has been enhanced in several areas. The special End-Of-Media error from the Write operation is treated specially and is returned as an error "S" to \$TAPE. Detailed diagnostic and tape status information is displayed when the diagnostic version of \$TAPE (i.e. \$TAPED) is being used. The Tape Drive Information is displayed, in a Windows dialogue box, when \$TAPED is run before the main menu is displayed; the Media Information is displayed, also in a Windows dialogue box, by the \$TAPE Load operation. Thus, the Media Information dialogue box may appear several times during a "composite \$TAPE operation" such as Save and Verify.

The following new registry options are recognised by the \$TAPE controller:

..\Global\Client\Tape\Partitioning If this option is enabled, \$TAPE will create a single partition of the maximum length for each Tape Header written to the tape. In addition, the tape is positioned at the beginning of the first partition for every Tape Load operation. This option should only be enabled for DAT drives. Note that it is NOT possible to select a specific tape partition. Tape Partitioning is NOT supported for QIC drives;

..\Global\Client\Tape\Compression This option enables Data Compression. If data compression is not supported by the tape drive a warning message will be displayed;

..\Global\Client\Tape\DataPadding This option enables Data Padding. Data Padding may be required to maintain tape streaming rates and will result in faster backups at the expense of reduced “actual” tape capacity. If data padding is not supported by the tape drive a warning message will be displayed.

- A problem in GLOBAL.EXE that causes Memory Violations and General Protection Errors when \$BYE is run on a configuration that includes one, or more, Network screen controllers, has been fixed;
- The Caption Text is prefixed with the Global Client node-id, allowing the node-id to be readily determined from the Windows Task Bar. Note that this option is only enabled if the /EN:xx GLOBAL.EXE command line argument has been used to specify the node-id for Symmetric Multi-Client (SMC) or Asymmetric Multi-Client (AMC) configurations;
- A problem with the Network console controller that caused binary-zeroes to be ignored, has been fixed;
- The DiscreteDataFiles controller has been enhanced to return a unique error “f” (sic) if a Read or Write operation fails because another process has locked a portion of a .SVL file. This error will occur when a Backup Manager application has opened a .SVL file in non-shared mode. Furthermore, a problem in the DiscreteDataFile controller that can result in a Memory Violation upon closing the Global Server (or running \$BYE on the Global Client) when read-only sub-volumes have been accessed under some conditions, has been fixed;
- SVC-61 has been enhanced to maintain a list of Open File Handles. A new operation, DSFUNC=126, is available to close all the Open File Handles. **Important note:** This feature is subject to change in future versions of GSM (Windows);

- A new SVC-80 has been implemented which provides faster conversions for \$BBS and \$COMPRES.
- The following new registry option provides an easily customised override to the Number of Memory/Monitor Pages patched into the \$MONITOR file by the \$F PAM and CMP commands:

..\Global\Client\Nucleus\MaximumMemoryPages

The GSM start-up code always uses the higher of the value patched into \$MONITOR and the value of the MaximumMemoryPages registry setting;

- The following new registry option allows the name of the Global Configuration file to be specified:

..\Global\Client\ConfigurationFileName

Although this option can be used it is reserved for future use (for AMC configurations);

- The following new registry option allows the name of the GSM “Bootstrap device” to be specified:

..\Global\Client\BootDevice

Although this option can be used, to allow GLOBAL.EXE to be started without specifying any command line arguments (e.g. by doubling-clicking on the GLOBAL.EXE icon in Windows Explorer), it is reserved for future use (for AMC configurations);

- The following registry options pertain to the Speedbase SQL Server Gateway (SPEEDSQL.EXE and SPEEDGAT.EXE) and are described in Appendix E:

..\Global\Speedbase\SpeedbaseSQLPassword

..\Global\Speedbase\SpeedbaseSQLUser  
 ..\Global\Speedbase\DefaultDatabaseSize  
 ..\Global\Speedbase\FastConversion  
 ..\Global\Speedbase\IdentityFillin

- The following registry options pertain to the 32-bit run-time environment and are described in Appendix F:

..\Global\Client\Nucleus\SVC79Diagnostics  
 ..\Global\Client\Nucleus\SVC79DiagLevel  
 ..\Global\Client\Nucleus\PageTableEntries  
 ..\Global\Client\Nucleus\TrapTableEntries  
 ..\Global\Client\Nucleus\LinkStackEntries

- The V2.8 GLOBAL.EXE includes the V2.3t Global Windows Workstation (GUI) module. This version of the GUI module recognises the following new registry options:

..\Global\Client\Screens\GUI\Miscellaneous\Enable8BitMode  
 ..\Global\Client\Screens\GUI\Miscellaneous\EnableFormMode  
 ..\Global\Client\Screens\GUI\Miscellaneous\EnableIgnoreFields  
 ..\Global\Client\Screens\GUI\Miscellaneous\FullToolbar  
 ..\Global\Client\Screens\GUI\Miscellaneous\ChangePartitionTrigger  
 ..\Global\Client\Screens\GUI\IsoTranslations\ISOChar $\textit{nnn}$

These options, which are reserved for future expansion, should not be used and will be fully described in the Global Windows Workstation V2.4 Notes.

- The following registry options are reserved for future use, and should NOT be used:

..\Global\Client\UseConfigurationFile  
 ..\Global\Client\SerialPortDriver\ $\textit{nn}$ \Name  
 ..\Global\Client\SerialPortDriver\ $\textit{nn}$ \Mode  
 ..\Global\Servers\UseConfigurationFile

..\Global\Client\Nucleus\SVC86Diagnostics

The revised (V1.67) Speedbase Gateways include the following features:

- First release of the Speedbase SQL Server Gateway (SPEEDSQL.EXE & SPEEDGAT.EXE). See Appendix E for full details of the Speedbase SQL Server option;
- Changes to the Speedbase Btrieve Gateway to fix the Btrieve error 238; STOP 25403 problem that can occur when a previously disconnected Global Client re-attaches to the Gateway and deletes the locks of the Global Client that immediately precede it in the Gateway's list of attached clients;
- Support for the "Get Lock Information" operation used by the \$BAST Display Locks function (see section 2.8);
- Support for the 32-bit Speedbase Database manager (see Appendix F);
- Support for mixed SPAM/Speedbase database operations.

Please refer to the Global System Manager (Windows) Configuration Notes for a full list of released versions of the Speedbase Gateways.

## GSM (Windows) BACNAT variant 2.9A

The V2.9 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLCONS.EXE, GSMCONS.EXE and GLSERVER.EXE. Note that the Production version of the GSM (Windows) BACNAT is actually V2.9A (i.e. rather than V2.9).

- The 32-bit run-time system in the GSM (Windows) nucleus in both GLOBAL.EXE and GLCONS.EXE has been upgraded extensively. **ALL 32-BIT DEVELOPERS AND END-USERS SHOULD UPGRADE FROM BACNAT V2.8 TO BACNAT V2.9A;**



- There appears to be some confusion regarding the various fat vs. thin, GUI vs. console options available with GSM (Windows). The following table should help:

Client type	Window or Console app'n	Name of executable	aide-mémoire
Fat	Window (GUI) application	GLOBAL.EXE	FATGUI
Thin	Window (GUI) application	GSMWIN32.EXE	THINGUI
Fat	Console/full-screen application	GLCONS.EXE	FATCONS
Thin	Console/full-screen application	GSMCONS.EXE	THINCONS

The current Production variants of these components are:

<i>Module</i>	<i>Variant</i>
GLOBAL.EXE	V2.9A/V2.5c
GLSERVER.EXE	V2.9A
GLCONS.EXE	V2.9A/V2.9
GSMCONS.EXE	V2.9

See below for full details of the GSMCONS.EXE telnet emulator;

- The GLOBAL.EXE and GLCONS.EXE components have been enhanced to automatically create a log file, *gsminfo.bin*, when GSM is initiated. This log file contains various system information (e.g. BACNAT variant, GSM version, GSM revision, configuration code, Windows version etc.).

**PLEASE PROVIDE A COPY OF THE PRE-COMPRESSED *gsminfo.bin* FILE WHEN REPORTING ANY TYPE OF PROBLEM WITH GSM (WINDOWS NT);**

- The GLREGED.EXE template file, GLMACH.TLT, includes several new settings that start with the “%” character. **THESE SETTINGS ARE RESERVED FOR FUTURE USE AND SHOULD NOT BE USED;**

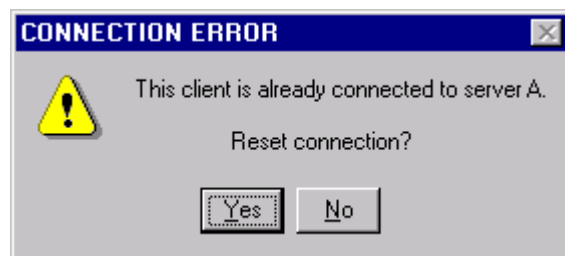
- The default behaviour when a Global Client is already connected to a Server has been changed. By default, the following Fatal Connection Error dialogue box will appear:

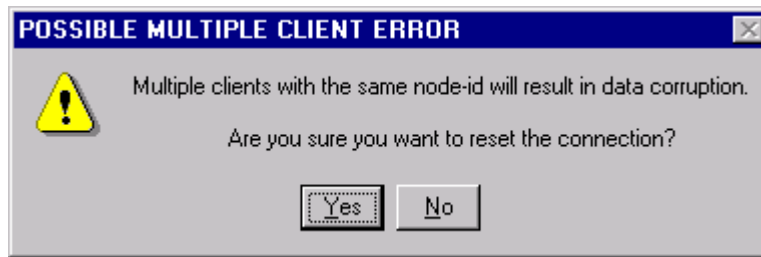


This default action can be modified by setting the following registry setting to "On":

..\Global\Client\AllowClientReconnection

The severity of the warning message that appears when a Global Client is already connected to a Server (and the AllowClientReconnection option is enabled) has been increased. Two dialogue boxes, rather than one, now appear:





**ONLY IGNORE THESE WARNINGS IF YOU 100% SURE THAT THERE ARE NO CLIENT NODE-ID CLASHES OTHERWISE SEVERE DATA CORRUPTION WILL OCCUR;**

- Changes have been made to the \$E handling in GLOBAL.EXE and GLCONS.EXE to allow the “ExitOn\$E” option in the GUI GSMWIN32.INI file to have an effect when a non-GUI TAP (e.g. \$.712) is being used. The “ExitOn\$E” option (in GSMCONS.INI) is also supported by GSMCONS.EXE (see below) when a text-mode TAP (i.e. \$.730 or \$.731) is being used;
- The DOSPrint controller now recognises the following new option in the registry:

`..\Global\Client\Printers\DOSPrint\5 nn\FixedFileSuffix`

If this option is set to a 3 character extension (e.g. “txt” or “bat”) the DOSPrint controller, when writing to a Spool Directory, will create filenames of the form:

*xxxxxnnn.sss*

where *nnn* is an incrementing number, *sss* is the filename suffix and *xxxxx* are the first 5 characters of the Global filename. Note that if the “FixedFileSuffix” option is set to anything other than a 3 character string it will be ignored;

- A problem, introduced by the changes to implement the 32-bit run-time option, which cause the V2.8 Global Client to appear to hang if all the servers P,Q,R,S,T,U,V,W have been accessed has been fixed;
- A series of new registry settings provide more control over the automatic “linear” NETWORK Port number adjustment for Symmetric Multiple Client (SMC) configurations:

..\Global\Client\PortNumberForNodeXX

where XX is any 2 digit decimal number between 27 and 99.

The “natural” node to network port mapping is:

..\Global\Client\PortNumberForNode28=24

..\Global\Client\PortNumberForNode29=25

..\Global\Client\PortNumberForNode30=26

To change the telnet port used for node 30 to 1000, for example:

..\Global\Client\PortNumberForNode30=1000

Before changing port numbers their status must be ascertained. The Windows NETSTAT command may be useful;

- When the Symmetric Multiple Client (SMC) option is being used, the “SingleInstance” option must be disabled, otherwise the multiple clients cannot be started. However, the “SingleInstance” option is extremely useful and should normally be enabled at all times. GLOBAL.EXE has been enhanced to tag the Global Client node-id, specified by the /EN command line option, to the string “Global System Manager” that is used to register the Global Client to Windows. This change allows the “SingleInstance” option to be enabled in SMC configurations. **YOU ARE STRONGLY ADVISED TO ENABLE THIS OPTION AT ALL TIMES;**

- The GLCONS.EXE module has been enhanced to include all the V2.9A features that are included in GLOBAL.EXE. As documented in section A.6, the version/variant number of GLOBAL.EXE consists of two parts: The GSM (NT) nucleus version (e.g. V2.9A) and the Global Windows Workstation version (e.g. V2.5b).

Similarly, the version/variant number of GLCONS.EXE also consists of two parts: The GSM (NT) nucleus version (e.g. V2.9A) and the “GSMCONS” emulator version (e.g. V2.9). Both these version numbers are displayed on the GLCONS.EXE caption bar;

- GLCONS.EXE has been repackaged to prevent the appearance of spurious characters appearing on the screen immediately after the TAP has been loaded;
- The default value for the “MaximumMemory” setting was 4096 (i.e. 4Mb). This has been increased to 32768 (i.e. 32Mb). The maximum value for the “MaximumMemory” setting was 16384 (i.e. 16Mb). This has been increased to 131072 (i.e. 128Mb);
- The Console Executive has been enhanced to alter the sequence of displays that take place when a partition is refreshed. This change fixes a problem that causes some fields in Speedbase applications, or lines in \$SDE, to switch from dim to bright during a screen refresh;
- The Printer Executive now supports a new operation that is used by the Printer Control File handler to determine if a printer has been designated a “Pooled Printer”;
- A problem that causes GLOBAL.EXE to crash if a Pooled Printer has been dynamically removed from the configuration (e.g. if the printer unit has is associated with a missing COM port), has been fixed;
- A very obscure problem in the Printer Executive has been fixed: Consider a program that opens a printer (e.g. 500) but exits without explicitly closing the

printer (because of a PGM CHK, for example). Between the printer open and the abnormal exit, another user opens a different printer (e.g. 501) so that printer 501 becomes the “last printer used”. When the first user returns to the READY prompt or the main menu, the printer is reset. However, the bug caused the “last printer used” (i.e. 501) to be reset rather than the “last printer opened by that user” (i.e. 500). The second user suffers an ERROR N when attempting to print to 501 (after it has been inadvertently closed);

- A bug in the WinPrint controller has been fixed that caused the following registry options to be ignored:

```
..\Global\Client\Printers\WinPrint\5nn\FlushOnAlignment
..\Global\Client\Printers\WinPrint\5nn\FaxInterface
..\Global\Client\Printers\WinPrint\5nn\PrintViaSeparateThread
```

if the following setting is left blank:

```
..\Global\Client\Printers\5nn\WinPrint\Name
```

- A problem in the AuxPrint controller that results in a spurious NOT READY error has been fixed. Furthermore, two new options have been added to enable Polled Printing mode, which will reduce the performance overhead on other Global applications when using the AuxPrint controller. Set the following option to “On” to enable the Polled Printer mode:

```
..\Global\Client\Printers\AuxPrint\PolledMode
```

The value of the following setting can be used to alter the relative priority of the AuxPrint process and the other Global applications:

```
..\Global\Client\Printers\AuxPrint\PrintPollDivisor
```

Increasing the setting should reduce the overhead imposed by the AuxPrint controller on other Global applications;

- A problem in the GSMRPC Client–Server interface that caused the Global Client to hang when attempting to access an inaccessible Global Server, has been fixed;
- The Console Executive has been enhanced to support a new operation that returns the Connection Status of a NETWORK port. This operation is called by a new \$STATUS “CLR” command (see section 2.9.1) which automatically restarts (i.e. clears) all failed connections;
- The Console Executive has been enhanced to support the new op-code required by the new CACND\$ sub-routine;
- A problem in the SVC–61 Find First File function has been fixed. This problem can cause unexpected results in the FILECONV List Directory option;
- The SVC–61 “Get Version” function has been enhanced to return the Windows major and minor version numbers, the Platform ID and the Build Number;
- A new SVC–61 operation has been implemented to return the actual amount of memory allocated dynamically by GSM (Windows);
- Although it is our intention to include an “enlarge sub-volume” facility in the GLDFMAIN.EXE utility this functionality has not been implemented yet. As a stop-gap solution, the GSM (DOS) GLENDDF.EXE utility is now distributed with GSM (Windows);
- The 32-bit diagnostics code has been rationalised. The following 2 registry settings:

..\Global\Client\Nucleus\SVC79Diagnostics  
 ..\Global\Client\Nucleus\SVC79DiagLevel

are used as follows:

<i>SVC79Diagnostics</i>	<i>SVC79DiagLevel</i>	<i>Meaning</i>
-------------------------	-----------------------	----------------



Off	Don't care	Diagnostics disabled
On	0	Reserved for future use
On	1	Log SVC-79 hard errors
On	2	Log all SVC-79 errors
On	3	Log all SVC-79 operations
On	4	Reserved for future use
On	5	Reserved for future use
On	6	Reserved for future use
On	7	Reserved for future use
On	8	Reserved for future use
On	9	Reserved for future use

- The algorithm used to allocate 32-bit memory has been improved. In all versions prior to V2.9A, the memory for 32-bit pages was allocated within the size limit defined by the following registry setting:

..\Global\Client\MaximumMemory

This simplistic technique lead to the following warning message appearing unexpectedly on large multi-user configurations:

INITIATION WARNING 470 – 32-BIT SERVICES NOT AVAILABLE

For 16-bit only configurations this situation can be avoided by setting the following registry setting to “Off”:

..\Global\Client\Nucleus\Enable32Bit

For 32-bit configurations, the memory for 32-bit pages is now allocated within the size limit defined by the following registry setting:

..\Global\Client\Nucleus\MaxMemory32Bit

Consequently, the relatively large amount of memory allocated for 16-bit memory-banks for large multi-user configurations will not impinge on the memory allocated for 32-bit pages;

- The 79-column restriction with GLCONS.EXE and GSMCONS.EXE (see below) when running on Windows 95 and 98 has been removed. It is now possible to use the 80-column TAP's (e.g. \$.730) with both GLCONS.EXE and GSMCONS.EXE on Windows-95 & 98.

**IMPORTANT NOTE:** Despite the special code to support this feature on Windows 95 & 98, the 80<sup>th</sup> character position on the baseline (i.e. line 24) remains reserved and cannot be used;

- A new telnet emulator, GSMCONS.EXE, has been released. Unlike the Global Windows Workstation (GSMWIN32.EXE), which is installed using a separate installation procedure, GSMCONS.EXE is automatically installed when the GSM (Windows) Global client is installed. Although internal, evaluation versions of this emulator have been released version V2.9A is first "official", external version. As the table at the start of this section indicates, GSMCONS.EXE is the "thin-client" version of the GLCONS.EXE non-GUI, full-screen "fat-client".

The GSMCONS.EXE emulator is configured by the GSMCONS.INI file (i.e. in the same way that GSMWIN32.EXE is configured by the GSMWIN32.INI file). However, the contents of the GSMCONS.INI file are considerably simpler than the complex GSMWIN32.INI file. Furthermore, the Common INI File and Customisation INI file options supported by GSMWIN32.EXE (see the Global Workstation Notes for further details) are NOT supported by GSMCONS.EXE.

The GSMCONS.INI file contains the following sections and options:

```
[tcpipparameters]
HostID=192.168.1.109
Port=23
```

```
[miscellaneous]
```

```
ExitOn$E=On
KeyboardTimeout=0
```

```
[buffers]
DisplayBufferSize=512
SharedBufferSize=2048
ReceiveBufferSize=512
```

```
[printers]
AuxiliaryPrinter=COM13:38400,N,8,1,X
AuxPrinter0=COM1:38400,N,8,1,X
AuxPrinter1=COM2:38400,N,8,1,X
AuxPrinter2=COM3:38400,N,8,1,X
AuxPrinter3=COM4:38400,N,8,1,X
AuxPrinter4=COM5:38400,N,8,1,X
AuxPrinter5=COM6:38400,N,8,1,X
AuxPrinter6=COM7:38400,N,8,1,X
AuxPrinter7=COM8:38400,N,8,1,X
AuxPrinter8=COM9:38400,N,8,1,X
AuxPrinter9=COM10:38400,N,8,1,X
```

**Important Note:** Although comments are allowed in the GSMCONS.INI file each comment must start on a new-line. Comments on the same line as an entry are not allowed and effectively invalidate the entry. For example, the following comment format is allowed:

```
; This is a comment for the next line
ExitOn$E=On
```

Whereas the following comment format will generate an error when GSMCONS.EXE is loaded:

```
ExitOn$E=On ; This is a comment for the current line
```

The “HostID” and “Port” number select the GLOBAL.EXE (or GLCONS.EXE) host. If the “ExitOn\$E” option is enabled, GSMCONS.EXE will terminate automatically and disconnect telnet connection, when the operator runs the \$E command.

The options in the [buffers] section should not be amended, except under exceptional circumstances.

Auxiliary Printing (i.e back of screen printing) is supported by GSMCONS.EXE. The various options in the GSMCONS.INI file correspond to the value of the following setting in the registry of the host computer:

..\Global\Client\Printers\AuxPrint\5nn\ScreenType

*ScreenType value    Printer selected in GSMCONS.INI    Escape sequence*

5	AuxiliaryPrinter	1B6Exx
10	AuxPrinter0	1B6D30xx
11	AuxPrinter1	1B6D31xx
12	AuxPrinter2	1B6D32xx
13	AuxPrinter3	1B6D33xx
14	AuxPrinter4	1B6D34xx
15	AuxPrinter5	1B6D35xx
16	AuxPrinter6	1B6D36xx
17	AuxPrinter7	1B6D37xx
18	AuxPrinter8	1B6D38xx
19	AuxPrinter9	1B6D39xx

Note that the printer selected by the GSMCONS.INI setting must be a non-mapped, local DOS Device. The printer is opened for exclusive use when GSMCONS.EXE starts up and is only closed, and thus made available to other applications, when GSMCONS.EXE closes.

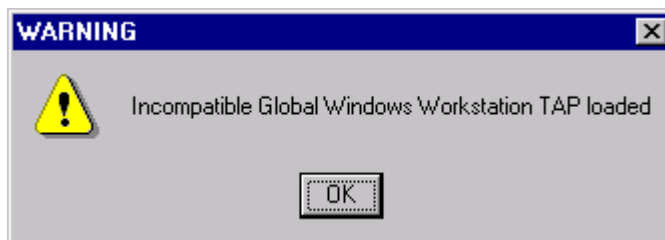
The rules that govern the full-screen and wide-mode options of GLCONS.EXE also apply to GSMCONS.EXE:

<i>Option</i>	<i>Win-95/98</i>	<i>Win-NT</i>
80th column position available (\$.730 etc.)	No	No
80th column position available (\$.731 etc.)	Yes <sup>1</sup>	Yes
full screen mode supported	Yes	Yes
full screen at start-up possible	No	Yes
132 wide window supported (\$.730 etc.)	No	No
132 wide window supported (\$.731 etc.)	Yes	Yes
132 wide full screen supported	No	No

In the above "\$.730" represents the family of TAP's that includes \$.730, \$.732 etc.; similarly "\$.731" represents the family of TAP's that includes \$.731, \$.733 etc.

Note-1: The 80<sup>th</sup> character position on the bottom line is NOT write-able when an 80-column TAP is used on Windows-95 and 98.

GSMCONS.EXE detects an attempt to load a Global Windows Workstation TAP (e.g. \$.711 or \$.712). When an incompatible TAP is loaded the following warning dialogue box will be displayed:



If this message appears run \$E immediately to re-load the correct TAP (e.g. \$.730 or \$.731 etc.). Please refer to the GSM (Windows) Configuration Notes for further details regarding the correct TAP's to use with GSMWIN32.EXE and GSMCONS.EXE.

GSMCONS.EXE supports the following option in the [miscellaneous] section of the GSMCONS.INI file:

#### KeyboardTimeout

When this option is specified, GSMCONS.EXE, introduces a small delay to ensure that there is a small time difference between receiving and sending characters over a TCP/IP link. This option should not be enabled under normal circumstances;

- A bug in the \$COMPRES SVC, SVC-80, has been fixed. This problem can cause a spurious WRITE FAIL error message to appear when uncompressing a file(s);
- GLOBAL.EXE now recognises the /Y command line option. When this option is enabled the registry key "AltServers" instead of the normal "Servers" key is used to obtain the connection information required to access the various servers;
- Diagnostics have been added to the \$BYE handling to investigate a problem that can result in the Global Client hanging when \$BYE is run. The diagnostics, which are enabled by the following registry setting:

..\Global\Client\Enable\$BYEDiagnostics

cause a log-file, *byediags.log*, to be created in the current directory;

- A new internal diagnostic option, SVC-90, has been included in GSM. This option is reserved for internal use only and is controlled by the following new settings in the registry:

..\Global\Client\Nucleus\SVC90FileName  
 ..\Global\Client\Nucleus\SVC90Count  
 ..\Global\Client\Nucleus\SVC90Length1  
 ..\Global\Client\Nucleus\SVC90Length2  
 ..\Global\Client\Nucleus\SVC90Length3

..\Global\Client\Nucleus\SVC90Length4  
..\Global\Client\Nucleus\SVC90Length5  
..\Global\Client\Nucleus\SVC90Length6  
..\Global\Client\Nucleus\SVC90Length7  
..\Global\Client\Nucleus\SVC90Padding

- The following registry setting is available to specify the “Data Type” of the document printed by the WinPrint controller:

..\Global\Client\Printers\WinPrint\5nn\StartDocDataType

This option is reserved for future use;

- The following new options in the registry are reserved for future use:

..\Global\Servers\FileExecValidation  
..\Global\Servers\x\FileExecValidation

- A diagnostic option has been added to the Printer Executive to dump all the current Printer Translation Tables to a dump file, *printdump.bin*. This option is reserved for diagnostic purposes only;
- It is now possible to override the customisations within the \$MONITOR file by various settings in the following registry key:

..\Global\Client\Monitor

These advanced settings, which are currently reserved for future use, are outside the scope of this document. However, a complete description of this option can be found in Technical Note In188;

- GLOBAL.EXE now recognises the following new registry settings:

..\Global\Client\Screens\GUI\Miscellaneous\TextSubstitutionFilenameValidation

..\Global\Client\Screens\GUI\Miscellaneous\MainFramePositionWide

These options are reserved for specialised functions and should not be used.

## GSM (Windows) BACNAT variant 2.9B

The V2.9B BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE:

- Both the V2.9 & V2.9A GLOBAL.EXE modules contain a bug that can result in a variety of symptoms when a particular coding technique in 16-bit Cobol or 16-bit Speedbase is used. The symptom of the problem is a TRAP AT 0000 or a fatal error 8 from the CCI.

The coding technique within a Cobol program or Speedbase frame involves CALLing or PERFORMing the next sequential line of code. For example:

```

                PERFORM LABEL1          * PERFORM SOME ROUTINE
LABEL1.         (some code)             * FALL THROUGH TO DO IT AGAIN !!!
                EXIT                     * CODE IN BODY OF ROUTINE
                * EXIT FROM THE ROUTINE

```

However, the problem will not occur every time such code is executed. It will only occur if a time-slice swap occurs between LABEL1, in this example, and the EXIT statement.

The only example of this coding technique that we have found to date occurs in Sales Analysis.

However, all sites with the V2.9 or V2.9A GLOBAL.EXE are recommended to upgrade to V2.9B immediately.

## GSM (Windows) BACNAT variant 2.9C

The V2.9C BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE:



- The V2.9C GLCONS.EXE client includes the fix to the problem described in section 5.10 (i.e. the problem described in section 5.10 was fixed in GLOBAL.EXE V2.9B and in GLCONS.EXE V2.9C);
- The problem that causes the GLOBAL.EXE Global client to ignore keyboard input, and appear to hang, if heavy displays are in progress has been fixed. This problem occurred in a variety of circumstances (e.g. when continual “in progress” messages are being displayed, during the Global Writer block delete dialogue).

## **GSM (Windows) BACNAT variant 2.9D**

The V2.9D BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GSMCONS.EXE:

- A problem that resulted in a spurious “Error 123 from SetCurrentDirectory” when loading either GLOBAL.EXE or GLCONS.EXE, has been fixed. This problem, which is very dependent on the precise format of the command line argument, has only been reported in GLCONS.EXE although it could occur in GLOBAL.EXE;
- Both GLOBAL.EXE and GLCONS.EXE automatically create a “log” directory immediately under the current Global directory. A small log file, bootdiags.log, is automatically created each time the Global client is loaded;
- The GUI module with GLOBAL.EXE has been upgraded to fix a problem that causes a General Protection Error (i.e. a complete crash) when exiting from an End-User System Request.

## **GSM (Windows) BACNAT variant 2.9E**

The V2.9E BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE:

- An apparent problem in the \$STATUS RES and CLR commands that leaves open files and outstanding locks on remote File Executives has been fixed. The

solution to the problem involves each Global Client maintaining a "private" list of all the Global Servers that have been accessed. When a user on the Global Client is restarted, all the Global Servers that have been accessed by the client, based on the contents of the "private" list, are sent a Reset operation rather than the client relying on the (unreliable) SYLANF flag in the Global System Area. In V2.9E version of GLOBAL.EXE, this improved behaviour is enabled by the following registry setting:

..\Global\Client\IgnoreSYLANF

For the released V3.0 GLOBAL.EXE (see section 5.14, below) the "Ignore SYLANF" option is enabled by default so there should be no need to add this registry setting;

- Windows environment variables are now allowed in REG\_SZ (i.e. string) registry values. An environment variable is indicated by enclosing the string in % characters. For example, if the Windows environment variable "GLOBALDIR" is set to "D:\PROGRAMS\GLOBAL" then setting a registry string value to "%GLOBALDIR%\GSM200" will result in the following string value:

D:\PROGRAMS\GLOBAL\GSM200

If the string enclosed in "%" characters is not a valid environment variable the string, including the two % characters, is returned as the registry value.

Windows environment variables are recognised by GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE. Windows environment variables are NOT currently recognised by SPEEDBAS.EXE or SPEEDSQL.EXE.

**Important note 1:** The automatic expansion is not performed for free-format, variable-text keys but only for string-values.

**Important note 2:** Do not confuse Windows environment variables, enclosed in "%" characters with the experimental Global registry settings starting with the "%" character that are mentioned briefly in section 5.9 and Appendix G;

- A new option to allow the name of a target Speedbase Gateway to be specified as a registry Value (i.e. rather than as a free-format, variable-text registry Key) is now available. It is possible to specify the details of a Speedbase Gateway with the following registry settings:

```

..\Global\Client\Gateways\MM\GatewayServerName
..\Global\Client\Gateways\MM\ProtocolSequence
..\Global\Client\Gateways\MM\NetworkAddress
..\Global\Client\Gateways\MM\Endpoint
..\Global\Client\Gateways\MM\Port                (reserved for future
use)

```

The notional index number *NN* (between 01 and 99) is purely descriptive and merely serves to allow multiple Gateways to be defined in the registry.

Compare the original registry format:

```

..\Global\Client\Speedbase\Server1\ProtocolSequence = ncacn_ip_tcp
..\Global\Client\Speedbase\Server1\NetworkAddress = Server1
..\Global\Client\Speedbase\Server1\Endpoint = 3100

```

With the equivalent alternative format:

```

..\Global\Client\Gateways\MM\GatewayServerName = Server1
..\Global\Client\Gateways\MM\ProtocolSequence = ncacn_ip_tcp
..\Global\Client\Gateways\MM\NetworkAddress = Server1
..\Global\Client\Gateways\MM\Endpoint = 3100

```

Both the original and alternate registry settings are recognised by GLOBAL.EXE. However, when a connection to a Speedbase Gateway is requested, the various Client\Gateways\NN\ *GatewayServerName* settings are considered before the Client\Speedbase\ *GatewayServerName* settings.

Note that the new format allows the Speedbase server name to be specified as Windows Environment Variable (i.e. it is specified as a registry value rather than a registry key);

- The "gsmrpc" Client-Server interface, introduced with GLOBAL.EXE V2.8 (see section 5.8), has been enhanced to allow multiple clients to connect to a server using the "gsmrpc" option (the initial release only allowed single-client configurations). Several registry settings are required to enable the new multiple-client option.

For the Global Client, the following registry setting must be enabled:

```
..\Global\Client\EnableMultipleGSMRPC = On
```

For the Global server, the following registry settings must be enabled:

```
..\Global\Servers\EnableMultipleGSMRPC = On
..\Global\Servers\MultipleClientGSMRPC\N=xx
```

where *NN* (or *N*) is a unique number and *xx* is the node-id of a local client. For example, to enable "gsmrpc" for Global clients 27,28 and 29:

```
..\Global\Servers\MultipleClientGSMRPC1=27
..\Global\Servers\MultipleClientGSMRPC2=28
..\Global\Servers\MultipleClientGSMRPC3=29
```

- The device name of the WinPrinter print device is included in all API Error Messages displayed by the controller. This new feature should allow typo's in the Name setting to be detected more readily;
- The WinPrint controller has been enhanced to allow the name of the Windows print device for a particular printer number to be optionally modified according to the Screen Number. Thus, the following registry settings:

```
..\Global\Client\Printers\WinPrint\5nn\NameForScreenN
```

..\Global\Client\Printers\WinPrint\5 $nn$ \NameForScreen $NN$

overrides the normal "Name" setting for screen  $N$  or  $NN$  ( $N = 1$  to  $9$ ;  $NN = 10$  to  $99$ ):

Similarly, the following registry setting:

..\Global\Client\Printers\WinPrint\5 $nn$ \NameForNode $NN$

overrides the normal "Name" setting for node-id  $NN$  ( $NN = 27$  to  $99$ ). This setting is only recognised if the /EN command line argument has been used to override the default node-id.

In order for the override to be effective, the "Name" option must be set to a real printer (i.e. it must not be <blank> and the "DisableValidation" option **MUST** be disabled.

Note that screen numbers between 1 and 9 require registry settings "NameForScreen1" to "NameForScreen9" (i.e. rather than the normalised "NameForScreen01" to "NameForScreen09").

- An SVC-61 operation is available to return the Windows printer device for a particular Printer Number/Screen Number combination. A further SVC-61 operation returns details of the \$MonitorOverride option. Details of these specialised operations are beyond the scope of these notes.
- The following new diagnostic option has been added to the WinPrint printer controller:

..\Global\Client\Printers\WinPrint\5 $nn$ \WinPrintDiagnostics

When this option is enabled, the file "WinPrintDiags $NNN$ .log" (where  $NNN$  is the printer number) is created in the "log" directory. Note also that this registry setting has been moved for the V3.0 release (see section 5.13, below);

- More options have been added to the WinPrint printer controller. The following option ignores any errors that may be generated by the StartPagePrinter function:

..\Global\Client\Printers\WinPrint\5nn\IgnoreStartPageError

If this option is disabled any errors from the StartPagePrinter function will result in an ERROR H on the printer.

The following option causes the WinPrint controller to avoid both the StartPagePrinter and EndPagePrinter function calls:

..\Global\Client\Printers\WinPrint\5nn\SkipStartPageCall

In addition, the following option causes the WinPrint controller to issue a StartPagePrinter function call after every Form-Feed character:

..\Global\Client\Printers\WinPrint\5nn\StartPageAfterFormFeed

- The DOSPrint controller now includes the option to operate in Polled mode. This option is enabled by setting the following registry value to "on":

..\Global\Client\Printers\DOSPrint\5nn\PolledMode

The poll rate is controlled by the following setting:

..\Global\Client\Printers\DOSPrint\5nn\PrintPollDivisor

- The DOSPrint controller now includes a number of highly specialised settings.

The following option removes trailing <CR> characters from the output print file, for use with specialised data exports:

..\Global\Client\Printers\DOSPrint\5nn\RemoveCR

The following option removes trailing Form–Feed characters from the output print file. This option effectively removes hard page–breaks from the print file:

```
..\Global\Client\Printers\DOSPrint\5nn\RemoveFF
```

The following option enables the Tab Contraction/compression function:

```
..\Global\Client\Printers\DOSPrint\5nn\TabContract
```

The following option allows the default Tab Stop number to be changed from the default value of 8:

```
..\Global\Client\Printers\DOSPrint\5nn\TabPosition
```

All the above options have been added for specialised data export scenarios and should be used with extreme caution;

- The following new \$AUXPRI Screen Type values are supported:

<i>Screen Type value</i>	<i>Printer Selected in GSMCONS.INI</i>	<i>Escape sequence</i>
--------------------------	--	------------------------

20	AuxPrinter0	1B6F30
21	AuxPrinter1	1B6F31
22	AuxPrinter2	1B6F32
23	AuxPrinter3	1B6F33
24	AuxPrinter4	1B6F34
25	AuxPrinter5	1B6F35
26	AuxPrinter6	1B6F36
27	AuxPrinter7	1B6F37
28	AuxPrinter8	1B6F38
29	AuxPrinter9	1B6F39
30	AuxiliaryPrinter	1B6F40

These new escape sequences are followed by variable length print strings (which are terminated by the escape sequence 1B5B3469). Note that these new escape sequences are only supported by GSMCONS.EXE (i.e. they are not currently supported by GSMWIN32.EXE);

- The \$AUXPRINT controller now recognises ScreenType values higher than 100. A ScreenType value higher than 100 indicates that a Close Printer escape sequence must be sent to the terminal emulator for every Close Printer operation. When a ScreenType value higher than 100 is configured, 100 is subtracted from the value to obtain the "true" ScreenType value. For example, a ScreenType set to 105 indicates a ScreenType of 5 but with the Close Printer option enabled;

**Important note:** At the time of writing the Close Printer escape sequence is only supported on the V3.0 GSMCONS.EXE. This option is NOT supported in any version of GSMWIN32.EXE.

- The number of Printer Translations supported by the Printer Executive has been extended from 32 to 64 as required by the extensions to the V8.11 \$CUS utility (see section 2.10);
- The size of an internal Console Executive intermediate output buffer has been increased from 8 to 128 characters. This will increase display performance under some circumstances;
- The SVC-61 interface has been enhanced to provide a family of functions that provide full access to the Windows access to the Windows registry. The following functions are supported:

- Test for registry value
- Delete registry value
- Test for registry key
- Add new registry key
- Delete registry key
- Get registry DWORK value



Get registry REG\_SZ value  
Set registry DWORK value  
Set registry REG\_SZ value  
Add registry DWORK value  
Add registry REG\_SZ value

For further details, please refer to the draft V8.2 File Converters Manual, which is available upon request;

- The SVC-61 interface has been enhanced to return the string value associated with a Windows Environment variable. For further details please refer to the draft V8.2 File Converters Manual, which is available upon request;
- GLSERVER now recognises the setting of the DiagnosticDisplays flag under all circumstances. The problem that resulted in the API Error message Box appearing when some errors occurred, regardless of the DiagnosticDisplays setting, has been fixed. The default value for the DiagnosticDisplays flag is "Off";
- By default, the various \$MONITOR override values in the "Monitor" key do not attempt to override the \$MONITOR from a Starter System (i.e. from a BACRES). However, under some circumstances it may be necessary to override a Starter System. The following new value has been added to the "Monitor" key:

..\Global\Client\Monitor\StarterSystemOverride

- The following registry settings changes the Printer Control File (PCF) naming convention:

..\Global\Client\Nucleus\CentralPCFName

If this option is enabled, the Global Client node-id is ignored when building the name of the Printer Control File (PCF), regardless of the Printer Unit Number. That is, the PCF name is always \$P5nn, for all printers.

- The SVC-86 interface to GX has been enhanced to support fast, asynchronous GX operations. A problem in this area, that prevented the DOSPrint controller "PostCloseProgramName" option from functioning correctly, has been fixed;
- The SVC-61 interface maintains a table of the Windows files that have been opened by Global applications. When a Global application terminates, any Windows files that remain open are automatically closed by the "Reset" handling. This new functionality avoids the problem that can occur when a Global application opens a Windows file but does not close it cleanly (without the new option the Windows file would remain open until the Global client is restarted).
- The following registry setting can be used to alter the TCP/IP packet buffering:

..\Global\Client\Screens\Network\WinSockSendBufferSize

This option can be used to change the buffer size from any value between 256 bytes and 64Kb (the default is normally 8Kb). Note that changing this parameter is not generally recommended.

- The Printer Executive time-out value is automatically multiplied by a factor of 10 for \$AUXPRI printers. This is necessary to overcome a problem that results in spurious NOT READY errors with \$AUXPRI printers when large TCP/IP buffers are configured;
- SVC-80 has been enhanced to support the functionality required by the "chained sub-volume" option. This option is enabled by setting the #08 bit of the NUMBER OF EXTRA ASSIG\$ TABLES prompt in the NUCLEUS SECTION of the Global configuration file. Note that this obscure enabling technique has been superceded by a more obvious registry setting (i.e. +EnableUnitMapping) when the option to avoid the Configuration File has been enabled (see Appendix G);
- The Global Client now includes support for SVC-91. A description of this SVC, which provides access to an Extended 16-bit System Area, is beyond the scope

of these notes. The following registry setting allows the Extended System Area to be increased from the default size of 0 bytes:

..\Global\Client\Nucleus\ExtendedSystemAreaSize

**Important Note:** Previous versions of this document incorrectly stated that the default ExtendedSystemAreaSize is 256 bytes.

- The following new diagnostic option has been added to track the allocation and de-allocation of memory by GLOBAL.EXE:

..\Global\Client\EnableAllocMemoryDiagnostics

When this option is enabled, the file "allocmemdiags.log" is created in the "log" directory. Note also that this registry setting has been moved for the V3.0 release (see section 5.14, below);

- Internal changes to GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE to support the full range of File Executive operation codes, including a new Speedbase exclusive lock operation, have been implemented;
- A new option in GLSERVER.EXE allows the creation of a log-file containing all the messages that normally appear in the Global Server window. The name of the Global Server log-file is GLSERVERx.LOG (where x is the server letter). This option is enabled by setting the following registry option:

..\Global\Servers\EnableServerLogFile

Note that the default for this option is "on" (i.e. Server log files are created by default). Note also that this registry setting has been moved for the V3.0 release (see section 5.14, below);

- The Diagnostic "FD Logging" option in GLSERVER.EXE is now correctly recognised when the "gsmrpc" interface is used;

- The default 5 second timeout in GLOBAL.EXE when waiting for a response from a GLSERVER.EXE via the "gsmrpc" interface is now configurable. The following setting allows this timeout period to be modified from the default of 5 seconds:

..\Global\Client\GSMRPCTimeout

The V2.9E BACNAT repackaging for Global System Manager (Windows) also includes the following features in GSMCONS.EXE:

- An option to display "bright" colours (e.g. true yellow, rather than a dirty brown) is now supported in GSMCONS.EXE. A new [colours] section in the GSMCONS.INI file can include the following new settings:

BrightYellow  
BrightWhite  
BrightGreen  
BrightBlue  
BrightRed  
BrightMagenta  
BrightCyan

- The following new settings have been added to the [miscellaneous] section of the GSMCONS.INI file:

SendInitialEscape

This option can be used to force the display of a sign-on screen by sending an <ESC> character when GSMCONS.EXE is initiated. This is typically required when GSMCONS.EXE is used to reconnect to a session that has been terminated by the use of \$E;

ConsoleTitlePrefix

This setting allows a string of up to 40 characters to replace the default caption text of "Global Thin Client";

LogDisplays=On

This option has been added to log all displays in a log-file "gsmconslog.bin".

**Important Note:** In the V3.0 GSMCONS.EXE (see section 5.14, below) the the LogDisplays option has been moved to [diagnostics] section of the GSMCONS.INI file;

- The following new settings have been added to the [tcpipparameters] section of the GSMCONS.INI file:

WinSockReceiveBufferSize

This option allows the size of the TCP/IP receive buffers to be modified. By default, if this option is absent, the buffer size is 8Kb. This option may be used to set the buffer size to any value between 256 bytes and 64Kb.

NoDelay

This setting optimises the transfer of small TCP/IP packets and may improve performance under some conditions.

- GSMCONS.EXE now supports the variable length "PCWS" format Auxiliary printer escape sequences in addition to the "Global Windows Workstation" format sequences described in section 5.9. The following new escape sequences are supported:

<i>ScreenType value</i>	<i>Printer in GSMCONS.INI</i>	<i>On Seq.</i>	<i>Off seq.</i>
30	AuxiliaryPrinter	1B 6F 40	1B 5B 34 69
20	AuxPrinter0	1B 6F 30	1B 5B 34 69
21	AuxPrinter1	1B 6F 31	1B 5B 34 69
22	AuxPrinter2	1B 6F 32	1B 5B 34 69
23	AuxPrinter3	1B 6F 33	1B 5B 34 69
24	AuxPrinter4	1B 6F 34	1B 5B 34 69

25	AuxPrinter5	1B 6F 35	1B 5B 34 69
26	AuxPrinter6	1B 6F 36	1B 5B 34 69
27	AuxPrinter7	1B 6F 37	1B 5B 34 69
28	AuxPrinter8	1B 6F 38	1B 5B 34 69
29	AuxPrinter9	1B 6F 39	1B 5B 34 69

Note-1: Simultaneous printing, using 2 different "variable length" auxiliary printer escape sequences will result in data corruption.

Note-2: For all types of auxiliary printer escape sequences, if the Device Name defined in the GSMCONS.INI file start with a "\" character, to specify a filename, all printer data will be written to file. For example:

AuxiliaryPrinter=temp\auxprint.txt

GSMCONS.EXE now supports the following new setting in the [printers] section of the GSMCONS. INI file:

AuxPrinterBuffering

When this option is enabled characters for the auxiliary printer are blocked until the auxiliary printer off escape sequence has been received. Note that the printer buffer is flushed to the Print Device when it becomes full to allow for those applications that send an entire report etc. before sending the Auxiliary printing "Off" escape sequence.

The Windows API call (CreateFile) that is used to open the printer device specified by the AuxiliaryPrinter, AuxPrinter0, AuxPrinter1 ,..., AuxPrinter9 settings fails if the printer is a captured network printer (e.g. LPT2:=\\globalnt1\tisljb). A second set of GSMCONS.INI file settings are now available to specify an auxiliary printer device that is a captured network printer:

NetworkPrinter

NetPrinterN (N=0 TO 9)

These devices are opened using the OpenFile API call so the ":" character on the end of the device name is not required. For example:

```
AuxiliaryPrinter=LPT1:
NetworkPrinter=LPT1
AuxPrinter1=LPT2:
NetPrinter2=LPT2
```

**Important Note:** The absence of the ":" character in the device name specified for the NetworkPrinter and NetPrinter $N$  settings is deliberate. The ":" character is required for the local DOS printers specified for the AuxiliaryPrinter and AuxPrinter $N$  settings. The ":" characters is **NOT** required for captured network printers specified for the NetworkPrinter and NetPrinter $N$  settings.

The NetworkPrinter and AuxiliaryPrinter settings are mutually exclusive, as are the NetPrinter $N$  and AuxPrinter $N$  (for any given  $N$ ). This restriction is necessary because the same escape sequences are used to redirect output to the AuxiliaryPrinter and NetworkPrinter devices; and the AuxPrinter $N$  and NetPrinter $N$  devices.

- The GSMCONS.EXE Auxiliary Printer handling supports the Close Printer sequence sent by the host when the ScreenType option in the registry is set to 105 (see above). This option may be necessary to flush the data to a network printer (i.e. rather than waiting for GSMCONS.EXE to be closed).

**Important Note:** This option only applies to the primary NetworkPrinter and AuxiliaryPrinter devices. IT CANNOT BE USED WITH ANY OF THE secondary AuxPrinter $N$  OR NetPrinter $N$  devices.

## GSM (Windows) BACNAT variant 3.0

The V3.0 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLSERVER.EXE and GLCONS.EXE:

- The current Production versions of the various Global System Manager (Windows) components are:

<i>Module</i>	<i>Variant</i>
GLOBAL.EXE	V3.0/V3.0
GLSERVER.EXE	V3.0
GLCONS.EXE	V3.0/V3.0
GSMCONS.EXE	V3.0
SPEEDBAS.EXE	V1.78
SPEEDSQL.EXE	V1.78

**Important note:** The changes and new features included in SPEEDBAS.EXE and SPEEDSQL.EXE V1.78 are documented in section D.13 of the GSM V8.1 Notes;

- The various changes described below have resulted in a vast proliferation of registry options. A document (GLMACH.DOC) describing all the Global registry options is being prepared. This document will be available on the Global web-site;
- The option to load a Global Client without accessing the Global Configuration File is now available. This option is enabled by setting the following registry option to "Off":

..\Global\Client\UseConfigurationFile

When this option is enabled all the Global Client configuration options are established via the registry. Please refer to Technical Note IN181 for further details.

To provide compatibility with installed systems the default value of this setting is "On";



**Important note:** The option to ignore the configuration file **MUST** be disabled when installing Global System Manager (i.e. the UseConfigurationFile setting must be set to "On" when loading from BACRES).

- The option to load a Global Server without accessing the Global Configuration File is now available. This option is enabled by setting either of the following registry options to "Off":

..\Global\Servers\x\UseConfigurationFile	(a)
..\Global\Servers\UseConfigurationFile	(b)

When this option is enabled all the Global Server configuration options are established via the registry. Please refer to Appendix G for further details. As explained in Appendix G, the server-specific option (b) takes precedence over the generic-server option (a) for a given Global Server.

To provide compatibility with installed systems the default values of both of these settings is "On";

- If the option to by-pass the Global Configuration File has been enabled for a Global Server (i.e. if the UseConfigurationFile setting is "Off") then no attempt is made to read from the GL-%-IPL.DLV file. Consequently, this IPL file is not required if the UseConfigurationFile setting is "Off";
- The lock table handling has been significantly enhanced to maintain a list of those users associated with Shared Locks. Central to the implementation of the improved Lock Table handling is the "Shared Lock Table". The following registry settings allow the size of the Shared Lock Table to be specified:

..\Global\Servers\x\+NumberOfSharedLockTableEntries	
(a)	
..\Global\Servers\+NumberOfSharedLockTableEntries	(b)
..\Global\Client\Nucleus\+NumberOfSharedLockTableEntries	(c)

The first setting (a) specifies the size of the Shared Lock Table for a particular server *x* (e.g. A, B etc.). The second setting (b) specifies the size of the Shared Lock Table for all servers that are not specified explicitly by a type (a) setting. The third setting (c) specifies the size of the Shared Lock Table for the local Global Client File Executive (i.e. when a GLOBAL.EXE or GLCONS.EXE is configured with a local DDF). The default number of Shared Lock Table entries is 2000. The Extended Shared Lock handling can be disabled by setting this value to 0.

In addition to the "server side" +NumberOfSharedLockTableEntries registry settings described above, the following "client side" registry setting (i.e. for GLOBAL.EXE and GLCONS.EXE) must be enabled to use the new \$STATUS "LKE" (Extended Lock) command (as described in section 2.10):

..\Global\Client\Nucleus\ExtendedSharedLocks

If the "client side" option (i.e. ExtendedSharedLocks) is enabled but the "server side" option (i.e. +NumberOfLockTableEntries=0) is disabled, a variety of problems, including persistent "ERROR O" messages when attempting the \$STATUS "LOC" or "LKE" commands will occur. This should not represent a problem if all the Global components on a network (i.e. GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE) are V3.0. However, a problem will occur if a V3.0 GLOBAL.EXE (or GLCONS.EXE) attempts to access a pre-V3.0 GLSERVER.EXE. If the GLSERVER.EXE cannot be upgraded to V3.0 (i.e. to enable the "server side" +NumberOfSharedLockTableEntries option) then the "client side" ExtendedSharedLocks option MUST be disabled to prevent the Global Client making calls on the Global Server that are not available.

A complete description of these changes can be found in Technical Note IN194;

- The Global Server, GLSERVER.EXE, has been considerably improved to allow automatic File Executive resets (to close files and release exclusive locks and shared locks) when a Global Client disconnects, reconnects and/or connects for the first time. The following new registry settings control these options:

```

..\Global\Servers\x\FileExecResetOnConnection
    (a)
..\Global\Servers\x\FileExecResetOnReconnection
    (b)
..\Global\Servers\x\FileExecResetOnDisconnection
    (c)
..\Global\Servers\FileExecResetOnConnection
    (d)
..\Global\Servers\FileExecResetOnReconnection
    (e)
..\Global\Servers\FileExecResetOnDisconnection
    (f)

```

The first group of three settings (a), (b) and (c) enable one of the automatic reset options for a particular server *x* (e.g. A, B etc.). The second group of three settings (d), (e) and (f) enable one of the automatic reset options for all servers that are not specified explicitly by the equivalent "single server" setting.

A complete description of these changes can be found in Technical Note IN194;

- The NETWORK controller has been enhanced to accept the Global Windows Workstation Identifier String (GIS) from the V3.0 Global Windows Workstation (see section A.3.17 of the V3.0 Global Windows Workstation Notes for full details). This option, which is enabled by default, is controlled by the following registry setting:

```

..\Global\Client\Screens\Network\AllowGUIReconnect

```

The default for this option is "On" for compatibility with the V3.0 Global Windows Workstation.

**Important note-1:** This option should be disabled if the thin-client emulator is either a pre-V3.0 version of GSMWIN32.EXE or any version of GSMCONS.EXE.

**Important note-2:** The command line /Z option that was used to enable this option in pre-release versions of GLOBAL.EXE has been removed from the V3.0 GLOBAL.EXE;

- A new Console Executive operation has been implemented to return the TCP/IP address in "dotted decimal" format (e.g. 192.168.1.234) of the computer running GSMWIN32.EXE in a thin client configuration. This option is only available if the "AllowGUIReconnect" option (see above) has been enabled;
- Several resellers have pointed out that the various diagnostics options in the Global registry are very difficult to locate. Consequently, it is very difficult to determine the diagnostics options that are currently enabled. This problem has been addressed by changing the format of the Global registry to include most of the diagnostics settings in a small number of registry keys. For V3.0, the complete list of diagnostic settings, all of which are disabled by default, is:

```

..\Global\Client\Diagnostics\DiagnosticDisplays
..\Global\Client\Diagnostics\LogConfigurationSynthesis
..\Global\Client\Diagnostics\Enable$BYEDiagnostics
..\Global\Client\Diagnostics\EnableAllocMemoryDiagnostics
..\Global\Client\Diagnostics\FileExecDiagnostics
..\Global\Client\Diagnostics\LogNetworkConnections
..\Global\Client\Diagnostics\SVC79Diagnostics
..\Global\Client\Diagnostics\SVC79DiagLevel
..\Global\Client\Diagnostics\LogExceptionLevel
..\Global\Client\Diagnostics\ConsoleDiagnostics
..\Global\Client\Diagnostics\ConsoleLogging.
..\Global\Client\Diagnostics\LogKeystrokes
..\Global\Client\Diagnostics\SVC86Diagnostics
..\Global\Client\Diagnostics\SVC90FileName
..\Global\Client\Diagnostics\SVC90Count
..\Global\Client\Diagnostics\SVC90LengthN

```

```

..\Global\Client\Diagnostics\SVC90Padding
..\Global\Client\Diagnostics\SVC61Diagnostics
..\Global\Client\Diagnostics\SVC61DiagUserNumber
..\Global\Client\Diagnostics\SVC61DiagShortOpcode
..\Global\Client\Diagnostics\SVC61SpeedbaseDiagnostics
..\Global\Client\Diagnostics\SVC61SpeedbaseDiagUserNumber
..\Global\Client\Printers\DOSPrint\5nn\Diagnostics\PostCloseDiagnostics
..\Global\Client\Printers\WinPrint\5nn\Diagnostics\WinPrintDiagnostics
..\Global\Client\Screens\GLCONS\Diagnostics\InputCharacterDiagnostics
..\Global\Client\Screens\Network\nn\Diagnostics\LogIACSequences
..\Global\Server\Diagnostics\EnableServerLogFile
..\Global\Server\x\Diagnostics\EnableServerLogFile
..\Global\Server\Diagnostics\FileExecDiagnostics
..\Global\Server\x\Diagnostics\FileExecDiagnostics
..\Global\Server\Diagnostics\LogConfigurationSynthesis
..\Global\Server\x\Diagnostics\LogConfigurationSynthesis
..\Global\Server\Diagnostics\DiagnosticDisplays
..\Global\Server\x\Diagnostics\DiagnosticDisplays
    
```

The only diagnostics options that are not directly under a "Diagnostics" key are:

```

..\Global\Speedbase\DiagnosticDisplays
..\Global\Speedbase\DiagnosticLogfile
..\Global\Speedbase\LogFileFolder
..\Global\Speedbase\SpeedbaseLogFileFolder
..\Global\Client\Screens\GUI\Miscellaneous\LogDisplays
..\Global\Client\Screens\GUI\Miscellaneous\LogKeystrokes
    
```

See document GLMACH.DOC (when available) for further details;

- The various diagnostic options that create log files have been rationalised. All, except one, of the log files created by GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE are written to a "log" directory immediately under the "Global directory". For example, if the following option is enabled (see section 5.9):

..\Global\Client\Diagnostics\Enable\$BYEDiagnostics

the V2.9 GLOBAL.EXE will create a log-file, *byediags.log*, in the current directory (e.g. D:\GSMNT), whereas the V3.0 GLOBAL.EXE will create the log file in D:\GSMNT\LOG. This allows all the Global generated log-files to be deleted by simply clearing a single Windows directory.

The only exception to this rule is the *fontsize.txt* file that is created by the Global Windows Workstation (GUI) components within GLOBAL.EXE. For compatibility with GSMWIN32.EXE, this "font size description file" is created in the current directory.

Although most log-files are generated by the explicit setting of a registry option (e.g. Enable\$BYEDiagnostics) a small number of tiny log files are generated, in the log-directory, automatically. There is no way to suppress the creation of the following log-files:

..\log\bootdiags.log  
 ..\log\gsminfo.txt  
 ..\log\gsminfo.bin

- The "full screen" Global Client, GLCONS.EXE, has been enhanced to trap an attempt to close the application by clicking on the Close Box. If an attempt is made to close the Global Client, without running \$BYE, the familiar Windows "End Task" dialogue box will appear;
- The message sent to the thin-client by the NETWORK controller when no more ports are available has been changed from:

No more screens available on port NN

to the slightly more descriptive:

No more free connections (screens) available on port NN

- The following new registry setting is now available:

..\Global\Client\Screens\Network\DefaultTerminalType

This setting can be used to supply a default Terminal Type for all Network screen controllers that don't include the following explicit "screen specific" registry setting:

..\Global\Client\Screens\Network\NM\TerminalType

A single generic "all screens" DefaultTerminalType setting can be used instead of multiple "screen specific" TerminalType registry settings (i.e. one for each NM).

- The default value of the following registry setting:

..\Global\Client\IgnoreSYLANF

is now "On". See section 5.13 for further details.

- In order to prevent possible Windows NT "thrashing" problems, the Global Server Initiation/Start process, GLSSTART.EXE, delays for 1 second between each GLSERVER.EXE that is started. This option is controlled by the new /D command line setting. For example:

GLSSTART /ALL /D=1	Delay for 1 second (default)
GLSSTART /ALL /D=5	Delay for 5 seconds
GLSSTART /ALL /D=0	No delay (i.e. to pre-V3.0 mode)

- The message displayed by the "Network" screen controller when no more free connections are available on a given port has been enhanced to include the User Number in addition to the (less useful) Console Index number. In addition, a 1 second delay has been added between sending this message and

closing the connection, to allow the brief message to be read on the Global Windows Workstation screen;

- The SVC-61 interface has been enhanced to allow access to Windows shared memory-mapped files. For further details, please refer to the draft V8.2 File Converters Manual, which is available upon request;
- The SVC-61 interface has been enhanced to allow the Global client to function as a Windows Mailshot server. For further details, please refer to the draft V8.2 File Converters Manual, which is available upon request;
- The SVC-61 interface has been enhanced to allow the Global client to function as a Windows Mailshot client. For further details, please refer to the draft V8.2 File Converters Manual, which is available upon request;
- An internal change to the logic that controls the Windows files opened and closed by SVC-61 has been implemented. Any number of open file handles can now be accommodated. A new SVC-61 operation is available to determine the number of open file handles;
- The "bright colours" handling implemented in GSMCONS.EXE (see section 5.13, above) has been ported to GLCONS.EXE. The following new registry options are available:

```

..\Global\Client\Screens\GUI\GLCONS\Colour\BrightYellow
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightWhite
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightGreen
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightBlue
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightRed
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightMagenta
..\Global\Client\Screens\GUI\GLCONS\Colour\BrightCyan

```

- A new file-name mapping option within the program loader is now available. This option allows a program name (e.g. \$I) to alias another (e.g. \$INSPECT).



The mapping is controlled by matching pairs of options in the new FileNameMapping section of the registry:

```
..\Global\Client\FileNameMapping\FileNameMappingFromNN
..\Global\Client\FileNameMapping\FileNameMappingToNN
```

(where *NN* = 1 to 99). For example, to map a file-name of \$I to \$INSPECT; and \$SDL to \$SDL32:

```
..\Global\Client\FileNameMapping\FileNameMappingFrom1=$I
..\Global\Client\FileNameMapping\FileNameMappingTo1=$INSPECT
..\Global\Client\FileNameMapping\FileNameMappingFrom2=$$SDL
..\Global\Client\FileNameMapping\FileNameMappingTo2=$SDL32
```

- The \$AUXPRI controller now allows up to 8 Auxiliary printers to be configured on a single ConsoleNumber. This is achieved by configuring all but the first \$AUXPRI for a given Console with an "AuxPrintPriority" setting:

```
..\Global\Client\Printers\AuxPrint\5nn\AuxPrintPriority
```

The AuxPrintPriority setting must be in the range 1 to 7 (i.e. a priority of 0 is assumed for the first printer on a given ConsoleNumber).

The pre-V3.0 \$AUXPRI controller ensures the ConsoleNumber is unique for all the configured \$AUXPRI printers. The V3.0 \$AUXPRI controller allows up to 8 \$AUXPRI printers to share the same ConsoleNumber. However, both the AuxPrintPriority and the ScreenType options must be unique for a given ConsoleNumber.

**Important note:** The terminal emulator MUST support multiple Auxiliary printers. At the time of writing, only the V3.0 GSMCONS.EXE supports multiple Auxiliary printers (see below).

Furthermore, up to 8 "floating" Auxiliary printers can be configured per screen. Each "floating" printer is set to the "real" Auxiliary printer with the same AuxPrintPriority setting;

An example should make this clear:

<i>Unit</i>	<i>ConsoleNumber</i>	<i>AuxPrintPriority</i>	<i>ScreenType</i>
500	2	0	10
501	2	1	11
502	2	2	12
503	2	3	13
504	3	0	10
505	3	1	11
506	3	2	12
507	3	3	13
590	0	0	
591	0	1	
592	0	2	
593	0	3	

The "floating" printer 590 is mapped to printer unit 500 on the screen with a ConsoleNumber of 2 and to 504 on the screen with a ConsoleNumber of 3. The "floating" printer 591 is mapped to printer unit 501 on the screen with a ConsoleNumber of 2 and to 505 on the screen with a ConsoleNumber of 3. The "floating" printer 592 is mapped to printer unit 502 on the screen with a ConsoleNumber of 2 and to 506 on the screen with a ConsoleNumber of 3. The "floating" printer 593 is mapped to printer unit 503 on the screen with a ConsoleNumber of 2 and to 507 on the screen with a ConsoleNumber of 3;

- The SVC-12 interface has been enhanced to support the extra functionality required by the \$SRCH32 utility;

- The \$BYE handling in the Network controller has been improved. The following new registry setting has been added to allow the \$BYE handling to continue if a Network connection cannot be reset successfully:

..\Global\Client\Screens\Network\Enable\$BYEWatchdog

Enabling this option can **sometimes** cure the \$BYE hanging problem.

- The following registry setting is reserved for future use to log all the network connections:

..\Global\Client\Diagnostics\LogNetworkConnections

- The Console Executive has been enhanced to support the new operation required by the CLRTA\$ sub-routine;
- The Interpreter has been modified to return an Exception Condition 2 (rather than Exception Condition 8) when a 16-bit Monitor Page entry point is unavailable. This should result in the unique ILLEGAL PAGE debug message rather than the ubiquitous ILLEGAL JUMP debug message;
- The 8-bit character set handling of GSMCONS.EXE (see below) has been ported to GLCONS.EXE. The following options have been added:

..\Global\Client\Screens\GUI\GLCONS\Miscellaneous\Enable8BitMode  
..\Global\Client\Screens\GUI\GLCONS\ISOTranslations\ToISOChar $NNN$

where  $NNN$  is a decimal number between 128 and 255.

**Important Note:** The ToISOChar $NNN$  value-name in the registry that is recognised by GLCONS.EXE includes a decimal number in the key-word; whereas the ToISOChar $HH$  key-word in the GSMCONS.INI file that is recognised by GSMCONS.EXE includes a hexadecimal number in the key name. However, both types of option expect a string in the form # $HH$ , where  $HH$  is a hexadecimal number ;

- GLCONS.EXE also recognises the following new registry options:

..\Global\Client\Screens\GUI\GLCONS\Miscellaneous\CursorSize

This new setting overrides the original (slightly misplaced) setting:

..\Global\Client\Screens\GUI\CursorSize

- The V3.0 Global Windows Workstation Network controller includes an option to keep an internet connection "alive". This is achieved by periodically sending a special character sequence #1E20 to the host. The Network controller has been modified to soak-up these "Keep Alive" characters;
- The handling of the following options:

..\Global\Servers\FileExecValidation

..\Global\Servers\x\FileExecValidation

has been rationalised to be compatible with the other dual "server specific" and "generic server" settings. That is, if a "server specific" option is not in the registry then the "generic server" setting used;

- The specialised SVC-90 interface has been extended to include DMAM and Shared Lock diagnostics if the SVC90Number is set to 16;
- Notwithstanding the major changes to the Shared Lock handling described above, a new, diagnostic option has been implemented to maintain a list of all the users associated with a particular shared lock. This option has been added to investigate a Hotline problem and should never be enabled under normal circumstances. The new options are:

..\Global\Servers\KeepSharedLocknodes

..\Global\Servers\x\KeepSharedLockNodes

- The Diagnostics entry on the Global Server (GLSERVER.EXE) menu bar now includes a "Dump Control Blocks" option. Each time this option is selected the File Executive creates a log-file called FileExecDump%.txt (where % is the server letter "A" to "Z"). Do not select this option unless explicitly advised to do so;
- The error reported when a read-only .SVL file is encountered has been changed from a SOFTWARE PROTECTION ERROR to a WRITE PROTECT ERROR;
- A highly specialised option is now available to trace problems with 32-bit applications:

..\Global\Client\Diagnostics\LogExceptionLevel

If this value is set to 1 a single-line record is written to the Exception.log file whenever an exception occurs. Note that a single Exception.log file is created by the Global Client. If this value is set to 3 two very large Exception Dump Files are created whenever any non-suppressed exceptions occur. The names of the Exception Dump Files are exedump\_XX\_UUU.log and exedump\_XX\_UUU.bin (where XX is the node-id and UUU is the User Number. The format of these dump files is beyond the scope of these notes. All other values are reserved for future use.

- The 32-bit interpreter has been enhanced to recognise the following new diagnostics options:

..\Global\Client\Diagnostics\LogHardResumeErrors  
 ..\Global\Client\Diagnostics\LogSoftResumeErrors  
 ..\Global\Client\Diagnostics\LogStackUnderOverflow

Do not enable these options unless explicitly advised to do so;

- The Console Executive has been enhanced to support the "Get Current Buffer Lengths" option required by the highly-specialised 32-bit "Open TFAM via Global Windows Workstation" Access Method;

- The LAN Executive and File Executive have been enhanced to support the 32-bit ULOCK\$ sub-routine. This sub-routine performs a "partial reset" by removing locks on all Global Servers that have been accessed by the user who is invoking the ULOCK\$ call;
- A new diagnostics option, FileExecDiagnostics, has been added to both the Global Server and the Global Client. This option, which generates a very large log-file, is reserved for internal use only. Note that the "server specific" setting:

..\Global\Server\x\Diagnostics\FileExecDiagnostics

is used in preference to the "generic server" setting:

..\Global\Server\Diagnostics\FileExecDiagnostics

- The "FD Logging" option on the Global Server Diagnostics menu is now correctly ticked when the option is enabled;
- The following registry option is available to alter the manner in which the Global client allocates and de-allocates memory. Enabling this option **may** prevent the hang that can occur when GLOBAL.EXE terminates following \$BYE:

..\Global\Client\AvoidMemoryTracking

- It has been recognised that a Windows "thread-switch thrashing" problem can occur when a Cobol or Speedbase application program performs continuous displays to the "GUI" console controller. This thrashing problem gives the appearance that GLOBAL.EXE has hung. For the V3.0 GLOBAL.EXE we have changed the manner in which display operations to the "GUI" controller are initiated. The new Initiate Display function, included in the V3.0 GLOBAL.EXE, involves one process thread sending another process thread an immediate message. However, we have discovered that this improved Initiate Display

processing can actually degrade the performance of display operations to the "GUI" console on some laptop PC's (and *potentially* some desk-top PC's).

If displays to the "GUI" screen controller appear to be slower using the V3.0 GLOBAL.EXE compared with previous versions of GLOBAL.EXE then the following registry setting should be enabled to restore the original (i.e. pre-V3.0) Initiate Display processing:

..\Global\Client\Screens\GUI\SendMessage

- The following registry options are now recognised by the Global Windows Workstation V3.0 components within the V3.0 GLOBAL.EXE:

..\Global\Client\Screens\GUI\Colour\EmailAddress

..\Global\Client\Screens\GUI\Colour\SpeedbaseA13Background

..\Global\Client\Screens\GUI\Colour\SpeedbaseA13Text

..\Global\Client\Screens\GUI\Colour\WebAddress

These new options, which are analogous to the equivalent options in the [colour] section of the GSMWIN32.INI file, are fully described in section A.4 of the Global Windows Workstation V3.0 Notes (MGUNV30.DOC);

- The following registry options are now recognised by the Global Windows Workstation V3.0 components within the V3.0 GLOBAL.EXE:

..\Global\Client\Screens\GUI\Miscellaneous\IgnoreSpeedbaseMode

..\Global\Client\Screens\GUI\Miscellaneous\LocalTempDirectory

..\Global\Client\Screens\GUI\Miscellaneous\MAPIInterface

..\Global\Client\Screens\GUI\Miscellaneous\SingleClickContextHelp

..\Global\Client\Screens\GUI\Miscellaneous\TextModeFontFile

..\Global\Client\Screens\GUI\Miscellaneous\TextModeFontWide

..\Global\Client\Screens\GUI\Miscellaneous\TextModeFontFileWide

..\Global\Client\Screens\GUI\Miscellaneous\WebBrowser

These new options, which are analogous to the equivalent options in the [miscellaneous] section of the GSMWIN32.INI file, are fully described in section A.7 of the Global Windows Workstation V3.0 Notes (MGUNV30.DOC);

- The following registry options are now recognised by the Global Windows Workstation V3.0 components within the V3.0 GLOBAL.EXE:

```
..\Global\Client\Screens\GUI\KeyMappings\EuroCharacterInput
..\Global\Client\Screens\GUI\KeyMappings\EuroCharacterOutput
```

These new options, which are analogous to the equivalent options in the [keymappings] section of the GSMWIN32.INI file, are fully described in section A.11 of the Global Windows Workstation V3.0 Notes (MGUNV30.DOC);

- The following registry options are now recognised by the Global Windows Workstation V3.0 components within the V3.0 GLOBAL.EXE:

```
..\Global\Client\Screens\GUI\Documentation\DocNN
```

where *NN* is a decimal number between 01 and 99. These new options, which are analogous to the equivalent options in the [documentation] section of the GSMWIN32.INI file, are fully described in section A.14 of the Global Windows Workstation V3.0 Notes (MGUNV30.DOC).

**Important Note:** The allowed values for the Doc*NN* options recognised by GSMWIN32.EXE in the [documentation] section of the GSMWIN32.INI file are 01 to 99; whereas the allowed values for the Doc*NN* options recognised by GLOBAL.EXE in the "documentation" key of the registry are 10 to 99;

- The following registry option must be added to use the Global Application Explorer (GX) thin-client option:

```
..\Global\Client\Nucleus\GXBufferSize
```



This option is described in more detail in the Global Application Explorer (GX) Notes;

- The following registry options are reserved for future use, and should NOT be used:

```

..\Global\Client\AllowClientReconnectionAllServers
..\Global\Client\Nucleus\ValueTrapTableEntries
..\Global\Client\Nucleus\Enable32BitExceptions
..\Global\Client\Nucleus\SYBIF1ReservedBit04
..\Global\Client\Nucleus\SYBIF1ReservedBit08
..\Global\Client\Nucleus\SYBIF1ReservedBit10
..\Global\Client\Printers\WinPrint\5nn\OpenViaSeparateThread

```

The V3.0 BACNAT repackaging for Global System Manager (Windows) also includes the following features in GSMCONS.EXE:

- GSMCONS.EXE now traps the Close Button on the Console application window. If a close is attempted when a TAP is loaded the standard Windows "Wait/End-Task/Cancel" dialogue box will appear;
- GSMCONS.EXE now includes support for 8-bit, "international character set" TAP's (e.g. \$.830). To enable the 8-bit character set option, the following setting must be included in the [miscellaneous] section of the GSMCONS.INI file:

```
Enable8BitMode=On
```

**IF THIS OPTION IS ENABLED AN 8-BIT TAP (E.G. \$.830) MUST BE USED OTHERWISE THE KEYBOARD WILL NOT FUNCTION CORRECTLY.**

In addition, the following specialised setting is available in the [diagnostics] section of GSMCONS.INI:

```
InputCharacterDiagnostics=On
```

**DO NOT ENABLE THE InputCharacterDiagnostics OPTION UNLESS TOLD TO DO SO.** Note that in pre-release versions of GSMCONS.EXE, this option was in the [miscellaneous] section of the GSMCONS.INI file.

A new [isotranslations] section has been added to GSMCONS.INI to allow input character translations to be specified by settings of the following format:

ToISOChar#*nn*=#*hh*

where *nn* is a hexadecimal character between 80 and FF and *hh* is any hexadecimal character.

The 8-bit character handling within Global System Manager assumes an ISO-8859 compliant character set. The various ToISOChar#*nn* settings, within the [isotranslations] section, allow a non-ISO-8859 compatible 8-bit character generated by the keyboard (when a non-ISO-8859 compliant code-page is being used) to be translated to an equivalent ISO-8859 character before transmission to the host. Note that most country-specific, international code pages are non-ISO-8859 compliant.

For every ToISOChar#*nn*=*hh* setting in the GSMCONS.INI file there should be an equivalent entry in the TRANSLATION section of the TAP. For example, suppose the ISO character #C0 appears as #84 in the code page (i.e. #84 is in the range #80 – #9F, which is reserved for control characters in the ISO-8859 character set). The following entry must be included in the [isotranslations] section of the GSMCONS.INI file:

ToISOChar#84=#C0

So that a byte-value of 84 (hex.) from the keyboard will be translated to a value of C0 (hex.) before being transmitted to the host. In the TRANSLATIONS section of the TAP, the following equivalent entry must be added:

C0 C0 84

In this TRANSLATIONS entry the first C0 is the input character value as seen from the host (i.e. after translation by GSMCONS.EXE). The second C0 is the ISO-8859 compliant internal character value (i.e. the character value that application programs will use). The 84 is the output character value (i.e. characters are translated from ISO-8859 to code-page standards by the host before being sent to GSMCONS.EXE (i.e. GSMCONS.EXE does not need to include any output character translations).

Note that the hex value #DE is used as the lead-in for some foreign character sets. This hexadecimal value is ignored as an input keystroke.

- GSMCONS.EXE has been enhanced to suppress the display of Diagnostics Messages. By default, Diagnostic Messages are now suppressed. The display of Diagnostic Messages can be enabled by the following new setting in the [diagnostics] section of the GSMCONS.INI file:

DiagnosticDisplays =On

Note that in pre-release versions of GSMCONS.EXE, this option was in the [miscellaneous] section of the GSMCONS.INI file;

- The Auxiliary Printing option in GSMCONS.EXE has been enhanced to support the Close Printer option. This option, which flushes the print data to a network printer by closing and re-opening the print device, is selected when a value of 100 is added to AuxPrint "Printer Type" registry setting, as described above;
- A new [diagnostics] section has been added to the GSMCONS.INI file. The following options have been moved from the [miscellaneous] section to the [diagnostics] section:

InputCharacterDiagnostics  
LogDisplays  
DiagnosticDisplays

- This list summarises the options in the GSMCONS.INI file that are recognised by the V3.0 GSMCONS.EXE:

[tcpiipparameters]

HostID

Port=23

WinSockReceiveBufferSize

NoDelay=Off

[miscellaneous]

ExitOn\$E=Off

KeyboardTimeout=0

SendInitialEscape=Off

ConsoleTitlePrefix=Global Thin Client

Enable8BitMode=Off

[buffers]

DisplayBufferSize=512

SharedBufferSize=2048

ReceiveBufferSize=512

[printers]

AuxiliaryPrinter

AuxPrinter

AuxPrinter1

AuxPrinter2

AuxPrinter3

AuxPrinter4

AuxPrinter5

AuxPrinter6

AuxPrinter7

AuxPrinter8

AuxPrinter9

AuxPrinterBuffering=On

NetworkPrinter

NetPrinter0  
NetPrinter1  
NetPrinter2  
NetPrinter3  
NetPrinter4  
NetPrinter5  
NetPrinter6  
NetPrinter7  
NetPrinter8  
NetPrinter9

[colours]

BrightYellow=Off  
BrightWhite=Off  
BrightGreen=Off  
BrightBlue=Off  
BrightRed=Off  
BrightMagenta=Off  
BrightCyan=Off

[isotranslations]

ToISOChar#*nn*=#*hh*

[diagnostics]

InputCharacterDiagnostics=Off  
DiagnosticDisplays=Off  
LogDisplays=Off

## **GSM (Windows) BACNAT variant 3.1**

The V3.1 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE (note that this release does **NOT** include GLSERVER.EXE or GLCONS.EXE):

- The NETWORK screen controller has been enhanced to automatically detect a connection from the Global Application Explorer (GX.EXE). When a GX connection is detected the GSM start-up code interfaces directly with the GX sign-on dialogue box (i.e. instead of sending character strings to a non-GX thin-client emulator).

**Important note:** GLOBAL.EXE V3.1 is the first version of the Global Client that can be used with the released version (V2.0) of the Global Application Explorer;

- The default value of the following registry setting has been increased to 4000:

..\Global\Client\Nucleus\GXBufferSize

- The SVC-61 "DOS-compatible" Find First (#4E) and Find Next (#4F) functions have been supplemented by the equivalent "Windows 32-bit" functions: Extended Find First (#6E) and Extended Find Next (#6F). The extended operations return the full length, zero-terminated filename (up to 255 characters) in addition to the "8.3" DOS compatible filename.

**Important note:** These new, extended operations are used by the \$LICENCE and \$INSTALL utilities. Thus the V3.1, or later, GLOBAL.EXE must be used in order to install products from the Global Product Set (GPS) CD;

- The problem that causes a "pure NETWORK" configuration to soak up 100% CPU usage until the first user signs on, has been fixed. The problem only occurred when all the available consoles were in the NOT CONNECTED state. The problem has been fixed by allowing the first "Initiation Display" operation to complete, buffering the characters, when a console is marked as NOT CONNECTED;
- A problem in the WinPrint printer controller that caused occasional spurious "ERROR H" errors has been fixed. The problem only occurred when a low, nonzero Timeout value (e.g. 1) was configured;

- A problem with the option to by-pass the Global Configuration File (i.e. UseConfigurationFile=Off) has been fixed. The problem causes GLOBAL.EXE to crash if an attempt is made to access a DDF volume that is specified in the registry but not available when the Global Client is loaded. For example, if a configuration includes the following registry entry:

..\Global\Client\Data\DiscreteDataFile\DDF1=GSM260

but directory GSM260 is not present, the Global Client will crash if an attempt is made to access unit 260 etc.

- The DDF controller has been improved to allow UNC pathnames to be specified. For example:

..\Global\Client\Data\DiscreteDataFile=\\GLOBALSERVER\GSM\GSM200

**Important Note:** This version of the Global Client will NOT operate with Windows 95 OSR1.

- The Global Client SVC-61 interface has been enhanced to send Reset operations to the Speedbase Btrieve/SQL Gateway (SPEEDBAS.EXE). This enhancement ensures that the Speedbase Gateway can correctly close open files and clear outstanding locks when a user is restarted (e.g. when the \$STATUS RES, CAN or CLR commands are used).

**Important note:** The version of the Speedbase Gateway (SPEEDBAS.EXE) must be V1.81, or later, if the version of GLOBAL.EXE is V3.1, or later;

- A problem in the File Executive "Read Shared Lock" operation has been fixed. This problem caused a variety of unexpected results (e.g. no user associated with a shared lock) with the \$STATUS LKE operation;
- The arbitrary limit of 5000 for the Port number in the NETWORK screen controller has been removed;

- GLOBAL.EXE has been enhanced to accept the following new command line arguments:

<code>/EO=oooo</code>	Operator-ID
<code>/ET=ttttt</code>	Terminal type

The order of precedence for the GUI console default operator-id is:

`/EO=oooo` command line option  
 HKEY\_CURRENT\_USER\OperatorID  
 HKEY\_LOCAL\_MACHINE\Software\Global\Client\Screens\GUI\OperatorID

Note that the "..\GUI\OperatorID" setting was not included in the V3.0 GLMACH.TLT.

The order of precedence for the GUI console default terminal type is:

`/ET=ttttt` command line option  
 HKEY\_CURRENT\_USER\TerminalType  
 HKEY\_LOCAL\_MACHINE\Software\Global\Client\Screens\GUI\TerminalType

Note that the "..\GUI\TerminalType" setting was not included in the V3.0 GLMACH.TLT;

- A new function is now available to return the next Printer/Spooler-Unit combination from the table established using the following registry settings:

..\Global\Client\Printers\SpoolUnitForPrinter5 *nn*

This option is reserved for use by the \$SPM utility.

- The <SYSREQ> V keystroke combination was reserved to enable diagnostics. This option has been re-instated to allow <SYSREQ> V (i.e. \$OV\$V) to be used as an (unofficial) end-user System Request;



- The following new registry option is now recognised:

..\Global\Client\Nucleus\LocalPCFName

This option, which sets the #04 bit of the internal System Variable SYBIF1, is reserved for future use;

- The Global Client, GLOBAL.EXE, has been enhanced to support a direct TCP/IP connection to the Speedbase Btrieve Gateway, SPEEDBAS.EXE, and Speedbase Btrieve NLM, SPEEDBAS.NLM. This new option is enabled by the following registry settings:

..\Global\Client\Gateways\ *nn* \ProtocolSequence=gsmtcpip

..\Global\Client\Gateways\ *nn* \Port=< *port number of the Gateway/NLM* >

Note that the "Port" setting for the "gsmtcpip" protocol replaces the "Endpoint" setting for the various RPC protocols.

The following registry settings have the same meanings for the "gsmtcpip" protocol:

..\Global\Client\Gateways\ *nn* \GatewayServerName=< *Gateway/NLM server name* >

..\Global\Client\Gateways\ *nn* \NetworkAddress=< *Gateway/NLM network address* >

The following registry setting is also available for the "gsmtcpip" protocol:

..\Global\Client\Gateways\ *nn* \EnableNoDelay

**Important Note:** The "gsmtcpip" option and " EnableNoDelay" setting are reserved for future use.

- A new function in the (unreleased) V3.1 Global Server (GLSERVER.EXE) that provides a TCP/IP "echo" facility has been implemented. This option is enabled using the following registry setting:

..\Global\Servers\N\ExtraTCP/IPEchoPort (*sic*)

This value, **which is reserved for future use**, should be set to the port number of the "echo port". A value of 0 disables this option;

## GSM (Windows) BACNAT variant 3.2

The V3.2 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLSERVER.EXE and GLCONS.EXE (note that this release does **NOT** include GSMCONS.EXE). Note that GLOBAL.EXE V3.2 was immediately superseded by GLOBAL.EXE V3.2B to improve the interface to GX V2.2 (see below):

- The version of the Global Windows Workstation (GUI) module included in GLOBAL.EXE is V3.2. Thus, the full version number of GLOBAL.EXE is V3.2/V3.2. The inclusion of the V3.2 GUI module fixes a problem in GLOBAL.EXE that causes the optional bitmap wallpaper to resize incorrectly under some conditions;
- A long-standing problem in the 32-bit CCI that resulted in random STOP 1002, STOP 601 and various NO BASE errors in Partition-1 of Screen-1 (i.e. on the screen being used by User Number 1) has been fixed. The various exceptions on User Number 1 appeared to be random but could be correlated to other users running \$E;
- A **\*\*\*VERY SERIOUS\*\*\*** problem with the RPC interface on Windows 2000 has been fixed. The problem can cause NETWORK errors even on "local RPC" configurations. Other file-related problems may also occur. The problem only affects 32-bit programs, including \$MENU32. The problem appears as a spurious NETWORK ERROR. When the Diagnostic Displays option is enabled the following details are obtained:

..\vc0f.c Error 1734 from AA400 line 429

The array bounds are invalid.

- A problem with the handling of the GSMRPCTimeout option in the gsmIrpc interface has been fixed. This problem manifested as a bug in \$V when allocating a new volume on a file server. The Allocate operation **appeared** to work but actually corrupted the 00SYSDOM.SVL file (and renamed it to 00xxxxxx.SVL, where xxxxxx was the name of the sub-volume that was being allocated). Furthermore, the first 3 sub-volumes were renamed to 01.SVL, 02.SVL and 03.SVL. The problem was caused by the gsmIrpc time-out expiring during the relatively long Allocate operation. This has been fixed by returning a NETWORK ERROR if the time-out expires. Furthermore, the default time-out period has been increased from 5 seconds to 10 seconds. This obscure problem only appears to occur on slow hard-disks with FAT filing systems. Volume allocation on NTFS filing systems is usually extremely rapid;
- The GX interface has been significantly enhanced to support asynchronous receive operations and now maintains separate buffers for receives and transmits. The existing registry setting;

..\Global\Client\Nucleus\GXBufferSize

specifies the size of the transmit buffer (with a default value of 16384). The following new registry setting:

..\Global\Client\Nucleus\GXRXBufferSize

specifies the size of the receive buffer (with a default value of 4096);

- A number of display problems affecting the operation of 16-bit applications in GX window-0 have been fixed;
- The following options have been added to improve the performance of GX:

..\Global\Client\Screens\Network\NM\NoDelay (single  
channel)  
..\Global\Client\Screens\Network\NoDelay (all channels)

**THE NoDelay OPTION SHOULD BE ENABLED TO OBTAIN THE BEST PERFORMANCE FROM GX.**

- The interface to GX has been improved to prevent the STOP 8628 condition that occurs if the GX output buffer fills up. However, for this change to be effective GSM SP-4 must be applied.

**Important Note-1:** The following registry option is pertinent for GLOBAL.EXE/GLCONS.EXE V3.2 and V3.2A if, **and only if**, GX is being used:

..\Global\Client\Nucleus\EnableSVC89

This setting is ignored by all versions of GLOBAL.EXE/GLCONS.EXE prior to V3.2. This means that if GX is being used, **GSM SP-4 cannot be used with any version of GLOBAL.EXE/GLCONS.EXE prior to V3.2.**

The setting **must** be set to "Off" (the default value) if GX is being used and the version of GLOBAL.EXE/GLCONS.EXE is V3.2, or V3.2A, and the GSM SP level is SP-3, or earlier.

The setting **must** be set to "On" if GX is being used and the version of GLOBAL.EXE is V3.2, or V3.2A, and the GSM SP level is SP-4, or later (otherwise a STOP 25018 will result when attempting to use GX).

The above rules only apply if GX is being used. The "EnableSVC89" registry setting has no meaning if GX is not being used.

**Important Note-2:** This complicated situation has been simplified by GLOBAL.EXE/GLCONS.EXE V3.2B, and later (see section 5.18). The level of the GSM Service Pack (i.e. SP-3, or earlier; or SP-4, or later) is automatically determined by GLOBAL.EXE/GLCONS.EXE V3.2B so that the "EnableSVC89"

registry setting is not required (and will not be included in future versions of GLMACH.TLT). The complex situation is summarised thus:

GSM SP level	GLOBAL.EXE/GLCONS.EXE	Comments
SP-3, or earlier	V3.1, or earlier	OK but STOP 8628 may occur if the GX TX buffer is too small (increase GXBufferSize)
SP-3, or earlier	V3.2 or V3.2A	EnableSVC89 must be "off" STOP 8628 may occur if the GX TX buffer is too small (increase GXBufferSize)
SP-3, or earlier	V3.2B, or later	OK (EnableSVC89 will be ignored) but STOP 8628 may occur if the GX TX buffer is too small (increase GXBufferSize)
SP-4, or later	V3.1, or earlier	Fails with STOP 25018 if GX used
SP-4, or later	V3.2 or V3.2A	EnableSVC89 must be "on" otherwise STOP 25018 will occur; STOP 8628 problem fixed
SP-4, or later	V3.2B, or later	OK (EnableSVC89 will be ignored) and STOP 8628 problem fixed

- The V3.2 Global Clients (GLOBAL.EXE and GLCONS.EXE) recognise GX connections for E-commerce users (see Appendix K for further details);
- The Console Executive "Get Next Block" operation has been enhanced to allow a variable block size. This should speed up GX operations under all conditions; and display operations, under some conditions;
- A problem in the \$BYE handling that resulted in GLOBAL.EXE crashing has been fixed. This problem was caused by a bug in the WinPrint controller shut-down logic;
- A problem with the handling of the following registry setting:

..\Global\Client\Printers\WinPrint\5\MM\Timeout

that could result in a spurious ERROR-H has been fixed;

- The following new registry settings can be used to enable the Concurrent GUI option on a selective basis:

..\Global\Client\Screens\GUI\ConcurrentGUI

(a)

..\Global\Client\Screens\Network\MM\ConcurrentGUI

(b)

..\Global\Client\Screens\Network\ConcurrentGUI

(c)

..\Global\Client\Screens\Serial\MM\ConcurrentGUI

(d)

..\Global\Client\Screens\Serial\ConcurrentGUI

(e)

Note that option (b) takes precedence over (c); and (d) takes precedence over (e). These new settings should NOT be mixed with the existing:

..\Global\Client\Nucleus\ConcurrentGUI

which takes precedence over all of them.

- The Serial Port Driver (SPD) interface is now supported on GSM (Windows). Further details of the specialised interface are available on the Technical Note section of the Global web-site;
- The DOSPrint interface includes support for the PRIFN\$ sub-routine. This sub-routine allows an application to specify the precise Windows filename of the next file to be printed by a particular user on a particular printer. The following registry setting must be enabled in order for the PRIFN\$ file name to be recognised by a printer:

..\Global\Client\Printers\DOSPrint\5\MM\DynamicFileName

- A problem in GLOBAL.EXE that results in a crash when (un-tested) programs or utilities perform illegal operations on un-initialised FD's has been fixed;
- The following new registry option is available:

..\Global\Client\Screens\Serial\DefaultTerminalType

to provide a default Terminal Type for all those serial devices that do not have explicit registry settings:

..\Global\Client\Screens\Serial\MM\TerminalType

- The Global Client, GLOBAL.EXE, now recognises the following command line argument to introduce a small delay before accessing any Global Servers:

/V=nn

where *nn* is the delay time, in seconds. This option, which should be regarded as a stop-gap until GLSERVER.EXE is available as an NT Service, gives any Global Servers the chance to initialise before being accessed by the Global Client.

- The following new registry settings are now recognised by the IDF controller:

..\Global\Client\Data\IntegratedDataFiles\DriveM\ImmediateClose

..\Global\Servers\x\Data\IntegratedDataFiles\DriveM\ImmediateClose

If this option is enabled the IDF volume is closed immediately after every read or write operation. This option is expected to be useful when transferring files between GSM (Windows) and GSM (Unix).

- The IDF controller also recognises the following new registry setting:

..\Global\Client\Data\IntegratedDataFiles\DriveM\VirtualDiskette  
 ..\Global\Server\X\Data\IntegratedDataFiles\DriveM\VirtualDiskette

If this option is enabled the IDF volume is NOT dynamically sized at initialisation time. This option is useful for transferring files between GSM (Windows) and GSM (Unix). Note that "incorrect transfer length" errors are suppressed for Virtual Diskettes for Read operations.

- SVC-61 has been enhanced to support the following DOS compatible functions:

#2A	Get System date from Windows (same as the equivalent DOS call)
#2B	Set System date (same as the equivalent DOS call)
#2C	Get System time from Windows (superset of the equivalent DOS call)
#2D	Set System time (same the equivalent DOS call)

- In addition, SVC-61 has been enhanced to support the following new functions

#70	Create new Windows process
#63	Format Windows error number to a verbose message

SVC-61 function #70 is a direct replacement for the SVC-70 interface.

At the time of writing, the draft File Converters V8.2 Manual is being updated to include full details of all these new operations. When these changes have been completed the draft FC8.2 manual will be available on the Technology section of the Global web site.

The following changes and enhancements are documented for completeness only. In general, these options should not be used or required:

- The following option has been added:



..\Global\Client\Screens\Network\NM\SendIACsequence

This highly-specialised option allows a byte-string to be sent to the thin-client or terminal emulator immediately the telnet connection has been made. This option has been introduced to allow the NETWORK controller to send telnet "Interpret as Command" (IAC) sequences to the terminal emulator. **DO NOT USE THIS OPTION IF THE TERMINAL EMULATOR IS GSMWIN32.EXE, GSMCONS.EXE OR GX.INI;**

- The handling of the following highly-specialised registry setting:

..\Global\Client\Screens\Network\NM\Diagnostics\LogIACSequences

has been modified to write the log-file "iaclogNM.bin" log directory rather than log-file "keylogNM.bin" in the current directory;

- The Console Executive now supports a diagnostic option to dump the state of the GX buffers and control information to the log-file \log\cacbsvc86dump.log. This operation is reserved for internal use only;
- GLSERVER.EXE has been modified to allow a "MasterNodeID" of "\*". This setting, which is reserved for future use, by-passes the Master Node-id validation code;
- The following highly-specialised registry setting:

..\Global\Client\Screens\Network\NM\Diagnostics\LogConsoleDisplays

enables a new diagnostic option in the Network controller to log all out-going characters to the log-file "networkdisplayNM.bin" in the log directory;

- The following registry option is reserved for internal use:

..\Global\Client\Printers\WinPrint\5NM\AdminSystemOrderDirectory

- The GSM (Windows) SVC-61 interface includes support for a highly-specialised interface to a particular Windows DLL (DBX.DLL). This interface will be extended to provide a generic interface to Windows DLL's;
- A new SVC, SVC-88, is now available to invoke SVC-61 operations without waiting for an immediate response. The following registry option alters the poll rate associated with SVC-88:

..\Global\Client\Nucleus\SVC88PollDivisor

SVC-88 is currently reserved for future. **DO NOT ATTEMPT TO USE IT;**

- The following highly-specialised registry setting has been withdrawn:

..\Global\Client\Diagnostics\LogNetworkConnections

- The following registry settings are reserved for internal use only:

..\Global\Client\Screens\GUI\SpecialEcommerceUser  
..\Global\Client\Screens\GUI\SpecialSupportUser  
..\Global\Client\Screens\GUI\SpecialTextOnlyUser  
..\Global\Client\Screens\Serial\MM\SpecialEcommerceUser  
..\Global\Client\Screens\Serial\MM\SpecialSupportUser  
..\Global\Client\Screens\Serial\MM\SpecialTextOnlyUser

**USE OF THESE REGISTRY SETTINGS WILL PRODUCE UNPREDICTABLE RESULTS.**

## **GSM (Windows) BACNAT variant 3.2A**

The V3.2A BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE only (note that this release does **NOT** include GLSERVER.EXE, GLCONS.EXE or GSMCONS.EXE). Note that GLOBAL.EXE V3.2A was immediately superseded by GLOBAL.EXE V3.2B to improve the interface to GX V2.2 (see below):

- A problem that resulted in GX appearing to hang under some conditions has been fixed in the V3.2A version of GLOBAL.EXE. **All users running with GX should be using V3.2A GLOBAL.EXE, or later.**

## **GSM (Windows) BACNAT variant 3.2B**

The V3.2B BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLCONS.EXE (note that this release does **NOT** include GLSERVER.EXE or GSMCONS.EXE):

- GLOBAL.EXE/GLCONS.EXE V3.2B automatically determines the level of the GSM Service Pack (i.e. SP-3, or earlier; or SP-4, or later) so the "EnableSVC89" registry setting (see section 5.16) is not required.

**ALL USERS RUNNING GX ARE RECOMMENDED TO UPGRADE TO GSM SP-4 AND GLOBAL.EXE/GLCONS.EXE V3.2B TO AVOID THE STOP 8628 CONDITION THAT CAN OCCUR OCCASIONALLY IF THE GX TRANSMIT BUFFER FILLS UP;**

- The following registry settings allow the time-out period on "true" RPC operations (e.g. when using the "ncacn\_ip\_tcp" Protocol Sequence) to be specified:

`..\Global\Client\Servers\RPCTimeout`                      (interface to all RPC servers)

`..\Global\Client\Servers\X\RPCTimeout`                      (interface to single RPC server)

The timeout value can be any integer value from 0 to 10:

- |       |   |
|-------|---|
| 0     | Try the minimum amount of time for the network protocol being used. This value favours response time over correctness in determining whether the server is running; |
| 1 – 4 | Behaviour (proportionally) between a value of 0 and 5;  |

- 5 Try an average amount of time for the network protocol being used. This value gives correctness in determining whether a server is running and gives response time equal weight. This is the default value;
- 6 – 8 Behaviour (proportionally) between a value of 5 and 9;
- 9 Try the longest amount of time for the network protocol being used. This value favours correctness in determining whether a server is running over response time.
- 10 Keep trying to establish communications forever;

**Important Note–1:** The values are not in seconds. These values represent a relative amount of time on a scale of zero to 10.

**Important Note–2:** The "RPCTimeout" registry setting is ignored if the Protocol Sequence is "gsmlrpc". If the Protocol Sequence is "gsmlrpc" the "..\Global\Client\GSMRPCTimeout" registry setting must be used to adjust the time-out value (in seconds).

## NEW FEATURES IN GLOBAL.EXE V3.2C

The V3.2C BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLCONS.EXE (note that this release does **NOT** include GLSERVER.EXE or GSMCONS.EXE):

- GLOBAL.EXE has been enhanced to allow Asymmetric Multiple Clients (i.e. multiple copies of GLOBAL.EXE can be used on the same PC with different registry settings). This option is enabled using the /G option. By default, GLOBAL.EXE only recognises registry Keys and ValueNames under the following registry key:

HKEY\_LOCAL\_MACHINE\Software\Global\Client\

The /G option allows the "Global" registry key to be over-ridden by an alternative key. For example, the following command line:

C:\GSM\GLOBAL.EXE C:\GSM\GSM200 /G=GlobalSpecial

will result in the new instance of GLOBAL.EXE to use the following registry key:

HKEY\_LOCAL\_MACHINE\Software\GlobalSpecial\Client\

This option is currently of limited use because neither GLSERVER.EXE nor GLREGED.EXE have been enhanced to support alternative registry keys;

- SVC-88 has been enhanced to allow \$STATUS to report "WAITING FOR SVC 88 OPERATION";

- A new SVC-61 function (DSOPC = #65), to return a fixed Boolean value from the "Customisations" section of the registry, is now available. This new function is fully described in the Global File Converters Manual;
- A new SVC-61 function (DSOPC = #66), to test a string for a valid Boolean value, is now available. This new function is fully described in the Global File Converters Manual;
- A problem introduced with the release of GLOBAL.EXE V3.2, that ignores the "FileNameMappings" option, has been fixed;
- Use of the following registry setting has been rationalised:

..\Diagnostics\LogExceptionLevel

- A problem which caused GX sessions to stop unexpectedly with a STOP 8623 has been fixed;
- The "gsmtcpip" interface between GSM (Windows) GLOBAL.EXE and the GSM (Novell) Speedbase NLM (SPEEDBAS.NLM) has been enhanced to allow the familiar "Endpoint" setting to be used instead of the new "Port" setting. This provides some backwards compatibility with the interface between GLOBAL.EXE and SPEEDBAS.EXE. Note that the Port setting takes precedence over the Endpoint setting if both options are included in the registry. Note also that the Endpoint is a string (REG\_SZ) value while the Port is a numeric (REG\_DWORD) value;
- The following registry setting has been re-instated:

..\Diagnostics\LogNetworkConnections

this option writes a separate, highly detailed file for each different Port that has been configured for a Network controller. Each "connection" diagnostic file is named:

..\log\networkconnectsforport\_\\\\log

where *NNN* is the Port number. For example, on a system that is configured with Network consoles on ports 23, 24, 25 and 26 the following files will be created:

```
..\log\networkconnectsforport_23.log
..\log\networkconnectsforport_24.log
..\log\networkconnectsforport_25.log
..\log\networkconnectsforport_26.log
```

Furthermore, a new diagnostic option:

```
..\Diagnostics\LogNetworkDisConnections
```

logs any errors that occur as thin-clients are disconnecting. Each "disconnection" diagnostic file is named:

```
..\log\networkdisconnectsforport_XXX.log
```

- The various registry access routines in GLOBAL.EXE have been enhanced to ignore any string setting that starts with a "~" (tilde) character. This provides a convenient way to disable a registry setting **without** removing the entry entirely. For example:

```
..\Printers\WinPrint\500\~ComplexPrinterNameThatIDontWantToDelete
```

This option is only available for string (REG\_SZ) settings. It is not available for numeric (REG\_DWORD) settings;

- A number of new, highly-specialised options have been added to the DOSPrint controller:

```
..\Global\client\Printers\DOSPrint\5nn\PrintViewDirectory
..\Global\client\Printers\DOSPrint\5nn\PrintViewExtension
..\Global\client\Printers\DOSPrint\5nn\PrintViewAddExtension
```

..\Global\client\Printers\DOSPrint\5nn\PrintViewTimeout

..\Global\client\Printers\DOSPrint\5nn\PrintViewFileCopyBufferSize

These options should not be enabled unless a "Print View sub-system" has been installed on the server that is running GLOBAL.EXE;

- A problem in GLOBAL.EXE V3.2 that resulted in occasional displays of the spurious messages "Something has gone wrong" and "Partial Send" has been fixed in GLOBAL.EXE V3.2C. These messages, which were included in GLOBAL.EXE for diagnostic purposes, will only appear if the followed registry key is set to "on":

..\Global\Client\Diagnostics\EnableSpecialNetworkDiags



## NEW FEATURES IN GLOBAL.EXE V3.3

### 1. Introduction and Overview

The V3.3 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLCONS.EXE (note that this release does **NOT** include GLSERVER.EXE or GSMCONS.EXE):

**Important Note:** The standard version of GLOBAL.EXE V3.3 is only supported on Windows 98, Windows NT, Windows 2000 and Windows XP (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows NT, Windows 2000, Windows XP etc.).

The most significant interface that is not supported on Windows 95 is the function that allows GLOBAL.EXE & GLSERVER.EXE to access networked directories via UNC files names (e.g. \\mainserver\global\gsm200) rather than relying on mapped network drives.

However, a Windows 95 compliant version of GLOBAL.EXE V3.3 is available, on both the Global web site and the monthly GPS CD, albeit with slightly limited functionality.

## 2. Changes to the GSM Licence File

- When a GSM (Windows) configuration is upgraded from GSM SP- $n$  (where  $n$  is 0 to 5) to GSM SP-6 the GSMSP6 installation job exports the \$STARH file from SYSRES to a Windows file called global.lic. This change to remove the \$STARH file, which currently contains the Contract Protection Message and other customised information from SYSRES to an external file, is fully described in gsmssp6.doc.

The global.lic file is always created in the folder "LicenceFiles" which is within the Global folder. The switch from \$STARH to global.lic is mandatory for GSM SP-6, and later. If the LicenceFiles folder or the global.lic file are deleted or renamed the Global Client will fail to load (reported as a STOP 5701).

In addition to a new internal function within GLOBAL.EXE V3.3 that allows GSM SP-6, and later, to access the global.lic file the start-up code in GLOBAL.EXE tests for the presence of the global.lic file within the LicenceFiles directory. If the global.lic file cannot be found, the following message is displayed:



The test for the presence of the global.lic file was added to GLOBAL.EXE V3.3. This version, and later versions, of GLOBAL.EXE may be used with pre GSM SP-6 versions of GSM (e.g. GSM SP-5). If the "global.lic file is missing" error message appears on a GSM SP-6, or later, version of GSM then it should be treated as a **serious error** message as a fatal STOP 5701 will occur. However, if the "global.lic file is missing" error message appears on a GSM SP-5, or earlier,

version of GSM then it should be ignored. **The test for the global.lic file can be disabled by setting the following registry option to "off":**

..\Global\Client\Nucleus\TestForGlobalLicenceFile

Unfortunately, at the time the test for global.lic is performed GLOBAL.EXE does not know the GSM Service Pack level so the decision to test for the global.lic file cannot be made dynamically hence the requirement for the new registry setting.

As explained above, the use of global.lic (instead of \$STARH) is mandatory for GSM SP-6, and later. However, some **highly-specialised** GSM utilities that can operate with both GSM SP-5 (or earlier) and GSM SP-6 (or later) may have to determine whether \$STARH or global.lic is being used. The following registry setting **MAY** have to be set to "on" if you are using one of these highly-specialised utilities in conjunction with GSM SP-6:

..\Global\Client\Customisations\ExternalLicenceFile

However, it must be stressed that this registry setting is not required for normal configurations. There is no need to set this option unless you are told to do so by Global Support. Furthermore, this option cannot be used to force a GSM SP-6, or later, system to use \$STARH instead of global.lic.

Finally, the following registry key and registry setting are reserved for future use:

..\Global\Client\LicenceFiles\

..\Global\Client\LicenceFiles\GlobalLicenceFile

- GLOBAL.EXE V3.3 supports the functions required by GSM SP-6 to access the global.lic licence file (see above). Note that a global.lic file created by GLOBAL.EXE V3.3 RC-16, or earlier, is incompatible with the released GLOBAL.EXE V3.3;

- The global.lic file is always opened in shared mode allowing multiple GLOBAL.EXE clients to access the file simultaneously.

### 3. Changes to support Debug Log Files

- As described in gsmisp6.doc a number of enhancements to GLOBAL.EXE have been implemented to support the creation of a Debug Log File when a program exception (e.g. OVERFLOW, STOP CODE) is generated. A number of new registry settings control this functionality. All the new registry settings are in the new "Debug" registry key.

Every time the SP-6 version of the \$OV\$\* Debug Overlay is invoked, it automatically generates a Debug Log File (DLF) describing the Debug Event. The name of the DLF is:

GlobalApp\_XXXX\_NNN.log

where XXXX is the Operator-id and NNN is an incrementing number, up to a maximum defined in the registry (see below). The files are created in the **Debug** directory, under the Global **Log** directory. The incrementing number wraps round to 001 when the limit (see below) has been reached.

The DLF is a standard Windows text file. The Windows creation date/time allows the files to be collated in chronological order. The natural file name allows the files to be collated in operator order.

The following setting limits the number of DLF files that are kept **per operator-id**.

..\Global\Client\Debug\LogFileMaxCount

The default value is 1.

A new, generic feature in GLOBAL.EXE allows regular "house-keeping" events to take place on a scheduled basis. In particular, the following registry setting allows the automatic purging of stale copies of DLF's:

..\Global\Client\Debug\LogFilePurgePeriodDays

The default value is 7 (i.e. by default, DLF's remain in the Debug directory for 1 week).

The DLF email option, which is performed by a new overlay called \$DGEMAIL, is enabled by:

..\Global\Client\Debug\EmailLogFile

The default setting is "off".

The destination email address is specified by the following registry setting:

..\Global\Client\Debug\EmailToAddress

The DLF view option, which is performed by a new overlay called \$DGVIEW, is enabled by:

..\Global\Client\Debug\ViewLogFile

The default setting is "off".

Every time the SP-6 version of the \$OV\$\* Debug Overlay is invoked, it automatically generates a Debug Dump File (DDF) containing a full memory dump (i.e. all the 32-bit pages for that user). The name of the DDF is:

GlobalApp\_XXXX\_YYY.bin

or:

GlobalApp\_XXXX.bin

where *XXXX* and *NNN* are the same as for the DLF.

The creation of the DDF is optional and is enabled by the following registry setting:

..\Global\Client\Debug\CreateDumpFile

The default setting is "On" (i.e. which keeps 1 DDF per user, see below).

It is possible to create either a single DDF file per user; or a single DDF file per DLF file. The following option controls the DDF file creation:

..\Global\Client\Debug\SingleDumpFile

If this option is set to "On" (the default) the DDF file will be called:

GlobalApp\_XXXX.bin

If this option is set to "Off" the DDF file will be called:

GlobalApp\_XXXX\_NNN.bin

The following registry setting allows the automatic purging of stale copies of DDF's:

..\Global\Client\Debug\DumpFilePurgePeriodDays

The default value is 7 (i.e. by default, DDF's remain in the Debug directory for 1 week).

The DDF email option is enabled by:

..\Global\Client\Debug\EmailDumpFile

The following highly-specialised registry settings are reserved for resellers who develop their own \$DGEMAIL overlays:

..\Global\Client\Debug\EmailFromAddress  
..\Global\Client\Debug\SMTPServer  
..\Global\Client\Debug\SMTPServerPort

A description of these reseller-specific options is beyond the scope of this document.

The following registry setting is reserved for future use:

..\Global\Client\Debug\AttachLogFileToEmail

The following registry settings control the generic Purge File processing and are all reserved for future use:

..\Global\Client\Debug\DisablePurgeThread  
..\Global\Client\Debug\LogFilePurgeThreadDelay  
..\Global\Client\Diagnostics\PurgeLogFileDiagnostics

## 4. NETWORK Controller Changes to support Virtual Ports

- The NETWORK controller has been enhanced to support a "Virtual Port" option. The Virtual Port option has been implemented to overcome a long-standing problem with the combination of the GSM (Windows) NETWORK controller and the GSMWIN32 and GX thin-clients. The problem is that, by default, the NETWORK controller number, and the User Number (which is derived from the Network controller number) can't be predicted when a user logs into GSM (Windows) from GSMWIN32.EXE or GX.EXE. For most installations this is not a problem as no other software depends on the User Number. However, under some circumstances the unpredictable nature of the connected Network controller number can present a problem. For example:

- if an application module is customised on a per User Number basis, or otherwise assumes that the Operator-id to User Number mapping is semi-permanent;
- in an heterogeneous NETWORK configuration (e.g. some of the NETWORK controllers are configured with  $N$  partitions while others are configured with  $M$  partitions);
- where the AuxPrint controller is being used.

For example, consider the following "Network" section of the registry:

```

..\Global\Client\Screens\Network\01\Port=23
..\Global\Client\Screens\Network\01\+NumberOfPartitions=4
..\Global\Client\Screens\Network\02\Port=23
..\Global\Client\Screens\Network\02\+NumberOfPartitions=5
..\Global\Client\Screens\Network\03\Port=23
..\Global\Client\Screens\Network\03\+NumberOfPartitions=6

```

The user connecting to the first NETWORK controller will obtain 4 partitions and will be allocated a User Number of  $X+1$  (where  $X$  is the number of partitions configured on the CONSOLE controller). The user connecting to the second NETWORK controller will obtain 5 partitions (and will be allocated a User Number of  $X+5$ ). The user connecting to the third NETWORK controller will obtain 6 partitions (and will be allocated a User Number of  $X+10$ ). Unless all the users connect in the same order every day the number of partitions and user numbers allocated to a particular user cannot be predicted.

Although all of the above issues can be overcome by associating different Port Numbers for the various NETWORK controllers. For example:

```

..\Global\Client\Screens\Network\01\Port=23
..\Global\Client\Screens\Network\01\+NumberOfPartitions=4
..\Global\Client\Screens\Network\02\Port=24
..\Global\Client\Screens\Network\02\+NumberOfPartitions=5

```



```

..\Global\Client\Screens\Network\03\Port=25
..\Global\Client\Screens\Network\03\+NumberOfPartitions=6

```

However, the proliferation of TCP/IP Port Numbers is not generally recommended.

A new concept, the "Virtual Port" number, has been introduced to overcome the above problems **without** changing the TCP/IP Port numbers. The "Virtual Port" number is a "private" feature that is only recognised by GSMWIN32.EXE, GX.EXE/GXIO.EXE and GLOBAL.EXE. **IT WILL NOT AFFECT ANY OTHER SOFTWARE THAT USES THE TCP/IP NETWORK.**

The following new registry options are now available:

```

..\Global\Client\Screens\Network\NM\VirtualPort

```

The VirtualPort Number can be any value between 0 and 255. For example:

```

..\Global\Client\Screens\Network\01\Port=23
..\Global\Client\Screens\Network\01\VirtualPort=1
..\Global\Client\Screens\Network\01\+NumberOfPartitions=4
..\Global\Client\Screens\Network\02\Port=23
..\Global\Client\Screens\Network\02\VirtualPort=2
..\Global\Client\Screens\Network\02\+NumberOfPartitions=5
..\Global\Client\Screens\Network\03\Port=23
..\Global\Client\Screens\Network\03\VirtualPort=3
..\Global\Client\Screens\Network\03\+NumberOfPartitions=6

```

If a VirtualPort is not defined a value of 0 is assumed, which effectively disables the Virtual Port option.

Although this artificial example only illustrates a different VirtualPort for each NETWORK controller it is possible to "cluster" two, or more, Network controllers with the same VirtualPort number. For example:

```

..\Global\Client\Screens\Network\01\Port=23
..\Global\Client\Screens\Network\01\VirtualPort=1
..\Global\Client\Screens\Network\01\+NumberOfPartitions=4
..\Global\Client\Screens\Network\02\Port=23
..\Global\Client\Screens\Network\02\VirtualPort=1
..\Global\Client\Screens\Network\02\+NumberOfPartitions=4
..\Global\Client\Screens\Network\03\Port=23
..\Global\Client\Screens\Network\03\VirtualPort=1
..\Global\Client\Screens\Network\03\+NumberOfPartitions=4
..\Global\Client\Screens\Network\04\Port=23
..\Global\Client\Screens\Network\04\VirtualPort=2
..\Global\Client\Screens\Network\04\+NumberOfPartitions=9
..\Global\Client\Screens\Network\05\Port=23
..\Global\Client\Screens\Network\05\VirtualPort=2
..\Global\Client\Screens\Network\05\+NumberOfPartitions=9

```

In this example all the NETWORK controllers with a Virtual Port value of 1 have 4 partitions; all those with a Virtual Port value of 2 have 9 partitions.

For those configurations that require a unique VirtualPort setting for each Network controller (i.e. to emulate a point-to-point thin-client configuration) the following setting can be enabled to "auto generate" a Virtual Port number for all those Network controllers that have no explicit VirtualPort setting:

```

..\Global\Client\Screens\Network\AutoVirtualPort

```

When this option is enabled the Virtual Port is set to the Network Number. For example:

```

..\Global\Client\Screens\Network\AutoVirtualPort=On
..\Global\Client\Screens\Network\01\
..\Global\Client\Screens\Network\02\
..\Global\Client\Screens\Network\03\
..\Global\Client\Screens\Network\04\VirtualPort=89
..\Global\Client\Screens\Network\05\

```

So that:

<i>Network number</i>	<i>Virtual Port</i>	<i>Comments</i>
01	01	Auto generated
02	02	Auto generated
03	03	Auto generated
04	89	Set explicitly
05	05	Auto generated

To tie a GSMWIN32.EXE thin-client with a particular Virtual Port number simply include the new VirtualPort option in the [device] section of the GSMWIN32.INI file. For example:

```
[device]
Interface=Telnet
Reconnection=on
HostID=168.1.1.123
Port=23
VirtualPort=1
```

For GSMWIN32.INI files with multiple host entries, use the VirtualPort*N* option. For example:

```
[device]
Interface=Telnet
Reconnection=on
HostID1=168.1.1.100, First server (virtual port 1)
Port1=23
VirtualPort1=1
HostID2=168.1.1.100, First server (virtual port 2)
Port2=23
VirtualPort2=2
HostID3=168.1.1.100, First server (virtual port 3)
Port3=23
VirtualPort3=3
HostID4=168.1.1.101, Second server (virtual port 1)
Port4=23
VirtualPort4=1
HostID5=168.1.1.101, Second server (virtual port 2)
Port5=23
VirtualPort5=2
HostID6=168.1.1.101, Second server (virtual port 3)
Port6=23
```

**VirtualPort6=3**

To tie a GX.EXE thin-client with a particular Virtual Port number simply include the new VirtualPort option in the [hosts] section of the GXHOSTS.INI file. For example:

```
[hosts]
Reconnection=on
HostID=168.1.1.123
Port=23
VirtualPort=1
```

For GXHOST.INI files with multiple host entries, use the VirtualPort*N* option as illustrated above.

The following versions of the various thin-clients support the VirtualPort option:

<i>Thin-client</i>	<i>Version</i>
GSMWIN32.EXE	V3.4
GX.EXE	V2.5
GXIO.EXE	V3.4
GSMCONS.EXE	Not supported

The implementation of the VirtualPort option has involved a complete rewrite of the NETWORK controller diagnostic logging option. Very extensive diagnostic information is now logged when the "LogNetworkConnections" option is enabled.

## 5. Other NETWORK Controller Changes

- The following new registry option:

..\Global\Client\Screens\Network\DefaultGlobalWindowsWorkstation

is now supported to provide a default setting for any Network controllers that do not include an explicit setting:

..\Global\Client\Screens\Network\*NN*\GlobalWindowsWorkstation

- The following registry option:

..\Global\Client\Screens\Network\AllowGUIReconnect

has been available to disable the GUI thin-client Reconnection option in the NETWORK controller. However, this option applies to **all** NETWORK channels. Under some conditions it is desirable to disable the GUI thin-client Reconnection option on selected NETWORK controllers. The following registry keys and settings are now available to disable the GUI thin-client Reconnection option on one, or more, selected Port numbers:

..\Global\Client\Screens\Network\PortNumberSpecificOptions\*NN*\PortNumber  
 ....\Client\Screens\Network\PortNumberSpecificOptions\*NN*\AllowGUIReconnect

where *NN* is an arbitrary number between 01 and 99.

For example, to disable the GUI thin-client Reconnection option on the thin-clients connected to Ports 24 and 27:

Screens\Network\PortNumberSpecificOptions\01\PortNumber=24  
 Screens\Network\PortNumberSpecificOptions\01\AllowGUIReconnect=Off  
 Screens\Network\PortNumberSpecificOptions\02\PortNumber=27  
 Screens\Network\PortNumberSpecificOptions\02\AllowGUIReconnect=Off

**Important Note 1:** The arbitrary numbers in the PortNumberSpecificOptions keys have absolutely **no** relationship to the Network Index Numbers immediately under the Network keys.

**Important Note 2:** The GUI thin-client Reconnection option should not be disabled under normal circumstances;

- The NETWORK controller has been enhanced to fix a problem that can sometimes result in a spurious "Host System Unavailable" when attempting to connect a GSMWIN32 or GX session. The problem will occur if the "AllowGUIReconnect" registry option is enabled and the "Reconnection" and "SendInitialEscape" GSMWIN32.INI file options are disabled. The problem occurs if a thin-client connects without the user keying any characters. All attempts to connect other thin-clients will fail until the first user hits a key;
- The following new registry options:

..\Global\Client\Screens\Network\InputBufferSize  
..\Global\Client\Screens\Network\NM\InputBufferSize

can be used to increase the size of the internal Receive buffer in the NETWORK controller from the default value of 2048 characters. Note that prior to this change the internal buffer size was hard-coded at 512 characters;

- The following new registry option:

..\Global\Client\Screens\Network\IgnoreSpecialOptions

can be used to disable the reconnection logic in the NETWORK controller. When this option is enabled the CAFLAG4 is set to #00. This option should only be used if the following spurious error message appears when connecting using a pre-release version of the GSMCONS.EXE thin client:

INITIATION WARNING 468 – ECOMMERCE USER COUNT EXCEEDED

Note that an alternative solution is to set the ReConnection=Off setting in the GSMCONS.INI file;

- The NETWORK controller has been modified to reset the \$AUTH and \$PASSWD Sign-on Retry count when a thin-client is automatically disconnected because the operator has failed to supply a valid operator-id/password combination;
- The following new registry options can be used to define a default Terminal Type number for GSMCONS.EXE connections:

```
..\Global\Client\Screens\Network\DefaultTerminalTypeForGSMCONS
..\Global\Client\Screens\Network\MM\TerminalTypeForGSMCONS
```

These options allow one default Terminal Type for GSMWIN32.EXE thin-client connections; and another default Terminal Type for GSMCONS.EXE thin-client connections;

- By default, when a thin-client (i.e. GSMWIN32.EXE or GX.EXE) makes a new connection the NETWORK controller spawns a new thread immediately to prepare to accept a connection from another thin-client. This is necessary to allow other thin-clients to connect while the potentially time-consuming reconnection hand-shaking between the NETWORK controller and the thin-client is taking place. However, under some circumstances, it may be necessary to disable the immediate new thread spawning. This is achieved by setting the following registry setting to "On":

```
..\Global\Client\Screen\Network\IgnoreAcceptThreadSpawn
```

**Warning:** If this option is enabled spurious "Host System Unavailable" may appear when attempting thin-client connections;

- The Network controller has been enhanced to recognise the "Advanced" lead-in sequence from GX V2.5, and later (and GXIO V3.4, and later). The actual change was implemented in GXIO.EXE V3.3v. Consequently if GLOBAL.EXE is used with GXIO.EXE earlier than V3.3v the following registry option must be set to "Off" to disable the "Advanced" lead-in handling within GLOBAL.EXE:

```
..\Global\Client\Screen\Network\IgnoreAdvancedConnection
```

The default value of this setting is "On". Thus, this (obscure) registry setting should only be used in the very unlikely circumstances that a pre-release version of GXIO.EXE V3.4, earlier than V3.3v, is being used with GLOBAL.EXE. Under these circumstances, GX should be updated to V2.5, which will upgrade GXIO.EXE to V3.4;

- The Network console controller now recognises the following registry options:

..\Global\Client\Screens\Network\NM\KeepAlive

(a)

..\Global\Client\Screens\Network\KeepAlive

(b)

As usual, the controller-number specific option (a), if present, overrides the generic option (b). If this option is enabled the Network controller uses the Winsock SetSocketOption function to enable the TCP/IP Keep Alive option;

- The NETWORK controller has been enhanced to support the GX Reconnection option. This involves the controller "remembering" the Operator-ID and password supplied by the user for subsequent validation of an attempted GX Reconnection;
- The following registry setting can be used to disable the GX connection option in the NETWORK controller:

..\Global\Client\Screens\Network\IgnoreGXReconnectString

This setting should never be used under normal conditions;

- A number of **HIGHLY-SPECIALISED** options have been added to the NETWORK controller.

The following option specifies the "sample period", in milliseconds, of the Display Throttle:



..\Global\Client\Screens\Network\EnableDisplayThrottle  
..\Global\Client\Screens\Network\NM\EnableDisplayThrottle

The following option specifies the Display Throttle sample period:

..\Global\Client\Screens\Network\DisplayThrottleCharSamplePeriod  
..\Global\Client\Screens\Network\NM\DisplayThrottleCharSamplePeriod

The following option specifies the number of characters to be displayed during each Display Throttle sample period:

..\Global\Client\Screens\Network\DisplayThrottleCharsPerPeriod  
..\Global\Client\Screens\Network\NM\DisplayThrottleCharsPerPeriod

The following option allows the Global Client to hibernate during the brief periods of time when the maximum characters per sample period has been reached:

..\Global\Client\Screens\Network\EnableClearAwakeFlag  
..\Global\Client\Screens\Network\NM\EnableClearAwakeFlag

All the above registry settings are examined periodically so that a change to the registry to tweak the settings does not require a reload of GLOBAL.EXE. The following option specifies the frequency of the registry sampling:

..\Global\Client\Screens\Network\DisplayThrottleRegSamplePeriod  
..\Global\Client\Screens\Network\NM\DisplayThrottleRegSamplePeriod

**DO NOT USE ANY OF THESE HIGHLY-SPECIALISED REGISTRY OPTIONS UNLESS YOU HAVE BEEN SPECIFICALLY ADVISED TO DO SO.**

## 6. WinPrint Printer Changes

- The WinPrint controller has been enhanced to perform the actual printing to the Windows print device in a separate processing thread from the main interpreter thread. This option greatly reduces the slow-down experienced by other users when a report is sent to a relatively slow Windows printer (e.g. when printing to a network printer). The new option is enabled by the following registry setting:

..\Global\Client\Printers\WinPrint\5nn\PrintViaSeparateThread

- A problem with the WinPrint controller that only occurs on Windows 2000 has been fixed in GLOBAL.EXE V3.3. The problem occurs when the Printer Selection dialogue box is removed after a printer has been selected. Focus does not automatically return to the Global Client after this dialogue box is removed;
- The following new registry setting is available to disable printer name validation for all the WinPrint printers:

..\Global\Client\Printers\WinPrint\DisableValidation

Setting this option directly under the "WinPrint\" key avoids the need to set this option under all the "WinPrint\5nn\" keys;

Note that the processing of the DisableValidation setting follows the normal hierarchy rules. That is, a printer-specific setting:

..\Global\Client\Printers\WinPrint\5nn\DisableValidation

overrides the generic setting:

..\Global\Client\Printers\WinPrint\DisableValidation

for printer number 5nn.

## 7. DOSPrint and DOS.PRI Printer Changes

- The Printer Executive has been enhanced to include a Multi-User Printer option. Under normal circumstances if a user attempts to open a printer unit (e.g. 500) that is already open by another user, an IN USE ERROR will result. Although this behaviour is correct when the printer is a physical device (e.g. COM1:, LPT1:) it is too restrictive when the "printer" is a Windows "pseudo-spool" directory. The behaviour is correct for a physical device because it makes no sense for two, or more, users to send print data to a "single-user" device. However, there is no reason why two, or more, users cannot write to uniquely named files on a Windows pseudo-spool directory.

The "Pooled Printer" option was a crude attempt to avoid this problem. However, the Multi-User Printer option provides a much improved solution. This option is enabled by either of the following registry options:

```
..\Global\Client\Printers\DOSPrinter\MultiUserPrinterExecutive
..\Global\Client\Printers\DOSPrinter\5nn\MultiUserPrinterExecutive
```

where the Printer Number specific option overrides the generic option. When this option is enabled multiple users can open the specified printer, or printers, simultaneously without suffering IN USE errors.

This option, which is only available for the DOSPrint controller (i.e. it is **not** allowed with either the WinPrint or DOS.PRI controllers, **despite** the inclusion of reserved registry settings in both the WinPrint and DOS.PRI keys), should be used with caution; and only when the ultimate output is intrinsically multi-user. For example:

```
..\Global\Client\Printers\DOSPrinter\500\Name=COM1:
..\Global\Client\Printers\DOSPrinter\500\MultiUserPrinterExecutive=On
```

or:

```
..\Global\Client\Printers\DOSPrinter\501\Name=c:\gsm\printfile.txt
..\Global\Client\Printers\DOSPrinter\501\MultiUserPrinterExecutive=On
```

will merely replace the IN USE ERROR by a NOT READY ERROR. Thus, the Multi-User Printer option can only be used with a pseudo spool directory:

```
..\Global\Client\Printers\DOSPrinter\502\Name=c:\gsm\prints\  
..\Global\Client\Printers\DOSPrinter\502\MultiUserPrinterExecutive=On
```

The following option is available to alter the file naming algorithm:

```
..\Global\Client\Printers\DOSPrinter\502\SeparatePrintFileExtensions=On
```

When this option is enabled the automatically generated suffix number is kept separately for all users. Furthermore, the string "*\_nnn*", where *nnn* is the User Number, is appended to the file prefix. For example, consider the file names generated if user 1 prints a single file, followed by user 2. With "SeparatePrintFileExtensions=Off" the following files will be created:

<i>fixedname.001</i>	File printed by user 1
<i>fixedname.002</i>	File printed by user 2

With "SeparatePrintFileExtensions=On" the following files will be created:

<i>fixedname_001.003</i>	File printed by user 1
<i>fixedname_002.003</i>	File printed by user 2

In addition, the following new diagnostic option is available:

```
..\Global\Client\Diagnostics\MultiUserPrinterDiagnostics
```

- The number of highly-specialised options that are available in the DOSPrint controller make it very difficult to add a "print via a separate thread" option to this controller. Instead of enhancing, and potentially destabilising, the DOSPrint controller a new printer controller, DOS.PRI, has been implemented. In general, the DOS.PRI is a sub-set of the DOSPrint controller but it does provide the option to "print via a separate thread".

If either of the following registry options are enabled:

```
..\Global\Client\Printers\DOS.PRI\5nn\PrintViaSeparateThread
..\Global\Client\Printers\DOS.PRI\PrintViaSeparateThread
```

the DOS.PRI "print function" will run in a separate processing thread from the main interpreter and thus will reduce the adverse effect on multi-user performance when printing to slow print devices;

- A problem in the "Mode" handling of the DOSPrint controller has been fixed. The value of the following registry setting:

```
..\Global\Client\Printers\DOSPrint\5nn\Mode
```

that is used to override the standard port settings is now read from the correct "Printers\DOSPrint\5nn" key (i.e. the registry key for the appropriate printer). Prior to this change the "Mode" value of the **last** DOSPrint printer was used to initialise **all** the DOSPrint printers;

- The DOSPrint and DOS.PRI printer controller now support the following new registry setting:

```
..\Global\Client\Printers\DOSPrint\5nn\FixedFileTempFileName
..\Global\Client\Printers\DOS.PRI\5nn\FixedFileTempFileName
```

When this option is enabled the ".tmp" extension is added to the filename created by the printer controller during the OPEN operation (e.g. print.txt is created as print.txt.tmp). When the print file is closed, during the CLOSE operation, the file is renamed to remove the ".tmp" extension. This option only applies if the "Name" setting specifies a fixed filename (i.e. rather than a Windows spool directory), and if the "CreateNewFile" option is enabled;

- The following highly-specialised option has been added to the DOSPrint and DOS.PRI controllers:

..\Global\Client\Printers\DOSPrint\5nn\RemoveLF  
 ..\Global\Client\Printers\DOS.PRI\5nn\RemoveLF

When this option is enabled all Line-Feed characters (0x0A) will be removed from the output print file;

- The DOSPrint controller has been enhanced to recognise the following registry settings:

..\Global\Client\Printers\DOSPrint\5nn\Disablevalidation  
 (a)  
 ..\Global\Client\Printers\DOSPrint\Disablevalidation  
 (b)

Option (a) disables validation for a specific printer. Option (b) disables validation for all DOSPrint printers. When this option is enabled the name of the print file or spool directory is not validated during printer initialisation. Any errors with the print file name or spool directory name specified in the "Name" setting in the registry are only detected when the first attempt is made to use the printer;

- The DOS.PRI controller has been enhanced to recognise the following registry settings:

..\Global\Client\Printers\DOS.PRI\5nn\Disablevalidation  
 (a)  
 ..\Global\Client\Printers\DOS.PRI\Disablevalidation  
 (b)

Option (a) disables validation for a specific printer. Option (b) disables validation for all DOS.PRI printers. When this option is enabled the name of the print file or spool directory is not validated during printer initialisation. Any errors with the print file name or spool directory name specified in the "Name" setting in the registry are only detected when the first attempt is made to use the printer;

- The following registry option can be specified either with or without the trailing "\" character:

```
..\Global\client\Printers\DOSPrint\5nn\PrintViewDirectory
```

Details of this **highly-specialised** option is beyond the scope of these notes.

## 8. AuxPrint Printer Changes

- The following registry options have been added to simplify the AuxPrint controller registry settings:

```
..\Global\Client\Printers\AuxPrint\5nn\NetworkNumber
```

```
..\Global\Client\Printers\AuxPrint\5nn\FloatingAuxPrinter
```

The "NetworkNumber" can be used instead of the "ConsoleNumber" to specify the Network Index Number of associated console. The "NetworkNumber", which is simply the *NN* value of the following registry key:

```
..\Global\Client\Screens\Network\NN\
```

is normally more meaningful and easier to predict than the more abstract "ConsoleNumber".

The "FloatingAuxPrinter=On" option can be used instead of setting the "ConsoleNumber" to 0 to directly indicate a Floating Auxiliary printer. Again, this new option encourages more meaningful registry settings.

If either a "NetworkNumber" or "FloatingAuxPrinter" option is specified the "ConsoleNumber" is ignored. If both a "NetworkNumber" and the "FloatingAuxPrinter" options are specified the results are unpredictable;

- The name of the log file created when AuxPrint diagnostics are enabled is now "AuxPrintDiagsforclientXX.log", where XX is the Global Client node-id, rather than just "AuxPrintDiags.log". This change has been implemented to allow separate Auxprint log files to be created on an SMC configuration.

## 9. Major Problems Fixed

- A serious problem that can result in missing sub-volumes on DDF domains has been fixed. The problem can cause a sub-volume to disappear under the following circumstances:
  - 1). A valid "8.3" sub-volume file (e.g. 10G3DATA.SVL) is renamed to a Windows filename with more than 8 characters before the "." (e.g. 10G3DATA.SVL is renamed to 10G3DATAOLD.SVL);
  - 2). The appropriate Global Server or Global Client process is restarted while the "invalid" file is within the GSM200, GSMA00 etc. directory. This will have the effect of irretrievably corrupting the sub-volume file while the GSM200, GSMA00 etc. directory is being scanned;
  - 3). The "invalid file" (e.g. 10G3DATAOLD.SVL) is subsequently renamed to a "valid" filename (e.g. 10G3DATA.SVL). The renamed sub-volume will never be recognised by GSM ever again and must be restored from backup. Furthermore, no diagnostic messages will provide any clues to the reason for the disappearing sub-volume.

The directory scan logic of the DDF controller has been modified to completely ignore (i.e. rather than corrupt) any *NN\**.SVL files with a filename that is not between 6 and 12 characters;

- A problem in the code in GLOBAL.EXE that interfaces to the Speedbase Gateway, that causes a spurious STOP 25403, has been fixed. The problem can occur under the following conditions:



1. \$BADN is used to convert a database (e.g. CL) to Pervasive or Microsoft SQL. During the conversion the name of the Gateway server is specified in lower-case. This writes the lower-case name of the server to the Global Schema file. This lower-case server name is used for all subsequent database open operations;
2. \$BADN is used to convert another database (e.g. DL) to Pervasive or Microsoft SQL. During the conversion the name of the Gateway server is specified in upper-case. This writes the upper-case name of the server to the Global Schema file. This upper-case server name is used for all subsequent database open operations;
3. A Speedbase frame opens the first database (i.e. CL). This open succeeds and establishes the channel to the Gateway using the lower-case name. All accesses to this database complete normally;
4. The Speedbase frame subsequently opens the second database (i.e. DL). This open also succeeds but establishes the channel to the Gateway using the upper-case name, which has the side effect of resetting the connection with the lower-case server name;
5. Any access to the first database will fail with a STOP 25403 because the channel has been reset by the open of the second database.

The problem has been fixed by converting all internal server names to upper-case;

Furthermore, the server name specified by the following registry setting is converted to upper-case:

..\Global\Client\Gateways\NN\GatewayServerName

- A number of sites have encountered problems caused by the following registry setting:

..\Global\Client\Nucleus\MaxMemory32Bit

If the value of this setting is not sufficiently large, STOP 109 errors may occur on large configurations that are running 32-bit applications. This registry setting was introduced to prevent a rogue 32-bit Global application (illegally) allocating all the virtual memory available from Windows. However, the arbitrary limit on the amount of memory allocated for 32-bit Global applications that is effectively imposed by the MaxMemory32Bit setting appears to do more harm (i.e. spurious STOP 109's) than good. Consequently, if the MaxMemory32Bit registry setting is deleted the arbitrary limit is removed and a STOP 109 will only occur when there is no more Windows virtual memory available. Note that the MaxMemory32Bit setting must be removed completely rather than being set to 0. To summarise:

<i>MaxMemory32Bit value</i>	<i>Meaning</i>
<i>N</i>	Set an arbitrary limit of <i>N</i> Kb on the total amount of memory allocated for 32-bit Global applications ( <i>N</i> must be between 1024 and 131072) i.e. a memory range of between 1Mb and 128Mb
0	Set an arbitrary limit of 64Mb on the total amount of memory allocated for 32-bit Global applications (prior to V3.3, this default was 32Mb)
Absent	No arbitrary memory checking performed

- A problem that can result in GLOBAL.EXE crashing when \$DEBUG is used to debug an application that uses more than 50 levels of Link Stack, has been fixed;

- A number of problems in the GX interface that occur if the various GX buffers are too small, have been fixed.

**Important Note:** Some further problems in the GX interface have been fixed by GLOBAL.EXE V3.4 (interim version V3.3E, or later);

- A problem in the Printer Executive that can cause spurious NOT READY errors when 2, or more, printers (regardless of the type of printer) are being used simultaneously, has been fixed.

## 10. Minor Problems Fixed

- A typo in the GLMACH.TLT registry template file has been corrected. The "TextModeFontWideFile" setting was incorrectly present as "TextModeFontFileWide";
- A problem in the 32-bit resolver/loader that can lead to spurious a STOP 116 followed by a Resolver Error "e", has been fixed. The problem can occur when an EXEC'ed frame or program contains a PIC PTR that is a redefinition of a pointer in the root DLM;
- The SVC-79 operation that de-allocates a 32-bit page no longer returns an exception if the requested page is not allocated. This has been necessary to prevent a problem that results in a spurious EXIT 7901;
- The following new registry setting is now available:

..\Global\Client\UseExitToExit

If this option is enabled the \$BYE processing within GLOBAL.EXE uses the Windows "exit" function rather than the "terminate" function to close-down. This change fixes a problem that can cause zombie GLOBAL.EXE tasks appearing in the Windows Task List;

- The problem that prevented SVC-88 from suspending the user has been fixed. However, a further minor problem remains outstanding: The status of user executing an SVC-88 call is not displayed correctly by the \$STATUS "LIS" command;
- GLOBAL.EXE now validates the value of the following registry settings (and equivalent Configuration File options):

```

..\Global\Client\Screens\+ScreenImageWidth
..\Global\Client\Screens\GUI\+ScreenImageWidth
..\Global\Client\Screens\Network\+ScreenImageWidth
..\Global\Client\Screens\Network\NM\+ScreenImageWidth
..\Global\Client\Screens\Serial\+ScreenImageWidth
..\Global\Client\Screens\Serial\NM\+ScreenImageWidth
    
```

The maximum value allowed is 192. A warning dialogue box will appear if this value is exceeded;

- GLOBAL.EXE now validates the value of the following registry settings (and equivalent Configuration File options):

```

..\Global\Client\Screens\+ScreenImageDepth
..\Global\Client\Screens\GUI\+ScreenImageDepth
..\Global\Client\Screens\Network\+ScreenImageDepth
..\Global\Client\Screens\Network\NM\+ScreenImageDepth
..\Global\Client\Screens\Serial\+ScreenImageDepth
..\Global\Client\Screens\Serial\NM\+ScreenImageDepth
    
```

The maximum value allowed is 50. A warning dialogue box will appear if this value is exceeded;

- GLOBAL.EXE now validates the value of the following registry settings (and equivalent Configuration File options):

```

..\Global\Client\Screens\+NumberOfAttributeBytes
    
```

```

..\Global\Client\Screens\GUI\+NumberOfAttributeBytes
..\Global\Client\Screens\Network\+NumberOfAttributeBytes
..\Global\Client\Screens\Network\NM\+NumberOfAttributeBytes
..\Global\Client\Screens\Serial\+NumberOfAttributeBytes
..\Global\Client\Screens\Serial\NM\+NumberOfAttributeBytes

```

The maximum value allowed is 2. A warning dialogue box will appear if this value is exceeded;

## 11. Major Enhancements

- The following registry setting must be set to "Off" to enable Windows compliant handling of the <CR> and <Tab> keys when the GX thin-client used:

```
..\Global\Client\Customisations\LegacyTabCRProcessing
```

Note that some pre-release versions of GLOBAL.EXE recognised the following, obsolete registry setting:

```
..\Global\Client\Customisations\DisableTabCRProcessing
```

**Important Note:** You are strongly advised to disable the LegacyTabCRProcessing option to ensure compatibility with future versions of the 32-bit Window Manager.

- The CCI now supports the \$BREAK commercial code instruction.
- The 32-bit Commercial Code Interpreter (CCI) has been enhanced to report a "RESOURCE ERROR" exception if an attempt is made to execute code in a 32-bit page that has been de-allocated;
- Very occasionally a bug in a 32-bit application can crash GLOBAL.EXE. In order to provide diagnostic information to assist in analysing the application

problem a Global Crash File, globalcrash.log, will be created in the log directory under most circumstances. When a Global Crash File (which is analogous to a Windows Dr. Watson debug file) is created a message dialogue box will appear describing the reason for the crash and will include the text "A Global crash log file has been generated";

- The following registry setting can be used to disable the automatic chaining of a 16-bit utility to the equivalent 32-bit utility:

..\Global\Client\Customisations\Force16BitUtilities

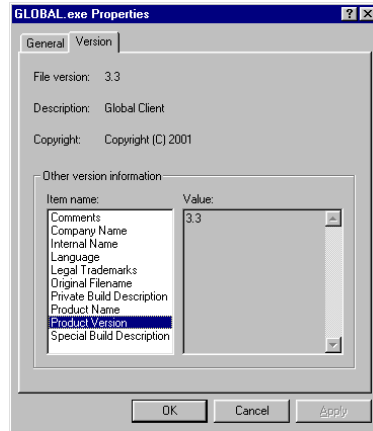
For example, by default, the GSM SP-6 version of \$A will attempt to chain to the 32-bit equivalent (i.e. \$32A). This 16-bit to 32-bit chaining can be disabled by setting the "Force16BitUtilities" option to "on". See gsmSP6.doc for further details;

- The SVC-86 GX interface has been enhanced to recognise the new GT-blocks transmitted by GSM SP-6. The GT-blocks are buffered until a time-out period elapses or when a GX-block is transmitted. The following new registry options are involved:

..\Global\Client\Nucleus\GXGTBufferSize

..\Global\Client\Nucleus\GXDisplayTimeout

- GLOBAL.EXE has been enhanced to recognise the request for a Deeper GX Window-Zero screen made by GX.EXE when the "DeeperWindowZero" setting is enabled in the GXHOSTS.INI file (see gx25ini.doc for further details). When this option is enabled the Screen Depth for terminal type \$.911 is automatically extended to 40 lines, provided the +ScreenImageDepth setting is also 40;
- GLOBAL.EXE now includes internal version information. The version of GLOBAL.EXE can be easily determined using Explorer by right-clicking on the GLOBAL.EXE file and selecting the Properties tab. For example:



## 12. Minor Enhancements

- The following registry option can be used to limit the number of users that are allocated when the "UseConfigurationFile=Off" option has been selected:

..\Global\Client\Screens\+MaximumUsers

This option must be used if the number of users actually configured in the registry is higher than the maximum number of users permitted by the GSM licence, which would result in a fatal INITIATION ERROR. If the number of users actually configured in the registry is higher than the +MaximumUsers value the number of users will be truncated to the maximum value, a warning dialogue will appear and a record will be written to the Config.log file;

- The GLOBAL.EXE /U=nn command line argument can be used to limit the number of users that are assumed when the option to remove the Global Configuration file has been selected (i.e. UseConfigurationFile=Off). Normally the number of users is calculated by counting the number of GUI, NETWORK and SERIAL console controllers in the registry but this empirical value can be over-ridden by the +MaximumUsers registry setting to avoid the User Count exceeding the number allowed by the Global licence. The advantage of using the /U command line option over the +MaximumUsers registry setting is that the former can be used to individually tailor each GLOBAL.EXE in a multiple-client configuration. Furthermore, the warning message that appears if the

registry contains more screens (i.e. users) than limited by the +MaximumUser setting is suppressed if the /U option has been enabled;

- The Configuration File name that appears in \$S when the "UseConfigurationFile" setting is set to "Off" has been changed from 5663SYN to 5663ZZ;
- GLOBAL.EXE, GLCONS.EXE and GLSERVER.EXE have been modified to write a single-line version text string to the file "global.log" in the Windows directory;
- The following new registry setting can be used instead of the /X command line option to bypass the Global Client node-id validation:

..\Global\Client\ValidateNodeID

This option, when set to "Off", allows a Global Client configured with a non-standard node-id to be started by simply double-clicking on the GLOBAL.EXE (i.e. rather than required a short-cut to be established to supply the /X command line option);

- The following specialised option is now available to force a 16-bit Diagnostic Layout Area when a program exception occurs:

..\Global\Client\Nucleus\Force16bitDebugOverlay

This option may be required to obtain detailed diagnostics on pure 16-bit GSM (Windows) configurations;

- The default "Service Pack Directory" (i.e. .\gsmervicepacks) can be overridden by the following registry setting:

..\Global\Client\ServicePacks\ServicePackDirectory

For example, this option can be used to specify a shared directory on a central server;



- GLOBAL.EXE now loads from a BACRES volume when the UseConfigurationFile=Off option is being used;
- The Serial Port Driver (SPD) interface has been enhanced to allow multiple SPD channels to be opened simultaneously. The maximum number of SPD channels is now 8. Note that although GLREGED.EXE allows any value between 01 and 99 for following key:

..\Global\Client\SerialPortDriver\NN

Only values between 01 and 08 are considered valid;

- The following new registry option:

..\Global\Client\Screens\Serial\NN\InputBufferSize

can be used to increase the size of the internal Receive buffer in the SERIAL controller from the default value of 2048 characters. Note that prior to this change the internal buffer size was hard-coded at 512 characters;

- The following registry option has been added to disable the special handling of ^N (Next partition) and ^P (Previous partition) in GLOBAL.EXE:

..\Global\Client\Screens\GUI\Miscellaneous\InterceptControlNP

If this option is disabled the ^N and ^P characters are not intercepted by GLOBAL.EXE but can be ACCEPT'ed by the application code (as #0E and #10, respectively);

- The V3.4 GSMWIN32.EXE modules have been included in the V3.3 version of GLOBAL.EXE. See the Global Windows Workstation V3.4 Notes, when available, for further details;

- The following registry setting is now recognised to produce bright colours, on text mode displays, on the GUI console controller:

..\Global\Client\Screens\GUI\Miscellaneous\UseBrightColours

## 13. New SVC-61 (and related SVC's) Functions

All the new SVC-61 functions described in this section are fully described in the Global File Converters Manual.

- A new SVC-61 function (DSFUNC=#59; DSMODE=#00) to return the currently available highest GSM Service Pack Number, is now available. This function also returns the value of the "PromptForGXUpdate" registry setting;
- A new SVC-61 function (DSFUNC = #71) to return the results of the GetTickCount API call, is now available;
- A new SVC-61 function (DSFUNC = #72) to return the results of the QueryPerformanceFrequency and QueryPerformanceCounter API calls, is now available;
- A new SVC-61 operation (DSFUNC = #32 or #B2) to return the 15-character, dotted-decimal IP address of the host computer, is now available;
- A new highly-specialised SVC-61 operation (FDFUNC = #62; DSMODE = #0B) to read a semaphore byte in Shared Memory, is now available. The operation is also supported by SVC-88;
- A new SVC-61 function (DSFUNC=#6C) to return the lowest or highest file (returning "normal" file information) is now available. The following modes are supported:
  - 0 Find lowest file in ASCII order
  - 1 Find highest file in ASCII order
  - 2 Find lowest file in numeric order

### 3 Find highest file in numeric order

- A new SVC-61 function (DSFUNC=#6D) to return the lowest or highest file (returning "extended" file information) is now available. The following modes are supported:
  - 0 Find lowest file in ASCII order
  - 1 Find highest file in ASCII order
  - 2 Find lowest file in numeric order
  - 3 Find highest file in numeric order
- A new SVC-61 error code may be returned by any of the various "Get First File" and "Get Next File" functions if the conversion of the file information to a DOS-format DTA fails for any reason;
- A new SVC-61 function (DSFUNC=#72) to return diagnostics from the Speedbase Gateway interface, is now available;
- The SVC-61 interface to the Speedbase Gateway has been extended to support DBX database operations with a key length of 255 bytes instead of the normal 47 byte key length. Thus, GLOBAL.EXE V3.3 is the earliest version of GLOBAL.EXE that can be used with the DBX Gateway;
- A new, highly-specialised SVC-61 function (DSFUNC #59 or #D9) is now available to return the highest versions of GXnn.EX\_ and GXIONn.EX\_ from the GX Updates directory. The default GX Updates directory is "gxupdates" in the Global directory. This default can be overridden by the following registry setting:
 

..\Global\Client\ServicePacks\GXUpdateDirectory
- A new, highly-specialised SVC-61 function is available (DSFUNC #31 or #B1) to return the internal version number of GLOBAL.EXE;

- SVC-61 has been modified to remove (by default) the "Set Current Directory" function (DSFUNC = #3B). This function is potentially very dangerous because its use in one partition on a multi-user configuration can potentially affect all the other users attached to that Global Client. Several GSM (Windows) controllers (e.g. DDF, DOSPrint, DOS.PRI) assume the "current" directory is the "Global" directory and may fail unpredictably if this assumption is not true. However, some applications may expect this SVC-61 function to be supported so the following registry setting is available to allow those applications to operate with GLOBAL.EXE V3.3 (**until they can be modified to avoid the use of this function**):

..\Global\Client\Nucleus\SVC61SetDirectorySupported

**Important Note:** Please use this registry setting for "emergency use" only. It should only be required until applications are re-coded to avoid the use of the "Set Current Directory" SVC-61 function;

- A new SVC-61 function (DSFUNC = #43) is now available to return the Creation Date/Time, Last Write Date/Time or Last Access Date/Time of a specified file;
- The SVC-61 function (DSFUNC = #5D) that returns a Windows environment variable has been extended to optionally fill the return buffer with trailing spaces (i.e. in addition to returning a zero-terminated string);
- A new SVC-61 function is available (DSFUNC = #37 or #B7) to test for the presence of a Windows directory. This function should be used instead of "Set Current Directory" (DSFUNC = #3B) in those cases when function #3B is used to simply test for a Windows directory;
- A number of new, highly-specialised SVC-61 operations are available to return the total times spent in the Gateway code, the 32-bit memory allocator/de-allocator and the WinPrint controller;
- A new SVC-88 function is available (DSFUNC = #73) to allow a user to suspend processing for time periods of less than 1 second (i.e. the time granularity

available by the SUSPEND verb). This function is used by the SUSP\$ sub-routine. Note that SUSP\$ should be used rather than calling this function directly;

- A new, highly-specialised SVC-61 function (DSFUNC = #79, DSMODE = #01) to return the GLOBAL.EXE process-id is now available. This function is not expected to be of any use to man or beast.

## 14. New Diagnostics Options

- When the following registry option is enabled:

..\Global\Client\Diagnostics\LogNetworkConnections

the IP address and the Port Number of the computer that has connected is included in the log file;

- The GSM Loader has been enhanced to recognise the following new registry settings:

..\Global\Client\Diagnostics\GlobalLoadDiagnostics

(a)

..\Global\Servers\Diagnostics\GlobalLoadDiagnostics

(b)

..\Global\Servers\X\Diagnostics\GlobalLoadDiagnostics

(c)

If setting (a) is enabled the Global Client will create the log-file SteeringRoutineDiags.log. If setting (b) is enabled all Global Servers will create the log-file SteeringRoutineDiagsX.log, where X is the server node-id. If setting (c) is enabled the Global Server X will create the log-file SteeringRoutineDiagsX.log, where X is the server node-id. These log files capture all hard and soft errors reported by the controller initialisation code;

- The name of the log file generated when \$BYE Diagnostics are enabled by the following registry setting:

..\Global\Client\Diagnostics\Enable\$BYEDiagnostics

has been changed from:

..\log\byediags.log

to:

..\log\byediagsforclientXX.log

to allow separate \$BYE Diagnostic Log files to be generated for every Global Client on a multiple client configuration;

- The following new diagnostics option is now available to record the results of the AuxPrint printer controller initialisation:

..\Global\Client\Diagnostics\AuxPrintDiagnostics

When this option is enabled the following log-file is created:

.\log\AuxPrintDiags.log

- The following new registry setting is available to enable diagnostics for all the WinPrint printers:

..\Global\Client\Diagnostics\WinPrintDiagnostics

Setting this option directly under the "Client\Diagnostics\" key avoids the need to set this option under all the "Printers\WinPrint\5nn\Diagnostics\" keys;

**Important Note:** The processing of the WinPrintDiagnostics setting is different from the normal hierarchy rules. For a particular printer, WinPrint diagnostics are enabled if **either** the printer-specific setting:

..\Global\Client\Printers\WinPrint\5nn\Diagnostics\WinPrintDiagnostics

or the generic setting:

..\Global\Client\Diagnostics\WinPrintDiagnostics

are enabled;

- The following new diagnostic option:

..\Global\Client\Diagnostics\LogKeystrokes

generates the following log file:

..\log\keylog\_ hh\_nn.bin

where *nn* is the Console Index number from 01 to 99; and *hh* is the node-id specified by the /EN option, or 00 if the /EN option was not specified in the GLOBAL.EXE command line.

The following new diagnostic option:

..\Global\Client\Diagnostics\LogRawKeystrokes

generates the following log file:

..\log\rawkeylog\_ hh\_nn.bin

The "raw" keystrokes are cached in a memory buffer to avoid constantly writing to disk. The size of the buffer is determined by the following registry setting:

..\Global\Client\Diagnostics\LogRawKeystrokes

The logging can be suspended by keying <SYSREQ> followed by one of the following keys:

- | Kill Raw Key Logging and close the log file
- ] Temporary disable logging (but don't close the log file)
- [ Re-enable logging, if temporary disabled

## 15. New Highly-Specialised and Internal-Use Only Options

- The following highly-specialised registry options are reserved for internal use only:

```

..\Global\Client\Screens\GUI\SpecialDemoUser
..\Global\Client\Screens\Serial\NN\SpecialDemoUser
..\Global\Client\Screens\Network\NN\SpecialDemoUser
..\Global\Client\Screens\Network\NN\SpecialEcommerceUser
..\Global\Client\Screens\Network\NN\SpecialSupportUser
..\Global\Client\Screens\Network\NN\SpecialTextOnlyUser

```

- The Console Executive has been enhanced to support opcode 85 to return the flag of the CAFLAG4 byte. The bits in the CAFLAG4 are defined as follows:

```

#01  Ecommerce user
#02  Support user
#04  Text-only user
#08  Demo user
#10  Reserved for future use
#20  Reserved for future use
#40  Reserved for future use
#80  Reserved for future use

```

The CAFLAG4 byte is reserved for internal use only;



- The Steering Routine has been enhanced to initialise the SYBIF2 (aka SYDOM) field. The bits in the SYBIF2 field are defined as follows:

#01 Domain configured  
#02 Set if ..\Global\Client\Nucleus\RetryInUseError=On  
#04 Set if the /S command line option has been used  
#08 Set if the configuration excludes a "GUI" controller  
#10 Global running as a "true" NT Service  
#20 Set if ..\Global\Client\Customisations\ExternalLicenceFile=On  
#40 Set if ..\Global\Client\Customisations\Force16BitUtilities=On  
#80 Set if ..\Global\Client\Nucleus\LegacyTabCRProcessing

The SYDOM byte is reserved for internal use only;

- The following highly-specialised registry option is reserved for internal use only:

..\Global\Client\Nucleus\SVC12CaseConversion

- The following highly-specialised options are available:

..\Global\Client\Diagnostics\TimeSlicingDiagnostics

This option, by itself, does nothing except to enable a new internal diagnostics option. When this option is enabled the following new registry option is polled on regular basis:

..\Global\Client\Diagnostics\ActivateTimeSlicingDiags

When this option is enabled the following log file is created:

..\log\timesliceddiags.bin

This log file will grow VERY RAPIDLY if the "ActivateTimeSlicingDiags" option is enabled for too long;

- A number of highly-specialised new registry settings are now available under the following registry key:

..\Global\Client\PerformanceMonitor

The following settings are available:

..\Global\Client\PerformanceMonitor\MonitorGatewayCalls  
..\Global\Client\PerformanceMonitor\MonitorSVC79Calls  
..\Global\Client\PerformanceMonitor\MonitorWinPrintCalls

Enabling a setting monitors the total time spent in the Gateway code, the 32-bit memory allocator/de-allocator and the WinPrint controller, respectively. These options are available for advanced diagnostics only and should never be enabled on a "live system";

- A problem in the DOSPrint controller, that can cause GSMWIN32.EXE (sic) to crash when the highly-specialised "PrintViewDirectory" option is enabled, has been fixed;
- SVC-79 has been enhanced to support a new function to return the last line sent by the Printer Executive to the imminent GXPrint printer controller. This option is reserved for future use;
- The following highly-specialised registry setting is available to disable the Reset operations that are sent from GLOBAL.EXE to the Speedbase Gateway:

..\Global\Client\Nucleus\EnableGatewayReset

The default value is "On" (i.e. by default Gateway resets are **enabled**).

**This setting should never be disabled unless you are explicitly advised to do so.**

## **NEW FEATURES IN GLOBAL.EXE V3.4**

The V3.4 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLCONS.EXE (note that this release does **NOT** include GLSERVER.EXE or GSMCONS.EXE):

**Important Note-1:** The standard version of GLOBAL.EXE V3.4 is only supported on Windows 98, Windows NT, Windows 2000 and Windows XP (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows NT, Windows 2000, Windows XP etc.).

The most significant interface that is not supported on Windows 95 is the function that allows GLOBAL.EXE & GLSERVER.EXE to access networked directories via UNC files names (e.g. \\mainserver\global\gsm200) rather than relying on mapped network drives.

However, a Windows 95 compliant version of GLOBAL.EXE V3.4 is available, albeit with slightly limited functionality, on both the Global web site and the monthly GPS CD.

**Important Note-2:** GLOBAL.EXE V3.4 was released externally as version V3.4A. Any user running GLOBAL.EXE V3.4 should upgrade to V3.4A immediately.

The following features have been included in GLOBAL.EXE V3.4A:

- A **SERIOUS** problem, in GLOBAL.EXE V3.4, that results in a complete hang of the Global Client on Windows 2000 when a GX thin-client completes a connection to the host, has been fixed by the release of GLOBAL.EXE V3.4A. The problem only appears to occur on Windows 2000 and does not occur on Windows NT or Windows 98;
- GLOBAL.EXE has been enhanced to support the GX Local Printing option. See Technical Note IN259 for complete details of this exciting new option;

- GLOBAL.EXE has been enhanced to recognise the option requested by GX when the WiderWindowZero/V option has been enabled in the GXHOSTS.INI file (see GX26INIFILE.DOC for further details). This option allows 192-wide Window-Zero screens to be used providing the +ScreenImageWidth for the relevant Network console channel is set to 192.
- GSM (Windows) has been enhanced to prevent the \$STATUS CAN (Cancel) operation from being used on users connected via Network controller (i.e. thin-client users). Although the Cancel operation continues to be available on point-to-point Serial connections it is meaningless, and actually harmful, on "floating" Network connections. See Technical Note IN260 (when available) for further details;
- The Network controller now supports the \$STATUS DIS (Disconnect) option. In addition to restarting the GSM user the Disconnect option also resets the Network channel to ensure that another thin-client connection can be established on that Network controller channel. This issue is described in further detail in Technical Note IN260 (when available);
- Several improvements have been made to the SVC-89 interface to GX thin-clients: The handling of the Receive Buffer overflow condition has been improved and generates a STOP CODE rather than resulting in a hang. The default GXRXBufferSize has been increased from 4096 to 8192 (which is the maximum block size currently returned by GX).
- In order for some advanced GX functions (e.g. GXCOP\$) to work correctly the Network controller Receive Buffer (..\Network\NN\InputBufferSize) must be increased to at least 8192. If this buffer size is not large enough, and a GX operation suffers a buffer overflow condition the warning message "Rx character loss detected" will appear on the GLOBAL.EXE GUI screen;
- A **serious** problem in the GX interface that can result in a hang, particularly when a 32-bit GX application switches to Global Reporter, has been fixed;

- A **serious** problem in the GX interface that can result in a spurious STOP 8635, under some conditions, has been fixed. This problem is caused by "unbalanced" GX Display buffers and has been fixed by improving the buffer allocation in the GX interface (SVC-89);
- A **serious** problem in the GX interface that results in character loss and GX hangs, under some conditions, has been fixed. The problem, which depends on the relative speeds of the host, client and network interface, occurs when a long series of "display-only" operations are sent to GX. For example, during a batch update process which continually displays details of the record that is being processed;
- The GX interface is now supported via the Serial interface (in addition to the Network interface). To enable the GX interface on a Serial controller the default Terminal Type for the serial port **MUST** be set to 911. For example:

```
..\Global\Client\Screens\Serial\01\TerminalType=911
```

- During the implementation of the "EnableGatewayMultipleThreads" option in the Speedbase Gateway interface a problem was introduced that caused spurious INTERFACE ERROR 90 messages to be returned by some of the Speedbase utilities (e.g. BADGN, \$BAST and \$BASTS). Although this problem has been fixed in the GSM SP-7 versions of these utilities (see gsmSP7.doc) an independent fix is also included in the V3.4 & V3.4A GLOBAL.EXE (i.e. a fix is available that doesn't require an upgrade to GSM SP-7);
- The Network controller has been extended to recognise the "forced" GX Reconnection option. This option is only supported with GX.EXE V2.6, or later. See section 3.5 of gx26inifile.doc for further details.
- The GX Reconnection processing has been improved to only attempt to reconnect to GX Partition-1 (P1) immediately. Reconnection to other GX partitions (i.e. P2 to P9) is performed on an "on demand" basis when the operators switches to those partitions;

- The GLOBAL.EXE V3.4A module incorporates the V3.5 Global Windows Workstation (GUI) components. See document mgunv35.doc, when available, for further details. The most important change involves extending the FixedFont & VariableFont registry settings to allow the font name to be specified as:

```
..\Global\Client\Screens\GUI\Miscellaneous\FixedFont=font_name,p
..\Global\Client\Screens\GUI\Miscellaneous\VariableFont=font_name,p
```

where *font\_name* is the name of a true-type font (e.g. Courier New) and *p* is the point size. This new format is in addition to the more familiar format:

```
..\Global\Client\Screens\GUI\Miscellaneous\FixedFont=font_name,hxw
..\Global\Client\Screens\GUI\Miscellaneous\VariableFont=font_name,hxw
```

where *font\_name* is the name of a fixed-pitch font (e.g. Courier) and *h* is the font height in pixels and *w* is the font width in pixels. This allows the "Courier New" font, for example, to be used with GLOBAL.EXE. See Technical Note IN252 for further details;

- The name of the Global Licence File (default global.lic) can now be overridden by the following registry setting:

```
..\Global\Client\LicenceFiles\GlobalLicenceFile
```

This registry setting is considered highly specialised and you should not use it unless explicitly told to do so;

- The Global Licence File (global.lic) is opened in shared mode. This fixes a problem that can occasionally result in a spurious STOP 5701 during the loading of multiple Global Client configurations;
- The information written to the globalcrash.log file has been extended to include a full dump of the CCI interpreter;

- A problem in the AuxPrint printer controller that can cause it to consume 100% CPU usage under some conditions, has been fixed. This problem occurs when the printer that is attached to the thin-client (normally GSMWIN32.EXE) has stopped printing (e.g. if the printer has been switched off-line, or has run out of paper);
- A problem in the highly specialised DOSPrint "Print View" option has been fixed. The DOSPrint now correctly ignores a .PDF file with a file-size of 0 bytes;
- A problem in the Network controller that can cause an unexpected thin-client disconnection to result in GLOBAL.EXE soaking up all CPU resource, under some conditions, has been fixed.
- A new feature in GLOBAL.EXE allows "super-set configuration" registry settings to be installed that do not contravene the User Number count. This change has only been possible with the introduction of the global.lic file. If the following registry setting is set to 0:

..\Global\Client\Screens\Nucleus\+MaximumUsers

the GSM start-up code will obtain the User Number count directly from the global.lic file. This technique allows a "super-set" registry with 99 Network controllers, for example, being used with system with a GSM User Count of 12, for example. Any errors obtained while reading the global.lic file will result in a fatal error message with an error code between 1 and 4. This option is only useful for thin-client configurations;

- Both GLOBAL.EXE and (the unreleased) GLSERVER.EXE V3.4 have been extended to allow Volume Format T151Z to be specified when the option to by-pass the Global configuration file has been enabled (i.e. UseConfigurationFile=Off – see Technical Note IN181 for further details). Thus, the following DDF Volume Formats are now emulated by the configuration file emulation logic (to allow compatibility with GSM (Unix) and GSM (MS-DOS) configurations):

T259Z                      with 250 files



T259Z	with 99 files
T151Z	with 250 files
T151Z	with 99 files

- The SVC-61 Open file operation has been enhanced to always return a value in DSHA32 even if the Open operation fails and an exception is returned by the SVC-61 call. This change has been implemented to prevent a problem that can result in a GLOBAL.EXE crash if an application programmer ignores the error returned by an SVC-61 Open operation and proceeds to use the (invalid) DS-block for Read/Write operations;
- The logic in GLOBAL.EXE that decides whether to hibernate and relinquish control to Windows does not do so if the user is waiting for a GX receive operation to complete. This change is necessary to optimise the performance of GX. However, this optimisation can cause GLOBAL.EXE to soak up 100% of the CPU resource if a GX connection is terminated partway through a receive operation (i.e. while the receive packet is "in transit" between GX.EXE and GLOBAL.EXE). A \$STATUS RES or DIS of the disconnected user will re-enable normal hibernation;
- A new SVC-61 operation (DSFUNC = #79, DSMODE = #02) is available to exercise the MessageBeep API function;
- The SVC-61 "Return Memory usage" function (DSFUNC = #7D) has been extended (DSMODE = #02) to return the total amount of memory allocated by the GX Local Printer controller. This function is reserved for diagnostic purposes only;
- A new, highly-specialised, SVC-61 operation (DSFUNC = #77) is now available to call a proxy XML DLL. This function is reserved for future use;
- The following registry setting can be used to change the sound generated by the BELL verb:

..\Global\Client\Screens\GUI\Miscellaneous\MessageBeep

The following values are allowed:

- |   |  |
|---|--|
| 0 | Standard beep using the computer speaker |
| 1 | System Asterisk                          |
| 2 | System Exclamation                       |
| 3 | System Hand                              |
| 4 | System Question                          |
| 5 | System Default                           |
- The optional revision letter of the compressed GX.EXE and GXIO.EXE files in the "gxupdates" directory is always converted to upper-case. This fixes a problem that may prevent the Automatic GX Download/Update from taking place. See Technical Note IN257 for further details;
  - A problem that can cause a variety of symptoms (normally a spurious RESOURCE ERROR) if a GX session is re-started while running a Global Reporter report that has been initiated from the 32-bit application (e.g. Global 3000 V5.0), has been fixed;
  - An obscure problem that can only occur if the value of the "GSMRPCTimeout" setting is too low, has been fixed. The problem only occurs if the time-out period for an operation on a Global Server expires before that operation completes, allowing the eventual completion of that that operation to interrupt a subsequent operation on a different Global Server;
  - The Serial Port Driver (SPD) controller has been enhanced to allow the serial device driver timeouts to be customised. The following new registry settings are available:

```

..\Global\Client\SerialPortDriver\MM\ReadIntervalTimeout
..\Global\Client\SerialPortDriver\MM\ReadTotalTimeoutMultiplier
..\Global\Client\SerialPortDriver\MM\ReadTotalTimeoutConstant
..\Global\Client\SerialPortDriver\MM\WriteTotalTimeoutMultiplier
..\Global\Client\SerialPortDriver\MM\WriteTotalTimeoutConstant

```

There should not normally be any need to change the various Read Timeout values but the default Write Timeout values may have to be increased to prevent the spurious error 18 (in SPRES) from being returned by the SPD controller under some conditions (typically when relatively large blocks are transmitted);

- The temporary "GXAdvancedPolling" setting that appeared in some evaluation versions of GLMACH.TLT has been withdrawn. By default, all GX polling uses the "advanced" algorithm;
- The new registry settings "EnableGSMSHM" and "GSMSHMTimeout" are available as preferred alternatives to the (slightly misleading) "EnableGSMRPC" and "GSMRPCTimeout" settings. Furthermore, the string "gsmshm" can be used (as a preferred alternative) to "gsmrpc" for the ProtocolSequence setting;
- A problem that prevents \$SDE from being used as the target of a CAL16\$ call, has been fixed;
- The following new registry setting allows the directory containing the Global Licence file to be specified:

..\Global\Client\LicenceFiles\CentralLicenceFileDirectory

Although this setting is not required for thin-client configurations, it may be required for some fat-client configurations. See Technical Notes IN245 and IN256 for further details;

- The WinPrint controller now supports the following new registry setting:

..\Global\Client\Printers\WinPrint\PrintViaSeparateThread

in addition to the existing:

..\Global\Client\Printers\WinPrint\5nn\PrintViaSeparateThread

This new single setting allows the Print Via Separate Thread option to be enabled for **all** WinPrint printers.

Note that both the following registry settings continue to be reserved for future use:

```
..\Global\Client\Printers\WinPrint\OpenViaSeparateThread
..\Global\Client\Printers\WinPrint\5nn\OpenViaSeparateThread
```

- The 32-bit program loader has been enhanced to support the following new diagnostic registry setting:

```
..\Global\Client\Diagnostics\SVC79LoaderDiagnostics
```

When this option is enabled the details of all loaded 32-bit programs, frames and DLMs are written to the following log file:

```
.\log\svc79LoaderDiagsForClientxx.log
```

where *xx* is the node-id of the Global Client;

- The SVC-61 interface has been enhanced to support the Windows "raw" OpenFile and CreateFile functions (in addition to the various existing DOS-compatible open file functions). Please refer to the post-V8.1 File Converters Manual for further details;
- A problem in the Console Executive that prevents the SYSREQ-H Help System Request from functioning correctly has been fixed. The problem normally prevents the <ESC> key from terminating the Help System Request, although other keystrokes may also be affected;
- A problem in the Console Executive that can cause GLOBAL.EXE to crash if any System Request is selected **immediately** after switching to a new partition, has been fixed. Although this problem is severe in its effect (i.e. GLOBAL.EXE

crashes) it is very unlikely to be encountered in practice because of the timing factors involved;

- The size of the internal rescheduling table has been increased from 10 to 20 entries.

## NEW FEATURES IN GLOBAL.EXE V3.5

The V3.5 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLSERVER.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note–1:** The standard version of GLOBAL.EXE V3.5 is only supported on Windows 98, Windows NT, Windows 2000 and Windows XP (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows–95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows NT, Windows 2000, Windows XP etc.). The most significant interface that

is not supported on Windows 95 is the function that allows GLOBAL.EXE & GLSERVER.EXE to access networked directories via UNC file names (e.g. \\mainserver\global\gsm200) rather than relying on mapped network drives. A Windows 95 compliant version of GLOBAL.EXE V3.5 is **NOT** currently available.

The following features have been included in GLOBAL.EXE V3.5:

- The version number of GLOBAL.EXE is now included in all the error messages displayed when the DiagnosticsDisplays option has been enabled;
- A problem that causes the text-mode screen to clear unexpectedly when swapping from a "wide mode" Window-Zero to a "narrow mode" Window-Zero, has been fixed;
- A problem in the NETWORK controller that can cause the \$STATUS "DIS" operation to hang under some circumstances, has been fixed. The problem has been solved by introducing a 1 second time-out in the code that waits for the Receive and Transmit threads to terminate. The timeout can be customised by the following registry settings:

```
..\Global\Client\Screens\Network\WM\TerminateThreadTimeout
..\Global\Client\Screens\Network\TerminateThreadTimeout
```

- The value of the following registry setting is now correctly validated:

```
..\Global\Client\Nucleus\PageTableEntries
```

- A problem that can cause Global to hang during sign-on when scanning the "gxupdates" folder on Windows-98, has been fixed. The problem is dependent on the number of compressed files, and their file attributes, in the gxupdates directory;
- The Global Client now recognises the following new diagnostics registry setting to enable low-level controller diagnostics:

..\Global\Client\Diagnostics\GlobalErrorLog

For example, the NETWORK controller writes copious log messages to the GlobalErrorLog.log file if this diagnostics option is enabled. These extra diagnostics allow troubleshooting failed NETWORK connections that are reported as "NOT CONNECTED" by \$STATUS;

- The Global Server now recognises the following new diagnostics registry setting to enable low-level controller diagnostics:

..\Global\Servers\Diagnostics\GlobalErrorLog

- The Console Executive and NETWORK controller support the function required by the \$NETSTAT utility;
- The Global Client, GLOBAL.EXE, now supports the /J command line option. This option is only required for GLINCLI.BAT installations.
- The warning message displayed if the global.lic file is missing is now suppressed if any of the following options are enabled:

1. If the following registry setting is set to "Off":

..\Global\Client\Nucleus\TestForGlobalLicenceFile=Off

2. If the /I command option has been specified (for Global Server installations using GLINSSRV.BAT);
3. If the /J command option has been specified (for Global Client installations using GLINCLI.BAT);

This change is necessary to allow GLOBAL.EXE V3.5 to be applied to the GSM (Windows) Generation Masters;

- The GLINSCLI.BAT file has been amended to include the /J option in the GLOBAL.EXE command line;
- A problem in internal versions of GLOBAL.EXE V3.4a to V3.4f that caused spurious characters to appear in GX Window Zero when switching between partitions, has been fixed. The problem also left "after images" of text screens in Window Zero;
- The Global Client has been enhanced to allow ISO character translations to be specified in the registry. This option can avoid the requirement to establish Printer Control Files if only simple character translation is required. To enable the new low-level Printer Translation the following setting must be set to "on":

```
..\Global\Client\Printers\xxxxxxx\5nn\EnableISOTranslation
```

where xxxxxxx is WinPrint, DOSPrint etc.

When this option is enabled the printer interface will use the translations defined in:

```
..\Global\Client\Screens\GUI\IsoTranslations\ISOchar128=#hh
```

to:

```
..\Global\Client\Screens\GUI\IsoTranslations\ISOchar255=#hh
```

to override the generic character translation for a particular printer set one of the following registry settings:

```
..\Global\Client\Printers\xxxxxxx\5nn\IsoTranslations\ISOchar128=#hh
```

to:

```
..\Global\Client\Printers\xxxxxxx\5nn\IsoTranslations\ISOchar255=#hh
```

For example, if the following generic ISO character translation options have been enabled:

```
..\Global\Client\Screens\GUI\IsoTranslations\ISOchar160=#81
```



```
..\Global\Client\Screens\GUI\IsoTranslations\ISOchar161=#82
..\Global\Client\Screens\GUI\IsoTranslations\ISOchar162=#83
```

and the following printer specific ISO translations have been enabled:

```
..\Global\Client\Printers\WinPrint\500\IsoTranslations\ISOchar161=#C1
..\Global\Client\Printers\WinPrint\501\IsoTranslations\ISOchar161=#C2
```

then the #A0 character (160 decimal) will be translated to #81 for all printers; the #A1 character (161 decimal) will be translated to #C1 for printer 500, to #C2 for printer 501 and to #82 for all other printers; the #A2 character (162 decimal) will be translated to #83 for all printers.

The following registry key:

```
..\Global\Client\Diagnostics\PrinterTranslationDiagnostics
```

can be enabled to generate a dump file, log\PrinterTranslationDump.log, containing all the internal printer translation tables.

- The performance of the 32-bit page allocation/de-allocation routines has been increased considerably. This change improves the performance of all 32-bit applications. Although it should never be necessary to disable the new "go faster" algorithms the following registry setting is reserved for problem troubleshooting:

```
..\Global\Client\Nucleus\FastPageTableScan
```

- The problem that causes the spurious \$STATUS message "WAITING FOR ^Q" to be reported for some GSM (Windows) users, under some conditions, has been fixed;
- A problem in the Printer Executive that causes a string of binary-zeroes to be written to the start of the first report sent to a printer, has been fixed. The problem, which only occurs if the relevant Printer Control File excludes a Start

Sequence, does not normally affect real printers, which ignore the spurious binary-zeroes, but can become a problem when the DOSPrint interface is used to export data to a Windows file;

- A problem in the NETWORK controller that terminates the Receive and Transmit threads has been fixed. This problem can result in spurious API Error messages when running \$BYE;

The default configuration file name generated when the "UseConfigurationFile" option has been disabled (i.e. set to "Off") is now 5663JJ, instead of 5663ZZ, to conform to the standard 5663xj naming file format for GSM (Windows) configuration files. Note that a configuration code of 5663JJ is accepted by the on-line Hotline log form, whereas a configuration code is 5663ZZ is rejected. The on-line Hotline form for resellers is:

<http://www.global3000.com/varworld/support/supportlog14.html>

The on-line Hotline form for direct users is:

<http://www.global3000.com/support14a.html>

- A problem with the 32-bit Link Stack allocation has been fixed. The problem only occurs if the value of the following registry setting is greater than 100:

..\Global\Nucleus\LinkStackDepth

- The following new registry setting may be required to access diskettes in Windows XP systems that have been configured in "legacy mode":

..\Client\Data\DisketteReadFileWriteFile

When this option is enabled, the diskette controller ignores the Windows version returned by Windows XP and always accesses the diskettes using the standard ReadFile, WriteFile functions used on Windows-NT and Windows-

2000 instead of the baroque DOS-interrupt method that must be used for Windows-95 and Windows-98;

- The following highly-specialised new registry setting is now available to time the Global Client to Global Server connection times:

..\Global\Client\Diagnostics\LogRPCConnectionTime

when this option is enabled the log file "RPCConnectionTimes.log" is created in the Global log directory.

- The SVC-61 operation that returns information from the "gxupdates" directory (DSFUNC = #59/#D9) has been extended. Please refer to the Global File Converters manual for further details;
- The SVC-61 operation that returns a Windows file date/time (DSFUNC = #43) has been extended to return the date/time in the internal Windows format. Please refer to the Global File Converters manual for further details;
- The SVC-61 operation (DSFUNC = #59/#D9) that returns the highest versions of GX.EXE/GXIO.EXE on the "gxupdates" folder version has been extended to return the status of the following registry setting:

..\Global\Client\ServicePacks\ImmediateGXUpdate

- The SVC-61 operation (DSFUNC = #77) that interfaces to the XMLProxy.dll has been extended to support String Attributes and Integer Attributes;
- The Steering Routine diagnostics, that are enabled by the GlobalLoadDiagnostics registry setting now include the date and time in each message line.
- The following new highly-specialised diagnostic option is available to write diagnostics to the svc79opcode5758diags.log file in the "log" directory:

..\Global\Client\Diagnostics\SVC79Opcode5758Diagnostics

## NEW FEATURES IN GLOBAL.EXE V3.6

The V3.6 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLSERVER.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note-1:** The standard version of GLOBAL.EXE V3.6 is only supported on Windows 98, Windows ME, Windows NT, Windows 2000 and Windows XP (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP etc.). A Windows 95 compliant version of GLOBAL.EXE V3.6 is **NOT** available.

The following features have been included in GLOBAL.EXE V3.6:

- GLOBAL.EXE V3.6 is the first version of the GSM (Windows) Global Client that supports the GSM-PR run-time option. The GSM-PR option has been implemented to allow Global 3000 Payroll to be installed on GSM non-PM configurations (see Technical Note IN285 for more details of Global 3000 Payroll);
- The File Executive has been enhanced to handle more than 250 File Blocks. The value of the following registry setting can now exceed the previous limit of 250:

..\Global\Client\Nucleus\+NumberOfFileBlocks

- GLOBAL.EXE now recognises the following registry setting which can be used to enable/disable the automatic download of miscellaneous files to GX:

..\Global\Client\ServicePacks\UpdateGXFiles

Furthermore, the following two registry settings that controlled the download processing:

..\Global\Client\ServicePacks\PromptForGXUpdate	(default "On")
..\Global\Client\ServicePacks\ImmediateGXUpdate	(default "On")

have been replaced by:

..\Global\Client\ServicePacks\PromptForGXUpdate	(default "Off")
..\Global\Client\ServicePacks\PromptForGXReload	(default "Off")

i.e. by default, the file download is now "silent". See Technical Note IN271 for further details.

- The interface to GX (SVC-86) has been enhanced to reset GX when a 32-bit application terminates and returns to the menu (or READY prompt). This change allows GX to perform various "housekeeping" tasks such as removing

stale windows from the screen. The reset handling can be enabled/disabled by the following new registry setting:

..\Global\Client\Nucleus\SVC86EnableReset

The default value is "On". It should not normally be necessary to disable this option;

- The interface to GX (SVC-86) has been enhanced to check the length of the block returned from GX. This extra checking will result in a STOP 8641 if the block length returned by GX is invalid. Furthermore, the diagnostics included in SVC-86 have been extended. In addition to the original diagnostic option:

..\Global\Client\Diagnostics\SVC86Diagnostics

the following options are available to selectively enable input or output diagnostics, respectively:

..\Global\Client\Diagnostics\SVC86InputDiagnostics

..\Global\Client\Diagnostics\SVC86OutputDiagnostics

- A problem in the GX interface (SVC-86) that can result in a buffer corruption that can cause a hang, or the appearance of multiple copies of the same window, has been fixed;
- A problem that can result in a GX or GSMWIN32 hang when a partition swap is attempted from a partition that has just displayed a \$SDE baseline message (e.g. the "Saving Buffer" message), has been fixed;
- The V3.6 GLOBAL.EXE includes the V3.5g GSMWIN32 components. This upgrade to the GUI-1 components fixes a problem that can result in a GLOBAL.EXE (and GSMWIN32.EXE) crash. This problem is caused by the routine within GSMWIN32 that checks whether the cursor is in a particular Speedbase window. This code is used to ensure that GSMWIN32 displays the correct window as the top-most window at all times. The test was incorrect and

merely tested whether the cursor position was on the column or line occupied by the right hand and bottom sides respectively (i.e. it would potentially included positions that are really outside the window). The confusion within the GUI-module regarding the identity of the top-most window ultimately results in a crash of GLOBAL.EXE (or GSMWIN32.EXE);

- The NETWORK controller has been enhanced to allow the TCP/IP "Listen Backlog" to be configured. The previous value for this parameter was 3. The new default is the maximum "reasonable" value used by the underlying service provider responsible for sockets. This change increases the number of GX or GSMWIN32 thin-clients that can be in the **initial stages** of connection simultaneously (this condition is not the same as the number of thin-clients that can be **connected** simultaneously, which is not affected by this parameter). The following registry setting can be used to alter the Listen Backlog:

..\Global\Client\Screens\Network\ListenBacklog

- By default the NETWORK controller suppresses some initial displays to improve the speed of the initial connection to GX. However, if the V3.6 GLOBAL.EXE is used with a pre SP-9 version of GSM (i.e. GSM SP-8, or earlier) a spurious text screen may appear fleetingly when an operator logs into to GSM via GX. The appearance of the spurious text screen can be avoided by setting either of the following settings to "Off":

..\Global\Client\Screens\Network\SuppressCPM=Off (all connections)

..\Global\Client\Screens\Network\mm\SuppressCPM=Off (single connection)

- A new "MultipleRAMDisk" direct access controller has been implemented in both GLOBAL.EXE and GLSERVER.EXE. The following new registry settings are available:

..\Global\Client\Data\MultipleRAMDisk\DriveM\RAMDiskSizeKb

```

..\Global\Client\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+VolumeFormat
..\Global\Client\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+UnitNumber
..\Global\Client\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+DriveDescription
..\Global\Server\X\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \RAMDiskSizeKb
..\Global\Server\X\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+VolumeFormat
..\Global\Server\X\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+UnitNumber
..\Global\Server\X\Data\MultipleRAMDisk\Drive $\mathcal{N}$ \+DriveDescription

```

(where  $\mathcal{N}$  = 0 to 9). The default Volume Format is P00C. The default Unit Number is 109. The default Drive Description is "Windows RAM Disk".

In addition, GLSERVER.EXE has been enhanced to support the single "RAMDisk" direct access controller:

```

..\Global\Server\X\Data\RAMDisk\RAMDiskSizeKb
..\Global\Server\X\Data\RAMDisk\Drive0\+VolumeFormat
..\Global\Server\X\Data\RAMDisk\Drive0\+UnitNumber
..\Global\Server\X\Data\RAMDisk\Drive0\+DriveDescription

```

- GLOBAL.EXE has been enhanced to override the "UseConfigurationFile=Off" option (i.e. to ensure that the Global Configuration will be used) if either of the two options that specify a configuration file explicitly are used. The two options that always enable the use of a configuration file are the /EC command line argument and the registry "ConfigurationFilename" option;
- GLOBAL.EXE has been modified to prevent the appearance of a diagnostic dialogue box containing the text "PT-block header pointer is NULL". This message is only displayed if the DiagnosticDisplay option is enabled;
- The following new registry settings are recognised by the Speedbase Gateway:

```

..\Global\Speedbase\DiagnosticLogfileLimit
..\Global\Speedbase\DelayClosingTimeout

```



Please refer to Technical Note IN274 for further details of these, and all the other, Gateway registry settings.

- The interface to the Speedbase Gateway has been enhanced to support multiple Gateway instances on a single Gateway server. The change prevents a problem in the logic that resets the Speedbase Gateway, when a new connection is made, when the multiple Gateway instance option has been enabled. The following example registry illustrates a Global Client that is connected to 2 instances of the Speedbase Gateway on Server1 and a single instance of the Gateway on Server2:

```

..\Global\Client\Gateways\01\GatewayServerName=Server1Instance1
..\Global\Client\Gateways\01\ProtocolSequence=ncacn_ip_tcp
..\Global\Client\Gateways\01\NetworkAddress=Server1
..\Global\Client\Gateways\01\Endpoint=3100
..\Global\Client\Gateways\02\GatewayServerName=Server1Instance2
..\Global\Client\Gateways\02\ProtocolSequence=ncacn_ip_tcp
..\Global\Client\Gateways\02\NetworkAddress=Server1
..\Global\Client\Gateways\02\Endpoint=3100
..\Global\Client\Gateways\03\GatewayServerName=Server2Instance1
..\Global\Client\Gateways\03\ProtocolSequence=ncacn_ip_tcp
..\Global\Client\Gateways\03\NetworkAddress=Server2
..\Global\Client\Gateways\03\Endpoint=3100

```

To prevent a new connection to "Server1Instance2" inadvertently resetting the existing connection to "Server1Instance1" the new "GatewayID" registry setting must be used to indicate that "Server1Instance1" and "Server1Instance2" are running on the same Gateway server; and to indicate that "Server2Instance1" is running on a different server. For example:

```

..\Global\Client\Gateways\01\GatewayID=1
..\Global\Client\Gateways\02\GatewayID=1
..\Global\Client\Gateways\03\GatewayID=2

```

The GatewayID value is an arbitrary value between (0 and 9999). A Gateway connection reset will not be performed on a Gateway instance if a Gateway connection reset has already been performed on any other Gateway instance with the same GatewayID setting.

**Important Note:** This option is reserved for future use until the multiple Gateway instance option has been released;

- Both GLOBAL.EXE and GLSERVER.EXE have been enhanced to support the "virtual diskette" volume formats Z152Z, Z153Z, Z154Z and Z155Z; in addition to format Z151Z;
- GLOBAL.EXE has been modified to prevent the automatic generation of the "svc79opc100.log" log file;
- A new SVC 61 function (DSFUNC=#76) is now available to interface to the highly-specialised PREGEM.DLL. Details of this interface are beyond the scope of these notes and the following new diagnostics registry settings are reserved for future use:

..\Global\Client\Diagnostics\PregemDiagnosticDisplays  
..\Global\Client\Diagnostics\PregemLogFile

## NEW FEATURES IN GLOBAL.EXE V3.7

The V3.7 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLSERVER.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note-1:** The standard version of GLOBAL.EXE V3.7 is only supported on Windows 98, Windows ME, Windows NT, Windows 2000 and Windows XP (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP etc.). However, a Windows 95 compliant version of GLOBAL.EXE V3.7 is **NOW** available, albeit with slightly limited functionality, on both the Global web site and the monthly GPS CD.

The following features have been included in GLOBAL.EXE V3.7:

- A shared memory interface between the Global Client (GLOBAL.EXE) and the Speedbase Gateway (SPEEDBAS.EXE and SPEEDSQL.EXE) has been implemented. This interface is enabled on the Global Client by setting the following registry value to "gsmshm":

..\Global\Client\Gateways\NN\ProtocolSequence=gsmshm

**Important Note:** This interface is only supported by the Speedbase Gateway (i.e. SPEEDBAS.EXE, SPEEDSQL.EXE) V3.16, or later.

When the Protocol Sequence is set to "gsmshm" the following registry settings are ignored:

```

..\Global\Client\Gateways\MNetworkAddress
..\Global\Client\Gateways\MEndpoint
..\Global\Client\Gateways\MPort
..\Global\Client\Gateways\MEnableNoDelay
..\Global\Client\Gateways\MEnableKeepAlive

```

When the Protocol Sequence is set to "gsmshm" the following registry setting can be used to increase the timeout period in seconds, from the default of 60 seconds, that the Global Client waits for a response from the Speedbase Gateway:

```

..\Global\Client\Gateways\MGSMHMTIMEOUT

```

**Important Note:** This time-out period will have to be increased when creating medium-sized and large Microsoft SQL databases.

The following registry settings are reserved for future use:

```

..\Global\Client\Gateways\MEnableGatewayMultipleThreads
..\Global\Client\Gateways\MSharedMemoryID

```

Details of the corresponding new registry options for the Speedbase Gateway (V3.16, or later) are fully described in issue 5, or later, of Technical Note IN274;

- A problem that can result in the Global Client losing the cursor focus on Windows-2000 and Windows-XP, after the WinPrint "Select Printer" dialogue box has been displayed, has been fixed;
- The default Global Client Hibernation Period has been reduced from 100 milliseconds to 1 millisecond. This change improves the response of some GX operations, and all SVC-88 based operations, considerably;
- A problem in the TCP/IP interface between GLOBAL.EXE and the GSM (Novell) SPEEDBAS.NLM has been fixed. The problem produces several symptoms, including the lack of mutual locking between 16-bit GSM (Novell) client and 32-bit GSM (Windows) clients;
- The Global Client now sends the client's Computer Name to the target Global Server when a connection has been established. The Computer Name is displayed by the Global Server within the "new connection" information message. For example:

Connection from client 1B from computer TISAJUNT

The Computer Name is also written to the glserverX.log log file if the "EnableServerLogFile" registry option is enabled;

- A problem that results in a GLOBAL.EXE crash if the number of partitions configured for the "GUI" console controller is set to 0, has been fixed. The crash occurs if a character is keyed on the de-activated "fat client" window. The recommended method of removing the screen on the "fat client" is to remove the "GUI" controller completely. However, if the Single Instance option is required then a "GUI" key in the registry must be retained to allow the following registry setting:

..\Global\Client\Screens\GUI\Miscellaneous\SingleInstance=On

The only method available to remove the "fat client" screen from the User Count, when the UseConfigurationFile=Off option has been employed, is to set the following setting to 0:

..\Global\Client\Screens\GUI\+NumberOfPartitions=0

This condition resulted in the problem that has been fixed by GLOBAL.EXE

- The following two new registry options are available that may prevent the occasional crash that occurs when GLOBAL.EXE has been terminated (e.g. after \$BYE has been run):

..\Global\Client\UseExitProcessToExit  
 ..\Global\Client\ImmediateExit

- The interpreter has been modified to save the offset value associated with a 16-bit (negative) External Pointer as a full 32-bit value. This fixes a problem in the External Pointer handling when a 16-bit \$PUSH, \$POP combination, involving External Pointers, is attempted when the offset of the External Pointer is 64K, or higher. This change fixes a problem that results in the 32-bit compiler, \$SDL32, reporting spurious SYMBOL NOT FOUND errors when the number of symbols in all the compiled DLM's exceeds 2521, approximately. **Important Note:** This problem only affects \$SDL32 and will **NOT** affect any other 16-bit or 32-bit programs. \$SDL32 uses a special, undocumented programming-technique that triggers the problem;
- A further problem in the handling of 16-bit External Pointers that contain offset values of 64K, or higher has been identified. This problem, which cannot be easily fixed in GLOBAL.EXE, is avoided by a minor change to the 16-bit source. However, if the set of conditions that would cause the problem are ever encountered, a unique STOP WITH 1000 will be reported. **Important Note:** This problem only affects \$SDL32 and will **NOT** affect any other 16-bit or 32-bit programs. \$SDL32 uses a special, undocumented programming-technique that triggers the problem;

- The NETWORK controller within the Global Client has been enhanced to recognise the new connection sequence sent by GX when the OverrideQuiesceStatus option is enabled in the GXHOSTS.INI file;
- The spurious gsminfo.txt file is no longer created in the "log" folder. However, the more useful gsminfo.bin is always created. Please send this file to Global Support when logging problems on GSM (Windows) configurations;
- A new SVC-61 function (DSFUNC=#51) is now available to delete multiple files when a wildcard filename is specified;
- The Global Client has been enhanced to communicate to a "server" using direct TCP/IP instead of an RPC protocol. Currently the only "server" that supports a direct TCP/IP interface is the GSM (Novell) GSM.NLM file-server. The direct TCP/IP interface is enabled by setting the following registry setting to "gsmtcpip".

..\Global\Client\Servers\X\ProtocolSequence=gsmtcpip

The following settings are reserved for future use:

..\Global\Client\Servers\X\Port\EnableNoDelay  
 ..\Global\Client\Servers\X\Port\EnableKeepAlive  
 ..\Global\Client\EnableGSMTCPIP  
 ..\Global\Client\EnableGSMTCPIPFastTransmit

- The following two new registry settings:

..\Global\Servers\EnableMultipleClientGSMSTM  
 ..\Global\Servers\MultipleClientGSMSTM[01-99]

are available as preferred alternatives to the existing registry settings:

..\Global\Servers\EnableMultipleClientGSMRPC  
 ..\Global\Servers\MultipleClientGSMRPC[01-99]

- The following new registry setting:

..\Global\Client\PortNumberForHighNode[100-255]

is now available to allow the SMC Porting Mapping feature to be used by Global Clients with Node-id's in the range 100 to 255;

- The interface to the Speedbase Gateway has been enhanced to use the RPC DataWriteRead function for operation code 15, instead of the RPC DataWrite function;
- The following new registry key is reserved for internal use only:

..\Global\Client\InternalUseOnly

**DO NOT ADD ANY SETTINGS UNDER THIS REGISTRY KEY.**

## **NEW FEATURES IN GLOBAL.EXE V3.8**

The V3.8 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE and GLSERVER.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note–1:** The standard version of GLOBAL.EXE V3.8 is only supported on Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP and Windows 2003 (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows–95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP etc.).

The following features have been included in GLOBAL.EXE V3.8:

- The Serial Port Driver (SPD) interface has been enhanced to support a Winsock TCP/IP interface in addition to the traditional "serial" interface. See document `spdfornr.doc` for further details;
- All Initiation Warning (\$57 INITIATION WARNING...) and Initiation Error (\$57 INITIATION ERROR...) messages now appear in a Message Box. Formerly such messages would only appear fleetingly in the text window displayed by GLOBAL.EXE. The option to display such messages in a Message Box is enabled by default but can be disabled by setting the following new registry option to "Off":

`..\Global\Client\Nucleus\InitErrorsInMessageBox`

- GLSSTART.EXE has been enhanced to operate on a configuration that has the BootDevice setting absent from the "`..\Global\Servers\X`" registry key. Note that the BootDevice setting is no longer obligatory now that the UseConfigurationFile=Off setting is available. GLSSTART.EXE now displays a warning message, rather than a fatal error, if the BootDevice setting is absent;
- GLOBAL.EXE has been enhanced to support the "gsmshm" interface to the Speedbase Gateway. See section 3.3 of Technical Note IN265 for further information. This option is enabled on the Global Client by setting the following registry value to "gsmshm":

`..\Global\Client\Gateways\MM\ProtocolSequence`

When the Protocol Sequence is set to "gsmshm" the following registry setting can be used to increase the timeout period in seconds, from the default of 60 seconds, that the Global Client waits for a response from the Speedbase Gateway for "normal" operations:

`..\Global\Client\Gateways\MM\GSMSHMTimeout`



When the Protocol Sequence is set to "gsmshm" the following registry setting can be used to increase the timeout period in seconds, from the default of 600 seconds (i.e. 10 minutes), that the Global Client waits for a response from the Speedbase Gateway for "long" operations:

..\Global\Client\Gateways\MM\GSMSHMLongTimeout

The following option can be used to inform the Speedbase Gateway that the Global client has been closed down.

..\Global\Client\Nucleus\EnableGatewayResetOnTerminate

The following registry settings are reserved for future use:

..\Global\Client\Gateways\MM\EnableGatewayMultipleThreads

..\Global\Client\Gateways\MM\SharedMemoryID

..\Global\Client\Gateways\MM\NumberOfReservedSHMBlocks

- A problem with the auto-creation of the Debug log file that resulted in the spurious message "Unable to open gsminfo.txt" has been fixed;
- When SVC-86 generates a STOP 8641 a log file "stop8641diags.log" is unconditionally created in the Log Folder;
- The following error lines that **may** appear in the Debug log file now contain accurate variable data:

\*\*\*Couldn't map 16-bit address *user addr*

\*\*\*Diagnostics error – page too high *user page*

\*\*\*Diagnostics error – page inconsistent *user page*

\*\*\*Diagnostics error – page not allocated *user page*

\*\*\*Diagnostics error – block would exceed page extent *user page offset length*

- The Debug Log file now contains the contents of the \$\$XDIAG System Variable;

- If either of the "WideModeFont" or "NarrowModeFont" registry settings are set to a single "?" character then the "best fit" font for use with \$.711, according to the current screen resolution, is used according to the following table:

Screen width	NarrowModeFont	WideModeFont
640	13x7	13x4
800	18x9	18x6
1024	25x12	20x6
1280	30x12	19x9
1280	30x12	19x9
1600	30x12	30x12

Note that the various font sizes listed above will only be available if the SystemPC and Sys132PC fonts have been installed and the appropriate font file settings have been made. Note that GLOBAL.EXE does **not** check that these fonts have been specified. However, the "best fit" font size will be validated against those enumerated for the specified fonts and will revert to default font sizes if not found;

- When SVC-79 generates a STOP -91 a log file "svc79licenceinfringement.log" is unconditionally created in the Log Folder;
- The hard-coded default value of the "+MaximumPageWidth" registry setting, within GLOBAL.EXE, has been changed from 132 to 250 to match the default value in the GLMACH.TLT;
- SVC-79 has been enhanced to provide low-level support for the various logical operations required by the XORB\$, XORW\$, XORD\$, ORB\$, ORW\$, ORD\$, ANDB\$, ANDW\$ and ANDD\$ sub-routines;
- To avoid problems with some re-installations the "UseConfigurationFile" setting is assumed to be set to "Off" if either the /I or /J command line options

are used with GLOBAL.EXE. Note that these command line options are only used during Global installations and re-installations;

- The SVC-61 function (DSFUNC = #31) that returns the GLOBAL.EXE version has been enhanced to return the type of boot device in DSPAR3 (1=SYSRES; 2=SYSIPL);
- The SVC-79 interface has been enhanced to support function 78. This function is required for the version of the \$SDL32 compiler released with GDSSP12, and later;
- A problem in GLOBAL.EXE that can cause a crash if a spurious character is received on a console controller that has been configured with 0 partitions (i.e. +NumberOfPartitions=0), has been fixed;
- A new Console Executive operation is now available, for use by the GXLOG diagnostic utility, to dump all GX-related control blocks and buffers, for all screens, to a log file (console.log);
- A new customisation option, Customisations\PreSP9GUFieldInitialise is available for use with the GSM SP-12, and later, version of the BA\$WEX DLM;
- A problem that caused the text of a HEADING statement to appear in a message box, instead of the Status Line when terminal type \$.751 etc. is being used, has been fixed. This change to GLOBAL.EXE is required by the MSGX\$ routine as described in gmsp12.doc: "The BA\$DSX DLM has been extended to use the MSGX\$ sub-routine (i.e. rather than the MSG\$ sub-routine) to implement the HEADING verb on non-GX screens";
- The Console Executive, within GLOBAL.EXE, has been modified to suppress displays to the Status Line whilst executing a concurrent-GUI refresh or display cycle. This change fixes a number of GX hanging problems;
- GLOBAL.EXE has been enhanced to assume the following registry settings when either the /I or /J command line arguments are specified:

```

..\Global\Client\Diagnostics\DiagnosticDisplay=On
..\Global\Client\Diagnostics\ConsoleDiagnostics=On
..\Global\Client\Diagnostics\GlobalLoadDiagnostics=On

```

This change has been implemented to enable diagnostics by default when the GLINSCLI.BAT or GLINSSRV.BAT installation batch files are being used to install GSM (Windows). Note that the explicit registry settings will disable the relevant diagnostic option at all times.

```

..\Global\Client\Diagnostics\DiagnosticDisplays=Off
..\Global\Client\Diagnostics\ConsoleDiagnostics=Off
..\Global\Client\Diagnostics\GlobalLoadDiagnostics=Off

```

- GLOBAL.EXE has been enhanced to display a fatal error from the Steering Routine in a Message Box when either the /I or /J command line arguments are specified. This change has been implemented to provide improved diagnostics when the GLINSCLI.BAT or GLINSSRV.BAT installation batch files are being used to install GSM (Windows);
- If the /EN command line option has been enabled (i.e. to specify an Asymmetric Multiple Client configuration) the name of the log-file created when the "LogConfigurationSynthesis" option is enabled is console\_\\N.log, where \\N is the decimal node-id of the Global Client;
- By default, the logic in the Steering Routine that determines the number of users when the "UseConfigurationFile=Off" option is enabled, includes **every** console controller specified in the registry. This behaviour means that UseConfigurationFile=Off option cannot be used in some multiple GLOBAL.EXE configurations because the number of users defined in the registry multiplied by the number of GLOBAL.EXE's would be higher than the Maximum Number of Users defined in the global.lic licence file. Although the /U command line parameter (see global33.doc) can be used to reduce the number of users for a particular GLOBAL.EXE, by a procrustean reduction of the Network controllers,

the following registry settings allow finer control by selectively disabling one, or more, Network controllers on a per-node-id basis. For node-ID's 27 to 99:

..\Global\Client\Screens\Network\NM\+IgnoreScreenForNodeXX

For node-ID's 100 to 255:

..\Global\Client\Screens\Network\NM\+IgnoreScreenForHighNodeXXX

- Both the DOSPrint and DOS.PRI controllers have been enhanced to include the Printer Unit Number, Device Name and the Windows Error Code in all diagnostic error messages that appear when the DiagnosticDisplays registry option is enabled. Furthermore, the following new registry options:

..\Global\Client\Printers\DOSPrint\5nn\Diagnostics\CreateFileDiagnostics  
and:

..\Global\Client\Printers\DOS.PRI\5nn\Diagnostics\CreateFileDiagnostics

will enable the logging of these extended diagnostics to the log-file "DOSPrintCreateFile.log". Note that "DiagnosticDisplays=On" will freeze all users until the OK button on the Diagnostics Message Box is clicked, whereas the logging of errors when "CreateFileDiagnostics=On" requires no operator intervention;

- GLOBAL.EXE has been enhanced to automatically dump the entire Global section of the registry to a log-file called "global\_registry\_dump.log". This new option can be disabled by setting the following registry setting to "Off":

..\Global\Client\Diagnostics\GlobalRegistryDump

- The RAM-disk controllers RAMDisk and MultipleRAMDisk in both GLOBAL.EXE and GLSERVER.EXE have been enhanced to automatically initialise the volume(s) to \$\$WORK. The RAM-disk volume is only initialised automatically if the Volume Format is P00A (for RAMDisk) or P00C (for MultipleRAMDisk). The

following registry settings can be set to "Off" to disable the automatic initialisation:

```

..\Client\Data\RAMDisk\InitialiseRAMDisk
..\Client\Data\MultipleRAMDisk\DriveN\InitialiseRAMDisk
..\Servers\X\Data\RAMDisk\InitialiseRAMDisk
..\Servers\X\Data\MultipleRAMDisk\DriveN\InitialiseRAMDisk

```

- SVC-90 has been extended to provide diagnostics for the DMAM Access Method. Note that SVC-90 is a diagnostic SVC for internal use only;
- A number of new diagnostic registry settings are now available for the File Executive:

```

..\Global\Client\Diagnostics\FileExecLockDiagnostics      (client)
..\Global\Servers\Diagnostics\FileExecLockDiagnostics      (all servers)
..\Global\Servers\X\Diagnostics\FileExecLockDiagnostics    (single server)

```

The following files are created when these diagnostic settings are enabled:

```

FileExecLock.log      (created by GLOBAL.EXE)
FileExecLockX.log     (created by GLSERVER.EXE)

```

- The following new registry option is now available to change the Windows API function that GLOBAL.EXE uses to close down:

```

..\Global\Client\UseExitAfterCleanupToExit

```

In addition, extra diagnostics have been included to display a warning message if the Windows API function that is used for the close-down fails to complete successfully;

- The Gateway interface within GLOBAL.EXE has been enhanced to support the operations required by the DBX version of the Speedbase Access Method (SPAM);

- GLOBAL.EXE now recognises the /K command line option. When this new option is enabled all the registry settings that are normally read from the HKEY\_LOCAL\_MACHINE hive are read from the HKEY\_CURRENT\_USER hive. **Important Note:** GLREGED.EXE has **NOT** been amended to support this specialised option;
- If the /EN command line option has been enabled (i.e. to specify an Asymmetric Multiple Client configuration) the log-file created when the following registry option is enabled is called allocmemdiagsforclient*NN*.log (where *NN* is the decimal node-id of the Global Client):

..\Global\Client\Diagnostics\EnableAllocMemoryDiagnostics

- A new SVC-61 function is available (DSFUNC=#BB) to return the results from the Enumerate Printers API function call;
- A problem that causes the loss of Status Line messages, when send to, or from, another Global Client has been fixed;
- The 32-bit memory page allocation has been enhanced to support the following registry setting:

..\Global\Client\AvoidMemoryDeallocation

When this option is enabled, GLOBAL.EXE, maintains a pool of re-useable memory pages instead of immediately returning freed memory pages back to Windows;

- A new SVC-61 function (DSFUNC=#34 or #B4) is available to return various parameters pertaining to the list of Memory Pages maintained by GLOBAL.EXE when the AvoidMemoryDeallocation option is enabled;

- GLOBAL.EXE has been extended to remove the 127 limitation on the number of available 16-bit Memory Banks. If the following new registry option is enabled the limit is extended to 255:

..\Global\Client\ExtendedSYBANK

- The Shared Memory (SHM) interface to the Speedbase Gateway has been enhanced to use the Long Timeout period (as specified by the GSMSHMLongTimeout registry setting) for Database Conversions in addition to Database Creation. In addition, the SHM interface to the Gateway now allows the Gateway interface to be Disconnected/Reconnected;
- The GLOBAL.EXE has been enhanced to support encryption in the TCP/IP interface between GLOBAL.EXE and GX.EXE. Note that no extra software licences are required to enjoy the benefits of an encrypted GX interface;
- The DOSPrint and DOS.PRI printer controllers have been enhanced to recognise the following registry settings:

..\Global\Client\Printers\DOSPrint\5nn\SkipPortInitialise

..\Global\Client\Printers\DOS.PRI\5nn\SkipPortInitialise

When the "SkipPortInitialise" option is enabled the Windows SetCOMPort function is not used to initialise the state of the COM port;

- The SVC-61 interface now validates the File Handle passed to the various Close functions. If the File Handle is deemed invalid, SVC-61 will return an immediate error 148;
- A number of new options are supported by the Speedbase Gateway. See Technical Note IN274 for further details. All the new registry options are included in the GLMACH.TLT template file;
- The default for the following registry setting has been changed from "Off" to "On":



..\Global\Client\Screens\Network\NM\NoDelay

- The Console Executive has been extended to support a new operation to return the Number Of Partitions for the "target" console;
- The SVC-78 interface has been enhanced to support a new function required by the ASCHK\$ sub-routine;
- The SVC-61 function (DSFUNC=#59 or #D9) that is used by the GX File Download processing in GSM start-up has been greatly extended. See Technical Note IN271 for further details;
- The default Terminal Type handling has been extended. The order or precedence is now:

..\Screens\Network\NM\TerminalTypeForNode[27-99]

or, depending on the node-id:

..\Screens\Network\NM\TerminalTypeForHighNode[100-255]

..\Screens\Network\DefaultTerminalTypeForNode[27-99]

or, depending on the node-id:

..\Screens\Network\DefaultTerminalTypeForHighNode[100-255]

..\Screens\Network\NM\TerminalType

..\Screens\Network\DefaultTerminalType

- The WinPrint printer controller now supports the following registry setting:

..\Global\Client\Printers\WinPrint\5nm\DiagnosticsExtendedWinPrintDiagnostics.

When this option is enabled a unique log-file is created for each print report. The name of the log-file is:

ExtendedWinPrintDiags *NNUUPPP**IIII*.log

Where: *NN* Node-id of Global Client (in hex)  
*UU* User number (in hex)  
*PPP* Printer number (i.e. 500 to 599)  
*IIII* Incrementing number (reset to 0001 when GLOBAL.EXE is reloaded)

- An obscure problem with the RPC interface on Windows-2000, Windows-XP and Windows-2003 servers has been fixed. The symptom of the problem is a NETWORK ERROR with the diagnostic message "Error 1734 from AA400 .... The array bounds are invalid". The problem only occurs if the following conditions are met:
  - The platform is Win-2000, Win-XP or Win-2003;
  - An RPC protocol (i.e. rather than gsmshm) is being used;
  - The number of memory banks is less than the number of partitions
  - The \$SW unit is allocated on a remote server (e.g. A01)

The fix involves splitting some long data transfer operations in 32Kb portions. Because the problem is unlikely to occur in practice the data splitting logic is only enabled if the following registry setting is set to "On":

..\Global\Client\RPCSplitLongBlocks

- The Console Executive has been enhanced to support a new operation to recalculate the number of partitions for a user if the number of partitions has been dynamically reduced;
- The SVC-93 interface has been extended to support an operation that allows the customised scrolled area depths for windows on a GX screen to be held centrally on the server;

- The GLSSTART.EXE utility has been extended to support the /KILL and /CLEAN command line options. The /KILL option will close down all Global Servers unconditionally. The /CLEAN option will only close down Global Servers that have no current client connections;
- The Global Server, GLSERVER.EXE, has been enhanced to support the GLSSTART.EXE /KILL and /CLEAN options (see above). The following registry setting must be set to "On" for GLSERVER.EXE to respond to the "kill" and "clean" commands sent by GLSSTART.EXE:

..\Global\Servers\AllowShutdownEvent	(all servers)
..\Global\Servers\x\AllowShutdownEvent	(specific for server x)

- The DOS.PRI controller has been enhanced to call the Close printer function in a separate thread when the PrintViaSeparateThread option is enabled. This changes fixes a problem that can freeze users connected to the Global Client if a printer goes off line unexpectedly and <ESC> or N is keyed to the NOT READY retry prompt;
- The GX interface (SVC-86) has been enhanced to provide extra diagnostics, in the svc86errlog.txt log-file, when a STOP 25060 occurs. In addition, the new diagnostics registry setting "SVC87InputLogBufferSize" enables the creation of an additional log-file, svc87log-*NNN*.bin (where *NNN* = is the NETWORK channel number) when a STOP 25060 occurs;
- The WinPrint printer controller has been enhanced to support two new registry options. The following option:

..\Global\Client\Printers\WinPrint\5*nn*\AppendEndOfFileSequence

enables a new option to append an End-Of-File (EOF) sequence to the printer immediately before the print file is closed. The actual EOF sequence is defined by the following registry setting:

..\Global\Client\Printers\WinPrint\5nn\EndOfFileSequence

This free-format string must be of the format "#*hhhhhhhh*...", where *hhhhhhhh*... specifies an escape sequence in hexadecimal. For example:

#1b266c3154

- The GUI-module within GLOBAL.EXE has been extended to support the following new registry option:

..\Global\Client\Screens\GUI\UseESCToAcceptTextEditWindow

If this option is enabled the <ESC> key, which normally emulates the Cancel button for the window produced by the TXGUI\$ sub-routine, terminates the edit successfully;

- The default value for the following registry setting has been increased from 2048 to 8192:

..\Global\Client\Screens\Network\NM\InputBufferSize

- The SVC-61 interface has been enhanced to expand Windows environment variables within string parameters. The following functions have been extended:

Create New File	DSFUNC=#3C
Open Old File	DSFUNC=#3D
Delete File	DSFUNC=#41

Any number of environment variables, indicated by a string enclosed in % characters, can be included within a string parameter (e.g. "%MYDIR%\file.txt" is a valid string; "%MYFILE" is an example of a invalid/malformed string). The result code 147 is returned if the environment variable cannot be expanded, or if the string is malformed;

- The SVC-70 interface has been enhanced to expand Windows environment variables within string parameters. Any number of environment variables, indicated by a string enclosed in % characters, can be included within a string parameter (e.g. "%MYDIR%\prog.exe" is a valid string; "%MYPROG" is an example of a invalid/malformed string). An exception 6 is returned if the environment variable cannot be expanded, or if the string is malformed;
- The Console Executive has been enhanced to support the new operation code required by the GX80\$, GX132\$ and GX192\$ sub-routines;
- The SVC-93 interface has been extended to support a Global Flag Array for use by a variety of system routines;
- The DOSPrint controller has been enhanced to recognise the "CreateNewFile" option when the "Name" option is set to a Windows Spool Folder. See Technical Note IN406 for further details;
- The DOSPrint controller has been extended to support the following new registry setting:

..\Global\Client\Printers\DOSPrint\5nn\PrintFileName

This powerful new setting, which provides **complete** control over the name of the Windows file created in the Windows Spool Folder, is fully described in Technical Note IN406;

- The DOSPrint controller has been enhanced to support the following new registry setting:

..\Global\Client\Printers\DOSPrint\5nn\PrintViewCommand

If this option is set to a program name the DOSPrint controller executes the command (using the Createprocess function) on the computer that is running the Global Client before scanning for a PDF file to appear in the PrintViewDirectory. This new option is intended for use when a utility other

than the QueueScan 3000 service is being used to convert the print file to a .pdf. See Technical Note IN406 for further details;

- The Process-ID of the GLOBAL.EXE process is now included in the log message written to the global.log file (created in the Windows folder);
- The default size of the Extended System Area has been increased from 0 to 16 bytes. That is, the default value of the following registry setting is now 16:

..\Global\Client\ExtendedSystemAreaSize

- The Global Client has been enhanced to automatically create fresh copies of the GLMACH.TLT and GLUSER.TLT template files. By default, fresh copies of the files are created each time GLOBAL.EXE is loaded thus preventing "stale" copies of the \*.TLT files remaining in the Global folder. The following registry setting can be set to "Off" to prevent the automatic TLT file creation:

..\Global\Client\CreateRegistryTemplateFiles

- A reseller-specific key has been added to the Global registry:

..\Global\Client\ResellerSpecificOptions\

In general, all settings under this key are of the form:

..\Global\Client\ResellerSpecificOptions\*reseller\_name*\  
ResellerSpecificOption*N*

where *reseller\_name* is a free-format string and *N* is between 1 and 99.

All settings under this key are reserved for future use.

- The Console Executive has been modified to fix a problem that can result in an apparent "hang" when a GX Window-Zero is operating in "Help Mode";

- The DOSPrint controller has been enhanced to make the "CreateTempFileName" setting independent of the "PostCloseProgramName" setting. That is, the "CreateTempFileName" setting can be used without specifying a "Post Close Program". See Technical Note IN406 for further details;
- The DOSPrint controller has been extended to recognise the new registry setting:

..\Global\Client\Printers\DOSPrint\5nn\PrintViewAutoDelete

This option is only recognised if the PrintViewDirectory option is also enabled. If the PrintViewAutoDelete option is enabled the print file created by the DOSPrint controller will be automatically deleted once the transformed file (normally a .PDF) has been created.

- The DOSPrint controller has also been enhanced to delete any stale copies of the "target .PDF file" before scanning the folder specified by the "PrintViewDirectory" setting for the presence of the "target .PDF file";
- The DOSPrint controller has been extended to recognise the following new registry setting:

..\Global\Client\Printers\DOSPrint\5nn\QueueScanPrinter

If this option is enabled the print-line is scanned for bytes containing binary-zero. Each byte of binary-zero is replaced by a SPACE character;

- The GX encryption option can be optionally disabled for all GX connections by setting the following registry setting to "Off":

..\Global\Client\Screens\Network\EnableGXEncryption

The default value is "On".

**Important Note:** Changing this setting to "Off" can compromise the security of the GX connection;

- Both the DOSPrint and DOS.PRI controllers have been enhanced to recognise the "CreateFile" registry setting for the Windows Spool Folder interface (e.g. Name=c:\spool\) as well as the Fixed Print File interface (e.g. Name=c:\prints\printfile.txt"). Note that there is slight difference in the behaviour of the CreateFile option between the 2 different printer interfaces:

Interface type	CreateNewFile=Off	CreateNewFile=On
Fixed Print File	The current print will be appended to an existing file of the same name. Global print files will accumulate in the Windows file specified by the "Name" option.	The current print will replace an existing file of the same name. The Windows file specified by the "Name" option just contains the last Global file printed.
Windows Spool Folder	If the print file name is different for each Global print, this option has little relevance. However, if the print file name is not always unique a NOT READY ERROR will be generated if a file with the same name already exists on the Windows Spool Folder.	For GLOBAL.EXE V3.7, and earlier, this option is ignored. For GLOBAL.EXE V3.8 and later only: If the print file name is different for each Global print, this option has little relevance. However, if the print file name is not always unique the current print will replace an existing file of the same name.

- The SVC-61 interface has been extended to support the CopyFile function (DSFUNC=#38 or #B8);



- The SVC-61 interface has been extended to return the free disk space available on a selected disk partition. This option is used by the GSM start-up overlay (\$STARX) which has been enhanced to display a warning message if a Windows hard-disk partition is deemed to be full. The following registry settings enable and control the free-space check:

..\Global\Client\StartUpOptions\FreeSpaceLimitInMbForDriveX

(where X is a drive letter);

- The Serial Port Driver (SPD) has been enhanced to allow a dynamic TCP/IP port number to be passed via the SPVECT field in the SP interface block. This new option is enabled by setting the SPD TCP/IP "Port" number to 0;
- The DOSPrint controller has been enhanced to support the new registry setting:

..\Global\Client\DOSPrint\5nn\GXPDFViewer

This option, which is use with the existing PrintViewDirectory setting, is fully described in Technical Note IN406;

- A new SVC-61 function (DSFUNC=#45, #C5; DSMODE=#02) is now available to test for the presence of a Windows file (by performing an open followed by an immediate close). An SVC-88 version of this function is supported to provide an asynchronous operation to test for the presence of a Windows file on a potentially inaccessible server. Without this SVC-88 function executing the traditional SVC-61 Open operation to test for a file on an inaccessible server would hang all other Global users. The TESTF\$ sub-routine (see gsmssp15.doc) utilises this new SVC-88 function;
- A new option to automatically update sections of the Global registry is now available. This option, which is fully described in Technical Note IN313, is enabled by the presence of the text file "glmachupdate.new" in the Global folder. The absence of this file effectively disables the automatic registry

option. However, it is possible to avoid the search for the glmachupdate.new file by setting the following registry option to "Off":

..\Global\Client\AutomaticRegistryUpdate

The log-file "AutomaticRegistryUpdate.log" is automatically created when an attempt to update the registry is made. The following internal-use setting is available for testing:

..\Global\Client\AutomaticRegistryUpdateAlways

The automatic registry update feature always results in the following registry setting to be created or updated:

..\Global\Client\LastUpdateFileTime.

- A problem that results in a crash if no printers are defined in the configuration, has been fixed;
- Several new registry settings are now available to control the handling of printer alignment patterns. For a particular printer number the printer-number specific "EnableAlignmentPatternSuppression" setting is available to enable the new option on a per-printer basis. For all printer units that have "EnableAlignmentPatternSuppression=On" the following generic-printer settings are considered:

..\Global\Client\Printers\SuppressAlignmentPatternDepth1

to:

..\Global\Client\Printers\SuppressAlignmentPatternDepth99

and:

..\Global\Client\Printers\SuppressAlignmentPatternText1

to:

..\Global\Client\Printers\SuppressAlignmentPatternText99

See Technical Note IN406 for further details;

- A problem in the Network console controller that can result in disconnected users causing the GLOBAL.EXE process to use up large amounts of CPU resource has been fixed;
- A restriction in the SVC-61/SVC-88 CreateProcess function that limited a command string to 256 characters has been removed;
- The following new registry setting controls the creation of the SVC86errlog.log file:

..\Global\Client\Diagnostics\SVC86LogExceptions

- The automatic GX download feature has been extended by the addition of the following 2 new registry settings:

..\Global\Client\ServicePacks\SilentGXUpdate

..\Global\Client\ServicePacks\SilentGXReload

These settings can be used to completely suppress the messages boxes that appear during the GX download processing. See Technical Note IN257 for further details;

- Significant changes to the Network console controller have been implemented to allow an automatic low-level re-attach to a GX session that has been disconnected then reconnected. By default, the new option is enabled but the following registry can be set to "Off" to disable automatic re-attachments:

..\Global\Client\Screens\Network\AllowGXReattach

The "attach logic" maintains a buffer for use when a re-attach is attempted. The default size of the buffer is 32Kb but can be changed using either of these settings:

..\Global\Client\Screens\Network\MirrorBufferSize

..\Global\Client\Screens\Network\NM\MirrorBufferSize

Several diagnostic options are available:

..\Global\Client\Diagnostics\EnableSpecialAttachDiags

..\Global\Client\Diagnostics\EnableGXResendDiags

..\Global\Client\Screens\Network\NM\LogInputCharacters

## NEW FEATURES IN GSM (WINDOWS) V3.9

The V3.9 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLSERVER.EXE and GLSSTART.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note-1:** The standard version of GLOBAL.EXE V3.9 is only supported on Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP and Windows 2003 (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP etc.).

### 1. Changes to the Global Client, GLOBAL.EXE

The following features have been included in GLOBAL.EXE V3.9:

- The DOSPrint controller has been enhanced to recognise the new "GXPrintInterface" registry setting. This new setting is fully described in section 3.44 of Technical Note IN406;

- A problem in the DOSPrint controller that results in the recognition of only the first SuppressAlignmentPatternDepth $N$ /SuppressAlignmentPatternText $N$  registry settings (i.e. that only recognises SuppressAlignmentPatternDepth1 and SuppressAlignmentPatternText1), has been fixed;
- Two further registry settings are recognised by the DOSPrint printer controller: MinimumLineLength and RemovedFFLineFeedCount. These new settings are fully described in sections 3.46 and 3.47 of Technical Note IN406, respectively. A problem in pre V3.9 versions of GLOBAL.EXE that incorrectly assumed a default of 8 (rather than 0) for the MinimumLineLength setting was fixed before the release of V3.9;
- A number of minor problems in the SVC that scans the gxupdates folder for sub-folders containing files to download from the server to the GX PC have been fixed. The SVC now correctly recognises download folders that have been marked as "archived" or "read-only". The "UpdateGXFiles" registry setting is no longer ignored if the "gxupdates" folder is devoid of GX $nn$ .EXE\_ or GXIO $nn$ .EX\_ files. Extra diagnostics are written to the GXDownloadDiagsFile\*.log to record all the files and attributes encountered when performing the directory scan functions;
- The SVC-61 interface has been enhanced to support a number of Event Logging operations. The new SVC-61 functions are:

Open Event Log	DSFUNC = #E7
Report Event	DSFUNC = #EA
Close Event Log	DSFUNC = #E8
Clear Event Log	DSFUNC = #E9

- Both the "GUI" and "Network" screen controllers have been enhanced to support the following new registry settings to support automatic logins:

```

..\Client\Screens\Network\NM\OperatorIDForNode[27-99]
..\Client\Screens\Network\NM\OperatorIDForHighNode[100-255]

```

..\Client\Screens\Network\MM\UseOperatorIDForFirstTimeOnly  
..\Client\Screens\Network\UseOperatorIDForFirstTimeOnly  
..\Client\Screens\GUI\OperatorIDForNode[27-99]  
..\Client\Screens\GUI\OperatorIDForHighNode[100-255]  
..\Client\Screens\GUI\UseOperatorIDForFirstTimeOnly

- The "Network" screen controller now supports the following new registry setting:

..\Client\Screens\Network\MM\SpoofLogin

When this option is enabled the "Network" controller discards all characters displayed by GSM. This option is only useful if used in conjunction with both the following registry settings:

..\Client\Screens\Network\MM\OperatorID  
..\Client\Screens\Network\MM\TerminalType

and the user has been customised to run a menu entry automatically.

- GLOBAL.EXE now supports the following registry setting:

..\Client\DefaultPortNumber

This setting is used by all "Network" controllers that do not have a default "Port" setting:

..\Client\Screens\Network\MM\Port

This option is useful in Asymmetric Multiple Global Client configurations where each instance of GLOBAL.EXE has a separate set of port numbers because it avoids the need to configure the "Port" setting in multiple "Network" keys for each of the instances of the "global" registry key;

- A problem that causes some Initiation Warning and Initiation Error messages (e.g. "\$57 INITIATION WARNING 464 – STANDARD USER COUNT EXCEEDED") to be suppressed when \$.711 etc. is used on the "GUI" console, has been fixed;
- A problem that only affects Multiple Client GSM configurations has been fixed. The problem was that the following synonymous registry settings:

```
..\Client\EnableMultipleClientGSMSHM
..\Client\EnableMultipleClientGSMRPC
```

were always accessed from the hard-coded "global" key instead of the root Global key that may be configured using the /G=xxxxx command line option. This problem meant that the "EnableMultipleClientGSMSHM" and "EnableMultipleClientGSMRPC" registry settings were being effectively ignored when the /G command option was used;

- A new option has been included in GLOBAL.EXE to allow the display of non-fatal diagnostic messages. These information messages will only appear if the DiagnosticDisplays registry setting is enabled. The DOSPrint controller has been enhanced to use this facility to display some "soft" error messages under some conditions (e.g. when the returned transfer length from a WriteFile function differs from the expected data length);
- The following new registry settings allow a single printer to be dynamically removed from the configuration:

```
..\Client\Printers\DOSPrint\5nn\IgnoreThisPrinter
..\Client\Printers\WinPrint\5nn\IgnoreThisPrinter
..\Client\Printers\AuxPrint\5nn\IgnoreThisPrinter
..\Client\Printers\DOS.PRI\5nn\IgnoreThisPrinter
..\Client\Printers\GXPrint\5nn\IgnoreThisPrinter
```

Although, at first sight, this option may not appear to be useful (why not simply remove the "5nn" registry key completely?) it is useful when testing



different configurations and avoids the necessity to delete and re-add (or restore) registry settings when temporarily removing a printer controller(s);

- A new feature has been added to GLOBAL.EXE that allows up to 99 Windows applications to be initiated automatically when GLOBAL.EXE is loaded. This new option is controlled by a number of registry settings under the following keys:

..\Client\CreateProcess\ *NN*

where *NN* = 01 to 99 and specifies the order in which multiple processes are created. The following settings are supported:

..\Client\CreateProcess\ *NN*\ApplicationName  
 ..\Client\CreateProcess\ *NN*\CommandLine  
 ..\Client\CreateProcess\ *NN*\CreationFlags  
 ..\Client\CreateProcess\ *NN*\EnvironmentBlock  
 ..\Client\CreateProcess\ *NN*\CurrentDirectory  
 ..\Client\CreateProcess\ *NN*\WindowTitle  
 ..\Client\CreateProcess\ *NN*\WindowPositionX  
 ..\Client\CreateProcess\ *NN*\WindowPositionY  
 ..\Client\CreateProcess\ *NN*\WindowSizeX  
 ..\Client\CreateProcess\ *NN*\WindowSizeY  
 ..\Client\CreateProcess\ *NN*\CountCharsX  
 ..\Client\CreateProcess\ *NN*\CountCharsY  
 ..\Client\CreateProcess\ *NN*\FillAttribute  
 ..\Client\CreateProcess\ *NN*\WindowFlags  
 ..\Client\CreateProcess\ *NN*\ShowWindow  
 ..\Client\CreateProcess\ *NN*\TerminateProcessOnClose  
 ..\Client\CreateProcess\ *NN*\TerminateProcessExitCode  
 ..\Client\CreateProcess\ *NN*\CloseCreateProcessHandles  
 ..\Client\CreateProcess\ *NN*\CreateProcessSuspendMillisecs

One of "ApplicationName" or "CommandLine" **must** be specified;

If "TerminateProcessOnClose" is enabled then TerminateProcess function is called, using the saved Process Handle, when GLOBAL.EXE is \$BYE'ed. The "TerminateProcessExitCode" is an optional parameter to the TerminateProcess function.

By default, the 2 handles created by the CreateProcess call are automatically closed. The handles will be left open if CloseCreateProcessHandles is set to "Off";

The CreateProcessSuspendMillisecs registry setting allows the introduction of a delay, for the specified number of milliseconds, after automatically starting a Windows process;

- The SVC-61 interface has been extended to return the results of an internal table created and maintained by the code within GLOBAL.EXE that handles the "CreateProcess" registry settings. SVC-61 function (DSFUNC) #79/#F9, sub-function (DSMODE) #03 returns the results from a single entry in the CreateProcess table;
- The following new registry option:

..\Client\Diagnostics\SeparateConnectionLogFiles

when used in conjunction with:

..\Client\Diagnostics\LogNetworkConnections

allows a separate log file to be created for each connection made to the Network controller. The name of the log file is made unique by tagging the current Windows tick-count to the filename;

- GLOBAL.EXE now checks that the value of the following registry settings does not exceed 32767:

..\Client\Nucleus\+NumberOfFileChannels

```

..\Client\Nucleus\+NumberOfFileBlocks
..\Client\Nucleus\+NumberOfLockTableEntries
..\Client\Nucleus\+NumberOfSharedLockTableEntries

```

- A problem in the Network controller that results in spurious garbage characters (often described as "hieroglyphics") being displayed when signing-on, has been fixed;
- GLOBAL.EXE has been extended to support more diagnostics in the Network controller. The setting "AcceptThreadLogInputCharacters=On" creates a log-file called "networkinput\W.bin". The setting "AcceptPollLogInputCharacters=On" creates a log-file called "networkinputpoll\W.log";
- GLOBAL.EXE has been extended to authenticate users when attempting to access a Global Server. This feature is controlled by the following registry settings:

```

..\Client\Servers\TrustedOperatorAuthentication
..\Client\Servers\x\TrustedOperatorAuthentication
..\Client\Servers\x\TrustedOperatorName1
..\Client\Servers\x\TrustedOperatorName2
...
..\Client\Servers\x\TrustedOperatorName99

```

The TrustedOperatorAuthentication setting enables the option for one, or all, servers. The various TrustedOperatorNameN settings allow a list of operators, who are allowed access to that server letter, to be supplied. The operator-id strings must be up to 4 characters. If the operator-id string is more than 4 characters it will be ignored (i.e. rather than being truncated to 4 characters). For example:

```

..\Client\Servers\X\TrustedOperatorAuthentication=On
..\Client\Servers\X\TrustedOperatorName1=AJU

```

only allows operator "AJU" to access server X from the Global Client;

- The Serial console controller now includes the device name (e.g. COM99) in the diagnostic message displayed when the CreateFile Windows function fails;
- The DOSPrint controller now supports the following registry setting:

..\Client\Printers\DOSPrint\5nn\PrintViewAddPrinterNumber

When the setting is enabled the printer number (e.g. 501) is tagged to the end of the Windows file name. See section 3.49 of Technical Note IN406 for further details;

- The following registry settings are now available:

..\Client\Screens\GUI\+IgnoreThisController  
 ..\Client\Screens\Network\+IgnoreThisController  
 ..\Client\creens\Serial\+IgnoreThisController

set an option to "On" to dynamically remove the relevant Console controller from the configuration. For example:

..\Client\creens\Serial\+IgnoreThisController=On

will remove **all** the Serial consoles from the configuration;

- A problem in the DOSPrinter controller when the "PrintViaSeparateThread" option is enabled, has been fixed. The bug can result in a GLOBAL.EXE crash if a printer is opened then immediately closed without writing any data to the printer.
- The SVC-61 function (DSFUNC = #77, #F7) that interfaces to the XMLProxy.DLL has been enhanced to support the following new functions:

CreateProcessingInstruction

DSMODE=#0B

XMLDocXMLVersion  
XMLDocRetainTree

DSMODE=#0C  
DSMODE=#0D

- GLOBAL.EXE has been enhanced to support a new SVC, SVC 95. This SVC returns the current Windows date/time and is used by the option that allows the GSM clock to automatically resynchronise with the Windows date/time;
- GLOBAL.EXE now recognises the /D command line option. This option enables very low-level diagnostics in the registry access routines (i.e. diagnostics that are too low-level to be enabled by the more familiar "DiagnosticsDisplays" registry setting). This option should not be used unless you are specifically advised to do so;
- The log-file created by Console Executive opcode 90 is now called "console\_and\_gx\_interface.log" and includes a dump of all the User Elements for all the active users;
- GLOBAL.EXE now supports a new SVC, SVC-94. **Important Note:** This SVC, and thus GLOBAL.EXE V3.9, is required by the version of \$SDL32 distributed with GDS SP-16, and later;
- The SVC 93 interface has been enhanced to support a Global Flag Array. This interface is reserved for internal use only;
- GLOBAL.EXE includes unconditional diagnostic code to log NO BASE exceptions. All NO BASE exceptions are logged in the file "NoBase.log" in the "log" folder;
- GLOBAL.EXE includes unconditional diagnostic code to log memory allocation/de-allocation errors. All such errors are logged in the file "MemoryAllocationErrors.log" in the "log" folder. The following events are logged in this file: "Warning – AddToList allocation failed", "Error – RemoveFromList entry not found", "Error – FreeFromList entry not found";

- The unconditional diagnostic code in GLOBAL.EXE that logged details of all SVC-61 and SVC-88 operations to the file "SVC-61 and SVC-88 Diagnostics.log" in the "log" folder, has been removed;
- GLOBAL.EXE includes unconditional diagnostic code to validate an internal buffer pointer within the Console Executive. If this pointer is ever NULL, a record is logged in the file "GlobalError.log" in the "log" folder. Each log record contains the address of the CB-block for the current user, followed by the contents of the CA-blocks and CB-blocks for all users.

## 2. Changes to the Global Server, GLSERVER.EXE

The following features have been included in GLSERVER.EXE V3.9:

- GLSERVER.EXE has been improved to accept Anonymous RPC Connections. This change is necessary for GLSERVER.EXE to be used on Windows XP SP2 when the "RestrictRemoteClients" Windows registry setting is set to the default value of 1. See Technical Note IN319 for further details of the various issues running the Global Server on Windows XP SP2. The change involves using the "RpcServerRegisterIfEx" Windows function instead of the "RpcServerRegisterIf" function that was used by previous versions of GLSERVER.EXE. In the highly unlikely event that this change causes problems with early versions of Windows (e.g. Windows 98, Windows NT-4) the following registry settings can be used to revert to the original function:

```

..\Servers\UseServerRegisterIfEx=Off           (for all servers)
..\Servers\x\UseServerRegisterIfEx=Off         ( for server x)

```

Note that at the time of writing changing these settings from the default value of "On" has not been required on any version of Windows;

- The Global Server supports a new option to avoid calling the Initialise RPC functions. The Initialise RPC logic is skipped if the "UseRPC" registry setting is "Off" (the default is "On"). Obviously, this new option can only be used if the

ProtocolSequence for the Global Client(s) is a non-RPC protocol (i.e. currently only "gsmshm");

- The Global Server, GLSERVER.EXE has been enhanced to automatically scan the domain directory for SVL files with the GSM (Unix) file naming convention. This option is enabled by the following registry setting:

..\Servers\ScanForUnixFiles	(enable for all servers)
..\Servers\A\ScanForUnixFiles	(enable for a particular server)

When a GSM (Unix) SVL file is detected (e.g. SVL~~nn\_vvvvvv~~) it is automatically renamed to the equivalent GSM (Windows) file name (i.e. ~~nnvvvvvv~~.SVL);

- The Global Server, GLSERVER.EXE, has been enhanced to support the /H option. This option can be used to change the Global root registry key used by GLSERVER.EXE from the default of "global". For example:

GLSERVER.EXE /H=global17

changes the "root" registry key from:

..\Global\Servers\

to:

..\Global\ExtraServers\global17\

- The Global Server supports a new option to avoid automatically enabling the special Local RPC protocol with the endpoint GLSERVER\_x (where *x* is the server letter). The logic to establish the automatic Local RPC protocol is skipped if the "EnableLocalRPC" registry setting is "Off" (the default is "On"). This feature option is required if two, or more, Global Servers with the same server letter are ever run on the same computer. Note that prior to V3.9 GLSERVER.EXE it was **not** possible to run more than a single Global Server with a particular server letter on a single computer. The /H option (see above) allows multiple servers with the same server letter on the same computer.

### 3. Changes to the Global Server Initiator, GLSSTART.EXE

The following features have been included in GLSSTART.EXE V3.9:

- The Global Server Initiator recognises the "UseRPC" option when testing for, and restarting, Global Servers;
- The Global Server initiator has been enhanced to support the /H option. This option can be used to change the Global root registry key used by GLSSTART.EXE from the default of "global". For example:

GLSSTART.EXE /H=global17

changes the "root" registry key from:

..\Global\Servers\

to:

..\Global\ExtraServers\global17\



## NEW FEATURES IN GSM (WINDOWS) V4.0

The V4.0 BACNAT repackaging for Global System Manager (Windows) includes the following features in GLOBAL.EXE, GLSERVER.EXE and GLSSTART.EXE (note that this release does **NOT** include GLCONS.EXE or GSMCONS.EXE):

**Important Note:** The standard version of GLOBAL.EXE V4.0 is only supported on Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP and

Windows 2003 (i.e. it is **NOT** supported on Windows 95). This new version of GLOBAL.EXE uses a number of Microsoft interfaces that are not supported on Windows-95. These interfaces are available in ALL the other supported versions of Windows (e.g. Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP etc.).

## 1. Changes to the Global Client, GLOBAL.EXE

The following features have been included in GLOBAL.EXE V4.0:

- The WinPrint controller has been enhanced to include support for the OpenViaSeparateThread option. Enabling this option can remove the delay that may occur on the first access to a networked printer. This option is enabled by the following registry setting:

```
..\Client\Printers\Winprint\5nn\OpenViaSeparateThread=On
```

or, for all WinPrint printers:

```
..\Client\Printers\WinPrint\OpenViaSeparateThread=On
```

- The function in GLOBAL.EXE that writes out the Debug Log File now dumps the contents of the \$\$UDIAG PIC X(80) System Variable field. If the first byte of this file is not LOW-VALUES an 80-character text string is assumed. If the first byte of this field is LOW-VALUES the dump of the field is suppressed (cf. the dump of the related \$\$XDIAG System Variable where an initial byte of LOW-VALUE indicates a binary dump format);
- A problem in GLOBAL.EXE that can sometimes cause a crash during the close-down (\$BYE) processing has been fixed. The problem only occurs if the CreateProcess\nn\TerminateProcessOnClose option is enabled;
- GLOBAL.EXE now prevents both the "AvoidMemoryTracking" and "AvoidMemoryDeallocation" options being enabled. These options are mutually exclusive. Before this change, if both options were enabled spurious STOP 109

exceptions would result. If both options are enabled in the registry a warning message will appear. The following registry settings control Windows memory allocation and provide diagnostic options:

```

..\Global\Client\AvoidMemoryTracking
..\Global\Client\AvoidMemoryDeallocation
..\Global\Client\AvoidReleaseMemoryIn$BYE
..\Global\Client\Diagnostics\Enable$BYEDiagnostics
..\Global\Client\Diagnostics\EnableAllocMemoryDiagnostics

```

- The Release All Memory function in GLOBAL.EXE is now protected against Windows exceptions. If a Windows exception is detected a record will be written to the "allocmemdiags.log" log-file (if the relevant diagnostics registry setting is enabled) and the "byediagsforclientXX.log" log-file (if the relevant diagnostics registry setting is enabled);
- By default, if the relevant diagnostic registry settings are enabled, the \$BYE processing will copy the current "allocmemdiags.log" and "byediagsforclientXX.log" log files from the "log" folder to the "log\archive" folder, creating the "archive" folder, if necessary. The archived files are renamed with the current date/time, in seconds, to ensure uniqueness. This automatic log-file archive process can be prevented by disabled the following registry setting:

```

..\Client\Diagnostics\ArchiveLogFilesBeforeOverwrite

```

- The DOSPrint printer controller has been enhanced to recognise the following new registry settings:

```

..\Client\Printers\DOSprint\5nn\InsertFormFeedAtNewPage
..\Client\Printers\DOSprint\5nn\InsertFormFeedAtNewPageCount

```

These registry settings are fully described in Technical Note IN406;

- The SVC-61 function that returns the latest GX\*.EX\_ version(s) in the "gxupdates" folder has been extended to return the value of the following registry settings:

..\Client\ServicePacks\SingleUserGXUpdate  
..\Client\ServicePacks\PromptForGXINIUpdate  
..\Client\ServicePacks\PromptForGXINIReload  
..\Client\ServicePacks\SilentGXINIUpdate  
..\Client\ServicePacks\SilentGXINIReload

- The SVC-61 interface has been extended to support the functions required by the CACHE\$ sub-routine. Details of these functions (DSFUNC = #C6) are beyond the scope of these notes;
- The DOSPrint printer controller has been enhanced to recognise the following new registry setting:

..\Client\Printers\DOSPrint\5nn\AlwaysPrintLineWithPCBF7

This ultra-obscure registry setting is fully described in Technical Note IN406;

- The following new setting has been added to the "Customisations" key:

..\Client\Customisations\PFPrintImagesFolder

- The following new registry setting allows failed diskette operations to be retried:

..\Client\Data\DisketteRetryCount

The default value is 0 to ensure backwards compatibility;

- The following registry setting:

..\Client\DOSPrint\5nn\MinimumLineLength

replaces the incorrect:

..\Client\DOSPrint\5nn\MiniumumLineLength

- The following new registry settings are fully described in Technical Note IN274:

..\Speedbase\LogSQLCommands  
..\Speedbase\SQLCommandBiteSize

- The default value of the following registry setting has been changed from 1 to 0:

..\Speedbase\LongNameType

- The following new diagnostics registry setting is available for the WinPrint printer controller:

..\Client\Printers\WinPrint\5nn\Diagnostics\PrinterEnumerationDiagnostics

when this option is enabled the following log file is created:

log\\WinPrintEnumPrinterDiagsForUnit5nn.log

where 5nn is the printer unit number. This text file contains the results of the printer enumeration processing during the WinPrint controller initialization. Note that this log file only contains the results of the repeated enumerations until the target print device, as specified by the “Name” registry setting, is found. Thus, this log file will only contain **all** the enumerated printers for a WinPrint controller that returns a Device Error (i.e. when the “Name” registry setting does not match a valid Windows print device);

- The GLOBAL.EXE start-up code that tests the file extension of the load device filename now checks for the lower-case strings ".dlv" and ".ipl" in addition to the upper-case strings ".DLV" and ".IPL";
- The following new registry setting is now available to delay the Global Client start-up process to allow Global Servers etc. to fully initialise:

..\Client\DelayBeforeRunning

The delay period is specified in seconds. This registry setting can be used in those cases when the existing /V=*nn* GLOBAL.EXE command line argument cannot be used (e.g. for the Global Client Service);

- GLOBAL.EXE has been extended to allow 32-bit frames named "GWxxxxxx" (as well as frames named "PRxxxxxx" and "\$xxxxxx") to be loaded on GSM-PR configurations;
- The SVC-93 interface has been extended to change the name of the RDA Customisation File from:

..\Customisations\gxrdacusthhhhhhh.cus

to:

..\Customisations\gxrdacusthhhhhhh\_oooo.cus

where *hhhhhhh* is the hexadecimal value of the Operator-id and *oooo* is the ASCII value of the Operator-ID with non-alphabetic characters replaced by underscore characters. This change allows the Operator-id associated with the RDA Customisation file to be determined at a glance;

- The following new registry setting can be enabled to avoid the test for a 1024\*768 minimum screen resolution that was added for GSM SP-17:

..\Client\Customisations\SuppressTestForGXScreenResolution

- The Global Client Service (GlobalClientService.exe) now attempts to close the external Windows process(es) when the following registry setting is enabled:

..\Client\CreateProcess\MM\TerminateProcessOnClose

- The following new registry setting allows a time-out period to be specified for the Reset operation issued to the Speedbase Gateway when the Global Client is closed during the \$BYE processing:

..\Client\Gateways\MM\GSMSHMResetTimeout

The default time-out period is 5 seconds;

- A problem with the GSMSHM interface to the Speedbase Gateway has been fixed. It is now possible to start and stop the Speedbase Gateway (e.g. SPEEDBAS.EXE) without the need to reload the Global Client in order to make a new connection.
- The Printer Executive has been enhanced to return the Printer Controller Code for printer devices. This change effectively extends the functionality of the DEVIN\$ sub-routine;
- The size of the SVC-61SpeedbaseDiagnostics.log log file that is created when the following registry setting is enabled:

..\Client\Diagnostics\SVC61SpeedbaseDiagnostics

can be limited by the following new registry setting:

..\Client\Diagnostics\SVC61SpeedbaseDiagMaxLineCount

each line in the log file is approx. 50 bytes. When this option is enabled the following log file will also be created:  
svc61SpeedbaseDiagnosticsOld.log;

- The very early, low-level logging present in GLOBAL.EXE that writes log messages to the file `global_client_terror.log` in the current folder has been changed to create this file in the “log” folder. This change is to ensure that **all** log files are created in the “log” folder;
- The default number of extra unit assignment tables has been increased from 1 to 2 (i.e. the default number of unit assignments has been increased from 58 to 87). The default value of the following registry setting has been changed from 1 to 2:

`..\Client\Nucleus\+NumberOfExtraAssig$Tables`

- A new SVC, SVC 96, is now available for a variety of string manipulation sub-routines;
- The Network screen controller has been enhanced to recognize a connection from a OneOffice Workspace client;
- The SVC-61 Create File (DSFUNC=#3C/#BC) and Open File (DSFUNC=#3D/BD) operations are now supported by the asynchronous SVC-88 interface. Note that the Raw Open File and Raw Create File functions are not currently supported by the asynchronous SVC-88 interface;
- The SVC-61 FindFirst, FindNext and FindClose functions have been enhanced to validate the Find Handle passed in the DS-block. Furthermore, the Windows error code returned by the FindFirst function when an “internal” FindNext function fails is now accurate;
- The following registry setting is available to write diagnostics from the SVC-61 FindFirstFile, FindNextFile and FindClose functions to the “svc61findfilediags.log” log file:

`..\Client\Diagnostics\SVC61FindFileDiagnostics`



- The default value for the following registry setting has been increased from 50 to 100:

..\Client\Nucleus\LinkStackEntries

- The following new registry settings are reserved for internal use only:

..\Client\Screens\Network\NM\OneOfficeWorkspace

..\Client\Screens\Network\NM\OneOfficeWorkspaceLicence

- The following new registry setting is reserved for future use and should only be enabled when diagnosing a specific problem:

.\Client\Customisations\ \$STARDDiagnostics

- The SVC-61 Delete File operation (DSFUNC=#41/#C1) is now supported by the asynchronous SVC-88 interface;
- The Status Line display is suppressed for the GX-Workspace thin-client. This issue is currently under review;

## **2. Changes to the Global Server, GLSERVER.EXE**

No changes have been made to the Global Server, GLSERVER.EXE, for this release.

## **3. Changes to the Global Server Initiator, GLSSTART.EXE**

No changes have been made to the Global Server Initiator, GLSSTART.EXE, for this release.