GSM Services Troubleshooting (20/05/2020)

Current versions:

04/08/2018	58,368	glinstallservice.exe
20/05/2020	2,722,304	GlobalClientService.exe (5.6D)
30/07/2018	1,753,088	GlobalServerService.exe

There are various reasons why the globalserverservice and/or the globalclientservice do not work on a configuration where the GLSERVER.EXE and/or GLOBAL.EXE run successfully.

The usual reason is permissions.

GSM (Windows) currently deliberately avoids using the Windows "Security model" .

First of all make sure that Global boots using Global NOT as a service (server & client) & that GX connects.

When you do this, after starting the Global Server, double click the GLOBAL.exe file from Windows Explorer. Do **NOT** use any desktop shortcut or any additional command line parameters. Just double click the GLOBAL.exe file.

If double clicking GLOBAL.exe, Global fails to boot, yet Global boots from the desktop shortcut (that has additional parameters), the most likely cause is that you have the following registry setting missing as per IN336 (Global Server and Global Client as Windows Services, section 5):

[HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Global\Client]
"BootDevice"="C:\\GSM\\GL-IPL.DLV"

(drive letter/path may differ from your own system)

If Global works NOT as a service & GX fails to connect, see if you can telnet to the Global server from the cmd prompt. You may need to install the Telnet Client in Windows as this is not installed as default.
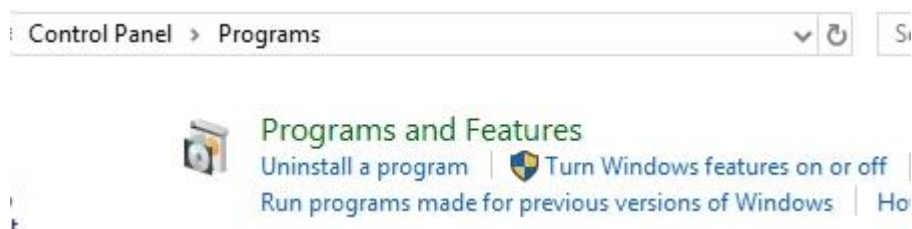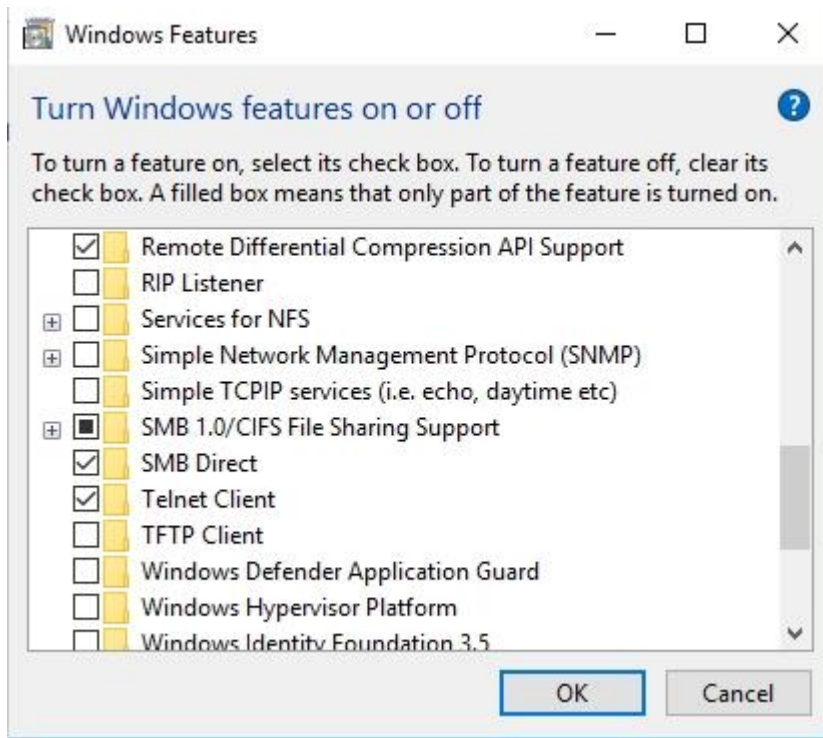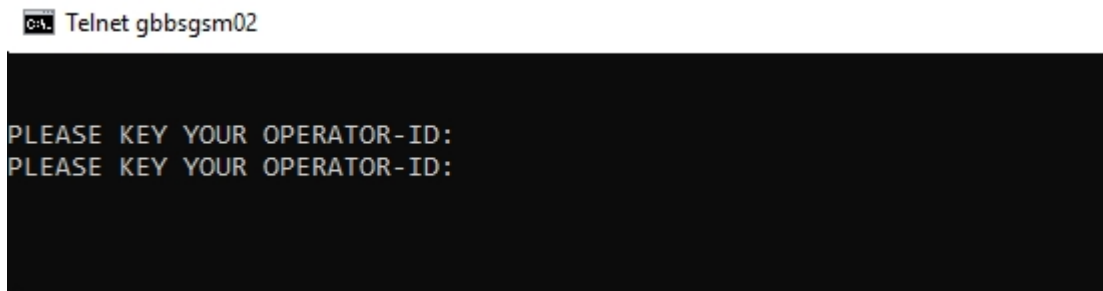
Start, Run, cmd

telnet <ip address (or name) of Global server> port-number (or without the port to default to 23)

Press <CR> twice:


```
PLEASE KEY YOUR OPERATOR-ID:
PLEASE KEY YOUR OPERATOR-ID:
```

Press "X" to close (top right of telnet box)

Once you have made sure that Global works in non-service mode, then you can install the Global Services. This is fully documented in Technical Note IN336, which is at the end of this document. The document is freely available on our website.

Note the /I /L /N switches for other methods to load the service.

If you get an error 1053 whilst starting the Global Client service:
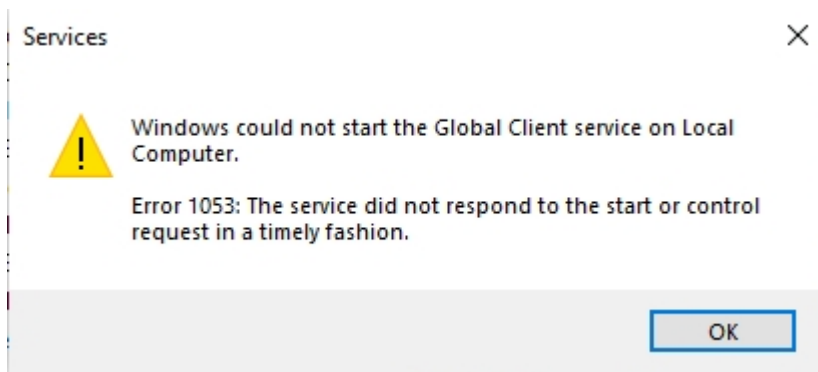
The service will then show as "Starting" in services.msc
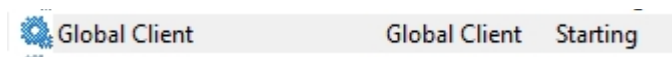
& the only way around it other than rebooting is to find the PID of globalclientservice:

C:\gsm>**sc queryex globalclientservice**

SERVICE_NAME: globalclientservice
  TYPE   : 110 WIN32_OWN_PROCESS (interactive)
  STATE   : 2 START_PENDING
           (NOT_STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)

  WIN32_EXIT_CODE : 0 (0x0)
  SERVICE_EXIT_CODE : 0 (0x0)
  CHECKPOINT   : 0x0
  WAIT_HINT   : 0x2710
  PID   : **8360**
  FLAGS   :

Then using taskkill to kill the PID

C:\gsm>**taskkill /f /pid 8360**

SUCCESS: The process with PID 8360 has been terminated.

Make sure it is the correct PID number!!!

Then you can delete the globalclientservice

C:\gsm>glinstallservice /D client
Opening Service Manager...OK
About to delete GlobalClientService
Opening Service...OK Deleting Service...OK

And starting again by running glinstallservice /I /CLIENT

Other than the error being a caused by a genuine timeout error. See:

https://support.symantec.com/content/unifiedweb/us/en/article.tech193916.html

for a registry addition for the **ServicesPipeTimeout** setting.

Ie:

Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control]
"ServicesPipeTimeout"=dword:05265c00

The 1053 error is more than likely to be caused by not having the BootDevice configured in the registry which is mentioned on Page 1 of this document, eg:

Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Global\Client]
"BootDevice"="C:\\GSM\\GL-IPL.DLV"

Also make sure that you have

This registry setting: Global\Servers\A\InstallDirectory=

That points to the folder the service is running from, else the GlobalServer service will not start.
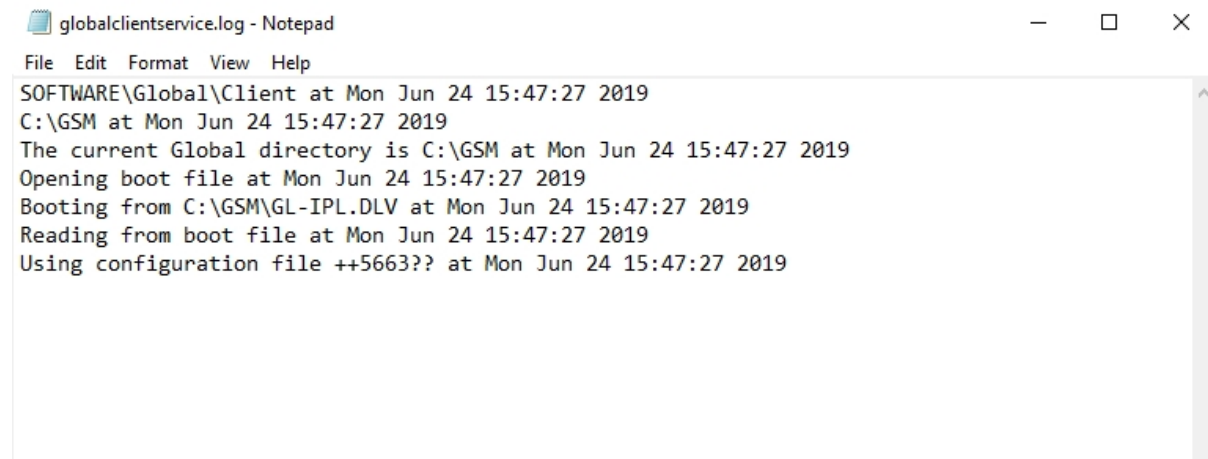
Problem: The Globalclientservice is running as per services.msc, but GX will not connect & neither does telnet.

The GSM folder & all it's sub folders may need to have read/write/execute permissions for "everyone". This is established by running Windows Explorer & using the "sledgehammer technique", select the GSM folder, right click, Properties, Security & give Full Control to all Groups & Usernames. Also make sure that your Anti Virus program excludes the GSM folder.

If you are using the gsmshm protocol, try using the ncalrpc protocol or ncacn_ip_tcp

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GlobalClientService should create a globalclientservice.log files in the \gsm\log folder.

A working log file will look something like this:

```
globalclientservice.log - Notepad                                    —   □   ×

File   Edit   Format   View   Help

SOFTWARE\Global\Client at Mon Jun 24 15:47:27 2019
C:\GSM at Mon Jun 24 15:47:27 2019
The current Global directory is C:\GSM at Mon Jun 24 15:47:27 2019
Opening boot file at Mon Jun 24 15:47:27 2019
Booting from C:\GSM\GL-IPL.DLV at Mon Jun 24 15:47:27 2019
Reading from boot file at Mon Jun 24 15:47:27 2019
Using configuration file ++5663?? at Mon Jun 24 15:47:27 2019
```
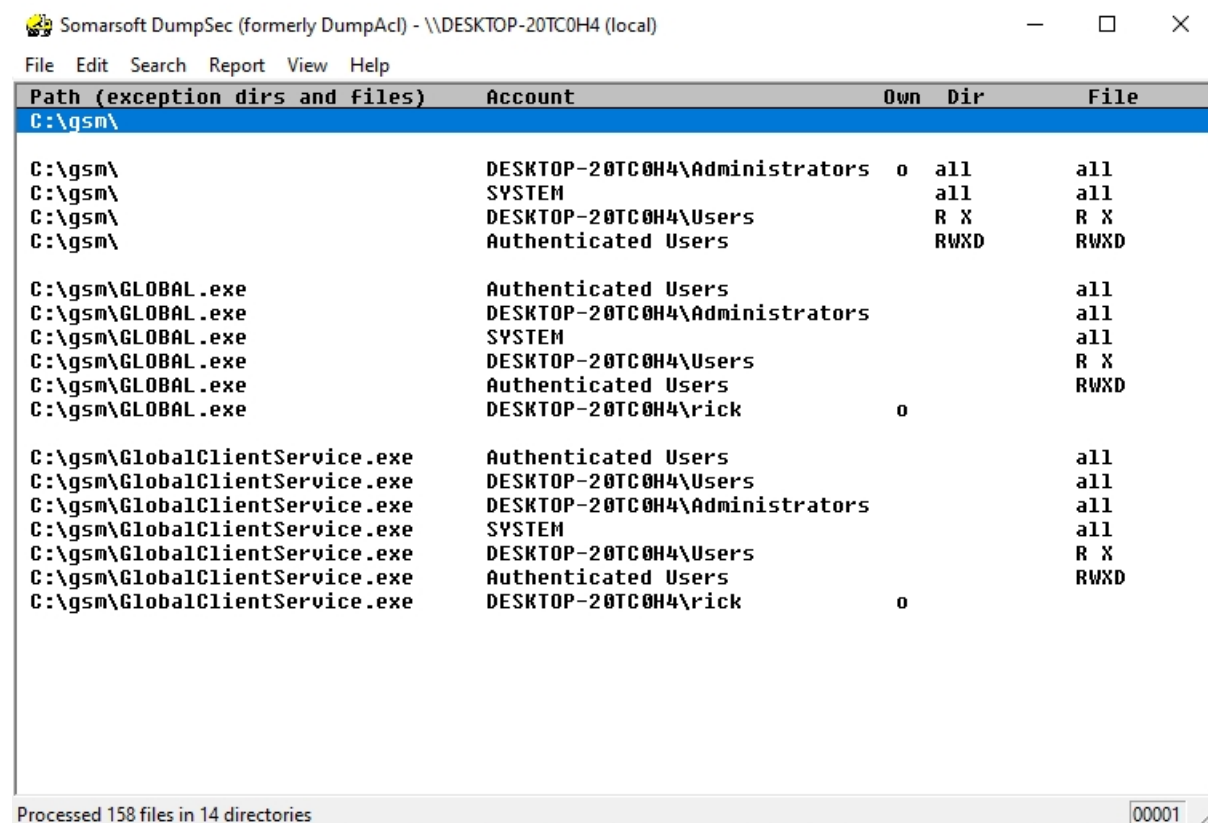
There are utils such as Somarsoft DumpSec (formerly DumpAcl)

https://www.systemtools.com/somarsoft/index.html

```
Somarsoft DumpSec (formerly DumpAcl) - \\DESKTOP-20TC0H4 (local)        —   □   ×

File   Edit   Search   Report   View   Help

Path (exception dirs and files)      Account                    Own   Dir      File
C:\gsm\

C:\gsm\                              DESKTOP-20TC0H4\Administrators  o   all      all
C:\gsm\                              SYSTEM                              all      all
C:\gsm\                              DESKTOP-20TC0H4\Users               R X      R X
C:\gsm\                              Authenticated Users                 RWXD     RWXD

C:\gsm\GLOBAL.exe                    Authenticated Users                          all
C:\gsm\GLOBAL.exe                    DESKTOP-20TC0H4\Administrators               all
C:\gsm\GLOBAL.exe                    SYSTEM                                       all
C:\gsm\GLOBAL.exe                    DESKTOP-20TC0H4\Users                        R X
C:\gsm\GLOBAL.exe                    Authenticated Users                          RWXD
C:\gsm\GLOBAL.exe                    DESKTOP-20TC0H4\rick             o

C:\gsm\GlobalClientService.exe       Authenticated Users                          all
C:\gsm\GlobalClientService.exe       DESKTOP-20TC0H4\Users                        all
C:\gsm\GlobalClientService.exe       DESKTOP-20TC0H4\Administrators               all
C:\gsm\GlobalClientService.exe       SYSTEM                                       all
C:\gsm\GlobalClientService.exe       DESKTOP-20TC0H4\Users                        R X
C:\gsm\GlobalClientService.exe       Authenticated Users                          RWXD
C:\gsm\GlobalClientService.exe       DESKTOP-20TC0H4\rick             o

Processed 158 files in 14 directories                                           00001
```

Where you can see if you have set the permissions correctly.
Other utils & web pages are available.

If it still doesn't work investigate the "Allow service to interact with desktop" option.

This is found by right clicking the Global Client service in services.msc, Properties, Log On.

See:
https://www.howtogeek.com/school/using-windows-admin-tools-like-a-pro/lesson8/

"You might notice the option for "Allow service to interact with desktop", which we mentioned earlier – by default, services are not allowed to access your desktop unless this box is checked, and this checkbox is really only there for legacy support.

But just checking that box doesn't immediately give them access – you would also need to make sure that the NoInteractiveServices value in the registry is set to 0, because when it is set to 1, that checkbox is ignored and services can't interact with the desktop at all. *Note:* in Windows 8, the value is set to 1, and interactive services are prohibited."

If you use the NullDevice controller and the PM expiry date has expired, GX will not load as the null device does not have any output along with global as a service, so you don't see the expiry date password prompt.

If the PM password has not yet expired, there is a <CR> to continue prompt. However if you load the Globalclientservice & then quickly GX, GX will appear not to work as there is a 30 second timeout on the NullDevice controller.

If you have a system that the Global NETWORK screens use port 23 for instance, with GLOBAL.exe running, do (from the cmd prompt in admin mode):

C:\gsm> netstat –ab|more

If you do not open a cmd prompt in admin mode, you will get:
"The requested operation requires elevation."

Can you see this line?:

```
 Active Connections
 Proto  Local Address        Foreign Address      State
 TCP    0.0.0.0:23           COMPUTER-NAME:0      LISTENING
 [GLOBAL.exe]
```


Close GLOBAL.exe & then run globalclientservice & do the same thing. You should see (the same result):

```
Active Connections
 Proto  Local Address        Foreign Address      State
```

```
 TCP    0.0.0.0:23          COMPUTER-NAME:0      LISTENING
[GlobalClientService.exe]
```

or could it be that when globalclientservice is running, the port is being blocked or something else is using it?

Although we WOULD expect that if GLOBAL.exe can listen successfully on port-23 then so should the service version.

What other customers have said:

"Got to the bottom of this. When I started Global from the desktop it was using the registry for my account. When I started global from services it was using the administrator account. I ran GLREGED as administrator and updated the registry and it worked".

Not needed, but the registry entries for the Global Services are here, taken from a working system with one Server "A".

Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services

Eg, Global Server A:

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\GlobalServerServiceA]
"DisplayName"="Global Server A"
"WOW64"=dword:0000014c
"Description"="Global Server"
"Type"=dword:00000110
"Start"=dword:00000003
"ErrorControl"=dword:00000001
"ImagePath"=hex(2):43,00,3a,00,5c,00,67,00,73,00,6d,00,5c,00,47,00,6c,00,6f,00,\
  62,00,61,00,6c,00,53,00,65,00,72,00,76,00,65,00,72,00,53,00,65,00,72,00,76,\
  00,69,00,63,00,65,00,2e,00,65,00,78,00,65,00,00,00
"ObjectName"="LocalSystem"
```

Global Client:

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\GlobalClientService]
"Type"=dword:00000110
"Start"=dword:00000003
"ErrorControl"=dword:00000001
"ImagePath"=hex(2):43,00,3a,00,5c,00,67,00,73,00,6d,00,5c,00,47,00,6c,00,6f,00,\
  62,00,61,00,6c,00,43,00,6c,00,69,00,65,00,6e,00,74,00,53,00,65,00,72,00,76,\
  00,69,00,63,00,65,00,2e,00,65,00,78,00,65,00,00,00
"DisplayName"="Global Client"
"WOW64"=dword:0000014c
"ObjectName"="LocalSystem"
"Description"="Global Client"
```

Misc

The only difference in the code within the EXE and the Service versions, is a small section required for the service to tell Windows that it is running and to accept the "stop" command when a user wants to stop the service. Since all the run-time code is the same, the only difference between the EXE & the service is the environment they run in.

The EXE always has a "current directory" which is either where it is kicked off from, or the property of the shortcut that starts it. The service doesn't (i.e. it can't be set up in Windows Services Manager (services.msc) which is why we used the "InstallDirectory" registry setting.

The "account" that the EXE/service runs as. The EXE runs as the user who started it running, or administrator if that option is specified. The service runs as one of the accounts specified in Windows Services Manager. Opening files/folders and shared memory is subject to a Windows authentication which explains why the service version is sensitive to permissions.

(IN336) Global Server and Global Client as Windows Services

1.   Introduction

Versions of the GSM (Windows) Global Client (GLOBAL.EXE) and Global Server (GLSERVER.EXE) are now available as Windows services. This documentation describes the installation and configuration of these servers.

2.   Files Now Available

The following files are now available:

GlobalClientService.exe   Service equivalent of GLOBAL.EXE

GlobalServerService.exe   Service equivalent of GLSERVER.EXE

Glinstallservice.exe   Service Install Utility

3.   Service Install Utility (GLINSTALLSERVICE.EXE)

The glinstallservice utility can be used to install, delete or query both the Global Client Service and the Global Server Service. The first version of GLINSTALLSERVICE.EXE is available as a console application that accepts a number of simple command line arguments.

The following GLINSTALLSERVICE.EXE functions are supported:

GLINSTALLSERVICE.EXE /I *service*   Install service (or services)

GLINSTALLSERVICE.EXE /D *service*   Delete service (or services)

GLINSTALLSERVICE.EXE /Q *service*   Query service (or services)

GLINSTALLSERVICE.EXE /L *service*   Install as LocalService, see section 6

GLINSTALLSERVICE.EXE /N *service*   Install as NetworkService, see section 6

where *service* can be any of:

A – Z   Install single Global Server service A – Z

/ALL   Install ALL Global Server services A–Z

/CLIENT   Install Global Client service

If *service* is <blank> then all server node-id's defined in the registry will be installed.

4.   Installing and Configuring the Global Server Service

To replace one, or more, Global Servers (GLSERVER.EXE) by the equivalent Global Server Service (GLOBALSERVERSERVICE.EXE):

A.   Unload any Global Servers that may be currently running;

B.   Copy GLOBALSERVERSERVICE.EXE and GLINSTALLSERVICE.EXE to the current GSM (Windows) folder;

C.   Run GLINSTALLSERVICE.EXE to install the services. The most convenient way to achieve this is by:

```
GLINSTALLSERVICE.EXE /I
```

which will install all the servers that are currently defined in the registry as services.

Because the Global Server Service uses the same registry settings as the Global Server (GLSERVER.EXE) no registry changes are required.

By default, the service is created to start-up Manually. You will have to use System Administration/Services to change the start-up mode to Automatic.

4.1 Differences between the Global Server Service and GLSERVER.EXE

The Global Server Service is functionally equivalent to the Global Server, GLSERVER.EXE. The only difference is that the Global Server Service does not interact with the desktop. The diagnostic and information messages displayed by GLSERVER.EXE are written to the following log file:

```
.\log\globalserverservice%.log
```

where % is the server letter (i.e. A to Z).

5. Installing and Configuring the Global Client Service

To replace a single Global Client (GLOBAL.EXE) by the equivalent Global Client Service (GLOBALCLIENTSERVICE.EXE):

A.   Unload the Global Client if is currently running;

B.   Copy GLOBALCLIENTSERVICE.EXE and GLINSTALLSERVICE.EXE to the current GSM (Windows) folder;

C.   Run GLINSTALLSERVICE.EXE to install the service as follows:

GLINSTALLSERVICE.EXE /I /CLIENT

The Global Client Service is not configured to accept any command line arguments. Thus extra registry settings may have to be added to replace the command line arguments configured in the existing short-cut for GLOBAL.EXE. The most likely command line argument that will have to be replaced by a registry setting is the parameter that specified the IPL device. For example:

C:\GSM\GLOBAL.EXE C:\GSM\GSM200

or:

C:\GSM\GLOBAL.EXE C:\GSM\GL-IPL.DLV

The IPL device (e.g. C:\GSM\GSM200 or C:\GSM\GL-IPL.DLV) must be specified using the BootDevice registry setting:

..\Global\Client\BootDevice=C:\GSM\GSM200

or:

..\Global\Client\BootDevice=C:\GSM\GL-IPL.DLV

By default, the service is created to start-up Manually. You will have to use System Administration/Services to change the start-up mode to Automatic.

5.1 Differences between the Global Client Service and GLOBAL.EXE

The Global Client Service is functionally very similar to the Global Client, GLOBAL.EXE. There are three major differences:

- The Global Client Service does not interact with the desktop. The "GUI" controller is unconditionally removed from the configuration. The corresponding user will appear as "NOT CONNECTED" in the $STATUS report;

- The diagnostic and information messages normally displayed by GLOBAL.EXE are written to the following log file:

    .\log\globalclientservice.log

- The System Variable, $$BIF2, can be interrogated to determine if GSM is running on the Global Client Service. If GSM is running on the service version of the Global Client then the #10 bit of $$BIF2 will be set.

6   Enhancement to glinstallservice.exe Jan-2014

- The glinstallservice.exe /I option installs the service(s) with the LocalSystem account. In Jan-2014, glinstallservice.exe was enhanced to support the /L and /N options. The /L option installs the service(s) with the LocalService account. The /N option installs the service(s) with the NetworkService account.

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