The global.lic File

1. Introduction

This document describes the concept of the global.lic file and related topics.

2. $STARH to global.lic

When a GSM (Windows) configuration is upgraded from GSM SP-*n* (where *n* is 0 to 5) to GSM SP-6, or later, the GSMSP6, GSMSP7 etc. installation job exports the $STARH file from SYSRES to a Windows file called global.lic. When a GSM (Unix) configuration is upgraded from GSM SP-*n* (where *n* is 0 to 8) to GSM SP-9, or later, the GSMSP9, GSMSP10 etc. installation job exports the $STARH file from SYSRES to a Unix 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, paves the way for 2 important forthcoming developments:

- The greatly simplified installation of GSM from the GPS CD using just a "licence card";
- The introduction of run-time licencing for Global products. This change will vastly simplify the installation and upgrading of Global 3000.

For GSM (Windows), the global.lic file is always created in the folder "LicenceFiles" which is within the Global folder. For GSM (Unix) the global.lic file is always created in the Global folder

For GSM (Windows) 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).

For GSM (Unix) the switch from $STARH to global.lic is mandatory for GSM SP-9, and later. If the global.lic file is deleted or renamed then GSM (Unix) will fail to load (reported as a STOP 5701).

3. Changes to GSM (Windows) GLOBAL.EXE for global.lic

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 RC-20. 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.

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.

4. Other GSM (Windows) registry keys

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 than global.lic.

The following registry setting is required for some "fat client" configurations and is described in section 5, below:

..\Global\Client\LicenceFiles\CentralLicenceFileDirectory

Finally, the following registry setting is reserved for future use:

..\Global\Client\LicenceFiles\GlobalLicenceFile

5. Special Considerations for GSM (Windows)

The replacement of the $STARH file by global.lic does have special implications for some of the wide range of possible GSM (Windows) configurations.

5.1 Thin-Client Configuration with single GLOBAL.EXE

There are no special considerations, other than those described above, for a standard thin-client configuration.

5.2 Thin-Client Configuration with multiple GLOBAL.EXE's

There are no special considerations, other than those described above, for a multiple GLOBAL.EXE configuration. The global.lic file is always open shared when the GSM start-up code reads the licencing information. If two users running on different GLOBAL.EXE's attempt to write to global.lic simultaneously, one user will suffer a STOP 5701 but this is **exceedingly** unlikely to occur in practice.

5.3 Fat-Client Configurations

There are several different ways to install a GSM (Windows) fat client configuration. In the discussion that follows only the Global Client (GLOBAL.EXE) installations are considered (the location of the Global Server (GLSERVER.EXE) is irrelevant as far as the global.lic file is concerned). The following fat client configurations are considered:

1. See section 5.3.1. The Global Client (GLOBAL.EXE) is installed once on a central Server. The Global Client is installed on the other PC's merely to establish the registry settings. The central "GSM directory" is shareable and all the other PC's load directly from the central directory. On each PC:

GSM "current directory":	Central "GSM directory" on server
GLOBAL.EXE loaded from:	Central "GSM directory" on server
Gl-ipl.dlv located:	Central "GSM directory" on server

2. See section 5.3.2. The Global Client (GLOBAL.EXE) is installed once on a central Server. The Global Client is installed on the other PC's to establish the registry settings **and** to install GLOBAL.EXE. A single, central gl-ipl.dlv is used to load the Global Client on all the PC's.

GSM "current directory":	Local "GSM directory"
GLOBAL.EXE loaded from:	Local "GSM directory"
Gl-ipl.dlv located:	Central "GSM directory" on server

3. See section 5.3.3. The Global Client (GLOBAL.EXE) is installed once on a central Server. The Global Client is installed on the other PC's to establish the registry settings **and** to install GLOBAL.EXE. The central gl-ipl.dlv is copied to all the PC's.

GSM "current directory":	Local "GSM directory"
GLOBAL.EXE loaded from:	Local "GSM directory"
Gl-ipl.dlv located:	Local "GSM directory"

4. See section 5.3.4. The Global Client (GLOBAL.EXE) is installed once on a central Server. The Global Client is installed on the other PC's to establish the registry settings **and** to install GLOBAL.EXE. GSM is installed on each PC to initialise a local SYSRES:

GSM "current directory":	Local "GSM directory"
GLOBAL.EXE loaded from:	Local "GSM directory"
gl-ipl.dlv located:	Not used
gsm200 location:	Local "GSM directory"

5.3.1 Fat-Client Configuration with central GSM directory, SYSRES A01

Consider a 3 computer network with Server1, PC1 and PC2.

On Server1:	The GSM directory is \\server1\gsm\, for example GLSERVER.EXE is running to allow access to SYSRES on A01 GLOBAL.EXE loads GSM from SYSIPL c:\gsm\gl-ipl.dlv
On PC1:	GLOBAL.EXE is loaded from \\server1\gsm\ GLOBAL.EXE loads GSM from a shared SYSIPL \\server1\gsm\gl-ipl.dlv
On PC2:	GLOBAL.EXE is loaded from \\server1\gsm\ GLOBAL.EXE loads GSM from a shared SYSIPL

\\server1\gsm\gl-ipl.dlv

When GSM SP-6, or later, is installed on Server1 the $STARH file from the SYSRES (A01) is copied to .\LicenceFiles\global.lic on the GSM directory on Server1. The GSMSP6 job updates both the SYSRES (A01) and the **implicitly** shared SYSIPL (i.e. \\server1\gsmserver1\gl-ipl.dlv). No special action is required after the GSM SP-6 (or later) installation because all GLOBAL.EXE's access the same global.lic file (because the "current" directory for all Global Clients is \\server1\gsm):

\\server1\gsm\LicenceFiles\global.lic

There are no special considerations, other than those described above, for a central GSM directory GLOBAL.EXE configuration. The global.lic file is always open shared when the GSM start-up code reads the licencing information. If two users running on different GLOBAL.EXE's attempt to write to global.lic simultaneously, one user will suffer a STOP 5701 but this is **exceedingly** unlikely to occur in practice.

5.3.2 Fat-Client Configuration with central SYSRES (A01) and shared SYSIPL

Consider a 3 computer network with Server1, PC1 and PC2.

On Server1:	The GSM directory is C:\gsm\, for example GLSERVER.EXE is running to allow access to SYSRES on A01 GLOBAL.EXE loads GSM from SYSIPL C:\gsm\gl-ipl.dlv
On PC1:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc1\ GLOBAL.EXE loads GSM from a shared SYSIPL: \\server1\gsm\gl-ipl.dlv
On PC2:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc2\ GLOBAL.EXE loads GSM from a shared SYSIPL: \\server1\gsm\gl-ipl.dlv

When GSM SP-6, or later, is installed on Server1 the $STARH file from the SYSRES (A01) is copied to \\server1\gsm\LicenceFiles\global.lic. The GSMSP6 (or later) job updates both the SYSRES (A01) and the **explicitly** shared SYSIPL (i.e. \\server1\gsmserver1\gl-ipl.dlv). Although no special action is required after the GSM SP-6 (or later) installation to propagate the **shared** SYSIPL (i.e. file gl-ipl.dlv) **special action is required for the global.lic file.** Either the global.lic file must be copied from Server1 to PC1 and PC2 **or** the following registry setting must be established:

..\Global\Client\LicenceFiles\CentralLicenceFileDirectory

If the global.lic file copy approach is adopted, the following file on Server1:
C:\gsm\LicenceFiles\global.lic
must be copied to the following file on PC1:
C:\gsmpc1\LicenceFiles\global.lic
and the following file on PC2:
C:\gsmpc2\LicenceFiles\global.lic

If the registry setting approach is adopted, the "CentralLicenceFileDirectory" registry setting must be set to:
\\server1\gsm\LicenceFiles\
(or an equivalent share-name on Server1).

5.3.3 Fat-Client Configuration with central SYSRES (A01) and local SYSIPL's

Consider a 3 computer network with Server1, PC1 and PC2.

On Server1:	The GSM directory is C:\gsm\, for example GLSERVER.EXE is running to allow access to SYSRES on A01 GLOBAL.EXE loads GSM from SYSIPL C:\gsm\gl-ipl.dlv
On PC1:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc1\ GLOBAL.EXE loads GSM from a local SYSIPL: C:\gsmpc1\gl-ipl.dlv
On PC2:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc2\ GLOBAL.EXE loads GSM from a local SYSIPL: C:\gsmpc2\gl-ipl.dlv

When GSM SP-6, or later, is installed on Server1 the $STARH file from the SYSRES (A01) is copied to \\server1\gsm\LicenceFiles\global.lic. The GSMSP6 (and later) job only updates the SYSRES (A01) and the **local** SYSIPL on Server1 (i.e. \\server1\gsm\gl-ipl.dlv). In order for the GLOBAL.EXE on PC1 to load from the "SP-6" SYSRES, the "SP-6" SYSIPL (i.e. gl-ipl.dlv) from Server1 **MUST** be copied to PC1. Similarly, in order for the GLOBAL.EXE on PC2 to load from the "SP-6" SYSRES, the "SP-6" SYSIPL (i.e. gl-ipl.dlv) from Server2 **MUST** be copied to PC2. This requirement to propagate the updated SYSIPL is to prevent a GSM SP-6 SYSRES being used in conjunction with a pre-GSM SP-6 SYSIPL (on PC1 or PC2). The requirement to propagate the updated SYSIPL to all fat clients on the network is no different for SP-6 (or later) than for all other GSM Service Packs.

However, in addition to the special action to ensure that all GLOBAL.EXE's load from a "local" SP-6 SYSIPL additional **special action is also required for the global.lic file.** Either the global.lic file must be copied from Server1 to PC1 and PC2 **or** the following registry setting must be established:

..\Global\Client\LicenceFiles\CentralLicenceFileDirectory

If the global.lic file copy approach is adopted, the following file on Server1:
C:\gsm\LicenceFiles\global.lic
must be copied to the following file on PC1:
C:\gsmpc1\LicenceFiles\global.lic
and the following file on PC2:
C:\gsmpc2\LicenceFiles\global.lic

If the registry setting approach is adopted, the "CentralLicenceFileDirectory" registry setting must be set to:
\\server1\gsm\LicenceFiles\
(or an equivalent share-name on Server1).

5.3.4 Fat-Client Configuration with central SYSRES (A01) and local SYSRES's

Consider a 3 computer network with Server1, PC1 and PC2.

On Server1:	The GSM directory is C:\gsm\, for example GLSERVER.EXE is running to allow access to SYSRES on A01 GLOBAL.EXE loads GSM from SYSIPL C:\gsm\gl-ipl.dlv
On PC1:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc1\ GLOBAL.EXE loads GSM from a local SYSRES: C:\gsmpc1\gsm200
On PC2:	GLOBAL.EXE is loaded from a local GSM directory C:\gsmpc2\ GLOBAL.EXE loads GSM from a local SYSRES: C:\gsmpc2\gsm200

When GSM SP-6, or later, is installed on Server1 the $STARH file from the SYSRES (A01) is copied to \\server1\gsm\LicenceFiles\global.lic. The GSMSP6 job only updates the SYSRES (A01) and the **local** SYSIPL on Server1 (i.e. \\server1\gsm\gl-ipl.dlv).

The GSM SP-6, or later, installation must be run on PC1 to upgrade the SYSRES. When GSM SP-6 (or later) is installed on PC1 the $STARH file from the local SYSRES (201) is copied to c:\gsmpc1\LicenceFiles\global.lic.

The GSM SP-6 installation must also be run on PC2 to upgrade the SYSRES. When GSM SP-6 is installed on PC2 the $STARH file from the local SYSRES (201) is copied to C:\gsmpc2\LicenceFiles\global.lic.

There are no special considerations, other than those described above, for a multiple GLOBAL.EXE, with multiple global.lic files, configuration. However, it must be remembered that all global.lic files should be updated when applying an Expiry Date Password, or upgrading the User Count, for example. It may be more convenient to arrange for all the GLOBAL.EXE's to load from a single global.lic file. If this approach is adopted, the "CentralLicenceFileDirectory" registry setting (see above) must be set to:

\\server1\gsm\LicenceFiles\

(or an equivalent share-name on Server1).

5.3.5 Summary of Fat-Client Configurations

This table summarises the special considerations for the various fat-client configurations.

Description	Advantages	Disadvantages
Section 5.3.1. Central shared "GSM directory" on a server. All fat-clients use this as the "current directory". This type of fat-client configuration is seldom used.	Only a single directory for all .EXE updates. Only a single invocation of the GSMSP6 job is required to update the single, central SYSRES and central SYSIPL combination.	GSM load times can be slow because of the extra network accesses required to load GLOBAL.EXE. The central GSM directory must be shareable.

Section 5.3.2. Central SYSRES, central SYSIPL but local "GSM directories" to hold GLOBAL.EXE etc. This type of fat-client configuration is quite common.	Slightly faster load times. Only a single invocation of the GSMSP6 job is required to update the single, central SYSRES and central SYSIPL combination.	Multiple directories (i.e. one per PC) must be updated for .EXE updates. Either the global.lic file from the server must be copied to all local GSM directories or a CentralLiceneceFileDirectory registry setting must be established. To avoid the need to update multiple global.lic files for subsequent User Count or Password updates you are advised to establish a CentralLiceneceFileDirectory registry setting on each PC.

Section 5.3.3. Central SYSRES, local SYSIPL's. This type of fat-client configuration is very common.	No need to make the central GSM directory shareable. Faster load times.	Multiple directories (i.e. one per PC) must be updated for .EXE updates. After the GSMSP6 job has been run to update the central SYSRES and SYSIPL combination, the central SYSIPL **must** be copied to all local GSM directories. Either the global.lic file from the server must be copied to all local GSM directories or a CentralLiceneceFileDirectory registry setting must be established. To avoid the need to update multiple global.lic files for subsequent User Count or Password updates you are advised to establish a CentralLiceneceFileDirectory registry setting on each PC.

Section 5.3.4. Local SYSRES's. This type of fat-client configuration is quite common	No need to make the central GSM directory shareable. Faster load times. Faster GSM program load times.	Multiple directories (i.e. one per PC) must be updated for .EXE updates. After the GSMSP6 job has been run to update the central SYSRES (and SYSIPL) the GSMSP6 job must be run on all other SYSRES volumes. **The multiple invocation of the GSMSP6 job will create multiple copies of the global.lic file.** To avoid the need to update multiple global.lic files for subsequent User Count or Password updates a CentralLiceneceFileDirectory must be established.

There are two "golden" rules that **must** be followed and one "silver" rule that **should** be followed regarding GSM Service Packs and the global.lic file on fat client configurations.

The first "golden" rule is that if a SYSIPL (gl-ipl.dlv) that has been used to propagate GSM around fat clients (i.e. to configure a number of non-shareable local SYSIPL's), is subsequently updated by a GSM Service Pack upgrade, it **MUST** be re-propagated around all the fat clients that load from a local, non-shareable SYSIPL. If this advice is not followed a GSM SP-5 (for example) SYSIPL will be used to load a Global Client that accesses a GSM SP-6 (for example) SYSRES. This will result in the following Initiation Warning which **MUST not be ignored**:

```
$57 INITIATION WARNING 302 - $MONITOR VERSION V8.1.5 ; $STARC VERSION V8.1.6
```

or the following Initiation Error which **CANNOT be ignored**:

```
$57 INITIATION ERROR 60 - MONITOR AND COMMAND LIBRARY INCOMPATIBLE
```

The second "golden" rule is that if a global.lic Licence File is created (from an original $STARH file on SYSRES) during a GSM SP-6 upgrade then either that global.lic file must be copied to every other GSM directory (within a LicenceFiles directory); or the CentralLicenceFileDirectory registry setting must be added to every fat-client PC to allow access to a central, shared Licence File directory. If this advice is not followed a STOP 5701 will result when an attempt is made to load a GLOBAL.EXE. The STOP 5701 indicates that the GLOBAL.EXE cannot access a global.lic file. The simple rule is that a global.lic file must be directly accessible by each GLOBAL.EXE (either by copying the global.lic file from the central server to the LicenceFiles directory on each "local" PC, or in the shared directory on the server that is specified by the CentralLicenceFileDirectory registry setting). You are strongly advised to maintain a single, shared global.lic file to avoid multiple updates when User Count upgrades or PM Expiry Date Passwords are applied.

The "silver" rule is that if a GSM Service Pack is applied to the central SYSRES of a multiple-SYSRES configuration, it should also be applied to all the other "local" SYSRES volumes on the network. This is to avoid fat-client, multiple SYSRES network configurations that include mixtures of GSM Service Pack versions. A mixture of GSM Service Packs on a network can sometimes lead to unpredictable effects.

Because of these various complications, wherever possible, **a fat-client configuration should be converted to a thin-client configuration.**

6. Question and Answers

Q. That's very good. I have now set up the centralised global.lic arrangement on our own system and I'll recommend it to the resellers too. Would I be right in thinking that I need to make the shared directory which holds global.lic on the server write-able by all gsm FatClient users?

A. This is not strictly necessary but it's probably not a bad idea. It's not strictly necessary because if all $CUS updates are performed on the fat client with the "local global.lic" then all the other fat clients should only require read-only access to their "remote global.lic" files.

The global.lic functionality has been optimised for single-GLOBAL.EXE and multiple-GLOBAL.EXE thin-client configurations. It gets slightly messy with genuine fat client configurations that involve multiple global.lic files. In this type of config, the central shared folder for global.lic is probably better than implementing "global.lic access" functions in the Global Client to Global Server interface.