



HOST

LINKS™

***Installation
and
Configuration
on
Windows
Servers***

<http://www.gar.no/hostlinks/>



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Contents

Host Links for Windows	1
Installation.....	1
Host Links Product Overview	1
Terminal environment.....	1
Server environment.....	2
Functional summary.....	3
Product architecture.....	5
Architecture diagram.....	6
Delivery	7
Files.....	7
License	7
General requirements	8
Real memory.....	8
Installation step by step.....	9
Preparation	9
Copy the installation package and license.....	9
Create user gar	9
Disable Marben OSIAM transport if used	9
Log out, then in again as gar	9
Disable old Host Links releases	10
Stop and Disable running servers.....	10
If you have Host Links 6.0 or later installed:	10
If you have Host Links 5.x installed:.....	10
Installation.....	10
Run the Host Links distribution executable.	11
Running Gmanager for the first time	17
Set the path.....	18
DSA network configuration.....	19
Install the network software	19
RFC1006.....	19
OSI-transport.....	19
DSA network configuration	20
Configure Host Links Servers	20
Starting the Host Links servers	22

Contents

Failure to start servers	22
Stopping the Host Links servers.....	22
Test.....	23
Restart Windows	24
SRB and manuals	24
Environment.....	25
Set Host Links profiles.....	25
Environment variables.....	25
PATH	25
Host Links Server Administration	27
Gmanager	27
The Gmanager display	29
Details of the Gmanager Server display.....	29
Taskbar functions.....	30
Menu functions	32
The Servers menu	32
The Configuration menu	33
The View menu	33
The Tools menu.....	35
The Browser menu	36
The Options menu	37
Server Configuration.....	39
Gconfig.....	39
The Gconfig main display	41
Main functions	42
Server functions.....	42
Configuration menus	42
Options	42
The DSA/DIWS listener	43
The DSA/DIWS listener parameters affected by this menu follow below:	43
Protocol	43
Local RFC1006 port.....	43
Reject reason code.....	43
Alternate local node.....	44
SSL version	44
Allow multiple PCOs	44
Logging and tracing.....	44
Enable event logging	44
The Ggate server	45
Protocols.....	45

Ports.....	46
Administration.....	47
Load balancing	48
Client parameters.....	48
SSL parameters	48
The Glink for Java server.....	48
Generic	49
Load balancing	50
Config read-only	50
Logging and tracing.....	50
SSL.....	50
The Gproxy server	52
Load balancing	53
Load balancing - Ggate	53
Load balancing – Glink java server.....	53
Load balancing - Gwebs.....	53
Load balancing - Other web server.....	53
SNMP parameters.....	54
Reports	54
Other.....	55
SSL.....	56
SSL parameters	56
The Gspool server	57
Generic	58
Mode of operation	58
End of print job detection.....	58
Host print processing.....	59
Print addressing	59
Host character translation.....	59
Macros.....	60
Additional parameters	60
Gspool printer options.....	61
Device options.....	61
Presentation	62
GUI options.....	63
Margins	63
Device mode settings.....	64
Gspool server - line parameters.....	65
DSA/DIWS line parameters	65
Ggate address	66
DSA/DIWS line parameter.....	66
Listening.....	66
Connecting	66
TCP line parameters	67

Contents

Logging and tracing.....	68
The GUFT server	69
Generic	69
File handling.....	70
Epilogue commands	71
Logging and tracing.....	71
Guft server line parameters	72
DSA/DIWS line parameters	73
Listening.....	73
Connecting	73
TCP line parameters	74
Logging and tracing.....	75
The Gweb server	76
Generic	76
Logging and tracing.....	77
Load Balancing	77
SSL.....	77
Gconfig Configure menu	78
Gconfig Options menu	78
Host print in DSA networks.....	79
Print to screen session	79
Print on separate session	79
Gspool	79
Profiles configuration	81
Directive format	81
List of available directives	82
Description of the available directives	83
CONFIGDIR directory – directory for user configurations	83
DIREEDIT directive – configure editor for Gdir	83
DIRUSE pathname – user command file for Gdir	83
HELPPDIR directory – help base directory	84
HOMEDIR directory – users home directory	84
LANGUAGE ccc – configure dialogue language.....	85
LISTER directive – configure file list program	85
MENU – display program menus	85
MISCDIR directory – miscellaneous file directory	86
SERVERDIR directory – directory for servers	86
WINLISTER directive – configure file list program	86

Sample dsa.cfg..... 87

Marben OSIAM Stack 89

Delivery..... 89

 Memory requirements 89

Uninstalling OSIAM transport 90

Installing OSI stack 90

 Installing the Eicon card 90

 Installing Eicon driver 90

 Configuring the Eicon card 91

 Installing OSIAM Transport - step 1..... 92

 Installing OSIAM Transport - step 2..... 93

Configuring OSIAM Transport 93

 Configuring OSIAM Transport for X.25 93

 Configuring OSIAM Transport for LAN 94

Configuring remote nodes 94

Error codes 94

Appendix: Host Links Manuals..... 95

Appendix: The text library 97

Appendix: Error Codes 98

OSI/DSA error codes 98

Windows Sockets error Codes 110

Host Links for Windows

Installation

This manual describes installation and configuration of the Windows version of the product set.

Host Links Product Overview

Terminal environment

Host links products that run on UNIX or Linux servers with a terminal driven user interface include emulators and concentrators, as well as various utilities.

- **G3270** provides synchronous IBM3270 functionality. G3270 emulates IBM LU type 2, including base and extended colour together with extended highlighting.
- **Qsim** provides synchronous Questar terminal functionality. Qsim simulates all Questar models, including the DKU7007, DKU7107, DKU7105 and DKU7211 (Mono, four colour A/B and seven colour modes are supported). It also simulates the VIP7760 and the VIP7700.
- **V78sim** provides Bull VIP78xx (BDS) functionality. V78sim emulates all models of the VIP7800 family; the actual reference is the BDS7. All visual attributes including colour are supported.
- **Pthru** provides transparent VIP7800 visibility to Bull mainframes for users with asynchronous VIP7800 terminals or emulators. The terminals are used in text or forms mode.

Server environment

Host Links products that run on UNIX, Linux or Windows servers.

- **Ggate** is a transparent gateway to the Bull native network. It avoids all need for Front-ends (MainWay/Datanet) or other gateways. It can be used to connect G&R/Glink (for Windows or Java) emulators or any of the emulators, concentrators, network printer emulators and file transfer clients/servers in the Host Links product set. It also supports third party clients using the TNVIP, TN3270, TN3270E and standard asynchronous Telnet protocols.
- **Gweb** provides a web browser interface to any host application that is otherwise accessible using the *Host Links Qsim, V78sim, or G3270* emulations.
- **Gspool** is designed to run as an unattended process and accept transparent print output from any type of host application (GCOS8, GCOS7, GCOS6, IBM) that normally sends print data to network printers (ROPs), or to a remote spooling system (DPF8-DS). On the Gspool system the print may be directed to a physical printer or to the local spooling system. Gspool operates in different modes, Connect mode, Terminal Writer mode, DPF8 mode, SNM mode, IBM mode, TN3270 mode and TN3270E mode.
- **GUFT** is a G&R implementation of the Bull UFT file transfer protocols. It enables transfer of data files between Host Links and GCOS systems over a DSA network.
- **Gproxy** is a network management program used for supervision, management, load balancing and license sharing of G&R *Host Links* applications. *Gproxy* can be set up as a freestanding monitor program and/or report generator in a small network, or play a bigger role in a larger network.
- **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.

Functional summary

The G&R Host Links products transform any server platform into a native DSA or DSA/ISO Workstation (DIWS) node in the Bull primary network, or into a 3270 cluster within SNA. Communication between the Host Links system and the Bull systems is generally done using the Bull DSA session protocol. Communications with IBM systems is by TN3270/TN5250.

The DSA connections can be made in the traditional way using OSI-transport, which is a requirement when connecting via old-style Datanets. The Bull systems can be accessed over an X.25 WAN or Ethernet LAN through a Datanet or MainWay front-end. Alternatively access can be direct to GCOS6 using a LAN adapter or direct to GCOS7 using ISL. Access can be by an FDDI LAN direct to GCOS7 using FCP7 or direct to GCOS8 using FCP8.

The DSA connections can also be made over a TCP/IP network, using the Internet standard RFC1006 transport protocol to replace OSI-transport. MainWay front-ends with an ONP (Open Network Processor) have RFC1006 support in the standard product, allowing DSA sessions over TCP/IP into the MainWay. RFC1006 can also be installed in the FCP7 and FCP8 cards to support DSA connections direct to the hosts without passing through the front-end. The GNSP on newer GCOS8 systems accepts DSA/RFC1006 connections, as does the newer GCOS7 Diane systems. G&R Host Links systems are qualified with both.

The Ggate product may be used to off-load the DSA session protocol into gateways. By running Ggate on the system(s) with the host connections all other PCs, Macintoshes, Windows and UNIX machines in your network need only the very small and efficient Ggate protocol layer to connect over TCP/IP to a Ggate gateway with full primary network functionality. Ggate can make the host connection using OSI-transport or RFC1006. If you must use OSI-transport for the host connection, using Ggate will limit the need for OSI-stacks to the Ggate platforms.

IBM systems can also be accessed using Telnet 3270 (TN3270 or TN3270E) to connect to any TN3270↔SNA gateway or front-end. The MainWay gateway, the TN3270 server on the Bull DPX/20 UNIX systems, the IBM TN3270 front-end and the TN3270 server for Windows are all qualified.

Windows

Bull systems can also be accessed using Telnet VIP (TNVIP). The TNVIP servers in the MainWay and in the Bull DPX/20 are both qualified. However, RFC1006 is supported in the MainWay front-ends with an ONP (Open Network Processor), and if used when communicating with G&R products it will increase throughput as compared to using TNVIP. It will also give a real, fully functional DSA or DIWS session over the TCP/IP network, as compared to the limited terminal session offered by TNVIP.

Product architecture

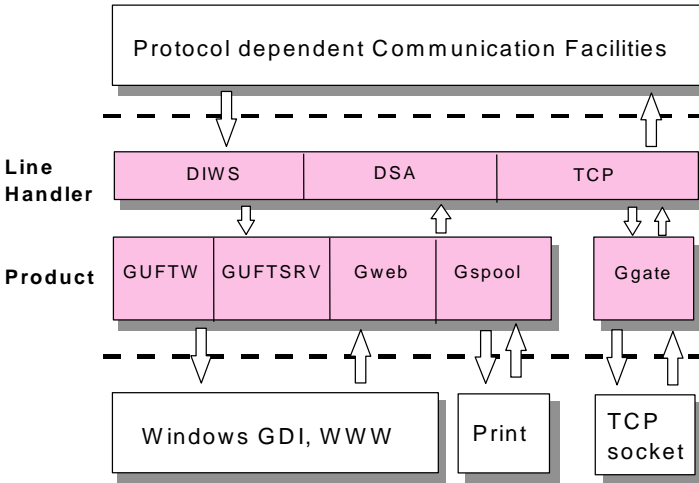
The Windows versions of the G&R products are built in a modular way, and designed to take advantage of the multitasking capability of the Windows platform. Thus a single instance of a product will in general consist of two quite separate processes, communicating with each other using pipes and shared memory:

- A product; for example a print spooling server which accepts incoming connections from a host or client system and converts print commands to native Windows printing instructions. The print spooler will receive print data from the host system using the standard interface that applies to all communications protocols.
- A line handler; which maps the standard format for communications into the specific line protocol being used.

This structure has proven itself extremely efficient and very robust. We are able to develop a new line handler and know that once it works with one product it will work with all. We are able to develop a new product using a given communications protocol, and know that the product will work with all the communications protocols we support.

Some of the programs in the Basic product, such as GmonitorW, differ slightly as they don't need a line handler; they only have a Windows interface.

Architecture diagram



Delivery

Files

Host Links products for Windows are delivered as an executable self-extracting archive. We deliver several different installation sets, containing different Host Links products. The name of the executable reflects the Host Links version, hardware platform and products included. e.g.:

386pc_660en_HostLinks.exe	Host Links version 6.6.0 (English) for 32 bits (IA32) processors
x64pc_660en_HostLinks.exe	Host Links version 6.6.0 (English) for 64 bits AMD x86_64 processors
i64pc_660en_HostLinks.exe	Host Links version 6.6.0 (English) for 64 bits IA64/Itanium processors

The platforms supported in any release are as stated in the **SRB** (Software Release Bulletin) for the release.

License

All G&R products require a license key. You should have received the license keys from your distributor together with the software. The licenses are stored in text format in a file named `licenses`.

If "licenses" is delivered with the product files you can pick it up when requested during the installation procedure. You can also copy it into your configuration after installation. The location is:

Windows server	C:\gar\config\licenses
----------------	------------------------

General requirements

Real memory

The sizes of the Windows kernel and the OSI stack (if used) are not included in these figures.

Program	Program size	Per session
Nl_dsa	2000 KB	80 KB
Ggate	1500 KB	
Gproxy	1500 KB	
Gspool	550 KB	
GUFTsrv	1650 KB	
Gweb	1700 KB	

Each Ggate session consists of one instance of the `nl_dsa` program.

An example: Suppose you have a machine that needs to support 200 Ggate users over DSA. All results below are in MB (= 1000 KB).

Nl_dsa	2.0
Ggate	1.5
200 sessions	16.0
Windows kernel	12.0
Standard Windows servers ¹	10.0
OSI stack 200 sessions	4.0
Total RAM needed	45.5

Installation step by step

Preparation

Copy the installation package and license

Copy the installation package to a temporary directory (e.g. `c:\hlinstal`) on your Windows system. It is used only during installation and can be removed afterwards. For convenience copy the `licenses` file to the same directory.

Create user gar

Before installing Host Links or any of its associated software, such as the OSI-transport stack, you should create a user for administration of the Host Links software. Create a new user `gar` on your Windows system. This user should be a member of the 'Administrators' group.

Disable Marben OSIAM transport if used

If you use the Marben stack stop it in the Services Control Panel and set its start-up mode to **Disabled**. If you move to RFC1006 (highly recommended) you can uninstall it later. If you continue to use the Marben stack you might need to upgrade it. This is described in the section entitled ***Marben OSIAM transport***.

Log out, then in again as gar

Log out, and then log in again as `gar` before continuing with the rest of the installation.

Disable old Host Links releases

Remove any old Host Links system directories from your search path (in the System Control Panel).

Stop and Disable running servers

If you have Host Links 6.0 or later installed:

Use the Gmanager program `gmanw.exe` to stop all running servers.

If you have Host Links 5.x installed:

Using the *Gservice* configuration program `gservice.exe`, stop *Gservice* if it's already installed and running; set its startup mode to **Manual** and click **Modify**. You can also stop *Gservice* with the following command line via the Run menu or a DOS box:

```
net stop gservice
```

Remember to close all running Host Links programs (Gmanager, Gconfig, Gdir etc.) before continuing with the installation! Note that if you have opened the Windows Event Viewer to look at a G&R event log, then this connects to *Gservice* to obtain error texts. You must close the Event Viewer.

Installation

The default system directory for Gallagher & Robertson products is:

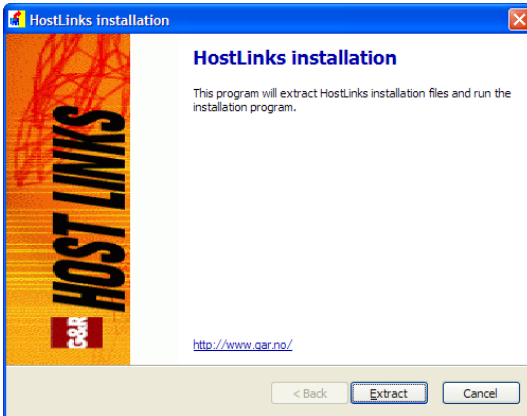
```
Windows c:\gar
```

During installation you are given the choice of installing on a different directory. If you have an old version of Host Links installed this will be detected, and you can install in the previously used system directory.

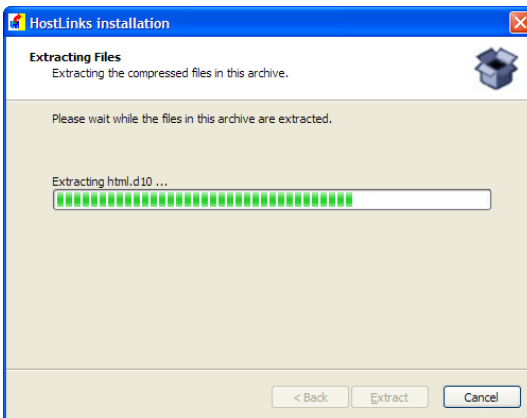
The installation program does not overwrite configuration files that you have changed at your site. It installs sample files in the configuration directory but will use the release number (660) as an extension, rather than `.cfg` or `.htm`. The exception is *Gweb* sample HTML files. If you have modified the sample files from a previous release and still use their original names you should make a back-up copy of them before installing *Gweb*.

Run the Host Links distribution executable.

The Host Links package first extracts the installation files in order to run the installation program:

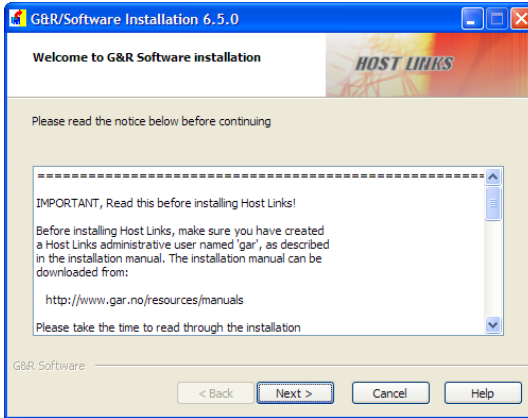


Select “Extract” to start extracting the installation files and launch the installation program:

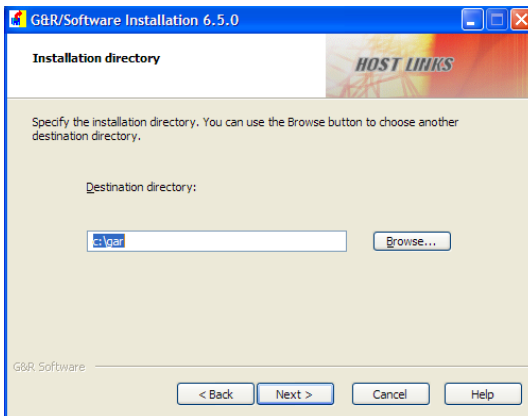


Windows

The installation program will begin by presenting you the contents of the `install.1st` file, which contains information about preparing your server for the specific packages you are about to install. Read this text carefully before continuing with the installation, as the software may install incorrectly if you have not prepared your server beforehand!

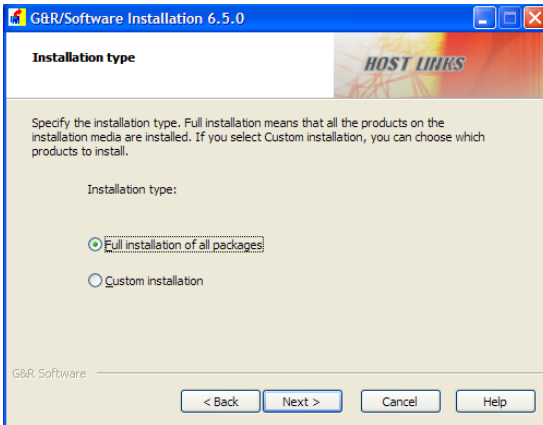


Select **Next** to continue the installation.

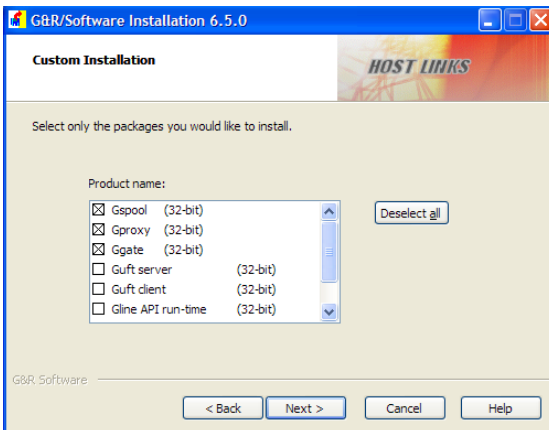


The destination directory becomes your Host Links System directory and is required. We recommend that you accept `C:\GAR` as the destination directory, because the Host Links documentation often assumes this is your System directory when describing configuration files and examples on how to start Host Links products. If the destination directory does not exist you will be asked if you want to create it.

You are given the choice between a full installation of all the supplied packages or a custom installation:

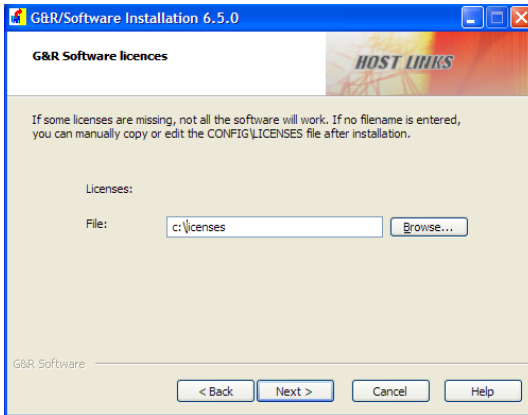


Selecting **Custom installation** allows you to select only the products you have licensed and reduces disk space usage. It also avoids warnings about missing product licenses at the end of the installation when the installed products are verified against your licenses file,

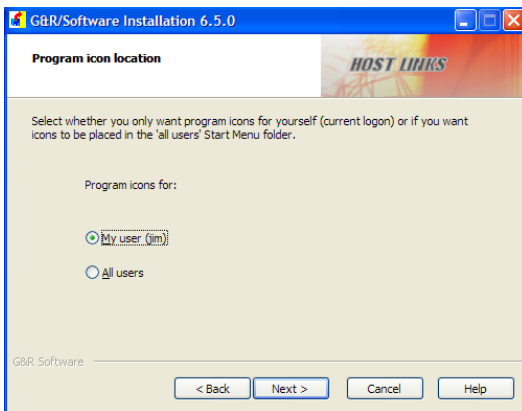


Select only the products to be installed, then click **Next**:

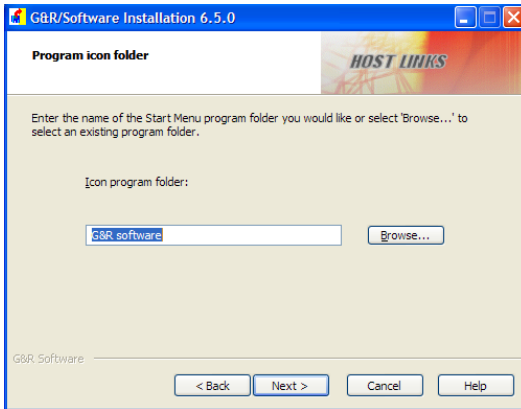
Windows



Enter the path of your `licenses` file, or use the browse button to select the file from its location in the file system. If you do not have a `licenses` file leave this field empty. Continue by clicking **Next**.

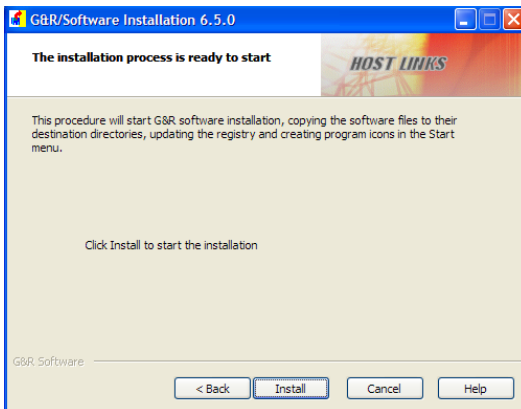


During the installation a folder with program icons for the most common programs is created and placed in the Start Menu. This folder can either be available for all users on the server, or just the user logged in when installing Host Links. Note that in a real server installation the user installing Host Links should be **gar**. Select the option you need and click **Next**.



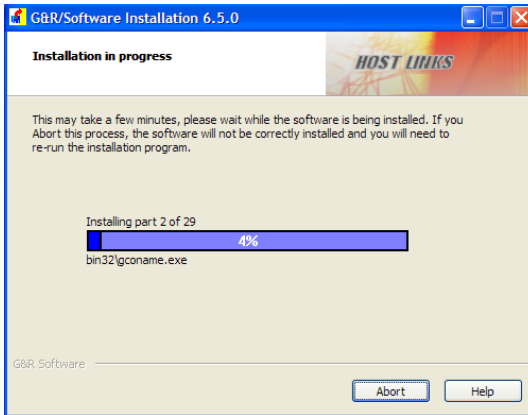
The default name of the folder with Host Links icons is **G&R software**. Keep it as it is or change it to something more appropriate for your installation.

You are now ready to start the Host Links software installation, which copies the software files to their destination directories, updates the registry and creates program icons in the start menu.

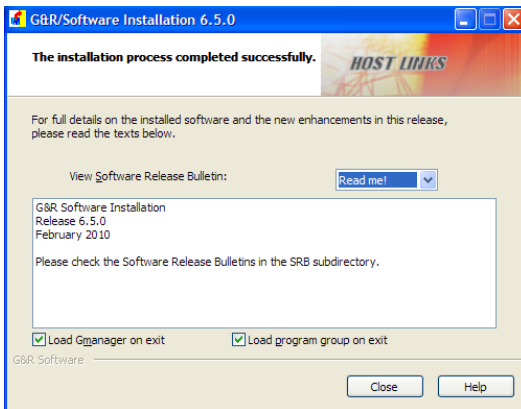


Click **Install** to start the process.

Windows



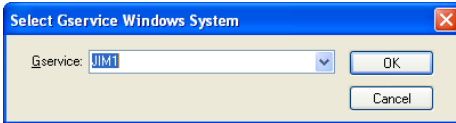
When all the files have been installed, the install program displays a list of release information files and a text box where these can be viewed. Please review this information before continuing.



Click **Close** to finish the installation. By default Gmanager and the Host Links program group are loaded.

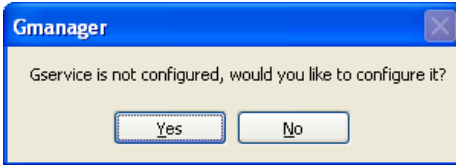
Running Gmanager for the first time

When you run Gmanager for the first time it requires that you install and configure Gservice on the system Gmanager monitors this process. First it displays a dialog box asking for the system name.

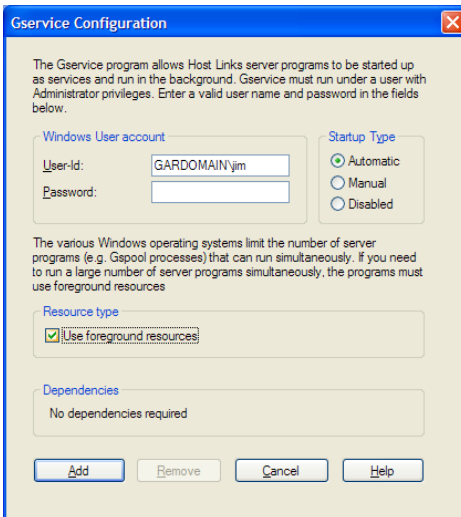


Click **OK** to keep the default choice (the local system name) and continue.

Gmanager detects that Gservice is not installed on this system and offers to configure it.

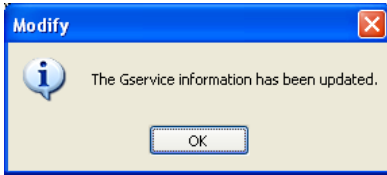


Click **Yes** to configure Gservice on the local system.



Windows

The user name field suggested should be the same user as you are currently using to install Host Links. Enter the password and click **Add**. It confirms the modification:



Set the path

If you intend to run Host Links programs from the command line prompt you should add the new Host Links binary directory (by default `C:\GAR\BIN32`) to the system search path in the Control Panel. Select the **System** icon, then **Advanced** and **Environment Variables**.

DSA network configuration

If you are installing only *Gweb* with a TNVIP or TN3270 interface, or only a *Glink for Java* server you can skip to the section entitled ***Configure Host Links servers***. If you are installing Ggate, GUFT or other products that communicate with Bull mainframes then you must configure the DSA network.

Install the network software

The G&R communications products for accessing the Bull primary network use DSA session protocol. The session protocol is delivered by G&R, but requires a transport interface on the Windows platform.

RFC1006

If your Bull mainframe has RFC1006 then no more communications software is required. We include RFC1006 in Host Links. Bull mainframes with RFC1006 include all systems using an FCP card, systems with a MainWay Front-end, GCOS8 Helios systems, GCOS8 Olympus systems and GCOS7 Diane systems.

OSI-transport

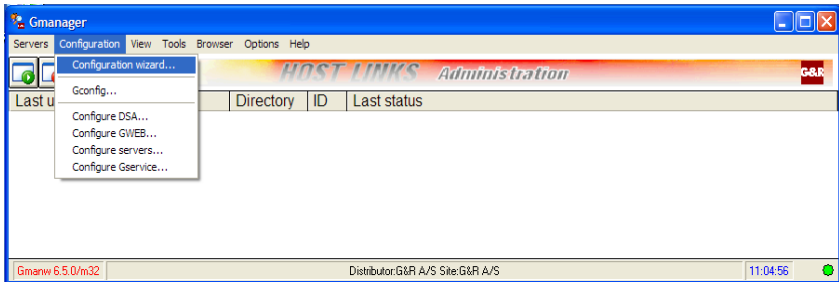
If your Bull mainframe does not have RFC1006 installed, or if you choose not to use it, you will need an OSI-transport stack. G&R supply and support the separately priced Marben OSIAM transport stack for use with Host Links. It must be installed and configured. Please refer to the section entitled ***Installing and configuring the Marben OSIAM stack*** and install the stack before continuing.

DSA network configuration

After installation you must configure the DSA network. You can work directly on the DSA configuration file:

```
c:\gar\config\dsa.cfg
```

An easier way to do this is with the **Configuration wizard** included in Gmanager:



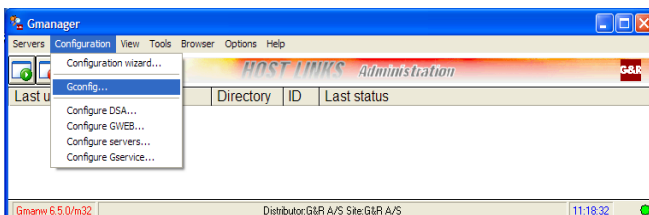
This wizard lets you configure your local host and one remote system; so that you can perform tests and verify that the installation has been successful. In order to create a complete production configuration, use the **Configure DSA** entry.

Configure Host Links Servers

Next you must configure the Host Links servers. You can work directly on the Gservice configuration file:

```
c:\gar\servers\gservice\gservice.cfg
```

An easier way to do this is with the Gconfig utility.



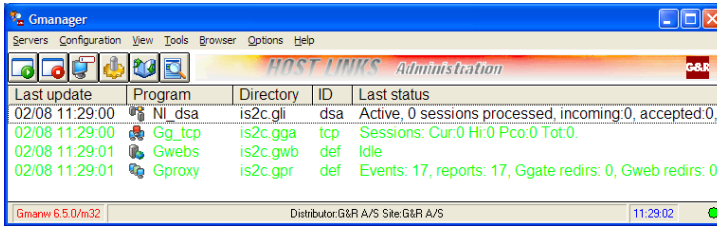
In the Gconfig utility, select the server type you want to add and click the + button.



Refer to the user manuals for the respective server products for a complete description of the various parameters available. When you have finished adding servers, select **File->Save** to save the new configuration, and then exit Gconfig. Note that the configuration file `gservice.cfg` is read by Gservice, and will not be activated until you use Gmanager to start (or restart) the servers.

Starting the Host Links servers

You use Gmanager to start the configured servers. Just click the green start button or select **Start all servers** from the **Servers** menu. Gmanager requests Gservice to read the server configuration file and start the servers it finds there. Status information for each server should now appear in the Gmanager window:



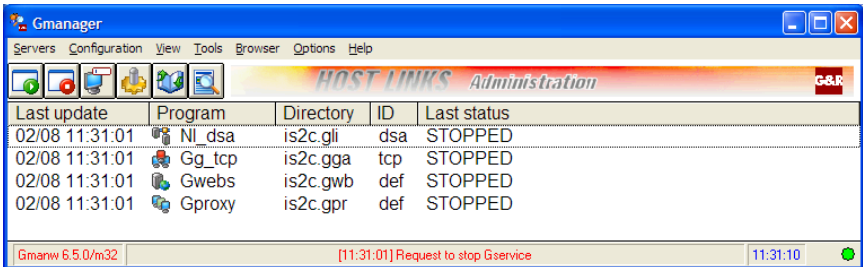
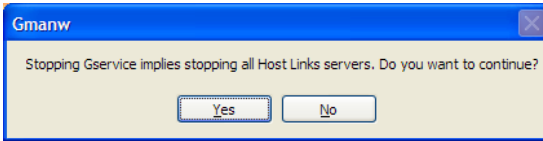
Failure to start servers

If the configured servers do not appear in the Gmanager window then the request to start Gservice can have failed. You can check in the task manager if `gservice.exe` is running. If not, the error may have been reported in the Windows event log. You can check by going into **Settings=>Control panel**, and then in **Administrative tools** start the **Event viewer**. A common error is that Gservice is configured with the wrong password, and gets a log on failure reported in the System log. You must use the Gmanager **Configuration** menu to enter **Configure Gservice** and retype the password, then use the **Modify** button.

Stopping the Host Links servers

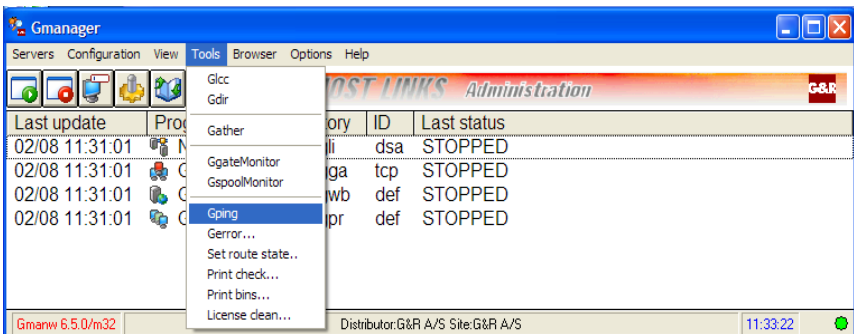
You can stop and restart individual servers from the Gmanager **Servers** menu, but then the servers are restarted with the same configuration. If you have made configuration changes you must use Gmanager to request Gservice to stop all servers. Gservice reads the modified configuration file when you restart the servers.

Stop the servers by clicking the red stop button or selecting **Stop all servers** from the **Servers** menu. You will be warned that you are about to stop all servers, and if you continue all the servers will stop.



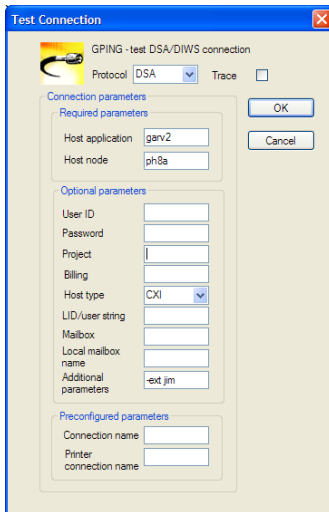
Test

Test your configuration. You will find the DSA test utility *Gping* useful. You can access *Gping* from the **Tools** menu in Gmanager:



Windows

Enter the appropriate host node and application mailbox name and any other parameters required for a connection (User ID etc.):



After a successful ping a dialog box should pop up:



Gping can also be run from the command line as follows:

```
gping -li dsa:<myggatename> -dn b7d1 -da ioof -du jim  
-pw mydogsname  
Gping - $$DSA: Connected to application
```

For details of the test utilities please refer to the *Gline* manual.

Restart Windows

Just to be on the safe side. Your installation and configuration is now complete.

SRB and manuals

The installation process installs the Software Release Bulletin in:

```
C : \GAR\DOC66\      WinWord format  
C : \GAR\SRB\       ASCII text
```

The G&R Distributor package installs all of the documentation in the DOC66 directory.

Environment

Set Host Links profiles

The profiles are used to set various parameters for customization of the Host Links environment. This will in general not be necessary unless you have special needs. For information on the files and the available parameters see the section entitled *Profiles configuration*.

Environment variables

Some configuration can only be done using Windows environment variables and Registry values. It isn't possible to configure these parts using the profiles or configuration files, as they specify where these files are and how they should be interpreted.

PATH

If you will be running Host Links products from the command line prompt it is recommended that you add the location of the Host Links program files to your PATH as described in the step by step installation guide. The location is `c:\gar\bin32` by default. The PATH update will need to be done for every Windows workstation that will be running Host Links software; it can be changed permanently in the System Control Panel. Should you decide not to change the PATH then it is also possible to run any Host Links program by specifying the complete path name.

Windows

Host Links Server Administration

Gmanager

Gmanager is the Host Links administration tool that you use to control, configure and monitor all the G&R Host Links server programs.

The dialog and interaction between the server programs and Gmanager is based on information located in a database file `_active.srv` that is located in the Host Links `servers` directory. The first time a Host Links server program starts up it registers itself in this database. Thereafter the server program updates this database with status information whenever the server is active.

The Gmanager program is available in 2 different versions – a Windows GUI based version `gmanw.exe` and a character based subset `gman` (UNIX/Linux binary) or `gman.exe` (PC console application).

The basic functionality of the two versions is the same, but the Windows version interfaces directly to other Windows-only Host Links administrative tools (*Gconfig*, *Gservice*), and can also start the browser directly to view HTML reports produced by Gproxy, if enabled, or to view the HTML pages associated with a *Gweb* or *Glink for Java* installation.

The *Gproxy* reports, *Gweb* and *Glink for Java* web pages are available to administrators of UNIX/Linux Host Links systems, and you can view them by starting a browser manually, and connecting to the appropriate URLs:

```
http://mysite.mydomain.com/Gproxy  
http://mysite.mydomain.com/Gweb  
http://mysite.mydomain.com/GlinkJ
```

A summary of the available functions follows. The Windows-only functions are marked.

Windows

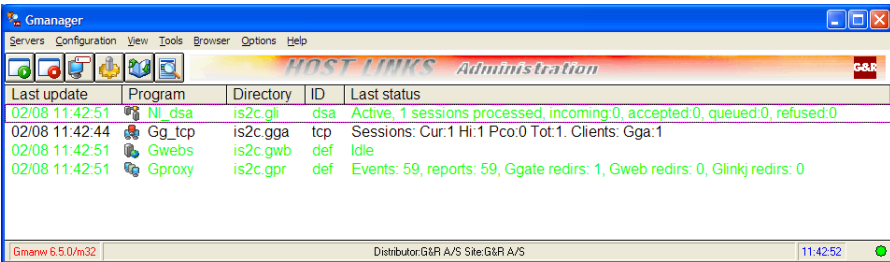
Gmanager can perform the most common Host Links administrative tasks i.e.:

- View the last reported status information from the servers
- Start new server
- Restart a server
- Send a command to a server
- View a server log file
- View a server trace file
- Load the DSA configuration into an editor
- Compile the DSA configuration
- Call *Gconfig* the server configuration program (Windows)
- Start the configuration wizard (Windows)
- Load the *Gservice* configuration into an editor (Windows)
- Start the Host Links server programs using *Gservice* (Windows)
- Edit the product specific configuration files
- Connect directly to the *Gproxy* HTML pages, if enabled (Windows)
- Connect directly to the *Gweb* HTML pages, if enabled (Windows)
- Query the Windows printer driver about paper source capabilities
- View program version numbers, program link information (Windows)
- View license info and license usage (Windows)
- View Host Links environment information, the ‘VMAP’ (Windows)

A more detailed description of these functions can be found below.

The Gmanager display

The following is a ‘screen shot’ of a Gmanager display showing the server activities of a Host Links node. The marked entry shows a *DSA listener* process. The other active servers in the display are: *Ggate*, a *Gproxy* process and a *Gweb server* process. The display shows when the server last reported status, the actual status message and the server's directory name.



Details of the Gmanager Server display

The Gmanager screen displays all servers that have registered in the ‘active’ file. Gmanager updates the screen is once every second, and reports the following info per server:

- the date and time the server last updated the server database
- the server type
- the server home directory where the server specific log, data and configuration files (if any) are located
- the ID that is used to differentiate between instances of the same server
- the status text describing the last reported action of the server

Use the arrow keys or the mouse to navigate to a particular server on the screen. The highlighted server entry is now the ‘current server’ and any subsequent server related command addresses this server only.

Taskbar functions

The following functions are available from an icon in the taskbar, as well as menu items (mouse or accelerators):



Start/restart servers

This launches *Gservice* to start up all the servers defined in the *Gservice* configuration file. It launches the command lines and, if successful, the servers appear on the Gmanager server display. If the servers were already running, it performs a restart (stop/start).



Stop servers

This launches *Gservice* to stop all active servers. If **warn before stopping all servers** (in the Options menu) is set, it displays a new dialog box and you must confirm the action before the *Gservice* stop command is issued.



Send server command

This allows you to send a command to the selected server. All the Host Servers know and react to the following commands:

- DOWN - terminates the server
- STATUS - asks the server to report server-specific status information to its log file
- PARAM - brings up a dialog box that allows the operator to give a command line parameter to the server. Note that some parameters do not work when given interactively i.e. they can only be handled at server startup time
- DEBUG ON/OFF - all servers can toggle on and off tracing and debugging interactively

Additionally, the server in question might support other interactive commands. For a description of the supported commands, check the server-specific documentation.



View server log file.

This brings up a window with the last part of the server's log file, displayed using the program defined in the `winlister` directive in the Host Links configuration profile. If the default `glistw` is used, the default action is to show the log file in update mode (new log file entries are shown as they occur), but this can be toggled in the Options menu.



View trace/debug file

This brings up a window with the last part of the server's debug file, displayed using the program defined in the `winlister` directive in the Host Links configuration profile. If the default `glistw` is used, the default action is to show the log file in update mode (new log file entries are shown as they occur), but this can be toggled in the Options menu.

Menu functions

The Servers menu

Start/Restart all servers

This launches *Gservice* to start all the servers defined in the *Gservice* configuration file. It launches the command lines and, if successful, the servers appear on the Gmanager server display. If the servers were already running, it performs a restart (stop/start).

Stop all servers

This launches *Gservice* to stop all active servers.

Start new server

This brings up a dialog box that you can use to start a new server interactively. You must enter a complete server command line.

Restart server

This restarts the selected server after a stop. It restarts with the same command line, unless the configuration has been changed and saved.

Server command

This allows you to send a command to the selected server.

Delete server

This command deletes the selected server from the display (it will reappear if the server is alive and continues to post status information).

Server configuration file

This brings up a window with the current server's configuration file using the editor configured in the `wintextedit` directive of the Host Links profile (defaults to Notepad). Changes to a server's configuration file will not take effect until the server restarts. The following server programs have their own configuration files:

Server	File name
DSA/DIWS listener	config.dsa/diw
Gproxy	gproxy.cfg
Gspool	gspool.cfg

Stop server

This stops the selected server.

Exit

This saves the current settings (in `\gar\config\system\gar.ini`) and terminates Gmanager.

The Configuration menu**Configuration wizard**

This brings up a set of dialog boxes that allows the administrator to set up a simple DSA configuration, compile the generated DSA configuration file and optionally issue a test connection to the defined remote site. It can define the local node, *one* local transport provider and *one* remote node.

Gconfig

This brings up the Host Links configuration program, *Gconfig*.

Configure DSA

This brings up the DSA configuration dialog boxes of the Host Links configuration program.

Configure Gweb

This brings up the *Gweb* configuration dialog boxes of the Host Links configuration program.

Configure Gservice

This brings up the *Gservice* configuration dialog box, where you can define the Host Links user account and dependencies.

The View menu**View server logfile**

This brings up a window with the last part of the selected server's log file.

View server tracefile

This brings up a new window with the selected server's trace/debug file.

Windows

View program versions

This brings up a window containing a list of all installed Host Links programs and each program's creation date.

View program link details

This brings up a dialog box that asks for the name of the program you want to review. This brings up a list of all compile units in the selected program and each compile unit's creation date.

View VMAP settings

This opens a window and displays the settings in the internal 'VMAP' structure. The VMAP contains information about the Host Links environment e.g. directories used, character sets, color attribute setting etc.

View license information

This brings up a window containing all the information in the installed license, by license name.

View license usage

This brings up a dialog box showing license usage that allows you to choose the license you want to review. A list-box shows all process IDs (or thread IDs) using this license entry.

View the DSA configuration file

This brings up a window with the Host Links DSA configuration file `dsa.cfg` using the editor configured in the `wintextedit` directive in the Host Links profile (defaults to Notepad). This allows you to change the DSA configuration directly but note that you must compile the file for the changes to take effect.

View the *Gweb* configuration file

This brings up a window with the *Gweb* configuration file `gweb.cfg` using the editor configured in the `wintextedit` directive in the Host Links profile (defaults to Notepad). This allows you to change the *Gweb* configuration directly.

View the listener configuration file

This brings up a window with the listener's configuration file `config.dsa` using the editor configured in the `wintextedit` directive in the Host Links profile (defaults to Notepad). This allows you to change the listener 'on demand' configuration.

View the Gservice configuration file

This brings up a window with the *Gservice* configuration file `gservice.cfg` using the editor configured in the `wintextedit` directive in the Host Links profile (defaults to Notepad). This allows you to change the *Gservice* configuration directly.

The Tools menu

GLCC - compile the DSA configuration file

This compiles the `dsa.cfg` file using `glcc`. The compilation reports the result.

GDIR – the Host Links directory navigator

This starts a copy of the Host Links file and directory navigator program in a separate window.

Gather – collect debug information

This collects comprehensive information about the Host Links installation, including the link data of all executables, all configuration files, and all log/trace files newer than a specified time. The information and data files are compressed and written to `dbginfo.grz` in the Host Links debug directory. This greatly simplifies reporting of problems to support.

Ggate Monitor -

This starts the *Ggate* monitor program in another window. *Ggate Monitor* displays detailed information about *Ggate* usage. See the *Ggate* manual for details.

Gspool Monitor

This starts the *Gspool* monitor program in another window. *Gspool Monitor* displays detailed information about *Gspool* print spooling operations. See the *Gspool* manual for details.

Windows

Gping - Test host connection

This launches a DSA connection request to a host application using the Gping utility. A dialog box allows you to set the DSA parameters (e.g. DSA node name and application mailbox) necessary to reach the host application in question. Gping reports the result of the connection request in a separate window.

Gerror – show DSA reason code text

This brings up a dialog box that accepts a DSA reason code. It looks up the code in the message library, and displays the corresponding error text and the reporting communication component.

Set route state – Update TS (route) state

The DSA line handler automatically updates the state of a TS-route when connection/disconnection events occur. This starts *Gtsupd* to allow you to select a TS route and override the state, e.g. disable a TS route. Selectable states are **down**, **enabled**, **locked** and **used**.

Print check - check availability of the printer

This starts *PrtChk* to check if the printer is on-line and available for printing.

Print bins - list paper sources

This starts *PrtBin* to request the printer driver for a list of supported paper source names. The Windows defaults are:

```
auto, lower, cassette, manual envelope, envmanual,  
onlyone, formsource, tractor, smallfmt, largefmt, trayn
```

License clean – remove dead licenses

In unusual circumstances, an instance of a product can terminate without releasing its license. This option will check for such dead licenses and release them. You can look at an overview of all license names installed under the **View** menu item, entry **License information**.

The Browser menu

Gweb HTML page

If *Gweb* is running, this starts your default browser with the *Gweb* index page (or to any HTML page configured in the Options menu).

Gproxy HTML page

If *Gproxy* is running and configured to generate HTML reports this starts your default browser with the *Gproxy* index page (or to any other HTML page configured in the Options menu).

Glinkj HTML page

If the *Glinkj* server is running and configured to generate HTML reports this starts your default browser with the *Glinkj* server index page (or to any other HTML page configured in the Gmanager Options menu).

The Options menu

The options menu allows you to change some of the defaults.

Fonts

This brings up a dialog box that allows you to choose the font used in the Gmanager window. It takes effect the next time Gmanager starts.

Program options

This takes you into the Gmanager configuration dialog box.

Show tools

This allows you to toggle (enable/disable) the Tool Bar.

Warn before stopping all servers

This issues a warning before stopping all servers e.g. when using the **Stop All servers** function in the Tool bar or **Servers** menu.

List debug file in update mode

This toggles the update mode of the *Glistw* program. If checked, it shows new updates to the trace file as they occur and repositions the cursor on the last entry. Default off.

List log file in update mode

This toggles the update mode of the *Glistw* program. If checked, it shows new updates to the log file as they occur and repositions the cursor on the last entry. Default on.

Windows

Show raw format VMAP

This toggles the display of the video map (where Host Links keeps shared information) from a Window to a plain text listing.

Gweb options

This allows you to set another URL for *Gweb*. The default is:

```
http://XXXX/gweb/index.htm
```

where XXXX is the network name of the Host Links server. The actual pathname is `c:\gar\html\gweb\index.htm`.

You can also set the Gweb log file to choose between the Host Links server log, `_logfile.def` or the web-server log `access.def`.

Gproxy options

This allows you to set another URL for *Gproxy*. The default is:

```
http://XXXX/gproxy/run.htm
```

where XXXX is the network name of the Host Links server. The actual pathname is `c:\gar\html\gproxy\run.htm`.

GlinkJS options

This allows you to set another URL for *Glinkj server*. The default is:

```
http://XXXX/glinkjs/index.htm
```

where XXXX is the network name of the Host Links server. The actual pathname is `c:\gar\html\gweb\index.htm`.

Set desktop wallpaper

This selects the Host Links wallpaper or any wallpaper bitmap named WALL.BMP located in the Host Links `misc` directory.

Reset desktop wallpaper

This resets the wallpaper to whatever was set before you used **Set desktop wallpaper**.

Server Configuration

Gconfig

The Gconfig program is an interactive Host Links configuration tool that can be used to configure the various G&R Host Links components when they are to run on the Windows platform. Gconfig offers the Host Links administrator an easy-to-use GUI-menu interface for configuring all the Host Links server programs, the GWEB product as well as the DSA network in which these programs will operate. Gconfig minimizes the need for detailed knowledge about the Host Links programs, the DSA objects, parameter syntax, possible parameter values and mutual parameter dependencies. On line help is available and this further simplifies the configuration tasks.

The server programs normally run in the background as Windows services. The Host Links *Gservice* utility is used to start and stop these services. *Gservice* reads a configuration file, *gservice.cfg*, that resides in the Host links server directory and which holds all the server program command lines. Gconfig is used to generate these command lines and to create and maintain the server configuration file. Gconfig supports the following Host Links servers:

- The *DSA listener* and line server
- The *DIWS listener* and line server
- The *Ggate* server
- The *Gproxy* network management server
- The *Gspool* network print server
- The *GlinkJ* (Glink for Java) server
- The *GUFT* server
- The *Gweb* server

Windows

In principle, *Gservice* can start any program, including non-G&R programs, and *Gconfig* can be used to create and maintain the commands needed in the *gservice.cfg* file.

Gconfig can also be used to configure the *G&R/Gweb* product. The *Gweb* configuration is set up in a configuration file, *gweb.cfg*, and resides in the Host Links configuration default directory. A property sheet menu set simplifies the configuration task dividing the parameters into parameter groups and hiding the underlying configuration file structure.

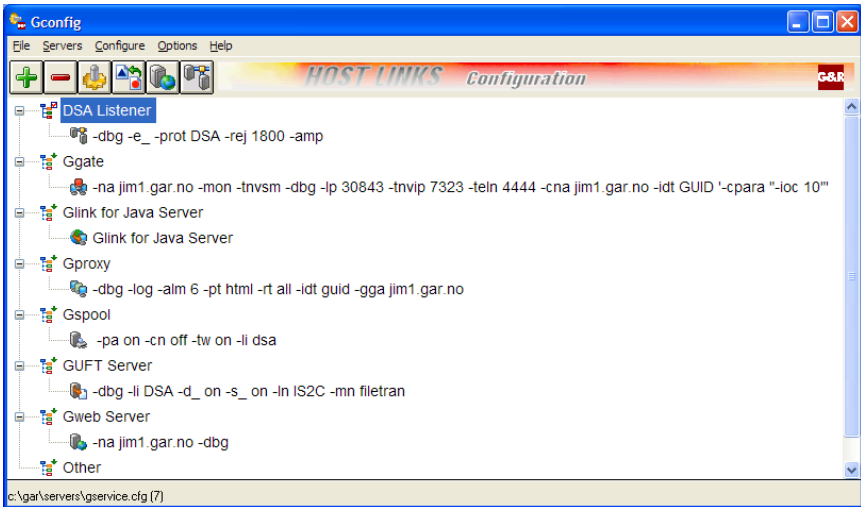
Finally *Gconfig* can be used to configure the DSA network. The DSA configuration is defined in a configuration file, *dsa.cfg*, and resides in the Host Links configuration directory. The main DSA configuration management menu allows you to call the DSA property sheet, to compile the configuration, to view or manually edit the directives. Separate configuration menus for all major DSA configuration directives are available.

A detailed description of the menus, dialog boxes and parameters of the various Host Links components can be found below.

Gconfig is available as a Windows GUI based program and is delivered as binary *gconfigw.exe*. It can be called directly from a command line or desktop shortcut but normally it is launched from the Host Links administration program *Gmanager* (see separate documentation of *Gmanager*).

The Gconfig main display

The following is a snapshot of a Gconfig display showing a real configuration. The marked entry shows a *DSA/DIWS listener* parameter set. The configured servers in this sample display are the *DSA listener*, a *Ggate* server, a *GlinkJ* server, a *Gproxy* server, a *Gspool* server, a *GUFT* server and a *Gweb* server. The configuration file used here includes some servers/command lines not supported by Gconfig. Although these programs are unknown to Gconfig, the command lines are preserved and gathered in a separate 'other' server group.



Main functions

Server functions.

You can navigate between the server groups using the cursor keys or mouse. The current server group is highlighted. When an action (e.g. Add Server) is initiated, either using an icon in the task bar or via some menu item, the program assumes that the action refers to a server of the same type as the highlighted group, but this can be changed in the dialog list-box:

Add new server

Initiates the configuration of a new server. The configuration menus for a server of the same type as the current group are displayed.

Delete server

Deletes the current (highlighted) server command line from the configuration file.

Configure server

Configures the current server. The configuration menus are initialized with the current parameter settings.

Copy server

Copies the command line of the current server. This function is useful in cases where you want to run several servers (e.g. *Gspool* processes) of the same type and the server parameters are almost identical.

Configuration menus

Whenever a server is added or modified you are led into a specific menu of configuration options appropriate to the server. For detailed information on the options, please consult the server manuals.

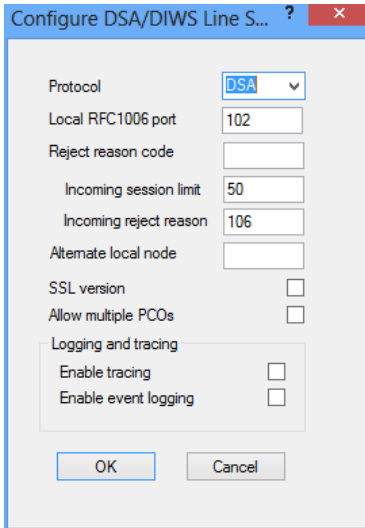
Options

Parameter dependency checking

If you set this option, the parameters you set in the configuration menus will be checked for consistency.

The DSA/DIWS listener

The DSA/DIWS listener parameters affected by this menu follow below:



Protocol

Select DSA or DIWS listener.

Local RFC1006 port

Select a different port for RFC1006 connections.

Reject reason code

Overrides the DSA reason code to be used when rejecting an incoming session connect from host. Defaults to 0104 for unknown mailbox and 0106 for busy mailbox.

Windows

Alternate local node

Set if multiple SC records are defined and you want to listen for incoming sessions on another than the default SC. Also set if you want to run several listeners.

SSL version

Enable SSL mode for this listener.

Allow multiple PCOs

Windows version only: Allow outgoing session connect even if the -pco supplied is already in use by another session. Defaults to off.

Logging and tracing

Enable tracing

Enable session data- and event tracing for generated sessions.

Enable event logging

Windows version only: Enable Event Log tracing.

The Ggate server

The Ggate command line parameters generated by this menu follow below. For a detailed description of listener functionality, please refer to the Ggate manual.

Ggate configuration

Protocols

	NORMAL		SSL	
	enable	Port(s)	enable	Port(s)
Ggate:	<input checked="" type="checkbox"/>	30841	<input type="checkbox"/>	
Telnet:	<input type="checkbox"/>		<input type="checkbox"/>	
TN3270:	<input type="checkbox"/>		<input type="checkbox"/>	
TNVIP:	<input type="checkbox"/>		<input type="checkbox"/>	

Host Protocol:

Options

Keepalive int.:

ID type:

TNVIP service messages:

Administration

Mode ID: Connect queue size:

Check interval: Kill limit:

Enable monitoring: Enable tracing:

Load balancing:

Broadcast to Gproxy

Gproxy #1:

Gproxy #2:

Gproxy #3:

Gproxy #4:

Threshold:

Client parameters

Broadcast to Gproxy

Gproxy address:

Append parameters:

Insert parameters:

Replace parameters:

SSL parameters

Protocols

DSA or DIWS

Windows

Ports

Ggate Port(s)

Local port number. Port that accepts ggate client connections. Defaults to 30841. Up to four space separated ports can be listed

Ggate SSL Port(s)

Local port number. Port that accepts ggate client connections. Defaults to 30851. Up to four space separated ports can be listed

Telnet Port(s)

Telnet listener. Port defaults to port 23. Up to four space separated ports can be listed

Telnet SSL Port(s)

Telnet listener. Port defaults to port 992. Up to four space separated ports can be listed

TN3270 Port(S)

TN3270 listener. Port defaults to port 23. Up to four space separated ports can be listed

TN3270 SSL Port(s)

TN3270 listener. Port defaults to port 992. Up to four space separated ports can be listed

TNVIP Port(S)

TNVIP listener. Port defaults to port 7323. Up to four space separated ports can be listed

TNVIP SSL Port(s)

TNVIP listener. Port defaults to port 7325. Up to four space separated ports can be listed

TNVIP service messages

Send informative service messages (e.g. "Connected to application") to the client TNVIP application.

Keepalive interval

Keep-alive interval. Number of seconds of inactivity before Ggate disconnects a client session.

ID type

Guid/ip Type of client identifier for client statistics. Set to 'IP' if the clients IP address is to be used for identification, set to 'GUID' if the client supplies a 'GUID' in the 'logon' packet (Glink release 6.0, Host Links 5.3 and later releases of both).

Administration**Mode ID**

Optional. Ggate identifier and filename extension for configuration file. Must be unique.

Check interval

Check interval. Number of seconds between Gproxy statistics. This timer needs to be less than the Gproxy Check interval timer. Default = 10 seconds.

Connection queue sz

'Backlog' queue for connects

Kill limit

Kill limit. Max number of sessions disconnected by a 'kill all' command. More indicates probable multiple clients.

Enable Monitoring

Enable Ggate load information. To be used with Ggate Monitor utility.

Enable tracing

Turn on debugging

Windows

Load balancing

Load Balancing

Check the 'Broadcast to Gproxy' box in order to send broadcast messages containing load balancing information. Enter specific ip-addresses of Gproxy hosts in order to limit the packets to those hosts, instead of broadcasting on the entire network.

Threshold

Threshold value. Passed to Gproxy as load balancing limit. The value represents the maximum number of sessions to be handled by this gateway (regardless of the licensed number).

Client parameters

Generated client parameters

Check the 'Broadcast to Gproxy' box in order to make Ggate add a -CNB parameter on client connection parameters. If a specific Gproxy address is entered, the -CNA parameter will be used instead, directing the packets to the host specified.

A new feature is added to Ggate that makes it easier to centrally configure and control all of a client's DSA connection parameters. This works very much the same way as the -CNA and -CNB parameters that were introduced in release 6.0 - Ggate processes these parameters automatically for all client connections that are launched.

The following 3 Ggate parameters are introduced:

- CPARI parameter[s] - insert parameters before the client parameters (i.e. allowing the client parameters to override)
- CPARR parameter[s] - replace parameters (i.e. ignoring all client parameters)
- CPARA parameter[s] - append parameters (possibly overriding the parameters supplied by the client).

SSL parameters

See the Host Links 6.6 SRB for further documentation.

The Glink for Java server

A list of possible GlinkJ server command line parameters follows below. For a detailed description of GlinkJ server functionality, please refer to the separate product documentation

Configure GlinkJ Server

Generic

Mode ID:

Local port:

License lease interval:

Check interval:

Glinkj directory:

Config read only:

Load balancing

Gproxy broadcast

Gproxy address:

Gproxy address:

Gproxy address:

Gproxy address:

Logging and tracing

Enable logging:

Enable tracing:

Line length:

SSL version:

SSL parameters

Generic

Mode ID

Optional. Sets the mode id for the server (-mi)

Local port

Start a Glink server that listens on an alternative port. The corresponding change must be made in the applet or application configuration files so that they connect to the alternative port. Default non-SSL port 30842. Default SSL port 30852.

License lease interval

When Glink is started it requests a license from the Glink server. By default this license lease lasts for 30 minutes. If a Glink user shuts down or reboots without exiting Glink cleanly, the license will remain in use until the 30 minute lease interval expires. If the delay before detection of such brutally terminated sessions is a problem, you need to decrease the license lease interval. Note that even while a Glink user is idle there will be traffic between Glink and the Glink server every license leasing period in order to renew the lease. Thus a link that is idle, and possibly physically disconnected (ISDN), will be forced to reconnect each license leasing period. If this is a problem you should increase the license lease interval.

Windows

Check interval

Number of seconds between Gproxy statistics. This timer needs to be less than the Gproxy Check interval timer. Default = 10 seconds.

Glinkj directory

Specifies an alternative parent directory of the Glink server's configuration directory. Normally, the Glink server looks for the configuration database in your <gar>/glinkj directory. If you specify for example -cdir /usr/myconfig, the Glink server will look for its configuration files in /usr/myconfig/glinkj.

Load balancing

Gproxy broadcast

Enable broadcasting of load balancing information on the network.

Gproxy address

Enter the address of up to four Gproxy servers to send information to. Used instead of broadcasting.

Config read-only

Read only permission for remote administration programs

Logging and tracing

Enable logging

Enables GlinkJ sever logging

Enable tracing

Enable GlinkJ server debug logging

Line length

Truncates the debug records to nn bytes.

SSL

SSL Version

Enable/Disbale SSL functionality

SSL parameters

See the Host Links 6.6 SRB for more information on the new SSL parameters.

The Gproxy server



The Gproxy command line parameters generated by this menu follow below. For a detailed description of Gproxy functionality, please refer to the Gproxy manual.

Gproxy configuration

Load balancing

Max silence:

Ggate

LB port (ON/off/port):

Same net first:

Same net only:

Glinkjs

LB port (on/OFF/port):

Gwebs

LB port (on/OFF/port):

Other web server

LB port (on/OFF/port):

Real port:

SNMP parameters

Manager IP addresses

Community:

1: 2:

3: 4:

Ignore type 1. 2. 3. 4. 5.

Reports

Presentation type:

Report type:

HTML SSI:

HTML path:

Monitored Glinkjs:

Monitored Ggate:

Ignore type 1. 2. 3. 4. 5. 6. 7. 8.

Other

License server: Logging:

Num. IP format: Tracing:

Check interval:

Alarm level:

Local node:

User count:

ID type:

SSL version:

SSL parameters

Load balancing

Max silence

Maximum time before an inactive Ggate gateway is considered to be defunct.

Load balancing - Ggate

LB port

Load balance port. Default port in non-SSL mode is 30841. Default in SSL mode is 30851. If set, it overrides any setting in the TCP/IP 'services' file..

Same net first

If Gproxy should redirect Glink connection to Ggate systems in the same subnet first. Sets mask to be used to check for same subnet.

Same net only

If Gproxy should redirect Glink connection to Ggate systems in the same subnet only. Sets mask to be used to check for same subnet.

Load balancing – Glink java server

LB port

The port Gproxy will listen for incoming GlinkJ connection on. Enter a value here to enable Glink for Java load balancing. The standard Glink for Java server server port is 30842. In SSL mode the default port is 30852.

Load balancing - Gwebs

LB port

The port Gproxy will listen for incoming HTTP connection on. Enter a value here to enable GwebS load balancing. The standard web server port is 80 and 443 in SSL-mode.

Load balancing - Other web server

LB port

The port Gproxy will listen for incoming HTTP connection on. Enter a value here to enable web server balancing. The standard web server port is 80 and 443 in SSL-mode.

Windows

Real port

The port the web server is listening on. Gproxy will redirect all incoming HTTP traffic to this port

SNMP parameters

Community

SNMP community name used by the receiving SNMP entity (SNMP manager system).

Manager IP addresses

IP address of the SNMP management system. Up to 4 management stations are supported (i.e. N = 1-4). If no SNMP IP address is given, SNMP activities are disabled.

Ignore type

Exclude forwarding of SNMP trap X

Reports

Presentation

Presentation mode. Set to VDU, HTML or BOTH if Gproxy should generate reports. Defaults to NONE.

Report type

Report types to generate (if presentation type is set). Possible types are:

SUM-	-	summary mode
DET	-	detail mode
MIB	-	MIB mode
SES	-	session mode
GTW	-	gateway mode
GLJ	-	GlinkJ server mode
USR	-	user mode
LOD	-	load mode
HEX	-	hex dump mode
ALL	-	all reports

Several RT parameters can be supplied

HTML SSI

HTML SSI extension used for HTML updated pages ('push'). Default 'SSI'.

HTML path

HTML path. Default SYSDIR/html/gproxy.

Monitored Glinkjs

Monitor the Glinkj server running on the specified IP address (necessary for 'glinkj' report mode).

Monitored Ggate

Monitor the gateway running on the specified IP address (necessary for 'gateway' report mode).

Ignore type

Exclude record type X

Other

License server

Enable license server activity.

Logging

Activate logging. Writes a summary record to the log file for each broadcast received. When in 'server mode', the log file will be located in the server directory (/usr/gar/servers/SCID.gpr/). Otherwise the log file will be opened in the working directory.

Numeric IP format

Use numeric IP addresses instead of symbolic host names. Default ON.

Tracing

Activate debug trace.

Check interval

Check interval in seconds. How often Gproxy should process its timer loop, which involves checking for inactive gateways and updating status information for G&R/Gmanager. Defaults to 10 seconds.

Alarm level

Specify the minimum severity that will generate an entry (2 lines) in the HTML log.

Windows

Local node

Local DSA node name. Can be set if Gproxy is not able to choose the local node from the DSA configuration file or if the default local node name is not to be used.

User count

Max user count. Sets max. number of users monitored in 'user' report mode.

ID type

Client identification type. Default IP

SSL

SSL Version

Enable/Disable SSL functionality

SSL parameters

See the Host Links 6.6 SRB for more information on the new SSL parameters.

The Gspool server

The Gspool command line parameters generated by this menu follow below. For a detailed description of Gspool functionality, please refer to the Gspool manual.

Gspool Properties

Gspool Configuration | Printer options | Line parameters

Generic
 Mode ID: Trace: ▾

Mode of operation
 DPF8-DS mode
 Twriter/RSM8 mode
 Listen mode
 SNM6/IBM-OSF/3270-DSA
 Connect mode
 TP/DPF8-SF/TNVIP/TN3270
 Reconnect if disconnected

End of print job detection
 Inactivity timer:
 Data trigger (hex):

Additional parameters

Host print processing
 Enable print interpretation
 Semi-transparent (decode SS2)
 Strip multiple ESCs
Print addressing
 Print all
 ESC Z **VIP header**

Host character translation
 IBM3287
 Scand. Xiteration of EBCDIC
 7-bit character:

Macros
 Macro root path:
 Macro directory:
 Startup macro:

Generic

Mode ID

Gspool identifier and filename extension for configuration file. Maximum 3 characters. When running multiple copies of Gspool, each Gspool must be started with a unique identifier. The default config file extension is .cfg, and default Gspool identifier is DEF.

Enable trace

Enable/Disable internal tracing in Gspool. Especially useful when debugging printing from DPF8-DS.

Mode of operation

DPF8-DS mode

Start Gspool in DPF8-Distributed SYSOUT mode. Click on ‘DPF8 Option’ button for an overview of the DPF8 options.

Twriter/RSM8 mode

Start Gspool in Terminal Writer mode (automatically sets several options. It turns off -CN and turns on -TS and generally configures for TW mode)

Listen mode SNM6/IBM-OSF/3270-DSA

Start Gspool in listen mode (turns -CN off).

Connect mode TP/DPF8-SF/TNVIP/TN3270

Start Gspool in connect mode (turns -CN on).

Reconnect if disconnected

Reconnect. Can be used in connect mode (-CN) to instruct Gspool to attempt to reconnect once a minute when disconnected

End of print job detection

Inactivity timer

Wait time in seconds before Gspool will deliver accumulated print for spooling. In DPF8-DS mode the idle time-out before Gspool disconnects.

Data trigger (hex)

Spool flag of up to 30 bytes expressed in hex. A flag embedded anywhere in the print block causes the current print operation from the host to be terminated, and the print command (-pc command) to be executed. Any remaining data in the block goes to the next file for spooling later.

Host print processing**Enable print interpretation**

Set/cancel print interpretation. This is normally off for transparent print. However for -tm PRT722X , -tm a2, -tm IBM3287, -am tn3270 or tn3270E – ST on and -XL no Gspool must normally convert control sequences to standard ASCII print, so -CC is set ON, and it must explicitly be turned OFF if you don't want the print interpretation (you have the required physical printer).

Semi-transparent (decode SS2)

Semi-transparent print mode. In this mode SS2 sequences (ESC E X, ESC E X X , 0x19 X and 0x19 X X) are decoded to high ASCII, but all other control sequences are delivered unmodified to the print output device or spooler.

Strip multiple ESCs

Strip off multiple ESC characters when in semi-transparent print mode. The result is that sequences like: ESC ESC ESC SS2, are delivered to the print output device or spooler as SS2 so that SS2 sequences are interpreted by the printer, not by Gspool.

Print addressing**Print all**

Print all output regardless of addressing. Default ON.

ESC Z/VIP header

Set to ESC Z to ignore host transparent print addressing in the VIP header if the host is using both print addressing and Esc Z in the text. The Esc Z would otherwise be sent to the printer.

Host character translation**Scandinavian Xliteration of EBCDIC**

Scandinavian transliteration of EBCDIC national characters for IBM3287 print.

Windows

7-bit character.

Translation to Host Links (ISO/Do11) 8-bit characters in Gspool to/from the 7-bit equivalents on the host. The correct -XL (GB, GE, FR, SF, DE, NO, SP, IT, JA) must be specified.

Customized character mapping

Any incoming character from the host can be translated into any other for print purposes. Both are expressed in hex, and the first becomes the second.

Macros

Macro root path

Changes Gspool macro directory. Defaults to /gar/gspl_mac

Macro directory

Macro directory.

Startup macro

Macro to run at startup.

Additional parameters

Any additional parameters not found in this dialog box.

Gspool printer options

The Gspool printer options generated by this menu follow below. For a detailed description of Gspool functionality, please refer to the Gspool manual.

Gspool Properties

Gspool Configuration Printer options Line parameters

Device options

Printer name

Print character set 8859 ▼

Print command

Wait for print command

Print file name

Presentation

Windows GUI Transparent

GUI options

Insert page break

Orientation Default ▼

Quality Normal ▼

Font

Font size

Lines per page

Margins

Left

Right

Top

Bottom

Device mode settings

Paper source AUTO ▼ Duplex SIMPLEX ▼

Copies Scale

OK Cancel

Device options

Printer name

For Windows only, the UNC path to the printer port used to spool the print file. For example, to spool the file to a printer, LEXMARK, on a print server, SERVER, you specify `-PS \\SERVER`.

Windows

Print character set

Character set translation. Gspool uses the ISO 8859-1 character set internally, and will by default write the print data in this character set. When instructed by this parameter, Gspool will translate the print data to the given character set. For a complete list of supported character sets, see the Host Links Installation and Configuration manual.

Print command

Print command used to spool the print file. When using the multi-mailbox support in Gspool x should be substituted with a number between 1 and 199. Print reports addressed to the corresponding mailbox will use this parameter as the print command.

Wait for print command

Wait for Print Command to complete. The default operation is that Gspool waits until the configured print command (-PC option) has completed before it continues to process incoming host data. When disabled (-WPC OFF), Gspool will continue processing incoming host data immediately after initiating the print command.

Print file name

Direct print output from host to the specified print path. Either a file path or a device name may be specified. Optional when the -PC(x) parameter is specified. The path may be a simple filename, in which case the print is written to the Host Links TEMPDIR directory, or it can be a full path. For DPF8-DS -PP points to a directory where print reports in transit are stored temporarily.

Presentation

Windows GUI/Transparent

For Windows send the data using the Windows 'passthrough' print option to deliver exactly what was sent from the host to the printer. For Unix this parameter is on by default, and all it does is to implement Form-feed as FF CR (0x0C0D) because some printers do not return the carriage to column 1 on a form-feed.

GUI options

Insert page break

For Windows, enable/disable generation of form feed character at page breaks when running in non-transparent mode (-TP OFF). Disabling it will rely completely on receiving form feeds from the host.

Orientation

For Windows, select print format mode as default (d), portrait (p) or landscape (l).

Quality

For Windows, select print quality mode as normal (n), draft (d) or proof (p)

Font

Select a Windows font

Font size

For Windows, the default font size is 10.

Lines per page

For Windows, set lines per page for printing in non-transparent mode. Note that this parameter DOES NOT work when transparent printing is switched on (with the -TP ON option) because, by definition, transparent printing sends characters directly to the printer.

Margins

Left

For Windows, space to indent from the left side of the print page.

Right

For Windows, space to indent from the right side of the print page.

Top

For Windows, space to indent from the top of the print page.

Bottom

For Windows, sets bottom margin on the print page

Windows

Device mode settings

Paper source

For Windows, choose a paper source. The names supported by the driver can be obtained by Gmanager, e.g, **AUT/LOW/CAS/MAN/ENV/ENVM/ONL/FORM/TRA/SMF/LAF/TRAYn**

Copies

Set number of copies

Duplex

Double sided (duplex) print

SIM – Normal (non-duplex) printing

HOR - Short-edge binding (long edge horizontal)

VER - Long-edge binding (long edge vertical)

Scale

Scaling factor

Gspool server - line parameters

The Gspool line parameters generated by this menu follow below. For a detailed description of Gspool functionality, please refer to the Gspool manual. For a detailed description of these line parameters, please refer to the Gline manual.

The screenshot shows the 'Gspool Properties' dialog box with the 'Line parameters' tab selected. The dialog is divided into two main sections: 'DSA/DIWS line parameters' and 'TCP line parameters'.

DSA/DIWS line parameters:

- Line protocol: DSA (dropdown)
- Host type: DPS7 (dropdown)
- Terminal type: TTU8126 (dropdown)
- Listening:**
 - Local node: ATWI (text box)
 - Local mailbox: (text box)
- Connecting:**
 - Host node: (text box)
 - Host mailbox: (text box)
 - User name: (text box)
 - Password: (text box)
 - Project: (text box)
 - Billing: (text box)

TCP line parameters:

- Ggate address: (text box)
- Host port: (text box)
- Host address: (text box)
- Protocol: TNVIP (dropdown)
- Terminal type: (dropdown)
- TNVIP resource: (text box)
- TN3270 LU: (text box)
- Associated LU name:
- Telnet CRNUL mode:

Logging and tracing:

- Session trace: Data trace:

Additional parameters:

(text box)

Buttons: OK, Cancel

DSA/DIWS line parameters

Line protocol

DSA/DIWS/TCP

Windows

Ggate address

DSA/DIWS line parameter

Host type

This parameter selects the target host type. By setting host mode you select a set of internal parameters that control the connection and dialogue with the remote host application.

Terminal type

This parameter selects the terminal mode that will be delivered to the host. It tells the host application which terminal presentation protocol you would like to receive.

Listening

Local node

This parameter enables a product to accept incoming connections. The default value is the local node name.

Local mailbox

This parameter sets the local mailbox name. It may be up to 12 characters in length. Characters 9-12 become the extension and can be set separately with -MX. By default the handler assigns unique mailbox names based on the program's process id (pid) in the form Dnnnnn.

Connecting

When in "Connect mode" and either DSA or DIWS is selected, the following parameters are available.

Host node

This parameter defines the default node for the host subsystem to which you are going to connect. The parameter identifies an RSC record in the *dsa.cfg* configuration file.

Host mailbox

This parameter defines the default application mailbox for the host subsystem to which you will connect. It may be up to 12 characters in length. Characters 9-12 become the extension and can be set separately with `-DX`

User name

This parameter defines the default userid for the host subsystem to which you are going to connect.

Password

This parameter defines the default password for the host subsystem to which you are going to connect.

Project

This parameter defines the default project for the host subsystem to which you are going to connect.

Billing

This parameter defines the default billing for the host subsystem to which you are going to connect.

TCP line parameters**Host port**

This parameter selects a remote port for outgoing connections. You may enter the port number directly or use a symbolic name for it. In the latter case this symbolic name must be registered in your services file.

Host address

This parameter selects the remote host. You can use its numeric IP-address directly, e.g. 192.150.211.4, or you can use a symbolic name to identify the host. In the latter case this symbolic name must be registered in your hosts file or with your name server. You can append a colon and the remote port for outgoing connections. You can enter the port number directly or use a symbolic name for it. In the latter case this symbolic name must be registered in your services file.

Protocol

This parameter is used to select a mode of operation.

Windows

Terminal type

This parameter selects Telnet terminal type for Telnet negotiation performed in application mode TN3270 or TNVIP.

TNVIP resource

This parameter is used for the Telnet terminal type negotiation performed in application mode TNVIP. It is used to select a non-default 'mailbox name', which acts as a special access point in the TNVIP server. It has a maximum length of 12 characters. The resource name will be appended to the terminal type (given by the -TM parameter) separated by a delimiter and sent to the server during the negotiation phase. It is used to select a specific terminal configuration in the terminal manager.

TN3270 LU

This parameter is used in TN3270 mode to ask for a specific LU name on the host side.

Associated LU name

This parameter tells the TN3270E server that the -LU parameter is the LU name of a screen, and to allocate Gspool the LU name of the printer associated with the screen's LU name in the TN3270E configuration.

Telnet CRNUL mode

This parameter enables Telnet CRNUL mode. Normally Telnet in ASCII mode encodes a carriage return (CR) as a Telnet 'new line' by appending a line feed (LF). In this mode a NUL character is appended instead.

Logging and tracing

Session trace

This parameter enables/disables the line handler's session trace.

Data trace

This parameter enables/disables the line handler data trace.

Addition parameters

The GUFT server

The GUFT command line parameters generated by this menu follow below. For a detailed description of GUFT functionality, please refer to the GUFT manual.

GUFT Server Properties

GUFT Server Configuration **Line parameters**

Generic

Mode ID: Single session:

Keep alive time: User validation:

Idle time: Host sends 7bit:

Data directory:

File handling

Record size: BIN sets FIX file:

Lock files when writing: Always send space attribute:

Abort lock files:

Epilogue commands

Transfer command:

Extended transfer command:

Server command:

Logging and tracing

Disable activity log: Enable debug trace:

OK Cancel

Generic

Mode ID

Mode ID. GUFTsrv identifier and filename extension for configuration file. Maximum 3 characters. When running multiple copies of GUFTsrv each GUFTsrv must be started with a unique identifier unless start on demand is used. The default extension is .dsa or .diw depending on the line module used.

Windows

Keep alive time

Enable 'keep alive' timer. Applicable when GUFTsrv is running over a Ggate connection. The parameter value (n) is in seconds. If no Ggate keep alive packet is received in 'n' seconds, GUFTsrv disconnects the session with the requester.

Idle time

Enable idle timer. Disconnect the session with the requester if no UFT protocol message is received within 'n' seconds.

Single session

Single session mode. Terminate after having executed a single transfer request

User validation

Enable user validation. If this option is set, GUFTsrv will operate on the userid of the UFT requester user when accessing local files rather than the userid of the GUFTsrv user.

Host sends 7bit

Transliterate between 7-bit national characters on the remote system and the ISO/DO11 8 bit equivalents on the local system.

Data directory

Overrides the default directory for relative file names used by the remote requester. There is one default data directory for each DSA node name (SCID) for which connections are being accepted.

Windows	<code>\gar\servers\<scid>.uft< code=""></scid>.uft<></code>
UNIX	<code>/usr/gar/servers/<scid>.uft</code>

File handling

Record size

Maximum record size in VAR mode. Fixed record size in FIX mode. Default 512.

Lock files when writing

Lock file on write. Do not allow other processes to access the local file while GUFTsrv is writing to it.

Abort lock files

Leave the file abort locked if the transfer request is not successfully completed

BIN sets FIX file

Force file types to FIX if BINARY character set is set by requester. Necessary with some older host implementations.

Always send space attribute

Force space attribute information even if the host requester does not ask for it (necessary for some GCOS7 UFT implementations when operating on upper case file names)

Epilogue commands**Xfer CMD**

Execute 'command line' after a successful transfer request.

Extended XFER command

Execute 'command line' after any transfer request. GUFTrsv supplies information about filename, status, direction and node names as parameters.

Server CMD

Execute 'command line' when GUFTrsv terminates.

Logging and tracing**Disable activity log**

Suppress logging and accounting. By default in server mode a log of all actions is appended to the GUFTrsv log. The log and the account file are written in the standard Host Links directory for server products.

Enable debug trace

Enables an internal trace of GUFT events.

Guft server line parameters

The Guft line parameters generated by this menu follow below. For a detailed description of Guft functionality, please refer to the Guft manual. For a detailed description of these line parameters, please refer to the Gline manual-

GUFT Server Properties

GUFT Server Configuration | **Line parameters**

Line protocol: **DSA**

DSA/DIWS line parameters

Host type: **DPS7**

Terminal type: **VIP7804**

Listening

Local node: **DUMY**

Local mailbox: **filetran**

Connecting

Host node:

Host mailbox name:

User name:

Password:

Project:

Billing:

TCP line parameters

Ggate address:

Host port:

Host address:

Protocol:

Terminal type:

TNVIP resource:

TN3270 LU name:

Associated LU name:

Telnet CRNUL mode:

Logging and tracing

Session trace: Data trace:

Additional parameters

OK Cancel

Line Protocol

DSA/DIWS

Ggate address

DSA/DIWS line parameters

Host type

This parameter selects the target host type. By setting host mode you select a set of internal parameters that control the connection and dialogue with the remote host application.

Terminal type

This parameter selects the terminal mode that will be delivered to the host. It tells the host application which terminal presentation protocol you would like to receive.

Listening

Local node

This parameter enables a product to accept incoming connections. The default value is the local node name.

Local mailbox

This parameter sets the local mailbox name. It may be up to 12 characters in length. Characters 9-12 become the extension and can be set separately with -MX. By default the handler assigns unique mailbox names based on the program's process id (pid) in the form Dnnnnn.

Connecting

When in "Connect mode" and either DSA or DIWS is selected, the following parameters are available.

Host node

This parameter defines the default node for the host subsystem to which you are going to connect. The parameter identifies an RSC record in the *dsa.cfg* configuration file.

Host mailbox

This parameter defines the default application mailbox for the host subsystem to which you will connect. It may be up to 12 characters in length. Characters 9-12 become the extension and can be set separately with -DX

Windows

User name

This parameter defines the default userid for the host subsystem to which you are going to connect.

Password

This parameter defines the default password for the host subsystem to which you are going to connect.

Project

This parameter defines the default project for the host subsystem to which you are going to connect.

Billing

This parameter defines the default billing for the host subsystem to which you are going to connect.

TCP line parameters

Host port

This parameter selects a remote port for outgoing connections. You may enter the port number directly or use a symbolic name for it. In the latter case this symbolic name must be registered in your services file.

Host address

This parameter selects the remote host. You can use its numeric IP-address directly, e.g. 192.150.211.4, or you can use a symbolic name to identify the host. In the latter case this symbolic name must be registered in your hosts file or with your name server. You can append a colon and the remote port for outgoing connections. You can enter the port number directly or use a symbolic name for it. In the latter case this symbolic name must be registered in your services file.

Protocol

This parameter is used to select a mode of operation.

Terminal type

This parameter selects Telnet terminal type for Telnet negotiation performed in application mode TN3270 or TNVIP.

TNVIP resource

This parameter is used for the Telnet terminal type negotiation performed in application mode TNVIP. It is used to select a non-default 'mailbox name', which acts as a special access point in the TNVIP server. It has a maximum length of 12 characters. The resource name will be appended to the terminal type (given by the -TM parameter) separated by a delimiter and sent to the server during the negotiation phase. It is used to select a specific terminal configuration in the terminal manager.

TN3270 LU

This parameter is used in TN3270 mode to ask for a specific LU name on the host side.

Associated LU name

This parameter tells the TN3270E server that the -LU parameter is the LU name of a screen, and to allocate Gspool the LU name of the printer associated with the screen's LU name in the TN3270E configuration.

Telnet CRNUL mode

This parameter enables Telnet CRNUL mode. Normally Telnet in ASCII mode encodes a carriage return (CR) as a Telnet 'new line' by appending a line feed (LF). In this mode a NUL character is appended instead.

Logging and tracing**Session trace**

This parameter enables/disables the line handler's session trace.

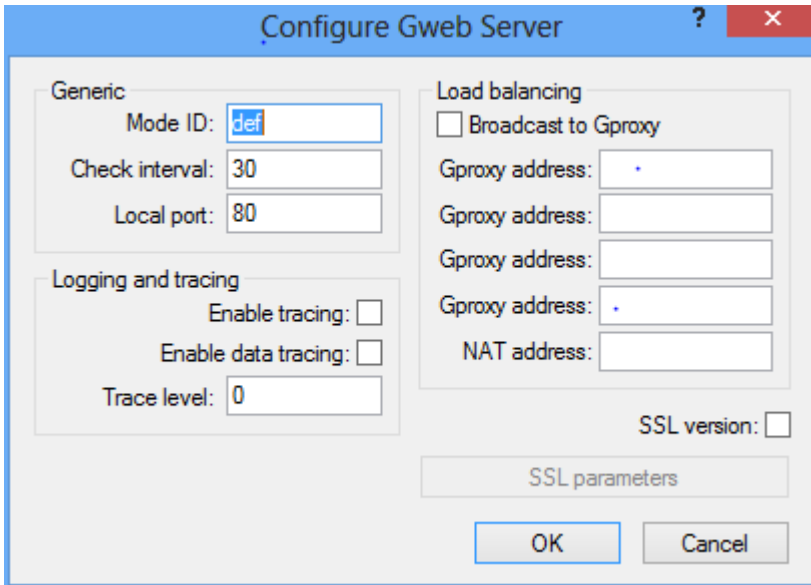
Data trace

This parameter enables/disables the line handler data trace.

Additional parameters

The Gweb server

The GwebS command line parameters generated by this menu follow below. For a detailed description of GwebS functionality, please refer to the Gweb manual.



Generic

Mode ID

Gweb identifier and filename extension for configuration file.

Check interval

Check interval in seconds (default 30)

Local port

Local port number. Port that accepts browser connections. Defaults to port 80 in non-SSL mode and 443in SSL mode.

Logging and tracing

Enable tracing

Enable data tracing

Trace level

Load Balancing

Check the 'Broadcast to Gproxy' box in order to send broadcast messages containing load balancing information. Enter specific ip-addresses of Gproxy hosts in order to limit the packets to those hosts, instead of broadcasting on the entire network.

NAT address

If the Gweb server is on a internal network that uses NAT (address translation) for access from the outside world. This parameter is used to specify the correct IP-address of the server as seen from the outside.

SSL

SSL Version

Enable/Disbale SSL functionality

SSL parameters

See the Host Links 6.6 SRB and the supplied SSL intro documentation for more information about the SSL parameters.

Gconfig Configure menu

DSA

Starts the DSA configuration utility.

Gweb

Starts the Gweb configuration utility. Lets you visually configure all Gweb hosts. See the Gweb documentation for complete syntax.

Gweb Server

Lets you manually edit the GwebS.def file.

GUFT Server

Lets you manually edit the Guft.cfg file.

DSA Listener

Lets you manually edit the Line Handler configuration file (config.dsa) in order to configure on demand servers.

Gservice

Starts the Gservice configuration program. Lets you change the startup options and user-id/password for Gservice.

Gconfig Options menu

Parameter dependency checking

Toggle the cecking of parameter dependencies in Gconfig.

Host print in DSA networks

Print to screen session

If the mainframe application mixes print with normal screen output using print addressing for the print blocks, and screen addressing for screen blocks the DSA line module or Ggate simply pass print output to the client: a Host Links emulator, Glink, or if using TNVIP or Telnet, to a third party emulator.

Print on separate session

If mainframe print output is being sent to an independent mailbox then the DSA configuration file can be set up to merge this print session with the terminal session. The resulting merged session looks to the client Host Links emulator, Glink or third party emulator as if the application had used print addressing. Please refer to the *Gline* manual for details of the `-pco` option. Alternatively a copy of Gspool can accept the print as described below.

Gspool

If mainframe print output is being sent to an independent mailbox (a free-standing ROP printer mailbox) Gspool can be used to accept the print. Gspool functions quite independently outside of the user process and may be configured to connect to the mainframe, or to wait for the mainframe to connect to Gspool. Printers configured in DPF8-S&F must log on to GCOS8. Printers configured in RSM8 on GCOS8, in Twriter on GCOS7 and printers configured in the SNM on GCOS6 all wait for the mainframe to connect to them. There is no Remote Batch facility available in Host Links, so GCOS8 SYSOUT has to be delivered to Gspool via a GCOS8 SYSOUT spooling program such as DPF8-DS, RDF8, RSM8 or Dispatch8.

Windows

Profiles configuration

You can use profiles to set various parameters that customize the Host Links environment. Profile settings generally only apply to the utility programs supplied with Host Links (such as *Gdir*). All `PROFILES` files are located in sub-directories of the Configuration directory `config` located in the System directory `c:\gar\`. Host Links installations all use the same user name system. There is no user specific profile. You must place all directives in the `default` or `system` profiles files.

Blank lines and lines beginning with an asterisk (*) are treated as comments.

Directive format

A directive begins with a keyword that identifies the command and it may have one or more arguments. Some of the arguments are interpreted by the G&R applications; others may be intended for an external application and therefore passed on. The following arguments are interpreted by G&R:

Directive	Use
#A	will be expanded to the user id, i.e. the same as #U (included for compatibility with <i>Host Links</i> for UNIX).
#B	expands to nothing for compatibility with the <i>G&R/Gmail</i> products
#C	will be expanded to the directory path name where the user's configuration files reside (<code>...\config\username</code>).
#D	will be expanded to the working directory path name.
#F	will be expanded to the full path name of the current file.
#G	will be expanded to the user's full name.
#H	will be expanded to the home directory of the user.
#I	will be expanded to the help directory.

Windows

Directive	Use
#L	will be expanded to the language currently in use.
#M	will be expanded to nothing (included for compatibility with <i>Host Links</i> for UNIX).
#N	will be expanded to the file name of the current file.
#S	will be expanded to the System Directory.
#U	will be expanded to the user id.
#V	will be expanded to workstation identification.
#Z	will be expanded to the extension part of the file name of the current file.
##X%	will be expanded to the contents of the environment variable X.
##	will be replaced by a single # character.

List of available directives

Directive	Default value
CONFIGDIR	#S\config\#U
DIREEDIT	#B\gedit.exe #F
DIRUSE	#S\config\default\diruse
HELPPDIR	#S\help
HOMEDIR	##HOME%
LANGKEY	none
LANGUAGE	none
LISTER	#B\glist.exe #F
MENU	ON
MISCDIR	#S\misc
SERVERDIR	#S\servers
WINLISTER	#B\glistw.exe #F

Description of the available directives

CONFIGDIR directory – directory for user configurations

This directive specifies the directory where all user configuration files are stored, for example the user's `PROFILES` file.

Note that two special configuration files, the Default and System `PROFILES` files, are stored in a fixed location under the `#S\config` directory. All user `PROFILES` files and other configuration files, however, are stored in the `CONFIGDIR` directory.

DIREDIR directive – configure editor for Gdir

With this directive you can configure the text editor to be used when you select the 'edit file' function in Gdir. If `DIREDIR` is not configured, the G&R editor, Gedit, is started.

`#F` will include the current file name.

```
DIREDIR notepad.exe #F
```

starts the notepad editor to edit the currently selected file.

DIRUSE pathname – user command file for Gdir

This directive specifies the name of the file containing the user commands for the directory utility, Gdir. The default value is a file named `diruse` located in your own configuration directory

```
... \config\username\diruse
```

If this file does not exist, the `diruse` file in the default configuration directory

```
... \config\default\diruse
```

is used. This default file is meant as an example only and should be modified.

Windows

You may share a DIRUSE file with other users or have one or more for your own usage. The following directive specifies that you have a DIRUSE file in your home directory named `mydiruse`.

```
DIRUSE #H/mydiruse
```

You can use #A, #M and #U in the specification of the DIRUSE file.

HELDIR directory – help base directory

The default base help directory is named `HELP` and is located in the System Directory. The base help directory may be placed elsewhere with this directive. If you enter a command in any G&R product, you may refer to the help directory with the #I convention.

You can use #A, #M and #U in the specification of the help base directory.

HOMEDIR directory – users home directory

The default home directory for a user is the home directory defined in your file server software. You may set a permanent home directory with this directive. If you enter a command in any G&R product, you may refer to the home directory with the #H convention. For example, to copy the file you are pointing at in `Gdir` to the home directory using the same name you could enter the following command:

```
cp #F #H
```

If the name of the current file is `testfile` and your home directory is `g:\home\peter`, the above command would be expanded to

```
cp testfile g:\home\peter
```

You can use #A, #M and #U in the specification of the home directory.

LANGUAGE ccc – configure dialogue language

Many G&R programs can operate with different languages, provided the correct language files are installed. Two files are needed for each language, the `progtxt[.ccc]` and the `messages[.ccc]` files, located in the `misc` directory subordinate to the `System` directory. The `ccc` file name extension indicates the language to use, and corresponds to the argument to the `LANGUAGE ccc` directive. The language key can be up to 3 characters long. Default is to have no specific language key.

For example, the directive to select French program texts is

```
LANGUAGE FR
```

LISTER directive – configure file list program

Gdir uses Glist as the default to display files. If you prefer another list utility you may configure it with the `LISTER` command. The default command is

```
LISTER #B\glist.exe #F
```

`#B` expands to nothing and `#F` refers to the current file. If you want to configure the standard Windows `notepad` command as the file list program, you should use the following configuration.

```
LISTER notepad.exe #F
```

MENU – display program menus

Most of the G&R applications have a menu in the upper part of the screen. By default this menu is always displayed. If you know the G&R products well, you may choose not to display these menus to give more room for the variable data.

You may at any time turn the menu on and off while running a G&R product with the `LF &` command, independent of the default you have configured in the `PROFILES` file.

MISCDIR directory – miscellaneous file directory

This directive specifies the directory where miscellaneous files are stored. These files are all necessary, and include character set transliteration tables `nnnn.chs`, program text files `progtxt[.ccc]` and status code explanations `messages[.ccc]`.

SERVERDIR directory – directory for servers

This directive specifies the top directory where configuration files for the various gateways and servers are stored. Please check the appropriate documentation for the different servers for details.

WINLISTER directive – configure file list program

GmonitorW uses Glistw as the default to display files. If you prefer another list utility for Windows GUI applications, you may configure it with the WINLISTER command. The default command is

```
WINLISTER #B\glistw.exe #F
```

#B expands to nothing and #F refers to the current file. If you want to configure the standard Windows `notepad` command as the file list program, you should use the following configuration.

```
WINLISTER notepad.exe #F
```

Sample dsa.cfg

The following file is the sample delivered with Host Links for Windows, and is found in:

```
c:\gar\config\dsa.cfg
```

The hash characters denote comments that you can remove after the file has been edited to reflect your site and remote nodes.

```
# The Gline configuration compiler, glcc, must be run to activate any
# changes made here.
# The following directives are used to configure the network:
# sc      - Session control
# rsc     - Remote session control
# ts      - Transport station
# tp      - Transport provider

# For more information and sample dsa.cfg files read the Host Links
# Gline documentation. Only RFC1006 transport is supported on all
# platforms. If you need OSI-transport contact G&R.

# RFC1006 Example
# -----
# Your local DSA RFC1006 node name is 'is2c'.
# You want to connect with remote DSA RFC1006 node name 'ph21'
# that has IP address 1.2.3.4 and 'ka01' that has 5.6.7.8

# is2c needs a dsa200 address when connecting to GCOS7
# sc is2c -addr 05:44

# Remote node GCOS8 ph21
# rsc ph21 -ts ph21_rfc
# ts ph21_rfc -class 0 -ns 1.2.3.4 -tp rfc

# Remote node GCOS7 ka01 needs a dsa 200 address
# rsc ka01 -addr 176:072 -ts ka01_rfc
# ts ka01_rfc -class 0 -ns 5.6.7.8 -tp rfc

# Use Gallagher & Robertson RFC1006 stack
# tp rfc -who gar
```

Windows

```
# Coname configuration example
# -----
# See the Gline manual for information about configuring
# conames and setting up filters to control access to them.
#
# In Glink you select a coname by specifying it in the Ggate
# configuration dialog box.
# In Host Links a coname is selected with the '-co' parameter.
#
# You want to use a coname 'tp8ws2' to access TP8.
# It references a pool of mailbox extensions so it
# can be shared by a group of users.

# coname tp8ws2 -desc "TP8 workstation 2" -pool lidpool
#   -dn ph21 -da tpws2mbx -hm dps8

# pool lidpool
#   -dx mg01
#   -dx mg02
#   -dx mg03
#   -dx mg04

# A convenient shorthand for configuring large pools:

# pool lidpool
#   -dx mg[01-04]

# conames are also used for configuration of merged print,
# where data from a separate print session is merged into the
# terminal session, marked as print data.

# Merged print from TWriter on GCOS7. Use -pco to get a printer
# The printer coname must wait for a connect from Twriter to
# the printer mailbox mypctw.
#
# coname mytlds -desc "TDS on GCOS7"
#   -dn ka01 -da tdsmbx -hm dps7 -pco a2_print

# coname a2_print -desc "Twriter print to MYPCTW"
#   -ln -mn mypctw -tm a2

# end of dsa.cfg
```


Marben OSIAM Stack

Delivery

We supply the Marben OSIAM transport stack, which comprises all you need for LAN connections. For LAN connections over Ethernet and/or FDDI, the Marben transport supports any third-party cards that use the standard Windows NDIS interface. For X.25 WAN connections you need to purchase an X.25 card from a dealer. Marben support the EiconCard/PC. The drivers for the card are included in Windows server releases.

All Host Links releases from R6.1 and later require Marben release 3. If you have an earlier release you must uninstall and upgrade.

marben301_w2k_xp.exe Windows W2k and XP

Memory requirements

OSI stack	800 KB
X25 driver	500 KB
Plus sessions multiplied by	3KB

For a system running 200 OSI sessions the total memory consumption for the Marben stack would amount to approximately 1.9 MB.

Uninstalling OSIAM transport

Log in as the Host Links administrative user, `gar`, before you perform any of the steps below.

Run **uninstall** from the MARBEN OSIAM Transport program group. It asks you to confirm that you want to uninstall the stack. Do that. Confirm that you want to stop the stack if it is currently running, and that you want to remove all components.

When **uninstall** completes you must also remove **OSI LLC Protocol driver** from the **Services** in the Network Control Panel. Closing the Network Control Panel causes new bindings to be calculated and asks you to restart the computer. When you have done that, you are ready to move on to installing the new version of the Marben OSIAM stack.

Installing OSI stack

Log in as the Host Links administrative user, `gar`, before you perform any of the steps below.

NOTE

the instructions for installing and configuring the Eicon card apply only if you are using X.25. If you intend to use OSI over a LAN, you can skip directly to the section entitled *Installing OSIAM transport*.

Installing the Eicon card

Install the Eicon card. Make sure the DIP switches on the card match a free IRQ on your machine.

Installing Eicon driver

Start the Windows server and install the Eicon driver software. This software is bundled with Windows server releases.

Install the Eicon card following the cards instruction. When the system boots the system will detect the PnP Eicon Card. Follow the on screen instruction.

Configuring the Eicon card

Start the Eicon Configuration program located in **Start->Programs-Eicon->Eicon Cards->Eicon Configuration Program** folder.

From the tree on the left, select the icon corresponding to the new Eicon card. Double click on the icon to expand it. Select the X.25 icon under the Port.1 icon in the tree. On the right hand side of the window, change the configuration to match your X.25 network. These parameters vary from country to country and from one network provider to another, but the public network provider should have given you a form describing your subscription. Use this information to setup your Eicon driver. If you're connecting the Eicon card to a fixed line going directly to your Datanet or MainWay, your Eicon setup must match the setup in your Datanet/MainWay.

For a simple minimum configuration, we suggest that you use **X.25 version: 1984**
Packet format: Basic (the default is: **Extended**).

For use with the public X.25 network in Norway (DATAPAK), you must change the TVC (Two Way Virtual Circuits) setting.

In DATAPAK (and some other public networks in other countries), the X.25 logical group number is different from 0. In Norway it is 4, and to configure this, we have to add 1024 to the **Start TVC** value. If your subscription has 12 Virtual Circuits, the **Start TVC** should be 1024 and the **Quantity** should be 12, for 12 group-4 TVCs (ending at 1035).

It is important that the other parameters match the setting of your X.25 subscription (public network) or the Bull front-end if you are going to run private X.25 on a fixed line to a Datanet.

Our DATAPAK subscription tells us to use:

X.25 Node type:	DTE
X.25 Window Size:	2
X.25 Packet Size:	256 (max) 128 (default)
X.25 TVC Start:	1024
X.25 TVC Quantity:	12
HDLC Window:	7

When you are done, select **Save** from the **File** menu, and then exit the program.

Installing OSIAM Transport - step 1

Change to the temporary directory where you copied the installation files (e.g. C:\HLINSTAL), and unpack the appropriate Marben software archive from the command line using the `-d` parameter:

```
marben301_w2k_xp.exe -d
```

It will create a single directory `MARBEN` as a sub-directory to your temporary directory. Change to this directory `C:\HLINSTAL\MARBEN`, and enter command `setup.exe`. The Marben setup program will begin.

The first time you run the Marben setup program, it will inform you that you need to install the OSI LLC driver. Click **Yes** to install this driver.

Follow the instructions below:

Wait for the Network and Dial-up Connections panel display, then:

- i) Right click **Local Area Connection** and select **Properties**
- ii) Choose **Install**, click **Protocol** and Choose **Add...**
- iii) Click the **Have Disk...** button, and type this set-up location (i.e. C:\HLINSTAL\MARBEN).
- iv) Click the OSI LLC protocol **OK** button to install and then click **CLOSE** to regenerate the network settings.
- v) After the driver installation, you must remember to reboot.

This installs the OSI LLC driver in:

```
\WINNT\System32\drivers\osillc.sys  
\WINDOWS\System32\drivers\osillc.sys
```

Your server must be rebooted.

Installing OSIAM Transport - step 2

Log in again as the Host Links administrative user, `gar`, change to the temporary `MARBEN` directory (`C:\HLINSTAL\MARBEN`), and run `setup.exe` again. Now you will install the main OSI-transport. Follow the instructions in the install program.

It will prompt you for Name/Company information, destination directory (default: `C:\Program Files\MARBEN\OSIAMTransport`), Program folder (default: `MARBEN OSIAM Transport`) and ask you to verify your selections before doing the installation.

Configuring OSIAM Transport

When the installation is completed, Marben will display a dialog box, saying 'Files downloading has been successfully performed. The package needs to be configured now..... Click the **OK** button, and it presents you with a dialog box for configuring OSI-transport. Select **use X.25** and/or **use LAN**, depending on which network type(s) you want to use.

Configuring OSIAM Transport for X.25

If you select **use X.25**, your X.25 connection might require that you enter the machine's local X.25 address in the **Address** field. Your X.25 subscription decides your X.25 configuration. With DATAPAK in Norway, the **X.25 Call Packet Contains** setting should be set to **Full Local Address**. In some networks, the X.25 provider specifies the calling address, and you can optionally provide your **X.25 sub-address**.

On the right hand side of the **use X.25** check box, it is important that you set the **Transport Class** to 2.

Set the maximum number of simultaneous connections you want the stack to support on X.25. Note that this number influences the amount of memory allocated for the stack. The maximum number of connections over X.25 is 850, and the maximum number of connections on one Virtual Circuit is 126.

Configuring OSIAM Transport for LAN

If you select **use LAN**, there is not much to configure. Use the default setting of **TPDU size** (1024) and set the maximum number of simultaneous connections you want the stack to support on LAN. Note that this number influences the amount of memory allocated for the stack. The maximum number of connections over LAN is 1024. The sum of configured Ethernet connections and X.25 connections cannot exceed 1024.

Note that the setup program detects your Ethernet card and picked up its MAC address. If you have multiple Ethernet cards in your PC, `setup.exe` will pick up the MAC address of the first card in the binding path for the OSI LLC driver. If you want to use a different adapter than the one currently listed as number one, move the card you want to use to the top/front of the bindings path for the OSI LLC driver in the Network Control Panel and rerun the setup program from the **MARBEN OSIAM Transport** program folder.

Click **OK** to set up the OSI stack and start it as a service. When setup has completed it will notify you that 'Installation is successfully completed'. Click on **OK** to continue.

Configuring remote nodes

It is unnecessary to pre-configure remote nodes for the Marben transport stack. All information needed to make a connection is included in the Host Links `dsa.cfg` file.

Click the **OSI Configuration Help** item from the **G&R Software** program group to read a detailed description of remote nodes configuration in the Marben OSI stack and Host Links `dsa.cfg` file. Refer also to the explanation in the section of this manual entitled *DSA network configuration*, in the step-by-step installation instructions. You will find a detailed description of `dsa.cfg` directives and configuration examples in the *Host Links Gline* manual.

Error codes

The on-line help documents the error codes that the OSI-transport stack can return. Click the **OSI Configuration Help** item from the **G&R Software** program group to view the codes applicable to your release.

Appendix: Host Links Manuals

Below you find a complete list of all available Host Links manuals:

Installation	
Host Links Servers	Installation and Configuration on UNIX/Linux
Host Links Emulators	Installation and Configuration on UNIX/Linux
Host Links	Installation and Configuration on Windows
Line handling	
Gline	Line Handler and DSA/OSI Configuration
Ggate	Transparent Gateway
Gproxy	Network Manager & SNMP Proxy Agent
G&R SSL	Using SSL for security in G&R products
GIAPI	Application Programming Interfaces
Gsftp	Gateway between FTP and SFTP
Emulations	
Gspool	Network Printer Emulation
GUFT	Unified File Transfer
G3270	Emulating IBM 3270 Terminals
G5250	Emulating IBM 5250 Terminals
Pthru	Gateway to the Bull Primary Network
Qsim	Emulating Questar DKU7107-7211 & VIP7700-7760
V78sim	Emulating VIP7801 & VIP7814
Gweb	Web Browser Front-end for DKU, VIP7700-7760, VIP7800, IBM3270 and IBM5250 Emulations

Windows

Appendix: The text library

Feil! Ugyldig filnavn.

Appendix: Error Codes

OSI/DSA error codes

Below is a list of OSI/DSA error codes and the corresponding description. These are the same descriptions that the `G&R/Gerror` utility will display when given the DSA code as a parameter.

code	Description
00xx	General Errors
0001	Open Failure in LC - Reject for unknown reason
0002	Open Failure in LC - Acceptor customer node inoperable
0003	Open Failure in LC - Acceptor customer node saturated.
0004	Open Failure in LC - Acceptor mailbox unknown.
0005	Open Failure in LC - Acceptor mailbox inoperable.
0006	Open Failure in LC - Acceptor mailbox saturated.
0007	Open Failure in LC - Acceptor application program saturated
0008	Connection refused. Transport protocol error or negotiation failed.
0009	Open Failure in LC - Dialog protocol error or negotiation failed
000A	Open Failure in LC - Presentation protocol error or negotiation failed
000B	Open Failure in LC / Connection refused lack of system resources
000C	Open Failure in LC / Connection refused from GCOS7 duplicate user
000D	Open Failure in LC, Duplicate implicit LID / Q class not started
000E	Open Failure in LC, Duplicate GRTS Id / lack of memory resources
000F	Open Failure in LC, No Logical line declared for DACQ / 7 connection refused
0010	Open Failure in LC, GCOS 8 GW Missing translation / Incorrect device length in ILCRL.
0011	Open Failure in LC, DAC connection not initialized / Too many jobs executing
0012	Open Failure in LC, No binary transfer / impossible to start the IOF job
0013	Open Failure in LC, connection is not negotiated in FD mode / impossible to start the IOF job

0014	Disconnection - Timeout resulting from absence of traffic.
0016	Option missing for an RBF mailbox.
0017	Connection refused - Incorrect access right for MB.
0018	Connection refused - Incorrect access rights for the application.
0019	Connection refused - Unknown pre-negotiated message path
001A	Connection refused - Security validation failed.
001B	Connection refused - Unknown acceptor mailbox extension.
001C	Connection refused - Inoperable acceptor mailbox extension.
001D	Connection refused - Invalid Message group number.
001F	Disconnection - no more memory space.
0020	Connection refused - Unknown node.
0021	Connection refused - inaccessible node or Host down.
0022	Connection refused - saturated site.
0023	Connection refused - inoperable mailbox.
0024	(X.25) Packet too long. Problem with packet size. / Connection block already used.
0030	Syntax Error - option not known (received on close VC).
0031	(X.25) No response to call request packet - timer expired.
0033	(X.25) Timer expired for reset or clear indication.
0039	Disconnection - transport protocol error (MUX).
003C	Presentation Control Protocol Error
003E	The application has not the turn
003F	Message group closed
0040	(X.25) Facility code not allowed. / Connection refused - unknown node
0041	Connection refused - path not available.
0042	Connection refused - Duplicate USER ID / Facility parameter not allowed
0044	(X.25) Invalid calling address.
0045	(X.25) Invalid facility length.
0047	(X.25) No logical channel available.
004F	DNSC: (X.25) Invalid call packet length.
0050	Normal disconnection (GCOS3/8)
0051	Error or Event on LC initiated by GW
0052	Error or Event on LC initiated by GW.
0053	Error or Event on LC initiated by GW. TCall
0054	Error or Event on LC initiated by GW. DIA in LOCK State
0055	Error or Event on LC initiated by GW. DIA error
0056	Error or Event on LC initiated by GW. GW has no known explanation.
0057	Error or Event on LC initiated by GW. Reject mailbox permanent

Windows

0058	Error or Event on LC initiated by GW. No more input lines in DACQ
0059	Time-out on GCOS 3/8 gateway.
005A	Error or Event on LC initiated by GW. Disconnect from terminal without reason
005B	Error or Event on LC initiated by GW. Wrong letter or wrong record
005C	Error or Event on LC initiated by GW. Forbidden letter received
005D	Error or Event on LC initiated by GW. Forbidden letter received
005E	Error or Event on LC initiated by GW. No buffer for secondary letter
005F	Error or Event on LC initiated by GW. No buffer for fragmented letter
0060	Error or Event on LC initiated by GW. Disconnect on end of phase record
0061	Error or event on LC initiated by GW. No buffer for control letter.
0062	Error or event on LC initiated by GW. Mailbox in closing phase
0064	Error or event on LC initiated by GW. Flow control error.
0065	Error or event on LC initiated by GW. CH locked by operator.
0066	Error or event on LC initiated by GW. Disconnect with a normal TMG F2 exchange.
0067	Error or event on LC initiated by GW. Teletel rerouting error from DACQ
0068	Error or event on LC initiated by GW. Teletel routing error from DACQ
0069	Error or event on LC initiated by GW. Teletel rerouting error from TM
006A	Error or event on LC initiated by GW. Teletel rerouting error from TM
006B	Syntax error - text too long.
006C	Syntax error - illegal object in a GA command.
006D	Syntax error - unknown node Id.
0078	Syntax error - illegal command for this object.
0079	Syntax error - illegal date.
007F	(X.25) No route available for X.25 switching.
0081	No more network routes available for switching.
0082	(X.25) Hop count reached for X.25 switching.
0083	(X.25) Flow control negotiation error.
0085	(X.25) Frame level disconnection.
0086	(X.25) Frame level connection.
0087	(X.25) Frame level reset.
0090	Frame level not set.
0092	(X.25) X.25 Echo service in use.
0093	(X.25) Incorrect password for PAD connection.

0094	(X.25) No more PAD connections allowed.
0096	(X.25) TS SX25 or NU X25 objects locked.
009C	(X.25) Invalid packet header. X.25 protocol error.
009D	(X.25) Incompatible header. X.25 protocol error.
009E	(X.25) Logical Channel Number too high.
009F	(X.25) Incorrect packet type.
00B2	Use of invalid password through PAD
00B6	Unknown mailbox selection for PAD connection using the PAD password.
00C0	(X.25) Normal disconnection.
00D7	(X.25) TS image (of type DSA or DIWS) in LOCK state.
00DE	(X.25) NS RMT or NR SW in LOCK state.
00E1	Connection refused. Mailbox is not in ENBL state.
00E6	QOS not available permanently.
01xx	Session Control
0100	Logical connection accepted or normal termination
0101	Rejection for unknown reason or abnormal termination
0102	Acceptor node inoperable.
0103	Acceptor node saturated. When a node has no available resources
0104	Acceptor mailbox unknown.
0105	Acceptor mailbox inoperable.
0106	DNS: Acceptor mailbox saturated.
0107	DNS: Acceptor application program saturated.
0108	Transport protocol error or negotiation failed (DSA 200 only).
0109	Dialog protocol error or negotiation failed. (Wrong logical record).
010A	Time-out on session initiation / unknown LID
010B	Acceptor mailbox extension unknown.
010C	Acceptor mailbox extension inoperable.
010D	Invalid Session Number.
010E	Unknown node.
010F	System error. System generation error or insufficient memory space
0110	Application abnormal termination. Subsequent to an abnormal occurrence in the dialogue
0111	Normal terminate rejected.
0112	Protocol not supported.
0113	Session control service purged by user.
0115	Disconnection Time-out on message group initiation.
0117	Incorrect Access Right for MB
0118	Incorrect Access Right for the Application
0119	Pre-negotiated Message Path Descriptor unknown
011A	Security validation failed
011E	Incorrect object status

Windows

011F	Not enough memory space available.
0120	Node unknown.
0121	The channel object (CH) is in LOCK state
0122	Saturation - no plug available
0123	Object status = LOCK
0124	Connection block (TSCNX) already used
0125	Disconnection already running
0126	The connection block (TSCNX) is disconnected (or not connected)
0127	Change Credit value < 0
0128	Ineffective Change Credit (delta = 0)
0129	No more deferred letters
012B	"Reinitialization" Request
012C	"Reinitialization" in progress
012D	"Reinitialization" in progress, letters are dropped
012E	Close virtual circuit. Either no mapping exists between PA/NR or CL and VC/NS
012F	Null connection object index.
0130	Undefined function at Sysgen time.
0131	Letter too large with respect to the negotiated size.
0132	The received letter is longer than the size which was
0133	Disconnection of the session control user
0134	Interface error on EOR (End-Of-Record) processing.
013C	Presentation control protocol error.
013E	You do not have the turn.
013F	Message group closed.
0140	Session is closed.
0151	Request refused, no system buffers available.
0152	Incorrect addressing record.
0153	No presentation record in the ILCAL or ILCRL
0154	Negotiation failed on session mode
0156	Negotiation failed on resynchronization.
0157	Negotiation failed on END to END ACK
0158	No presentation record in the connection letter
0159	Negotiation failed on session mode
015A	Negotiation failed on letter size (in the Logical Connection record).
015B	Negotiation failed on resynchronization (in the Logical Connection record).
015C	Negotiation failed on end-to-end ACK (Logical Connection record).
015D	No support of the "letter" interface because Multirecord is not negotiated.
0160	Incorrect TSPACNX table.
0161	Protocol error on letter reception.

0162	Negotiation failure.
0163	Record header length error.
0164	Protocol error.
0165	Protocol error reception of control letter.
0166	Type or length error on interrupt letter.
0167	Protocol error on reception of data letter.
0168	Dialog protocol error.
0169	Unknown event.
016A	Protocol error on data transfer.
016B	Invalid status for a disconnection request.
016C	Invalid status for a recover
016D	Invalid status for a suspend/resume request.
016E	Negotiation failure.
016F	Unknown command.
0170	Error in presentation protocol
0171	Letter header length error in
0172	ILCAL is not DSA 200 protocol.
0173	Error in session record.
0174	Normal disconnection, without complementary reason code.
0175	Letter is not in ASCII or EBCD.
0176	Connection protocol letter header
0177	Letter header protocol error.
0178	Record header protocol error.
0179	Record header length error.
017A	Mbx record header length error.
017B	Error on buffer transfer.
017C	DSA 200 record header protocol
017D	DSA 300 record header protocol
017E	Unsupported connection options.
017F	Character error in ASCII string.
0180	No segmented record size.
0181	Invalid mailbox object index.
0182	Mapping error for a remote connection.
0190	No more buffers.
0191	Byte count is greater than GP.
0192	Byte count is greater than GP.
0193	Byte count is greater than GP.
0194	Byte count is greater than GP.
0195	Byte count is greater than GP.
0196	Byte count is greater than GP.
0197	Byte count is greater than GP.
0198	No more buffers.

Windows

0199	Byte count is greater than GP.
019A	Byte count is greater than GP.
019B	Byte count is greater than GP.
019C	Byte count is greater than GP.
019D	Byte count is greater than GP.
019E	Byte count is greater than GP.
019F	Byte count is greater than GP.
01A0	Invalid transfer state.
01A1	Suspend protocol running.
01A2	Suspend protocol running.
01A3	Recover protocol running.
01A4	Forbidden function in write request. (\$WRITE)
01A5	Conflicting parameters for segmented record. (SWBREC)
01A6	Protocol conflict - suspend/recover.
01A7	Protocol not supported - letter/end-to-end ACK. (SWBLET)
01A8	Multi-record letter in progress.
01A9	Interrupt request forbidden.
01AA	Send control record request forbidden. (SCTROL)
01AB	Forbidden for TWA session - turn is here. (SREAD)
01AC	Termination forbidden - suspend or recover in progress. (STERM)
01C0	No space available for downstream connection request. (SMECNX)
01C1	No space available for upstream connection request. (SMUCNX)
01C2	No space available for upstream SCF connection. (SMRCNX)
01C3	No space available for session context. (\$SCTX)
01E0	Enclosure or data length error for a write request. (\$WRITE)
01E1	Enclosure or data length error for a write segment record request. (SWBREC)
01E2	Enclosure error for 'give turn' request. (SGVTRN)
01E3	Interrupt request is not demand turn, attention/data attention, or purge record.
01E4	Input status for a send control letter is not permitted.
01E8	Write request without turn.
01E9	Write segmented record request without turn.
01EA	Write segmented letter request without turn.
01EB	Send control letter request without turn.
01EC	Disconnection request without turn.
02xx	Presentation Control
0201	Protocol level not supported
0202	Application designation protocol error.
0203	Character encoding error. TM cannot support the proposed encoding.
0204	Character set error. TM cannot support the proposed character set.

0205	Character subset error. TM cannot support the proposed character subset.
0206	Incorrect record encoding.
0207	Incorrect parameter encoding.
0230	Data presentation control error. The presentation control proposed for this session cannot be used
0231	Device type is incompatible with the configuration.
0232	TM control protocol is incorrect.
0233	Device-sharing attributes are invalid.
0234	Initiator or acceptor configuration is not correct.
0235	Logical device index error.
0236	Number of logical devices is incompatible with the configuration.
0237	TM protocol record not supported.
03xx	Terminal Management
0300	Sysgen error WARNING. There is no mapped object; some objects will be spare.
0301	Operator requested session abort or logged.
0302	Idle time run out after secondary network failure.
0303	Idle time run out for no traffic.
0304	Form not found.
0305	Operator requested suspension.
0306	Destructive attention send on the session.
0307	Unknown TX addressed in this session. TM is unable to a the session.
030A	Protocol error. A record was received which did not comply with current standards
0310	Insufficient resources. The receiver cannot act on the request because of a temporary
031E	Incorrect value for Retry or Wait parameters on UP LL command.
0320	Function not supported.
0321	Parameter error. This can result
0322	Resource not available. The
0323	Intervention required (on principal device).
0324	Request not executable.
0325	EOI required.
0326	Presentation space altered, request executed.
0327	Presentation space altered, request not executed.
0328	Presentation space integrity lost.
0329	Device busy. The device is busy and cannot execute the request.
032A	Device disconnected.
032B	Resource not configured.
032C	Symbol set not loaded.

Windows

032D	Read partition state error.
032E	Page overflow.
0330	Subsidiary device temporarily not available.
0331	Intervention required at subsidiary device.
0332	Request not executable because of subsidiary device.
0340	TM cannot accept a new connection.
0341	Object status incorrect.
0342	The TM configuration is not correct.
0343	Unknown TX addressed on this session.
0344	Data presentation protocol error.
0345	Device type is incompatible with the configuration, or is not supported.
0346	TM control protocol incorrect.
0347	Device shareability attributes are invalid.
0348	Initiator or acceptor configuration is not correct.
0349	Logical device index error.
034A	Number of logical devices incompatible with the configuration.
0350	Disconnection of TM after reinitialization of the network.
0360	File not found. (Welcome and Broadcast Messages)
0361	Site not found. (Welcome and Broadcast Messages)
0362	NASF error. (Welcome and Broadcast Messages)
0370	No-session timeout. Device disconnected.
0371	No-input timeout. Device disconnected.
0372	No-output timeout. Device disconnected.
0373	Timeout due to no backup session being initiated.
0374	Timeout due to no backup session being established.
0375	Connection refused because of late activation of back up session.
0376	Disconnection of current session to switch to backup session.
0380	AUTO CN parameter not declared.
0381	Mixed ETB in data sent by VIP screen and cassette
0382	Data header sent by the terminal incorrect.
0383	Desynchronization in the exchange of data.
0384	KDS block count error.
038C	Remote terminal is not connected
0390	Unknown mailbox.
0391	No call packet to return.
0392	No "Possibility" command to return Protocol error
03C0	Slave device disconnection.
17xx	Network Layer
1701	PAD connection refused.
1702	Flow control error.

1706	Logical channel number not zero in restart packet.
1707	Illegal packet length or use of D-bit forbidden.
1708	Illegal header.
1709	Illegal Logical Channel Number.
1710	Invalid packet type for the automaton state. Protocol error
1711	Incorrect packet type.
1712	Inconsistent network parameters in the generation file.
1713	No more space.
1714	DSAC network layer object not usable.
1717	USED/ENBL transition. Transport station is locked.
1718	USED/ENBL transition. This is a back-up NR.
1719	USED/ENBL transition. Dynamic close due to load.
171A	USED/ENBL transition. Transfer time-out has elapsed.
171B	USED/ENBL transition. This is a back-up NR.
171C	USED/ENBL transition. Transport station is idle.
171E	USED/ENBL transition. NR object is locked.
171F	ENBL/LOCK transition. NR HDLC has no more memory space.
1721	Remote station is inaccessible via the configured network. Check
1723	Incorrect PAD password.
1724	Virtual circuit already in use. LCN (Logical Channel Number) too high.
1725	Invalid virtual circuit.
1726	Packet too short. Protocol error for the equipment directly connected to the Bull Datatnet.
1727	Incompatibility between the generation parameters of two communicating systems on window or packet size.
1729	Packet size in communicating systems not the same.
1731	Timer runs out while waiting for call confirmation.
1732	Timer runs out while waiting for clear confirmation.
1733	Timer has run out while waiting a reset confirm.
1740	Call setup or call clearing problem.
1741	Open failure on virtual circuit. No flow control on this NS.
1742	Incorrect facility. Protocol error for the equipment directly connected to the Bull Datatnet.
1744	Unknown subscriber.
1745	End of time-out on reset confirm. Invalid facility length. Protocol error for the equipment directly
1747	No logical channel available.
1749	End of time-out on call confirm.
174F	Incorrect packet length. Protocol error for the equipment directly connected to the Bull Datatnet.
1755	Flow control, window, packet size or reset error.

Windows

1760	Frame disconnection.
1770	Frame connection.
1771	Frame reset.
1781	No more network routes available for X.25 switching.
1782	Maximum of 15 switches have been used,
1783	Flow control negotiation error.
1785	Frame level disconnection.
1786	Frame level connection.
1787	Frame level reset.
1790	Frame level not established.
1791	No more logical paths available for the PAD.
1792	Echo service busy.
1793	Incorrect PAD password.
1794	All the PAD virtual circuits are used
1795	X.25 initialization not possible.
179B	LCN not null in restart packet
179D	Incompatible header (receive error: all VC of concerned NS
179E	LCN greater than NBVC in NS directive
179F	Incorrect packet type
17A0	Invalid facility.
17B0	Normal disconnection.
17B1	X.25 Echo in use.
17B2	No more logical channels available.
17B3	No more PAD connections allowed.
17B4	TS SX25 or NU X25 object locked.
17B5	Buffer capacity overflow.
17B6	Normal disconnection.
17B8	Unknown calling SNPA (Sub-Network Point of Attachment).
17B9	Internet problem.
17CB	Call collision on VC
17CC	Incompatible generations (NR object without mapping).
17CE	Invalid status NR locked.
17CF	Lack of space.
17D0	Unknown subscriber.
17D4	TSCNX already used for another connection. SCF internal error.
17D7	Transport station locked.
17DD	Proper NS locked.
17DE	Invalid status NR locked.
17DF	Lack of space.
17E0	Forbidden parameter or invalid value.
17E1	Invalid transition.
17E2	Upward-mapped object (TS) not locked.

17E3	No object mapped above.
17E4	NR not locked (MP NR -ADD/-SUB) or virtual circuit already open.
17E5	NR is last in list and the TS is not locked.
17E6	No object mapped above (UP NR -PRIO). NR not mapped on TS.
17E7	Upward mapped object not locked
17E9	Mix of datagram and connection network
17EB	Class inconsistent with NR.
17EE	Incompatible generations. NR object without mapping.
17FF	Wrong parameter in administrative CALL
18xx	Transport Layer
1800	Normal disconnection initiated by the correspondent
1801	Local saturation at connection request time.
1802	Failed negotiation at connection time.
1803	Duplicate connection. Two or more requests have been issued for the same connection.
1804	Redundant request.
1805	Retransmission Time-out at transport level.
1806	Survey time-out at transport level.
1807	Transport protocol error.
1808	Session Control specified is not available (inaccessible).
1809	Requested Session Control Id unknown by remote transport.
180A	Termination because of disconnection by administration.
180B	Session Control/Transport interface error.
180C	Connection request on non-sharable VC in case of ISO Transport. ISO: header or parameter length is invalid.
1817	Station in shut-down state.
181F	No memory space at connection time.
1821	Session Control inaccessible by configured session routes. ISO: Session entity not attached to TSAP.
1824	Collision between Close NC and Open TC.
182E	Remote station not configured.
182F	Resource saturation.
1831	ISO: No route for the called NSAP.
1832	ISO: Received NSAP addresses are wrong.
1833	Segmentation violation.
1834	ISO:QOS priority not available temporarily, due to a local condition (for example, lack of resources).
1835	ISO:QOS priority permanently unavailable locally (for example, due to an error in the system generation).
183A	ISO: Remote reason not specified.
183C	ISO: Remote transport entity congestion at connect request time.
1840	Server in terminating state. TC has been re-assigned on another NC.

Windows

18A1	An additional NC has been assigned to a TC.
18B0	NC has been re-assigned on another VC.
18EF	Disconnection at Transport level caused by reception of RESTART DSA during the transfer phase.

Windows Sockets error Codes

Below is a list of Windows Sockets return codes and the corresponding description.

Hex code	Windows Sockets Access Error name	Description
2714	WSAEINTR	The (blocking) call was cancelled via WSACancelBlockingCall()
2719	WSAEBADF	The socket descriptor is not valid.
271E	WSAEFAULT	An invalid argument was supplied to the Windows Sockets API.
2726	WSAEINVAL	An invalid call was made to the Windows Sockets API.
2728	WSAEMFILE	No more file descriptors are available.
2733	WSAEWOULDBLOCK	The socket is marked as non-blocking and no connections are present to be accepted.
2734	WSAEINPROGRESS	A blocking Windows Sockets call is in progress.
2735	WSAEALREADY	The asynchronous routine being cancelled has already completed.
2736	WSAENOTSOCK	The descriptor is not a socket.
2737	WSAEDESTADDRREQ	A destination address is required.
2738	WSAEMSGSIZE	The datagram was too large to fit into the specified buffer and was truncated.
2739	WSAEPROTOTYPE	The specified protocol is the wrong type for this socket.
273A	WSAENOPROTOOPT	The option is unknown or unsupported.
273B	WSAEPROTONOSUPPORT	The specified protocol is not supported.

273C	WSAESOCKTNOSUPPORT	The specified socket type is not supported in this address family.
273D	WSAEOPNOTSUPP	The referenced socket is not a type that supports connection-oriented service.
273E	WSAEPFNOSUPPORT	
273F	WSAEAFNOSUPPORT	The specified address family is not supported by this protocol.
2740	WSAEADDRINUSE	The specified address is already in use.
2741	WSAEADDRNOTAVAIL	The specified address is not available from the local machine.
2742	WSAENETDOWN	The Windows Sockets implementation has detected that the network subsystem has failed.
2743	WSAENETUNREACH	The network address can't be reached from this host. There is probably a problem in the way you have set up TCP/IP routing for your PC (most likely you have not defined a default router).
2744	WSAENETRESET	The connection must be reset because the Windows Sockets implementation dropped it.
2745	WSAECONNABORTED	The connection has been closed.
2746	WSAECONNRESET	
2747	WSAENOBUFS	Not enough buffers available, or too many connections.
2748	WSAEISCONN	The socket is already connected.
2749	WSAENOTCONN	The socket is not connected.
274A	WSAESHUTDOWN	The socket has been shutdown.
274B	WSAETOOMANYREFS	
274C	WSAETIMEDOUT	Attempt to connect timed out without establishing a connection.
274D	WSAECONNREFUSED	The attempt to connect was forcefully rejected. The service on the other side is not available.
274E	WSAELOOP	Too many symbolic links were encountered in translating the path name.
274F	WSAENAMETOOLONG	
2750	WSAEHOSTDOWN	The host machine is out of service.
2751	WSAEHOSTUNREACH	The host machine is unreachable.

Windows

2752	WSAENOTEMPTY	
2753	WSAEPROCLIM	
2754	WSAEUSERS	
2755	WSAEDQUOT	
2756	WSAESTALE	
2757	WSAEREMOTE	
276B	WSASYSNOTREADY	Indicates that the underlying network subsystem is not ready for network communication.
276C	WSAVERNOTSUPPORTED	The version of Windows Sockets API support requested is not provided by this particular Windows Sockets implementation.
276D	WSANOTINITIALISED	A successful WSStartup() must occur before using this API.
2AF9	WSAHOST_NOT_FOUND	Authoritative answer host not found.
2AFA	WSATRY_AGAIN	Non-authoritative answer host not found, or SERVERFAIL.
2AFB	WSANO_RECOVERY	Non-recoverable errors, FORMERR, REFUSED, NOTIMP.
2AFC	WSANO_DATA	Valid name, no data record of requested type.