

Host Links for Windows, Linux and UNIX
Software Release Bulletin
Release 6.4
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This release

Release number (6.4)

This is the code base of a minor release. Any updates will have the same release identifier (6.4) and an update number (6.4.1).

New platforms

Platform code x64pc: Intel/AMD x64, Windows 2003

Product platforms

All server products (Ggate, GUFT, Gspool, Gweb, Gmailer, Gproxy, etc.) and features mentioned in this release bulletin are available on UNIX, Linux and Windows server platforms. The emulators (Qsim, V78sim, G3270 and G5250) and other products that support terminals are available on UNIX and Linux, but cannot be used directly on Windows servers because there is no terminal support. However all the emulations can be used by Gweb and GlinkWeb on UNIX, Linux and Windows web servers to provide host access for browsers. The client products run on the user workstation.

For a list of platform codes supported in this release see section **Delivery** and **Supported platform codes**.

Incompatibilities

Mixing of releases

Do not install programs from this release into a directory with G&R programs from a previous release. Mixing of releases will not work. Note that this limitation also includes customer written applications using GlAPI. If such programs are to run in a 6.4 environment, they have to be re-linked with the GlAPI libraries. Gmail customers who want this release because of new functionality in Host Links products should also update Gmail, although there are no functional changes, just error corrections.

If you need to run multiple releases simultaneously on a UNIX system they have to be installed in separate directories and the PATH and GAR_SYSDIR have to be set accordingly, as per the documentation. Installation and execution of components from multiple releases is not supported on Windows platforms, even if they are installed in separate directories.

DSA configuration recompilation

The version number of DSA configurations has been incremented; you must recompile dsa.cfg under the R6.4 version of gcc.

New license file

All Release 6.4 licenses require a new entry in the site license, MachineID. The entry identifies the system that will run Host Links, by numerical IP-address, or by MAC address. All installations need an updated license file.

License file example:

```
Site Agent=G&R A/S; Name=ABC; Platform=rs6a4; CustomerID=5;
      RefNum=6; MachineID=82.148.184.134; Key=12345678
Basic      Key=61b3af54;
Gproxy     Key=485b5d90;
Guftc      Key=539bd345;
Ggate      Release=6.4; Licenses=30; SiteLimit=90; Community=1;
      Corporate=200; Key=36a36c5b;
GljSrv     Release=6.4; Licenses=25; SiteLimit=50; Key=b8c57fa6;
Gweb       Release=6.4; Licenses=20; SiteLimit=40; Community=1;
      Corporate=60; Key=e7cbd9df;
```

(NB: In the actual license file, lines must not be wrapped)

Contact your distributor for an update of the license file.

New products

GSFTP

Gsftp is a transparent gateway between two different File Transfer protocols: FTP (RFC 959) and SFTP (the SSH File Transfer Protocol). The purpose is to present a seamless integration between the two protocols, with automatic conversion. The gateway runs on any UNIX/Linux platform supported by Host Links, and consists of two programs:

```
gftp      which provides an FTP server and an SFTP client
gsftp     which provides an SFTP server and an FTP client
```

In addition, a custom-made copy of SSH is used. In general, the gateway can be used inside any data center to connect an internal standard FTP client/server to external SFTP clients/servers, securing the transfer of files between the data center and the outside world. Typically, a GCOS data center would install GSFTP on an internal platform to provide secure communication between the standard GCOS FTP client/server and external SFTP client/servers.

Gspool Monitor

The Gspool Monitor is a Windows-only utility program that provides the administrator with a single administrative entry point for monitoring all Gspool sessions. The administrator can check all sessions, verifying that print reports received by Gspool have been successfully transferred and properly handled at the final destination. In the event that print data handling was not performed successfully, e.g. due to a printer or spooler problem,

the Monitor offers the administrator the possibility of manually reissuing the print request after the printer problem has been corrected, redirecting the print data to another printer in the network or passing the print data to a command or a script procedure. If necessary the administrator can use the Monitor to dynamically change the Gspool print parameters before issuing a new print request.

Typically, you launch the Gspool Monitor from the Host Links main administrative component *Gmanager* (Tools menu) but you can also start it directly from the Host Links binary directory using a command line.

The Monitor builds a Gspool session structure based on the information in the 'history file' that is optionally maintained by Gspool sessions. The history file contains information about Gspool sessions, such as date and time, number of bytes transferred, parameters used to process the print data, status of the print procedure and, in the case of a failing print procedure, the name of the saved report file.

The history file name is:

```
report.history
```

and is located in the Gspool server directory with path name:

```
c:\gar\servers\SCID.gsp\report.history
```

where SCID is the local node name in the DSA configuration file.

The history file can contain information about all Gspool sessions processed, or only sessions that require some kind of manual intervention. The Gspool command line parameter that is used to control this is:

```
-HIST [ON/all/off]
```

ON	Gspool creates a new entry in the history file if the print request fails (default).
ALL	Gspool always updates the history file upon session completion.
OFF	Gspool does not update the history file.

The following is a sample Gspool command (set in 'gservice.cfg' if pre-started or in the listener configuration file 'config.dsa' for 'start on demand'):

```
gspool -tw -hist all -ps //server/prt01 -li dsa -ln -mn prt01mb
```

The main Monitor window contains a list of Gspool session information as saved to the history file, one line per session. For each entry (session) in the history file, the following fields are listed:

Mailbox

The name of the HOST LINKS application mailbox (corresponds to the name of the logical printer). It can be up to 12 characters long and is configured in the gservice.cfg file (for pre-started Gspool server) or in the Listener configuration file config.dsa (in the case of a Gspool server started 'on demand').

Status

This is the current status of the session entry. It can be one of the following:

OK The session terminated without any problem.
ERROR The session terminated with error and some interaction (e.g. reprint) is necessary.
PRINTING A print request (from this Gspool Monitor) is in progress.
PRINTED A print request (from this Gspool Monitor) has been performed.
EXECUTINGA print command request (from this Gspool Monitor) is in progress.
EXECUTED A print request (from this Gspool Monitor) has been performed.
HANDLED A print or command request has been performed previously (i.e. by another Gspool Monitor session).

Print File

This is the name of the print file saved by Gspool. A default filename is composed as follows:

err-MBXNAME-ppppp-nnn.mmm

MBXNAME is the name of the application mailbox ('printer name')

ppppp is the PID (process ID) of the Gspool process that created the file

nnn

mmm are sequence numbers

Size

This is the size of the print file (in characters).

Created

The date and time the file was created.

Printed

The date and time the file was printed (by either Gspool or Gspool Monitor).

Print Device

This is the name of the printer/spooler or the command name used for this session entry.

The administrator periodically goes through all the failed sessions in the Gspool Monitor list and either reissues the original request - assuming that the reason for the Gspool failure has been found and corrected, redirects the print to some other device or spooler, or launches some other procedure (e.g. a BAT file) to handle the print data. The following is a typical list of

keyboard actions necessary to reissue a failed Gspool print request:

Changes and enhancements

GGATE changes

SSL support for all client protocols.

In previous releases SSL was only supported for clients using native Ggate protocol (generally Glink). In this release Ggate also supports SSL for TNVIP and Telnet clients. A set of new parameters is introduced in Ggate to support this:

```
-ggassl portno  
-tnvssl portno  
-telssl portno
```

A single instance of Ggate can now run SSL connections and non-SSL connections simultaneously. You need the SSL version of the listener (nl_dsa) on Windows servers.

Sample startup command:

```
nl_dsas  
gg_tcp -sslcg ggate.pem -gga 31111 -ggassl 5555 -tnvip 7523  
-tnvssl 7777 -teln 4444
```

In this case Ggate listens for standard (non-SSL) Ggate connections on 31111, Ggate SSL connection on port 5555, standard TNVIP on 7523, TNVIP SSL connections on 7777 and Telnet connections on 4444.

Ggate message broadcast to all clients

Ggate supports a new operator command (through the Gmanager command interface) that makes it possible to send a message to all clients that have an active session.

The command to be typed in the Gmanager command dialog box is

```
MSG any message text
```

Telnet protocol changes

Changes have been made to the initial Telnet dialog in order to be compatible with the Bull implementations (in DN/MainWay/GNSP). The changes affect the negotiation of the Telnet ECHO and SGA settings, and are necessary for some Telnet clients that rely upon MainWay-specific default settings and negotiation dialog.

TNVIP local dialog

Ggate now supports the TNVIP 'local dialog' protocol feature. Different emulators have different ways of calling up local dialog. In Affinity this is on Shift/F10 and also under the 'session' menu item. Glink has it on CTRL/F6 and under the 'line' menu item. In both Terminal manager mode and menu mode local dialog during a session brings up the `$$$` prompt. You can then enter any of the `$$$` responses. When the output is complete you are returned to your session, and your next input goes to the application. In Terminal manager mode you can enter Local dialog during the log-on phase. On exiting Local dialog you are returned to the log-on dialog.

Hold session on disconnect

The option for keeping the session with the Ggate after disconnecting from the mainframe application has been extended to apply to native Ggate sessions (it was only implemented for TNVIP sessions previously). The same general rules apply. The default is 'log off' i.e. physically disconnect from Ggate. This can be overridden by applying the Gline `-lo off` parameter to the CONAME. In the case of native Glink/Ggate sessions you can also override by giving `-lo off` as an additional Gline parameter in your Glink configuration. For native Glink/Ggate sessions the screen session is disconnected as before, but the printer session, if any, is left connected to Ggate. This means that any print jobs initiated on the mainframe that connect out to your Glink printer will be able to connect and deliver print, even though your screen session is disconnected. You can also override the disconnect of your printer session manually by using the `$$$DI -HOLD` syntax to disconnect from the application, or conversely `$$$DI -OFF` to log off physically.

Ggate Monitor changes

Messaging to clients

The monitor is able to send a message to a particular session, all sessions owned by a given user or all sessions for all users.

Better synchronization with Ggate

The 'shared memory file' interface used between Ggate and Ggate Monitor has been improved, making it possible for Ggate Monitor to detect status changes earlier.

GLINE changes

SSL filter

The FILTER directive in dsa.cfg has a new filter option. The option permits or denies access to dsa.cfg resources based on the presence of a specified string in the clients SSL certificate e.g.

In this example, a coname is defined that can only be used by SSL clients using this certificate:

```
CN=Jim Gallagher/C=NO/ST=Oslo/O=Gallagher & Robertson as
/OU=DEMO/emailAddress=glink@gar.no
```

The filter is set up to test for the Common Name in the certificate.

```
coname secure -desc "only for the Glink demo" -filter sslflt
-dn il63 -da reqfld -du jimg
```

```
filter sslflt
  permit ssl "CN=Jim Gallagher"
```

The filter could have been set up to test for Oslo.

```
filter sslflt
  permit ssl "ST=Oslo"
```

Allow multiple print tasks

There can be only a single print task waiting for incoming connects to a given mailbox name. A subsequent Glink using the same printer mailbox name will fail to start because the printer mailbox name is busy. You can allow subsequent Glinks to start by supplying the -AMP parameter to the listener. Any print jobs connecting out to the mailbox name will be printed via the first Glink that was started with that printer mailbox name.

Improved handling of incoming (host initiated) sessions

The Gline listener's incoming session logic has been greatly enhanced, giving a significant improvement in handling of 'connection storms' that typically occur when the host tries to start up hundreds of sessions, e.g. print-sessions, simultaneously.

Speed up of local configuration routines.

The Gline local configuration look-up routines have been made more efficient, speeding up look-up in the local configuration files. This is most obvious when using CONAMES in very large dsa.cfg files, e.g. in Telnet/TNVIP configurations.

Gproxy changes

Alarm log changes.

Gproxy now uses a circular alarm stack. Its size is configurable with a new Gproxy parameter:

```
-ALMSTK nnn
```

where nnn is the number of entries in the stack.

The alarm log is cleared at Gproxy startup time.

Performance improvements.

A new separate UDP process/thread is introduced. This new process listens on the UDP (broadcast) socket and queues up incoming load and event statistics for later processing by the Gproxy main process. This makes it possible for Gproxy to ensure that vital load-balancing and license routines are given high enough priority.

Gspool changes

Features supporting the new Gspool Monitor

Changes have been made to the 'history file' that was announced in the previous release. These changes are necessary for Gspool Monitor, which is introduced in this release. The -HIST parameter regulates the support of the history file as follows:

```
-HIST ON/off/all
  ON - write an entry if the session fails
  off - never update the history file
  all - always write an entry in the history file
```

Support for PRC (VIP emulation, Print Repeated Character).

When running in non-transparent mode, Gspool now scans the print stream for a PRC CSI sequence and repeats the XXX

Improved device checking

The device checking routines have been enhanced and now use an extended set of Window printer calls when doing the device check.

Extended use of alarms

Gspool now issues alarm calls if device checking routines fail.

Feature for inserting information before the printdata

Gspool can insert the content of a local data file before the print data is delivered to the local spooling system. A new parameter:

`-PIF filename`

is used for this.

This functionality can be used to insert a bitmap before the print data (a typical application is to insert a print 'logo macro').

Gmanager changes

Gather debug information utility

The Gmanager tools menu can now launch a utility that gathers all Host Links debugging information into a single archive, greatly simplifying error reporting.

New startup utility

The Gmanager tools menu can now launch Ggate Monitor and Gspool Monitor.

License clean

The Gmanager tools menu can now start a license clean utility that searches through the licenses for any given product, releasing licenses that are not in use but still allocated due to abnormal termination of an instance of the given product.

Glink for Java server changes

The Glink for Java server can now dispense licenses to Glink for Windows Enterprise Edition clients.

Glink for Windows Enterprise Edition clients can obtain their licenses either from the native Windows license server that is part of the Enterprise Edition package or from the Glink for Java server. You choose Glinkjs with a command line parameter to Glink:

```
/CS  dnsname      license server DNS name (port 30842)  
/CSSL dnsname     SSL license server DNS name (port 30852)
```

GWEB changes

Two new macros are introduced:

#cpic ...# feeds the CPIC keystrokes given as parameters into the emulation engine and sends them to the host. No output is sent to the browser.

#setparam N ...# assigns the parameter as the current value of the user-defined parameter give by N.

Improved display of system and status line messages

The default display of system and status line messages such as "Disconnected by host" has been made more readable. An error causing these messages not to be facelifted has been corrected.

Web8/TDS-Web support has been extended

Web8/TDS-Web support has been extended to support HTTP version 1.1 request and response headers. The Web8 response headers are now also passed on transparently to the browser.

Euro in input fields

The euro sign can now be displayed inside input fields.

Improved visual attributes

The technique used for applying visual attributes on form elements in the browser has been extended. The CSS class names now differentiate between fixed and variable fields.

GWEBS changes

Multiple addresses

The server can now listen on multiple addresses. The default is to listen on all as before, but the 'Listen IP-addresses' directive can now be used to give a space-separated list of IP addresses.

SSLOptions

Added the "-sslopt xxx,yyy" parameter which defines options for the SSL layer (GwebSS only). This is an interface to OpenSSL SSL_CTX_set_options.

See http://www.openssl.org/docs/ssl/SSL_CTX_set_options.html

The names of the options are taken from the OpenSSL documentation, but the prefix SSL_OP_ and all underlines are removed. Multiple comma-separated options can be used; e.g. to disable SSL v.2 and v.3 you would use: -sslopt NoSSLv2,NoSSLv3

Rotating access log

Automatic rotation of the access log ensures that the file will never grow to fill up the disk partition. The default maximum

access log size is 1MB, but can be configured. A total of 10 generations of access log files are preserved.

Delivery and supported platforms

We deliver the software in a number of different ways; these instructions assume you have placed the files in a directory on your server system. These files are only used during installation and you may remove them when it is done.

UNIX/Linux deliveries

Deliverables

install.640	Installation script
srbhl.640	Software Release Bulletin
licenses	License keys to activate software
unzcccoo	Unzip program to unpack delivery
pppcccoo.640	One or more ZIP archives with software

The 640 extensions above refer to the Host Links version number. Maintenance releases will have the last digit incremented, e.g. 641 and 642. Minor releases will have the middle digit incremented, e.g. 630 and 640. Major release will have the first digit incremented, e.g. 600 and 700. Beta releases always have the last digit replaced with a letter, e.g. a and b.

The 'ppp' above refers to the product code.

The 'cccoo' above refers to the CPU family and operating system.

Product codes

ppp	Product name
bas	Basic
g32	G3270
g52	G5250
gga	Ggate
gli	Gline
glp	GlAPI
gsp	Gspool
guf	GUFT
pth	Pthru
qsi	Qsim
v78	V78sim
gpr	Gproxy
gwb	Gweb
gsf	Secure ftp

Supported 32 bit UNIX/Linux platforms:

386l2	Intel Pentium PCs, Linux kernel 2.6
ppca5	Bull Escala, AIX 5L for Power V5.1/5.2/5.3

Supported 64 bit UNIX/Linux platforms:

i64l2	Intel Itanium 2, Linux kernel 2.6
x64l2	AMD/Intel x64 86, Linux kernel 2.6
i64hl	Hewlett-Packard, HP-UX 11i v2

Examples

Some examples of complete filenames:

ggax64l2.640	Ggate for Intel x64_x86, Linux kernel 2.*, release 6.4.0
Gsp386l2.640	Gspool for Intel x86, Linux kernel 2.x, release 6.4.0
gwbppca5.640	Gweb for Bull, AIX 5L for Power, release 6.4.0

These files are packaged in ZIP format archives using Info-ZIP's compression utility. This format is also compatible with PKWARE Inc's PKZIP version 2. The installation script uses the delivered unzip program to decompress the files.

All programs require a license key to run. Your distributor will include a licenses file in the delivery. If you receive an updated licenses file after delivery, you must copy it to the configuration directory.

Make sure that all of the files end up in the same directory on your system, and that all the file names are in lower case. These files and this directory will only be used during the installation, so you can place them in /tmp, your home directory, or whatever. Use chmod to set the necessary permissions; 'rw' on the ZIP product archives (pppccoo.640), install.640 the srb and licenses, e.g. chmod 664 filename. Set the x-bit on the unzip program: chmod 775 unzccoo. Proceed as described in the installation chapter.

The Info-ZIP copyright requires us to tell you:

Info-ZIP's software (zip, UnZip and related utilities) is free and can be obtained as source code or executables from various bulletin board services and anonymous-FTP sites, including CompuServe's IBMPRO forum and <ftp://ftp.uu.net/pub/archiving/zip/>.

UNIX 32 bit deliveries by special request

The following platforms can be delivered by special request, at a cost based on time and materials and time frame depending on available test and qualification resources.

386v3	Intel Pentium PCs, SCO UNIX R5
alpdu	Alpha, Digital Unix 4.x
hppul	Hewlett-Packard, HP-UX 10.x
rs6ai	Bull DPX/20 and IBM RS/6000, AIX 4.2
386so	Intel Pentium PCs, Solaris release 7/8
hpp11	Hewlett-Packard, HP-UX 11.0
rs6a4	Bull Escala/Estrella, IBM RS/6000, AIX 4.3
spaso	Sun SPARC, Solaris 7/8

Windows deliveries

Supported 32 bit platforms

386pc	Windows 2000, Windows XP, Windows 2003
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Supported 64 bit platforms

x64pc	Intel/AMD x64, Windows 2003 x64
i64pc	Intel Itanium 2, Windows 2003

A Windows delivery is a single self-extracting exe file e.g.

640_en32_xxxxxxxx.exe	xxxx is <complete> or product names
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Marben OSIAM deliveries

We deliver the Marben OSIAM transport stack as a self-extracting archive.

Marben301_w2k_xp.exe	Windows 2000, XP and 2003
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This is a 32-bit product. You cannot use it on the 64-bit Windows platforms.

Installation

Installation on Windows

Host Links products for Windows are delivered as self-extracting archives. When run they will automatically extract to a temporary directory and start the installation program.

Please read the file HLREADME.TXT and the Host Links on Windows Installation and configuration manual.

Installation on UNIX/Linux

We strongly recommend that you create a new UNIX/Linux user id and group id for Host Links. An obvious choice of names would be:

```
username=gar
groupname=gar
```

and to let the system assign the numeric id's. Log in as, or 'su' to, this user whenever you install new releases, change configuration files or start background processes such as Gspool.

Here is an outline of why this is recommended:

This user will own all files created by the installation routine, making it easy to identify the files belonging to Host Links.

If you use a disk quota system, the files' disk space will not be deducted from the quota of whoever installed them.

This user will own all daemon processes, such as the background Gspool and GUFF server, making them easily identified.

Host Links can be installed in such a way that only users belonging to the gar group can access the software.

The Host Links default system directory is /usr/gar. Many of the Host Links programs will look for text files, configuration files, macro files and other information in the Host Links system directory. The installation script gives you a choice of selecting another directory as the default system directory. You should note that if you do that, you must define a GAR_SYSDIR environment variable that points all Host Links users to this directory. To make your installation as simple as possible we suggest the following. Before you run the installation script, log in or 'su' to the root user, create the directory /usr/gar and make the gar user the owner of it with the 'chown' command. Thereafter:

Log in as, or 'su' to, the gar user:

cd to the directory that contains the delivery files.

Start the installation script:

```
sh install.640
```

where 640 is the Host Links version number.

The script will ask you a few questions before it goes on to do the actual installation. The script is very careful not to overwrite configuration files that you have changed at your site. The sample files delivered will only be installed when you do the first time installation, not when you do upgrades. The installation script is used both for new installations and for upgrades of old ones.

If you will be using the rlogin mode of the TCP/IP line handler to reach other systems you must carry out a last step as superuser:

```
su
cd /usr/gar/bin
chown root gl_tcp
chmod u+s gl_tcp
```

Errors corrected

E1110: Gline, DSA session could hang after 'discourteous' disconnect

A DSA session could hang in the termination phase after a 'brutal' disconnect.

The problem has only been observed on GCOS8 SR6.0 systems running Ggate on the GNSP.

E1112: Gspool, did not abort session if an init error occurred

If an init error occurred, (e.g. a parameter error) when Gspool was started on demand, Gspool did not abort the host session before it terminated. This could cause the session initiator (e.g. Twriter on GCOS7) to hang waiting for the session to be accepted.

Avoidance procedure: Fix the problem that caused the init error (e.g. in the case of a parameter error, fix the parameter)

E1115: Ggate Monitor, caused window update problems

Ggate Monitor was accumulating GDI handles/objects. If left running continuously for a long period it would eventually accumulate so many GDI handles/objects that the program itself, and all other Windows applications on the same machine would have difficulties in repainting their window after being partially obscured by another.

The work-around is to start Ggate Monitor only when you need to look at Ggate status information. If you leave it running you must periodically terminate and restart it.

E1116: Gweb in Web8 mode forced a specific Content-Type

When running Gweb in Web8/TDS-Web mode, Gweb forced a specific response content type of text/html.

In the case where the data returned from the host used a different content type, the content type set by Gweb had precedence, making the client browser ignore the host settings.

E1117: UNIX Listener returned 'unknown' for start on demand mailboxes

The DSA (DIWS) listener (nl_dsa) for UNIX/Linux systems could return 'unknown' to a client trying to connect to a start on demand mailbox. Mailboxes configured for start on demand (GUFT, Gspool etc.) in

config.dsa (config.diws) are added to the list of mailboxes waiting for incoming connects when the listener starts, and subsequently whenever the configuration file is updated. Other listening mailboxes are added to the list dynamically when the listening product is started (for example a Glink with a printer that waits for incoming connections) and removed from the list when they terminate. The removal process for a listening mailbox also cleans up the list of listening mailboxes. This clean-up sometimes removed the mailboxes that were configured for start on demand. Clients connecting to a start on demand mailbox would then be rejected with an 'unknown mailbox' message.

E1118: Gline, parameter -ie off (add etx off) was not accepted

By default the DSA line module adds either ETX or CR (depending on terminal type) at the end of a block when transmitting to the mainframe. For some stranger terminal types it can be necessary to suppress the functionality using -IE OFF. This was failing due to an error introduced when extending the -IE functionality for R6.3. The parameter worked correctly in earlier releases.

The extended parameter in R6.3 is:

-IE ON/off/0/1/2 Insert ETX/CR at end of message.

0 is OFF, 1 is ON, and 2 is ON for messages from the mainframe

E1119: Gline, ETX was added for ASCII IBM 3270

The DSA line module used by Ggate was incorrectly adding an ETX terminator to blocks transmitted to GCOS8 mainframes when the terminal type was an ASCII IBM3270 (3270A). This caused problems when logging on to non-secure TSS (the USERID and PASSWORD questions), and in several of the TSS subsystems. This was not a problem in older releases of GCOS, but TSS is now seeing the terminator, causing the USERID to be rejected. In secure systems the USERID and PASSWORD questions are not issued, so log-on is possible, but then some of the subsystems would return:

003 is an illegal input character

Note that when using Glink to connect to GCOS8 as an ASCII 3270 the emulation changes mode depending on the output from the applications. This is because although the application itself might send 3270 screens that require the 3270 emulation, the TSS subsystems and the TP8 transaction manager send messages in unformatted mode, and Glink simply switches to VIP7700 emulation for the necessary dialog steps.

E1120: Ggate/TNVIP print displayed on screen for VIP7800

In the TNVIP protocol print data received from a separate print session is merged into the screen session and sent on the print channel, but it is additionally 'wrapped' with printer start/stop commands. The 'wrapping' was not functioning for VIP7800 terminals. It works for the DKU terminal types.

E1123: Ggate/Telnet, default values for echo and SGA

The Ggate support for Telnet clients used the RFC 857 standard default for echo (won't echo) and the RFC 858 standard default for SGA (won't Suppress Go-ahead). This relies on clients requesting echo and SGA if they need it.

The implementation in the Bull MainWay is the opposite of the standard in the RFCs. The MainWay default for asynchronous terminals is echo and SGA.

Since the primary purpose of the Telnet implementation in Ggate is to support third party clients that have previously been qualified for connections via a MainWay, and since these third party clients often have a minimal (or non-existent) Telnet negotiation engine, the defaults for Ggate Telnet have been changed to use echo and SGA even if the client doesn't request them. This behaviour can be standardized if necessary using parameters to Ggate (-TELSGA ON/off and TELECHO (ON/off), or as Gline parameters for a Telnet CONAME in the dsa.cfg file.

The options have also been tied together, as in the MainWay implementation (and as recommended in RFC858). If a client uses the secondary dialog command (\$*SEC OFF) to turn off the echo, then the Ggate Telnet negotiation engine will announce that it will turn off echo, but also stop suppressing Go-ahead (won't echo, won't SGA).

E1124: Ggate/Telnet, backspace interpretation

By default the Ggate/Telnet manager supports the use of Backspace to cancel the previous character. This is in order to make life easier for human clients who are responding to terminal manager dialog, or engaged in application dialog in a Telnet session, and need to correct typing errors.

If the Telnet client is non-human, or human talking to an application that supports backspace itself, and needs to transmit all characters, including backspace then the behaviour can be modified using the parameter -TELB5 ON/off.

If the parameter is used as a Ggate parameter it will apply to all Telnet sessions. If this parameter is used as a Gline parameter supplied to a CONAME used by Telnet clients, then it will apply only to Telnet clients using the CONAME.

To make this parameter practical in situations where some Telnet clients are human and need backspace support, and others are machines needing to transmit backspace, the Ggate/Telnet support has been extended to accept the Telnet terminal type as a CONAME if it is not recognized as a supported terminal type.

Note that if used as a Gline parameter, it will only apply when the CONAME is analyzed, this means that you can correct typing errors with backspace in Telnet secondary dialog prior to the choice of CONAME in a connect command.

E1125: Gline, support for 7bit communications

Gline is by nature an 8 bit communications channel between the client and the mainframe application. Some applications, and/or terminals are by nature 7bit (developed at a time when the top bit in communication bytes was used as the parity bit and checked/stripped by the communications software).

This can be controlled in Gline by supplying the parameter:

-E8 ON/off.

The parameter can be used in any application using Gline, but normally it would be supplied as a Gline parameter to a CONAME in dsa.cfg, particularly a CONAME used by clients that were previously connected by communication lines that used parity.

This parameter was implemented to support Ggate/Telnet 7bit clients.

E1128: Ggate/TNVIP, default RESOURCE/CONAME (documentation error)

The Ggate manual incorrectly documents that the default RESOURCE/CONAME of 'TNVIP' is always used if the client specifies no, or an incorrect, RESOURCE/CONAME.

In fact the default is only applied if the banalize (-ba) is set. The updated text in the manual is:

Ggate TNVIP clients can configure a resource name, and this is interpreted as a CONAME in dsa.cfg. You can use RESOURCE as an alternative to CONAME in dsa.cfg; they are synonymous. The CONAME/RESOURCE must be preconfigured to connect the user to a specific GCOS application. A RESOURCE can be shared by many users using POOLS for LID, USERID, BILLING, PROJECT as needed, or using local dialog in order to obtain the connection parameters. The Ggate administrator can configure a default CONAME with the name TNVIP. Clients can use TNVIP specifically as a resource, but if the Ggate banalize parameter (-ba) is set TNVIP clients that specify no resource, or a non-existent resource, are allocated the default TNVIP resource.

E1129: Ggate/TNVIP, negotiation could fail

The Ggate TNVIP negotiation engine on UNIX/Linux platforms failed to confirm Terminal type negotiation (Do Terminal type) before using the Terminal type subnegotiation to ask for the terminal type. This could cause the TNVIP negotiation to fail for TNVIP clients with a stringent (less than robust) negotiation engine. In particular the Affinity emulator failed to establish a connection.

E1137: Ggate/TNVIP, some local dialog commands caused clients to hang

Some 'Terminal Manager' local dialog commands (e.g. \$\$LC on/off) caused the client to be left in a hung/busy state. The reason was that the Ggate TNVIP server did not give back the turn (i.e. did not send the TTNVIP 'Go Ahead' command) back to the client.

Work-around, if you are at the command prompt and your host application allows this, use BREAK to get the turn back. Please note that if you are using a Glink client, you may also need the Glink fix mentioned in E1136.

E1138: Ggate/TNVIP/Telnet, Ggate did not retain pool reservations when redirected from a resource name

In a Ggate TNVIP or TELNET session using 'Terminal Manager' dialog it is possible to redirect from the initial RESOURCE (CONAME) to another CONAME using, for example, the '\$\$ 4700 Connect to:' directive. POOL resources allocated when connecting to the initial RESOURCE were not retained when redirected to the new CONAME.

Typically - if the TNVIP or TELNET default RESOURCE, or the initial RESOURCE specified in a TNVIP client configuration, contained POOL resources (such as a -usr or a -ti), they were allocated, but only retained during the TM dialog until the client selected another CONAME at a subsequent '4700-prompt', then released. A new client connecting to the same initial RESOURCE could then be allocated the POOL resource, and the connection to the mainframe would fail.

Please note that this fix requires an update to the text library (c:\gar\misc\progtext). An updated version of 'progtext' is included in the fix.

E1139: Ggate/TNVIP/Telnet, -PCO printer was not freed on brutal disconnections

If a TNVIP or TELNET session associated with a printer (-PCO) was disconnected 'brutally' by the client (e.g. if the client disconnected the connection to Ggate manually because there was no response to the session connect request, typically because the

mainframe was down), then the cleanup routines failed and the printer was left in a listening state. Any subsequent attempt to allocate that printer would fail.

This problem has only been seen in situations where the mainframe has been booted while automated clients are running, and the automated clients have a short time-out on connection attempts, then disconnect brutally, and try again.

Work-around, wait for the connect to time-out. Note that the connect time-out (default 30 seconds) can be adjusted using the `-cw` parameter.

E1145: Gproxy reports, were not always updated correctly

Gproxy optionally generates a number of reports, generally viewed from a browser. Some system components were failing to report events, so that the reports were not updated, and additionally some reports had cosmetic errors.

For example, in the 'Routes' report: the number of Active sessions was shown as a multiple of 256 on Windows systems. The `gtsupd` utility did not report Transport Station status changes it made. If a session was aborted from the GCOS-side, by brutally taking down the transport path, without aborting the session first, then the aborted session was not reported to Gproxy.

These problems and several cosmetic errors in report presentation are corrected.

E1146: Ggate/Telnet, echo and SGA were not enforced

This fix is related to

E1123: Ggate/Telnet, default values for echo and SGA

The fix in E1123 addressed 'passive' clients that needed non-default Telnet options ECHO and SGA (Suppress Go-Ahead), but didn't ask for them.

This fix goes one step further, and enforces the state of ECHO and SGA configured in Ggate, even for 'aggressive' clients that try to set these themselves. This is again in order to duplicate the way the MainWay does Telnet negotiation, so that Telnet clients that have been connected via a MainWay meet exactly the same negotiation when they connect via Ggate/Telnet, and continue to work as before.

The default for Telnet negotiation in the MainWay is ECHO and SGA, but this can be changed in the MainWay configuration by setting the `-ECHOFF` option in DV name ASY (the default is ECHON). If set, `-ECHOFF` also sets SGA off. Thus most MainWays default to echo/SGA, but some default to a state known in Telnet as 'old line mode'.

In either case the MainWay enforces the configuration by initially refusing any attempt by an 'aggressive' client to change these options. After the first burst of options from the client is finished, the MainWay then sets ECHO to match its own configuration, and sets SGA to match ECHO. If ECHO is agreed then SGA is agreed. If ECHO is turned off, then SGA is turned off.

This initially negotiated state of ECHO can be changed using the `*$SEC ON/OFF` command, in which case the MainWay automatically changes SGA to match whatever is set for ECHO.

This behaviour is now duplicated in Ggate/Telnet using a single parameter to Ggate `-TELECHO (ON/off)` or as a Gline parameter to a Telnet CONAME in the `dsa.cfg` file. The `-TELSGA ON/off` introduced in E1123 is dropped, SGA now follows ECHO.

Please note that there is no such thing as a GCOS application that uses echo mode. Echo, if agreed is from the Terminal Manager of the MainWay, only complete lines are sent to GCOS. If your Telnet clients are able to use 'old line mode', i.e. send only complete lines, without needing echo, then 'old line mode' gives you a much more efficient use of your TCP/IP line, by transmitting a single packet for each line, as compared to echo-mode, which sends and receives a packet for each character as it is typed. If the client is being used by a human user, then the typing experience is much more satisfactory than when using echo mode across a (slow) network. Use of `-TELECHO OFF` in Ggate/Telnet should be considered, if the client supports 'old line mode'.

E1147: Gspool, GUI interface to network printer can fail

This problem concerns only Gspool using Windows GUI options. Gspool using transparent print (`-tp on`) is not involved.

When Gspool is configured to use Windows GUI options it needs to use the Windows GUI interface calls. These calls are efficient and reliable if they are used on a system that has the appropriate printer drivers installed i.e. rendering of the print into 'raw' print commands for the printer in question is done locally.

If the printer is a network printer, and the Gspool system does not have the appropriate driver installed, then Windows drives the GUI interface across the network. This can fail completely, depending on the particular printer driver on the remote printer system, or it can work unreliably, sometimes returning errors. In all events, even if it works, the Windows GUI-interface across the network is much slower than the GUI-interface used locally.

This fix improves Gspool error reporting when it meets problems in using the GUI interface across a network, but it cannot cure the problems, which are in Windows network printing.

If Gspool is installed on a system where installation of printer queues and drivers is not desirable or permitted, then the only good solution, if GUI printer options are needed, is to instead install Gspool on another system where this can be done. This precludes installing Gspool for GUI printing on the Windows side of a GCOS7 Diane system, where installation of printer drivers is discouraged.

In general Gspool performance is always best if Gspool is installed on the system owning the printer, or close to the network printer in question. GCOS DSA connections to Gspool by RFC1006 are made over standard TCP/IP networks, so delivering the GCOS-print directly to Gspool on the system owning, or near, the target printer should not present difficulties, and eliminates Windows network printing limitations, and inefficiencies.

Note that the GgatePlus Professional license, in addition to licensing Ggate, permits installation of Gspool, GUFT and Gproxy on as many servers the customer wishes.

E1149: GlinkJ server, could lose licenses

The Glink for Java Server had a problem where it could lose count of the number of licenses in use. This could cause clients to be denied a license, even if there were licenses available.