GX & GSMWIN32 Virtual Ports

1. Introduction

This document describes the changes to GSMWIN32.INI, GXHOSTS.INI and the GSM (Windows) NETWORK section of the registry to support the "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.**

2. Registry Changes

The following new registry options are now available:

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

Network number	*Virtual Port*	*Comments*
01	01	Auto generated
02	02	Auto generated
03	03	Auto generated
04	89	Set explicitly
05	05	Auto generated

3. GSMWIN32.INI File Changes

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
```

4. GXHOSTS.INI File Changes

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.

5. Versions Supporting the VirtualPort option

The following versions of the various .EXE's support the VirtualPort option:

.EXE	*External version*	*Internal version*

GLOBAL.EXE	V3.3	V3.3 RC-24
GSMWIN32.EXE	V3.4	V3.3w
GX.EXE	V2.5	V2.5 RC-6
GXIO.EXE	V3.4	V3.3w
GSMCONS.EXE	Not supported	