



VisualAge Pacbase

## Communications Manager & PACLINK Utility

DSCOM000201A

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## FOREWORD

The purpose of this manual is to provide the necessary information for the use of PACLINK and the parameterizing of the Communications Manager.

These components are delivered with the following applications:

- VisualAge Pacbase WorkStation
- P.A.W.
- DSMS revamped.
- VisualAge Pacbase (Unix - Windows/NT - OS/2 server)
- DSMS (Unix - Windows/NT - OS/2 server)
- Pactables (Unix - Windows/NT - OS/2 server)

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## Introduction

### Communications Manager

The WorkStation and both P.A.W. and PACLINK communicate with a server which can be either remote or local. The server types and the associated communication protocols are:

- VisualAge Pacbase server, DSMS, Pactables or user mainframe application (P.A.W.) on platforms such as IBM MVS/CICS, IBM MVS/IMS, BULL GCOS7, BULL GCOS8 or UNISYS 2200 Series:  
*communication through a 3270 or vipxxxx or INFOConnect protocol.*
- VisualAge Pacbase server, DSMS and Pactables on OS/2, Windows/NT and Unix platforms:  
*TCP/IP protocol, Windows Socket program interface.*
- Application generated with cobol microfocus and revamped by P.A.W.:  
*direct information management between the dll cobol and the revamped application.*

Communication between the work stations and the server is ensured by a Communications Manager named GSXXXX.EXE and its associated Parameters file named GSxxxx.PRM (xxxx is an internal code for the communication board/software variant).

The purpose of this manual is to describe, for each communication protocol, the hardware and software configuration prerequisites, as well as the corresponding communication program and Parameters file.

Concerning the Parameters file associated with each Communications Manager, a complete description specifies which values are automatically loaded by the installation process and which values are optional and can be manually added or modified.

Concerning the environments of the WorkStation and P.A.W., see the manuals referenced DSEXP and DSPWO, respectively.

#### PACLINK

PACLINK is a terminal emulator working on Windows. It allows to display the image of a screen in a Windows window.

Communication between the server and the work station is supported exclusively by the Communications Manager.





# 1. Communications Manager

## 1.1. Introduction

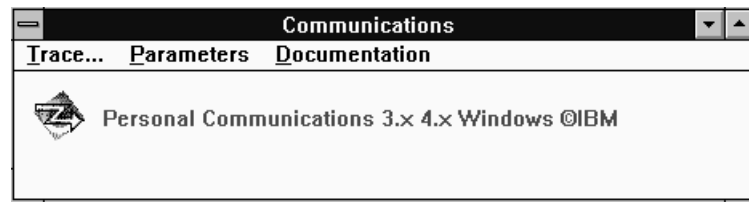
Executing the WorkStation, PACLINK or P.A.W., in server connection activates the Communications Manager, whose icon appears at the bottom of the screen.

A double click on the Communications Manager icon opens a window indicating the type of communication active and including three menus, **Trace...**, **Parameters** and **Documentation**.

The **Trace** menu is used to activate and to set parameters for the **Trace** mode, which displays, step-by-step, the details of the transactions between the server and the client work station.

The **Parameters** menu is used to modify the installed parameters and the additional values of the active communications manager as well as the associated timers. These parameters correspond to the GSXXXXX.PRM files described in the preceding Subchapters.

The **Documentation** menu is used to access to the Write file which gives you information on the general parameters of the Communications Manager and the characteristics of a particular emulator.



## 1.2. Description of the Communications Manager window

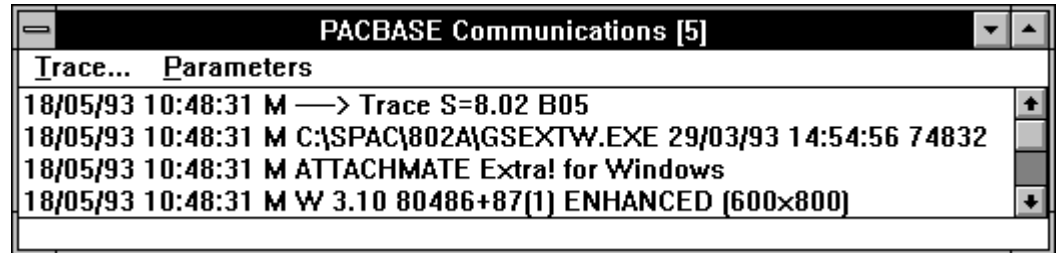
### Trace...

Click on the **Trace** menu to open the following dialog box:



Two radio buttons are used to enable or disable the **Trace** mode.

In the **In a window** area, you can choose to have the trace display of the command lines only or the corresponding screen only, or both, as shown below.



The **In a file** area allows you to store the same information in a file, whose name and path you must specify.

If the name of the **Trace** file specified is not valid (non-existing or protected directory), a 10008 error message is displayed, and no trace file is created.

The Trace file is useful in solving communication problems (the Hot-Line requests the information). All information that can be traced is added to this file. It is possible to reinitialize the Trace file when the Communications Manager is executed by the communicating application (WorkStation, PACLINK, P.A.W.). Each time the trace is activated, you can reinitialize it.

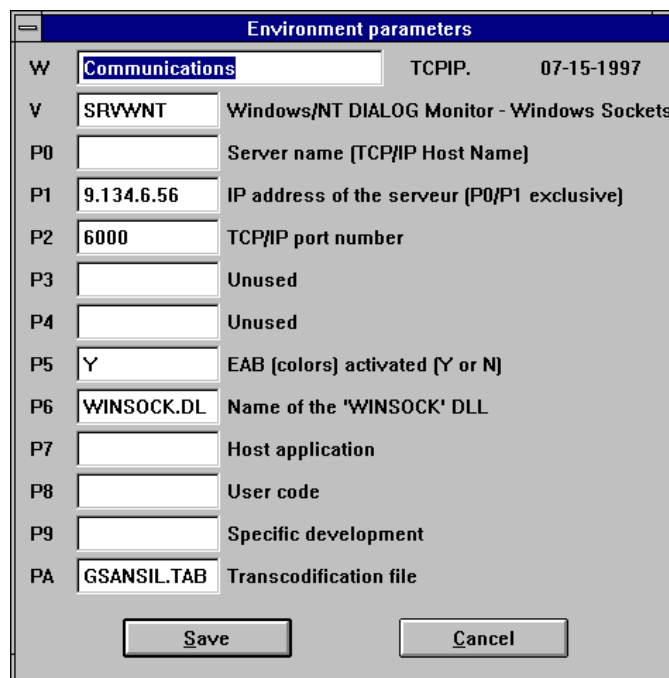
Both areas can be active simultaneously.

Once you have set your parameters, click on the **Save** button.

## Parameters

### Environment

The **Environment** choice opens a dialogue box allowing to update the values set in the .PRM file and to set authorized additional values. This dialog box is always the same whatever the type of communication in use. You should therefore make sure to modify or add authorized parameters only.

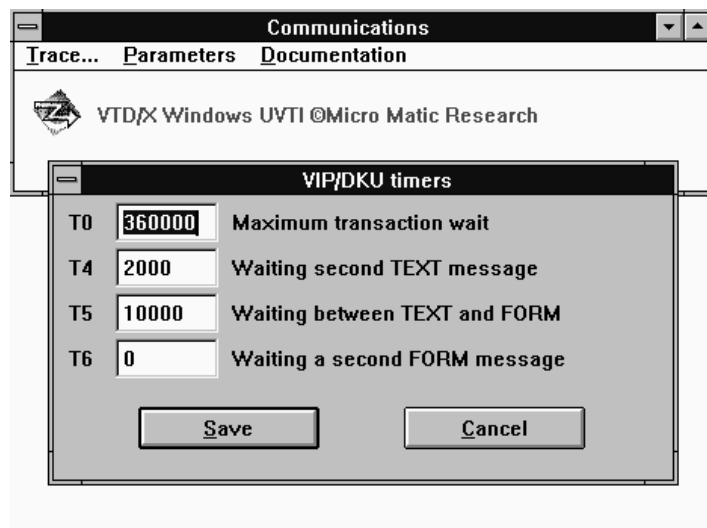
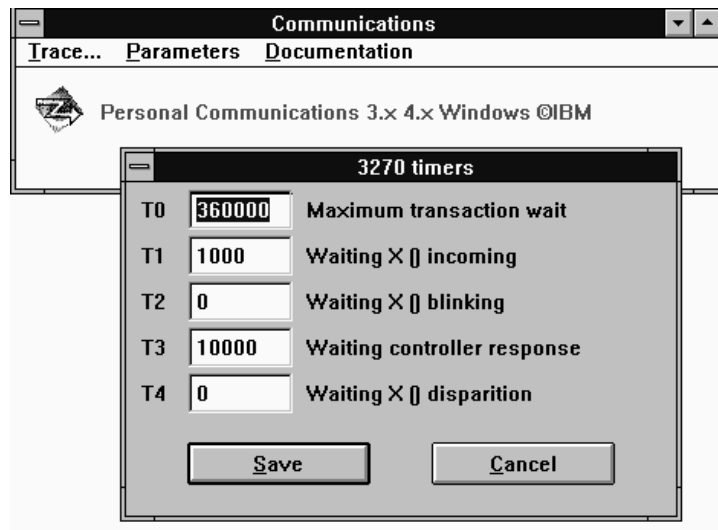


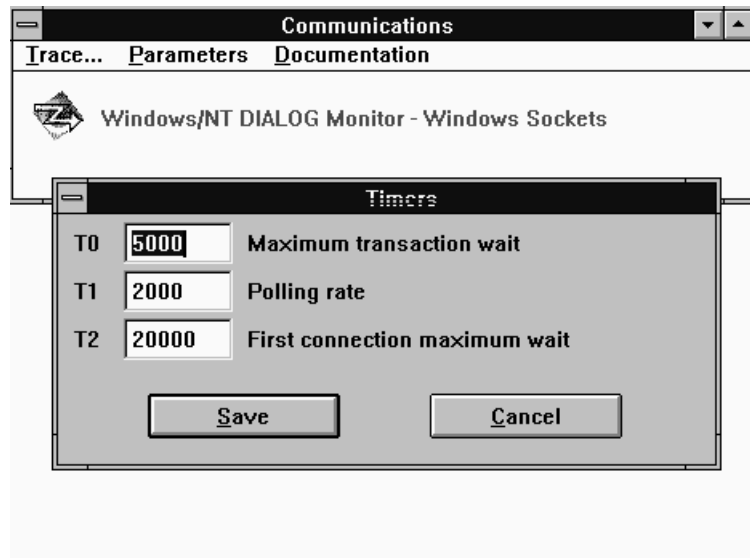
The meaning of these parameters depends on the type of communication in use. For further details, select the **Documentation** menu in the window Communications Manager or refer to the file .wri, which is located in the execution directory of the Communications Manager.

**Timers**

The **Timers** choice opens a dialog box that allows you to update the timer values. The dialog box varies according to the type of communication in use (3270, VIP or TCP/IP).

The meaning of these timers depends on the type of communication. For further details, select the **Documentation** menu of the Communications Manager, or refer to chapter 'Communication variants'.

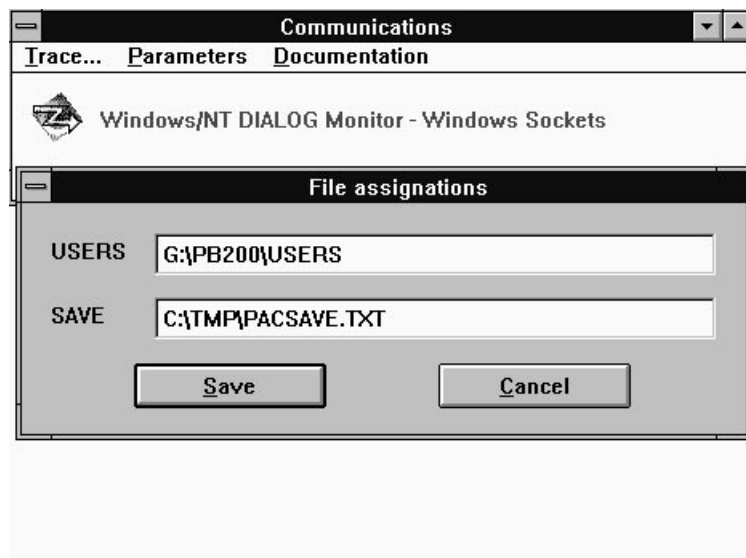




### Assignments

The **Assignments** choice is specific to TCP/IP protocol.

The list of assignments depends on the type of server. For further details, select the **Documentation** menu in the Communications Manager window or refer to the .wri file located in the execution directory of the Communications Manager.



## 1.3. Direct execution of the Communications Manager

It is possible to execute only the Communications Manager.

This mode allows you to activate the menus of the Communications Manager, without establishing any communication through the emulator. It is used to modify some parameter values, to activate a trace before the Communications Manager is used by another application. It is better to use it to edit the Parameters file with any text editor.

You can start directly the Communications Manager from Windows, by the choice of the « Start - Execute » menu under Windows 95, or by the choice of the « File - Execute » menu in the Programs Manager with Windows 3.1.

You must type the following command line:

```
PATH1\GSXXX.EXE PARAM PATH2\GSYYY.PRM
```

where PATH1 and PATH2 specify respectively the detailed path to the execution file of the Communications Manager (GSXXX.EXE) and to the associated Parameters file (GSYYY.PRM).

Note:

The character string **PARAM** must be typed in lower case letters.

## 1.4. Description of the Communications Manager files

The Communications Manager is installed by the client application (WorkStation, P.A.W., VisualAge Pacbase ....).

A Communications Manager contains the following files:

- An executable program whose name depends on the type of server selected during the execution of the client application:

GSDLL32.EXE: IBM MVS/CICS, IBM MVS/IMS and BULL server through 3270 protocol.

GSUVTI.EXE: BULL server with DKU7107 or DKU7800 communications.

GSTCPI.EXE: OS/2, UNIX, Windows/NT server with Windows Sockets.

GSUNIS.EXE: UNISYS 2200 series server.

GSMFOC.EXE: Micro Focus DOS application.

- A Parameters file of the Communications Manager named GSxxxx.PRM, where xxxx depends on the emulator software selected when the client application is installed.

- A file for the transcodification of characters. The name of this file is of GSxxxx.TAB type. The value xxxx depends on the type of transcodification set by the emulation software, it is documented in the Parameters file.

- An executable file of DLL type: CTL3D.DLL. This Microsoft DLL is used for the presentation of the application windows.

- The GSMFOC.EXE variant also includes the following executable files:

STARTMON.EXE

ZAR980.DLL

All these files must be located in the same directory.



## 2. Communication variants

### 2.1. Introduction

This chapter describes the different communication variants available in the Communications Manager.

You may access the latest version of the communications variants documentation:

- via the **Documentation** menu of the application Communications Manager,
- in a 'Write' formatted file.

The communication variants depend explicitly on the API program which is used by the Communications Manager, and implicitly on the type of server in use. The choice of a type of server as the client application is installed (WorkStation, P.A.W., PACLINK ...) makes it possible.

The selection of an emulator software for a particular type of server only implies the adaptation of the Communications Manager.

The following list defines for each communication variant, the servers concerned.

**EHLAPI API** : IBM mainframe server (MVS-CICS, MVS-IMS, DOS-VSE) or BULL through a 3270 protocol.

**UVTI API** : BULL mainframe server (GCOS7 et GCOS8) through the VIPxxx protocol.

**INFOConnect PEP** : UNISYS 2200 Series mainframe server.

**Windows Sockets** : Unix server, Digital VMS, Windows/NT and OS/ through a TCP/IP protocol.

Application generated in COBOL MicroFocus DOS and revamped by P.A.W.: direct management.

## 2.2. Communications Manager - EHLLAPI API

### 2.2.1. Introduction

The host communicating with the work station is located on an IBM or on a Bull computer. For BULL computers, the applications and transmission mode must allow for the use of a 3270 protocol.

With 3270, the selected programming interface is EHLLAPI (IBM standard), implemented in various communication software products. One of these software products must be installed on the work station.

EHLLAPI is now implemented in these software products as resident programs which can be accessed as DLL programs via a 'hllapi' function.

Access by a DLL function is implemented in the GSDLL32.EXE variant of the Communications Driver.

This document describes the parameters required for the correct execution of GSDLL32.EXE variant.

### 2.2.2. Validated 3270 software products

#### Introduction

The EHLLAPI standard needs interpretation regarding some of its functions. Therefore, it is necessary that IBM validates 3270 communication software. Those currently validated run under Windows (or Win-OS/2) and contain the EHLLAPI API in DLL format.

For each product, we will not detail the communication sequences taken into account (Coax, DLC802.2, TN3270, ...), as GSDLL32.EXE only "sees" the DLL implementing EHLLAPI.

#### Windows 3.1 and Win/OS2 Enviroments

Attachmate : Extra! for Windows

Attachmate : IRMA for the Mainframe

Eicon : Access for Windows

IBM : Communications personnelles pour Windows ( 3.x et 4.x )

IBM : Communications Manager/2

Integro : Talkman 3270

Bull : Affinity Line 2.0 3270 HLLAPI

Novell : Netware WorkStation for Windows

NetManage: NS/Elite

Wall Data : Rumba 3270

#### Windows 95 Environment

GSDLL32.EXE is an 16-bit application, compatible with Windows 95.



The validated products for Windows 3.1 can be used in 16-bit mode under Windows 95.

The products listed below are specific to Windows 95 and Windows/NT. The emulator API programming interface is also EEHLLAPI. The products that use WinHLLAPI only as API use another Communications Driver.

Attachmate : Extra! Personal Client 6.2 with service pack EPC620SP.EXE.

IBM : Personal Communications 4.1 with PCSEHL95 fixpack.

WallData : Rumba 95/NT.

### 2.2.3. Installation

It is necessary to install and run the 3270 emulator before installing the VisualAge Pacbase WorkStation or P.A.W. It is also advisable to check that the VisualAge Pacbase server or the application to be revamped can be accessed.

Then, install the VisualAge Pacbase WorkStation or P.A.W. During the installation, the previously mentioned software products will be proposed. As a result, the GSDLL32.EXE module and the GSxxxx.PRM Parameters file (xxxx depends on selected 3270 software) are located in a directory that depends on the installed product (VisualAge Pacbase WorkStation or P.A.W.).

### 2.2.4. Parameterization

The GSxxxx.PRM file contains data read at the initialization of the GSDLL32.EXE program. The data allows for the correct operation of this program. You can access to and update the data by activating the **Parameters** menu in the Communications Manager.

#### Parameters

##### Environment

**W** : Communications Manager title (Required).

Window title that is displayed under the GSDLL32.EXE program icon when running.

**V** : Communications Manager variant code (**do not modify**).

**G** : Message protocol code between the Communications Manager and the client applications (**Do not modify**).

**P0** : Number of connection attempts. (Optional)

Number of connection attempts to a HLLAPI context. The default value for this parameter is 2.

**P1** Session code (A to Z). (Required).

It is the session ID to be used. This ID is generally composed of a letter (from A to Z). It must be adapted according to the session chosen.

**P2** X() address. (Optional)

X() address on the line 25 given by EHLLAPI. Counted from 0, its default value is set to 8. This parameter allows to manage a bug detected in some releases of 3270 communication products. It is imperative not to modify this value without consulting our Technical Support.

**P3** Prevention of time-out with no message. (Optional)

It allows to perform a background transmit if no transmit has been made during "n" minutes (time-out prevention).

**P4** Prevention of time-out with message. (Optional)

It allows to perform a transmit, with the user's confirmation if no transmit has been made during "n" minutes.

**P5** EAB Colors activation (Y or N). (Optional).

It allows to activate or deactivate the management of the color attributes.

- Activated attributes = Y,

- Deactivated attributes = N.

This parameter default value is 'Y'.

**P6** 'EHLLAPI' DLL name. (Required).

It is the 'EHLLAPI' DLL name included in the communication software.

**P7** Controller activation (Y or N). (Optional).

It allows to activate or not the "controller" before transmission. The default value is 'Y'.

See Timer Parameter T3.

**P8** 3270 Terminal type (2, 3, 4, 5). (Optional).

It allows to define the emulated terminal type:

P8 2 for a 2-type in 24x80.

P8 3 for a 3-type in 32x80.

P8 4 for 4-type in 43x80.

P8 5 for 5-type in 27x132.

This parameter must be specified only if the API does not return the correct code for the terminal type.

**P9** Deletion of end-of-field blanks. (Optional).

The activation of this parameter by 'Y' value allows to replace end-of-field blanks by low-values.

**PA Transcoding table (Required).**

It specifies the transcoding table used between the client work station and the server.

GSASCII.TAB : IBM (PC850) + NOVELL.

GSTALK.TAB : INTEGRO Talkman 3270

GSANSI.TAB : Other suppliers

**Environment**

Products that use Communications Manager must synchronize with what happens on the server. After performing a transmit, you must wait for all the information to be returned before starting a local process. This is why a number of "timers" are installed as default. However, in some cases, it may be necessary to modify these values manually. Timer values are stated in milliseconds.

**T0 Maximum waiting time**

Default= 360000 (6 minutes)

It is the maximum time for which P.A.W. or the WorkStation waits for a server response. After this time, a message will be displayed.

For the WorkStation, the default value should not be modified because certain Upload/Download operations may require very long processing delays.

For P.A.W., it may be reduced to the maximum response time allowed for the revamped transaction. A sudden line breakdown causing a default of response will also stop all activity on the PC for a time equal to T0.

**T1 Time necessary for the X() to appear**

Default value = 1000 (1 second)

With certain types of transmissions (CLEAR SCREEN for example) the appearance or disappearance of the X() is too quick to be intercepted by the API.

If that occurs, you might wait for a time as long as T0. Therefore, at the end of T1, if no X() has been seen, the transmission will be considered terminated. This time should be modified only when transmissions systematically take N seconds or more for the X() to appear. Code T1 X where (X = N\*1000), otherwise the WorkStation or P.A.W. will take over after 1 second and process the wrong screen.

**T2 Disappearance of X() during server processing**

Default value = 0

During a transaction with the server, it may happen that X() or X SYSTEM totally disappears before the whole response comes back (IMS for instance). X() then reappears during transmission of the response. In this case, the waiting time should be set so that the system takes over only after this time T2.

T3 Time necessary for the controller call before transmission

Default value = 6000 (6 seconds).

With certain control unit devices, the program using the API must call on the controller and wait for a response before transmitting the data. In most cases, this process involves a response time nearly equal to zero. Normally, this parameter should not be modified.

NOTE: With some types of communications, activating this call is not necessary and may cause an error. The call may be de-activated by using the P7 parameter in the following manner in GSxxx.PRM:

P7 N        No controller call

T4 Only for the IBM Personal Communication V2.0 for WINDOWS.

## 2.2.5. Example

```

----- IBM Personal Communications 3.x 4.xWindows -----
W Communications
V PC32W                    IBM Personal Communications 3.x 4.x Windows
G 02                      Internal revision number
P1 A                      Session ID (A to Z)
P2 8                      X() offset
P5 Y                      EAB (colors) activated (Y or N)
P6 PCSHLL.DLL             Name of the 'EHLAPI' DLL
P8 2                      3270 screen model (2, 3, 4, 5)
PA GSASCII.TAB            Transcodification
D0 0 1 0 1 0 0 0 C:\GSCOM.DEB

```

## 2.2.6. Particular case

### Use of different communication software products

**CAUTION:** When several local work stations communicate with the same server via different communication software products, you can meet some problems with accented or special characters (~, #, {, }, [, ], @, etc.). To prevent such problems, *each emulation must be configured on the same pattern*, either with the CECP mode, or with the non-CECP mode.

Some of the communication software products are running with the CECP mode, and do not allow the use of a non-CECP mode. It is the case of IBM PC/3270 for Windows. If one of your work stations uses this software, all the other ones should be configured with the CECP mode as well.

### Wincom 3270 for Windows ©ICOM Informatique

For "Wincom 3270 for Windows", you must blind the 'NewOIA' format in the Status line. This must be done in the ACS3EHAP.INI file which is located in the DLL ACS3EHAP.DLL directory.

```

ACS3EHAP.INI file:
---- BeginningACS3EHAP.INI ---
      [Param]
      NewOIA=0
---- End ACS3EHAP.INI ---

```

**Extra! Personal Client ©Attachmate**

- When you install Extra! Personal Client, if you have been authorized to add the install directory to the PATH, you don't need to start the communication software before starting the application (WorkStation, P.A.W.).

- The link between a session ID (parameter P1) and a session name is made through the choice of the following menu:

"Options ..."

" Global Preferences ..."

" Advanced"

**Extra! Personal Client 6.2©Attachmate**

- The 6.2 version of Extra! Personal Client must be used with 'service pack' EPC620SP.EXE. 'Service pack' is available on the Web Attachmate site (<http://supportweb.attachmate.com>).

**Personal communications 4.1 ©IBM**

- 'Fixpack' PCSEHL95 must be installed for the 4.10 and 4.11 versions of Personal communications.

## 2.3. Communications Manager - UVTI API

### 2.3.1. Introduction

The local workstation communicates with a server running on a BULL machine through a VIP protocol (emulation DKU7107 or VIP7800). As for BULL machines using Protocol 3270, refer to Communications Manager - API EHLLAPI.

In emulation DKU7107 and VIP7800, the (BULL standard) UVTI programming interface has been chosen; it is implemented in several communications software products. One of these products must be installed on the workstation.

The interface program between VisualAge Pacbase WorkStation or P.A.W. using UVTI is GSUVTI.EXE.

This document describes the parameters ensuring the correct operation of the program.

### 2.3.2. UVTI Valid Products

#### Introduction

The UVTI Standard is subject to little variation. However, some of its functions are implemented in a particular way. IBM's validation of the UVTI communications product is required. Valid products work under Windows and use the UVTI API as a DLL.

We will not list for each product all the communications sequences taken into account (TNVIP, ...), as GSUVTI.EXE only sees the UVTILIB.DLL file that implements UVTI.

### Windows 3.1 and Win/OS2 Environment

BULL Affinity Line 2.0 Windows UVTI.  
 ICOM Wincom 7107 for Windows UVTI.  
 INTEGRO Talkman for Bull on UVTI.  
 VTD/X Micromatic Research Windows UVTI.  
 UVTI SwitLine S.I.T.  
 G&R Glink/Windows.

### Windows 95 Environment

GSUVTI.EXE is an 16-bits application, compatible with Windows 95.

In most cases Windows 95 emulators versions with UVTI are 32-bits, and they do not offer 16-bits UVTILIB.DLL. GSUVTI.EXE works only with 16-bits UVTILIB.DLL.

e.g : with BULL Affinity Line, you must use Affinity 2 client and not Affinity 32 client.

### 2.3.3. Installation

The emulator supporting UVTI must be installed and in operation prior to the installation of VisualAge Pacbase WorkStation or P.A.W. It is also recommended to make sure the VisualAge Pacbase server or the application to be revamped with P.A.W. can be accessed.

Then, install VisualAge Pacbase WorkStation or P.A.W. The software mentioned above will be suggested during the install procedure. Once the product installed, the GSUVTI.EXE module and a Parameters file, GSUVTix.PRM (where x depends on the emulator chosen), are created on the Workstation. Those files are located in a directory which can be different depending on the installed product (VisualAge Pacbase WorkStation or P.A.W.).

### 2.3.4. Parameterization

The GSUVTix.PRM file contains data read at the initialization of the GSTUVI.EXE program. The data allows for the correct operation of this program. You can access to and update the data by activating the **Parameters menu** of the Communications Manager.

#### Parameters

##### Environment

**W** Communications manager title (Required).

Screen title that is displayed under the GSDLL32.EXE program icon when running.

**V** Communications Manager variant code (**Do not modify**).

**G** Message protocol code between the Communications Manager and the client applications (**Do not modify**).

**P0 Presentation (7107 or 7800) (Required).**

This parameter defines the used presentation: DKU7107 or VIP7800. This parameter is defined during the installation of the WorkStation or of P.A.W. It must not be modified.

**P1 Name of the connection (Optional).**

Emulators allow for several configurations. If the P1 parameter is not filled in, GSUVTI will offer a list of available configurations each time the WorkStation or P.A.W. is run. The user must select a configuration in the list. If the WorkStation or P.A.W. always work with the same configuration, specify the name on the P1 line. The connection will be made directly, without opening the list of sessions.

**P2 Call of the SelectAllFields function (Optional).**

This parameter allows for the selection of the read screen. The first implementations of UVTI only included a field per field reading function. There is now a global reading function.

The possible values are the following:

- 'N': field per field reading. (Default value).
- 'Y': global reading.

This parameter can be passed to 'Y' when the screen reading takes too long.

**P3 Time-out prevention without message (Optional)**

It allows to perform a background transmit if no transmit has been made during "n" minutes (time-out prevention).

**P4 Time-out prevention with message (Optional)**

It allows to perform a transmit, with the user's confirmation, if no transmit has been made during "n" minutes.

**P5 Connection process (Optional).**

By default, (no parameter entered), the Communications Manager initializes a connection with UVTI before this connection is established. The connection is established after the reception of the message by the Communications Manager.

For the 'Y' attribute, the Communications Manager initializes the connection with UVTI while waiting for the connection to be established.

**P6 Monitoring received messages (Optional).**

This parameter valued to 'Y' indicates to the Communications Manager that it must intercept any message coming from the mainframe apart from normal transmits (disconnecting the workstation, sudden stop of the on-line server ...) and display, in a window, the state of the mainframe.

The default value of the parameter is 'N'.

The possible values are the following:

- 'N' : no line monitoring.
- 'Y' : line monitoring.

**P7** TM Local Dialog Activation.

It allows for the configuration of the use or not of a TM connection. The default value of the parameter is 'N': no activation of the TM local dialog. To activate a TM local dialog, this parameter must be valued to 'Y'.

**P8** Affinity V2 UVTILIB V3.00.29 (Optional).

The value of this parameter must be 'B' for the version V3.00.29 of UVTILIB with Affinity Line V2.

In the other cases, this parameter needs not be filled in.

**P9** Displaying the communications software emulator (Optional).

It allows the user to define the visibility of the builder-emulator while GSUVTI.EXE is running. In a UVTI environment, the Communications Driver (GSUVTI) opens the emulator's session.

The possible values are the following:

- 'N': This is the default value. The emulator's session is opened as an icon. If the icon is maximized, the emulator's menus are disabled and no input is authorized in the emulator's session.

- 'Y': The emulator's session is opened as a window. It is possible to use the emulator's session but there are risks of de-synchronization with the communicating application: WorkStation, P.A.W., PACLINK.

**PA** Transcodification table (Required).

It indicates what is the transcodification table used between the client and the server.

GSANSI.TAB

**Environment**

Products that use communication managers must synchronize with what happens on the server. After performing a transmit, you must wait for all the information to be back before starting a local process. This is why a certain amount of "timers" are installed as a default. However, in some cases, it may be necessary to modify these values manually. Timer values are stated in milliseconds.

The timers definition is not required in the Communications Manager Parameters file. Then, the Communications Manager uses it as a default value.

**To** Maximum waiting time

Default= 360000 (6 minutes)

It is the maximum time for which P.A.W. or the WorkStation waits for a server response. After this time, a message will be displayed.

For the WorkStation, the default value should not be modified because certain Upload/Download operations may require very long processing delays.

For P.A.W., it may be reduced to the maximum response time allowed for the revamped transaction. A sudden line breakdown causing a default of response will also stop all activity on the PC for a time equal to To.



**T4** Time before the second VIP message (P.A.W. only)

Default = 2000 (2 seconds)

After reception of the first VIP message from the server, the transaction will be considered ended after this T4 time, and the screen recognition activated on the received VIP message. If the transaction sends more than two VIP messages at intervals higher than this time, then the value of T4 should be increased.

**T5** Time between the reception of a textual message and a formatted message (WorkStation only).

Default = 10000 (10 seconds)

For a GCOS8 server, the number and type of VIP message depends on the size of the response VIP message.

For "small" VIP messages, the WorkStation receives a formatted VIP message only.

For bigger VIP messages, it receives a textual VIP message followed by a formatted one.

The WorkStation considers the transaction as ended when it receives a formatted VIP message, whether preceded by a textual VIP message or not. In the case of ABEND maps, only textual VIP messages are sent. The waiting time would then be T0, ie. 6 minutes (default). The T5 parameter can be used to limit this waiting time. As a default, if 10 seconds after the reception of a textual VIP message no formatted VIP message has been received, the WorkStation sends an error message. As a rule, it is therefore not advisable to modify the default value of this parameter.

**T6** Waiting time for the second formatted VIP message (WorkStation only).

Default = 0 (0 second).

If the physical transmission device happens to cut a formatted VIP message, this timer specifies a time for which to wait for a second formatted message. As a default, this time is null (value 0).

**2.3.5. Example**

```

----- BULL Affinity Line 2.0 Windows UVTI -----
W Communications
V UVTI_BULL_2          BULL Affinity Line 2.0 Windows UVTI
G 02                   Internal revision number
P0 7107                 Presentation (7107 or 7800)
P7 N                   Activate TM local dialog
P9 N                   Opening of the Communication software
emulation
PA GSUVTI.TAB          Transcodification
D0 0 1 0 1 0 0 0 C:\GSCOM.DEB

```

## 2.4. Communications Manager - Windows Sockets

### 2.4.1. Introduction

It must be possible to access with TCP/IP the computer containing the host which communicates with the work station. The operating system of the target computer can either be OS/2, UNIX, Digital VMS or Windows/NT.

The programming interface is Windows Socket, it is implemented in a number of TCP/IP communication softwares. One of these software products must be installed on the work station.

The interface program for VisualAge Pacbase WorkStation or P.A.W. using Windows Socket is called GSTCPIP.EXE.

Also, this program requires parameters found in the GSTCPIP.PRM file and described below.

### 2.4.2. Validated TCP/IP Software Products

The API of Windows Sockets is highly standardized and there are very few varying interpretations from one computer manufacturers to the other. Therefore, the following list is given for information but is not exhaustive. Any TCP/IP for Windows product which correctly implements Windows Sockets version 1.1 can be used.

IBM TCP/IP for DOS and Windows

Microsoft TCP/IP for Windows For Workgroups or for Windows 95 or for Windows/NT.

Novell LanWorkplace (Option Windows Socket)

PC-TCP of FTP Software

Digital Pathworks V5

Wollongong

WRQ TCP/IP

### 2.4.3. Installation

It is necessary to install and to run TCP/IP before installing VisualAge Pacbase WorkStation or P.A.W. The PATH environment variable must include the directory containing the Windows Sockets DLL (WINSOCK.DLL).

It is also advised to check whether it is possible to access the VisualAge Pacbase host or the application to be revamped with P.A.W. (using "ping" or Telnet for example).

Then, install VisualAge Pacbase WorkStation or P.A.W. During this installation, you can select a choice corresponding to Windows Sockets. When the installation is over, you will find the GSTCPIP.EXE module and the GSxxxx.PRM Parameters file - xxxx depends on the host page code - . You will find both files in a directory depending on the product installed (VisualAge Pacbase WorkStation or P.A.W.).

## 2.4.4. Parameterization

The GSxxxx.PRM file contains data read at the initialization of the GSTCPIP.EXE program. The data allows for the correct operation of the program. You can access and update the data by activating the **Parameters menu** of the Communications Manager.

### Parameters

#### Environment

**W** Communications Manager title (Required).

Screen title that is displayed under the GSTCPIP.EXE program icon when running.

**V** Communications Manager variant code (**Do not modify**).

**G** Message protocol code between the Communications Manager and the client applications (**Do not modify**).

**P0** Host Name (Exclusive with P1).

This alias must be defined with uppercases. The IP address will be obtained by the GetHostByName function of the Windows Socket API. The search is then performed by the TCP/IP software product, in a HOSTS file. The location of this file depends on the TCP/IP software product used (refer to the documentation of the corresponding software product).

**P1** IP address of the host (Exclusive with P0).

It is an alternative to P0 which can be used to indicate directly the host IP address, on the form of xxx.xxx.xxx.xxx. This address must be defined in the HOSTS file. The location of this file depends on the TCP/IP software product used (refer to the documentation of the corresponding software product).

**The same .PRM file should not contain both P0 and P1 parameters.**

**P2** TCP/IP port number (Required).

This parameter indicates the port number associated with the service on the host (VisualAge Pacbase host or generated VisualAge Pacbase dialog).

For more information on these three parameters, see the VisualAge Pacbase or TCP/IP administrator on your site.

**P5** EAB Activation (Optional).

Used to activate or deactivate the color attributes management. Activated attributes = Y, deactivated attributes = N.

**P6:** Nom de la DLL "WINSOCK" (Facultatif).

Name of the Windows Sockets DLL included in the TCP/IP software product. The default value is "WINSOCK.DLL".

Note: this parameter is available since November 1996. For earlier versions, WINSOCK.DLL only is taken into account.

**P7** Server Application (Optional)

This parameter is only used for:

- the Windows/NT Multi-Application server (optional).
- the specific 'Authentication' development (optional)

It corresponds to the startup command of the application on the server. You must care for the type of case.

**P8** User code (Optional).

This parameter is only used for:

- the Windows/NT Multi-Application server (optional).
- the specific 'Authentication' development (optional)

This parameter allows you to enter the user code in the user authentication dialogue box while the connection is established.

**P9.** Specific development (Optional).

Special options. The code indicated after P9 identifies the option.

- "A": authentication in relation to the serveur.

**PA** Transcoding table (Required).

Indicates the transcoding table used between the client station and the host station. This parameter can hold three values depending on the host page code:

GSHPUNIX.TAB : HP9000 Standard.

GSANSIL.TAB : ANSI, ISO8859, Windows/NT, TANDEM, SUN, DPX, OSF (Digital)

GSPC850.TAB : PC850, OS/2 Standard, RS6000 Standard.

## Environment

Products that use the Communications Manager must synchronize with what happens on the server. After performing a transmit, you must wait for all the information to be returned before starting a local process. This is why a number of "timers" are installed as default. However, in some cases, it may be necessary to modify these values manually in the Communication Driver Parameters file. Timer values are stated in milliseconds.

### T0 Maximum transaction wait

Default= 360000 (6 minutes)

It is the maximum time for which P.A.W. or the WorkStation waits for a server response. After this time, a message will be displayed.

For the WorkStation, the default value should not be modified because certain Upload/Download operations may require very long processing delays.

For P.A.W., it may be reduced to the maximum response time allowed for the revamped transaction. A sudden line breakdown causing a default of response will also stop all activity on the PC for a time equal to T0.

### T1 Polling rate of the server

Default value = 200 (0.2 second)

While waiting for the server response. The Communications Manager is waiting for a response with its polling interval and does not monopolize Windows resources.

### T2 First connection maximum wait

Default value = 2000 (20 seconds)

It is the time allocated to the initial connection for the server. Above this limit, the Communications Manager displays an error message and sends back a connection error to the client application (WorkStation, PACLINK or P.A.W.).

## Assignments

### USERS (SU): USERS directory.

Location of the client work station, the 'users' directory containing the batch server Generation-Print results. This directory is a network resource, associated with the following parameters:

<disk >\<version>\USERS

<disk> : points to the network resource of the shared files (VisualAge Pacbase installation parameter, adapted to the station).

<version> : VisualAge Pacbase installation parameter.

### SAVE (SA): Conversation exit file.

Name of the (local) file which will be used to save the conversation.

The structure of the SA line is: SA x:\path\name.xxx

There is no particular requirements for the unit name, the path and the name of the file. However, they must refer to a unit, where the client work station is authorized to write. You do not have to create the file, it is managed by the Communications Manager.

### 2.4.5. Example

```

----- VA Pacbase Server (C) on Windows/NT -----
W Communications
V TCPWIN                VA Pacbase Server (C) on Windows/NT
G 02                    Internal revision number
P0 PACNT                IP address of the server (hostname) (P0/P1)
P2 2500                 TCP/IP port number
PA GSANSI.TAB           Transcodification
SA C:\PACBASE\SAVE.TXT  Conversation exit file
SU X:\PACBASE\USERS
D0 0 1 0 1 0 0 0 C:\PACBASE\GSCOM.DEB

```

### 2.4.6. Particular functionalities

#### Definition of the local address in the HOSTS file

With the releases of the GSTCPIP.EXE Communications Manager later than December 1996, you no longer have to specify first the IP address in the HOSTS file. With earlier releases, you still have to specify the host server address and the local address of the work station.

#### Authentication in Relation to the Host

This functionality is specific to P.A.W. It is used to perform locally an authentication in relation to the users of the host (UNIX – VMS – Windows/NT).

When starting-up the Communications Manager, a dialog box allows you to enter user code and password. These fields are filled in with the A1 and A2 parameters values, if defined.

It uses the "rsh" or "rexec" process on the host. The P2 parameter must correspond to the port number of the "rsh" or "rexec" process.

Additional parameters for this option are:

- A0: name of the application run on the server by "rsh" or "rexec" (required).
- A1: user code on the server (optional).
- A2: user password (optional).

The input of these parameters is not included in the "Parameters" menu of the Communications Manager. You should do it directly in the GSxxxx.PRM file.

#### The Multi-Application Server (OS/2 and Windows/NT)

*Releases of VisualAge Pacbase earlier than 2.0 require the use of a TP server for each application: VisualAge Pacbase, VisualAge Pacbase-DSMS, Pactables, administration servers. To access to different servers, you must define a Parameters file for each server and a different port (parameter P2).*

A new type of server is available since September 1997 for VisualAge Pacbase OS/2 or Windows/NT. It is used to support all applications on the same server. There is no need to parameterize the client work stations with a different port. The TCP port is the same for all the applications.

However, the Communications Manager must send the server the application called. Two methods may be used to identify the application called:

- through the P7 parameter (Server Application). In this case, there must be the same number of Parameters files as applications used.
- through a dialogue box at the Communications Manager start-up, as the P7 parameter is not defined yet. In this case, you need one file only for all the applications, but then the user will have to know the exact names of applications.

This Multi-Applications Server is available with:

- OS/2 Server:
  - VisualAge Pacbase 2.0 for OS/2.
  - VisualAge Pacbase-DSMS 2.0 for OS/2.
  - VisualAge Pactables 2.0 for OS/2.
- Windows/NT Server:
  - VisualAge Pacbase 2.0 for Windows/NT.
  - DSMS 1.5 for Windows/NT.
  - VisualAge Pactables 2.0 for Windows/NT.

## 2.5. Communications Manager - INFOConnect PEP

### 2.5.1. Introduction

The work station communicates with a server running on a UNISYS 2200 Series machine.

The programming interface is WinHLLAPI, implemented in Attachmate's "INFOConnect PEP for PCs" communication software, installed on the work station.

Access to WinHLLAPI is performed by a communication interface program (GSUNIS.EXE).

Since this access depends only on the DLL implementing WinHLLAPI, GSUNIS.EXE is independent from the transport layer being used (direct connect, TCP/IP, X.25/O.S.I).

Also, this program requires parameters found in the GSUNIS.PRM file and described below.

### 2.5.2. Installation

"INFOConnect PEP for PCs" must be installed and tested before installing the Pacbase WorkStation or P.A.W. Also, access to the VisualAge Pacbase server or the application to revamp must be tested.

Then, while installing the VisualAge Pacbase WorkStation or P.A.W., you will choose the UNISYS server and the "INFOConnect" option.

As a result, you will find the two files GSUNIS.EXE and GSUNIS.PRM in a directory previously identified by the VisualAge Pacbase Workstation or P.A.W. installation.

### 2.5.3. Parameterization

The GSUNIS.PRM file contains data read at the GSUNIS.EXE program initialization. They are needed for the proper execution of this program. You can access to and update the data by activating the **Parameters** menu of the Communications Manager.

#### Parameters

#### Environment

**W** Communications manager title (Required).

Window title that is displayed under the GSUNIS.EXE program icon when running.

**V** Communication driver variant code (**Do not modify**).

**G** Message protocol code between the Communications Manager and the client applications (**Do not modify**).

**P0** Number of connection attempts (Optional).

Number of connection attempts to a WinHLLAPI context. The default value for this parameter is 2.

**P1** Session code (A to Z) (Required).

It is the session ID to be used. This ID is generally composed of a letter (from A to Z). It must be adapted according to the chosen session.

**P5** EAB Colors activation (Y or N) (Optional).

It allows to activate or deactivate the management of the color attributes.

- Activated attributes = Y,

- Deactivated attributes = N.

This parameter default value is 'Y'.

**P9** Deletion of end-of-field blanks (Optional).

The activation of this parameter by 'Y' value allows to replace end-of-field blanks by low-values.

**PA** Transcoding table (Required).

It specifies the transcoding table used between the client work station and the server.

GSUNIS.TAB



## Environment

Products that use communications managers must synchronize with what happens on the server. After performing a transmit, you must wait for all the information to be returned before starting a local process. This is why a number of "timers" are installed as a default. However, in some cases, it may be necessary to modify these values manually in the Communications Manager Parameters file. Timer values are stated in milliseconds.

### T0 Maximum waiting time

Default= 360000 (6 minutes)

It is the maximum time for which P.A.W. or the WorkStation waits for a server response. After this time, a message will be displayed.

For the WorkStation, the default value should not be modified because certain Upload/Download operations may require very long processing delays.

For P.A.W., it may be reduced to the maximum response time allowed for the revamped transaction. A sudden line breakdown causing a default of response will also stop all activity on the PC for a time equal to T0.

### T1 Time necessary for the X() to appear

Default value = 1000 (1 second)

With certain types of transmissions (CLEAR SCREEN for example) the appearance or disappearance of the X() is too quick to be intercepted by the API.

If that occurs, you might wait for a time as long as T0. Therefore, at the end of T1, if no X() has been seen, the transmission will be considered terminated. This time should be modified only when transmissions systematically take N seconds or more for the X() to appear. Code T1 X where  $(X = N * 1000)$ , otherwise the WorkStation or P.A.W. will take over after 1 second and process the wrong screen.

### T2 Disappearance of X() during server processing

Default value = 0

During a transaction with the server, it may happen that X() or X SYSTEM totally disappears before the whole response comes back (IMS for instance). X() then reappears during transmission of the response. In this case, the waiting time should be set so that the system takes over only after this time T2.

### T3 Time necessary for the controller call before transmission

Default value = 6000 (6 seconds).

With certain control unit devices, the program using the API must call on the controller and wait for a response before transmitting the data. In most cases, this process involves a response time nearly equal to zero. Normally, this parameter should not be modified.

NOTE: With some types of communications, activating this call is not necessary and may cause an error. The call may be de-activated by using the P7 parameter in the following manner in GSxxxx.PRM:

P7 N                    No controller call

### 2.5.4. Example

```

----- INFOConnect PEP UNISYS(C)-Attachmate(C) -----
W Communications
V UNIS                INFOConnect PEP UNISYS(C)-Attachmate(C)
G 02                 Internal revision number
P1 A                 Session ID (A to Z)
P9 N                 Suppres right space
PA GSUNIS.TAB        Transcodification
D0 0 1 0 1 0 0 0 C:\GSCOM.DEB

```

## 2.6. Communications Manager - MicroFocus Monitor

### 2.6.1. Introduction

When a MicroFocus DOS application is revamped with P.A.W., both display and keyboard input are managed by P.A.W.

P.A.W. communicates with the application monitor via a communication interface program (GSMFOC.EXE) and a screen formatting program (ZAR980.DLL).

The communication interface program requires parameters found in the GSMFOC.PRM file and described below.

### 2.6.2. Installation

The revamping of Microfocus applications requires the prior creation of .DLL files. These applications can then be run by P.A.W. under Windows or WinOS/2.

The creation of these .DLL files is described in the P.A.W. Operator's Guide Chapter "Porting a Microfocus Application onto a P.A.W.-Revamped Application".

The MicroFocus Monitor is a P.A.W. installation option. As a result, you will find two files GSMFOC.EXE and GSMFOC.PRM in a directory identified by the "XXXX" P.A.W. installation parameter.

### 2.6.3. Parameterization

The GSMFOC.PRM file contains data read at the initialization of the GSMFOC.EXE program. They are needed for the proper execution of this program. You can access to and update the data by activating the **Parameters** menu of the Communications Manager.

**Parameters****Environment**

**W** Communications manager title (Required).

Screen title that is displayed under the GSMFOC.EXE program icon when running.

**V** Communication driver variant code (**Do not modify**).

**G** Message protocol code between the Communications Manager and the client applications (**Do not modify**).

**PA** Transcoding table (Required).

It specifies the transcoding table used between the client work station and the server.

GSANSI.TAB.

**M** revamped Dialogue's code (Required)

This parameter identifies the revamped Dialogue. You must therefore overwrite its default value (MA1) by the revamped Dialogue's code, and optionally its name.

**2.6.4. Example**

```

----- Microfocus Monitor -----
W Communications
V MICROFOCUS           Microfocus Monitor
G 02                   Internal version number
PA GSANSI.TAB          Transcoding table
M MA1                  Dialogue name
D0 0 1 0 1 0 0 0 C:\GSCOM.DEB

```



## 3. PACLINK Utility

### 3.1. Functionalities

The PACLINK utility is a terminal emulator (3270 or VIP) operating under Windows.

Communication between the mainframe and the PC is supported exclusively by the Communications Manager.

The behavior of the user interface is based on the IRMA 3270 emulator software.

### 3.2. Installation

When you install the VisualAge Pacbase Workstation, PACLINK is automatically copied in the directory `\SPAC\nnn\`, where *nnn* represents the Workstation release and *l* the language used. Once installed, PACLINK.EXE may be copied into any directory on the hard disk. The PACLINK.IMP and PACLINK.TCH files (detailed thereafter) will be generated automatically in this directory.

When VisualAge Pacabase is installed for UNIX, Windows/NT and OS/2, servers, PACLINK is available in the `\version\PACLINK` directory where *version* specifies the *version* of VisualAge Pacabase installation.

PACLINK allows you to have a direct access to VisualAge Pacbase transaction and to VisualAge Pacbase administration transaction in dumb terminal mode.

### 3.3. Multi-session mode

PACLINK supports the multiple session communication modes. For each session, in which PACLINK.EXE will be run, a specific PACLINK Parameters file is used.

This file may be edited via a text editor. It contains two lines, G and E, which specify, respectively:

- The complete path and name of the communications manager in use. The driver will be run automatically when starting PACLINK, line G.
- The complete path and name of the Parameters file to be associated with the communications manager, line E.

The other lines correspond to the choices specific to PACLINK in the **System** menu.

```

- PACUNIS.PRM
Fichier Edition Rechercher ?
|JPL203
G C:\SPAC\NT\GSTCPIP.EXE
E C:\SPAC\NT\GSPUNIS.PRM
F1NUAS
F1CESN
F0USER          PASSWORD          BIB
F1CESF
F0
F0
F0
F0
F0
F0
B00015 00008 00000 00000 00400 000 000 000 000 001 002 002 049 Fixedsys
A000011000 0044 0044 0592 0358 0 029030
I0400
C111001101010011100111000110
S00273100002000480
S00256001170000000
S00256001200000090

```

## 3.4. PACLINK execution

### 3.4.1. From DOS

You can start PACLINK directly from the DOS prompt, by typing the following command line:

```
WIN PATH1\PACLINK PATH2\PARAM.PRM
```

where `PATH1` and `PATH2` specify the complete PACLINK.EXE and associated Parameters file access paths and `PARAM.PRM` is the name of the Parameters file.

### 3.4.2. From Windows

Another way to start PACLINK is through WINDOWS, by double-clicking on the PACLINK icon.

The Parameters file that has been associated to PACLINK.EXE in the command line then automatically starts the communications manager.

The WorkStation and VisualAge Pacbase also integrate a starting PACLINK icon in their groups of program.

It is possible to integrate multiple versions of PACLINK which have different Parameters files associated.

## 3.5. System Menu

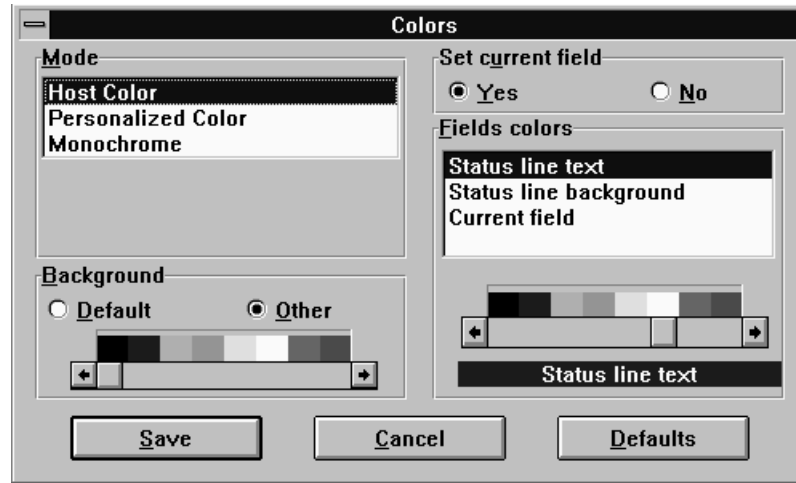
PACLINK has a System menu which, in addition to the standard WINDOWS System menu, offers choices specific to PACLINK. The choices in this menu are associated to accelerators: `Ctrl+X` (where X is a key on the keyboard).

### RE-DISPLAY

If you have made wrong changes in a screen, this choice allows you to re-display the screen as it stood after the latest transmit.

## COLORS

This choice opens a dialog box in which you can change several attributes, including the colors of the various fields of the screens displayed by PACLINK. It also allows you to highlight the current field with a particular color, and to choose the font and size of the characters. Finally, it allows you to choose a key assignment for the transmission operation.



### CURRENT FIELD

Click on the **Yes** radio button to specify that you wish to highlight the current field with a particular color. When you choose this option, the **Field colors** area displays a complementary line called **Current field** which you can use to assign a color to the field.

If you click on the **No** radio button, the current field will not be highlighted and the **Current field** line will not appear in the **Field colors** area.

### BACKGROUND

Use this area to define a color for the screen background.

Clicking on the **Windows** radio button will simply assign the color specified in the Windows parameters.

Click on the **Other** radio button to display a sample of colors in which you can select one to assign to the screen background.

### MODE

Use this area to define the color attributes of the characters.

Choosing **Host Color** assigns the colors defined on the Host.

Choosing **Personalized Color** divides the text in separates categories (input fields, protected fields,...) each of which may be assigned a particular color. Each one of these types of fields will be associated with a corresponding line in the **Field colors** area; use this line to specify the colors you have selected for the type of field.

Selecting **Monochrome** displays a sample of colors. Choose a unique color to be applied to the whole of the text displayed by the PACLINK window.

### FIELD COLORS

Use this area to define the color of different elements of a window with a sample of colors. The options it contains are related to the mode selected.

Choosing **Host colors** assigns the text attributes the same colors as the Host's. With this mode, you can only parameterize the color of the following attributes:

- Status line
- Status line background
- Current field (if you selected the **Yes** radio button in the **Set current field** area)

In **Personalized color** you can specify the color of the 3 attributes mentioned above, but also that of each type of text area displayed (input fields, protected fields...).

In **Monochrome**, as explained in the **Mode** section, a unique color is applied to the whole of the text in the window. The color of the three attributes mentioned above can be parameterized.

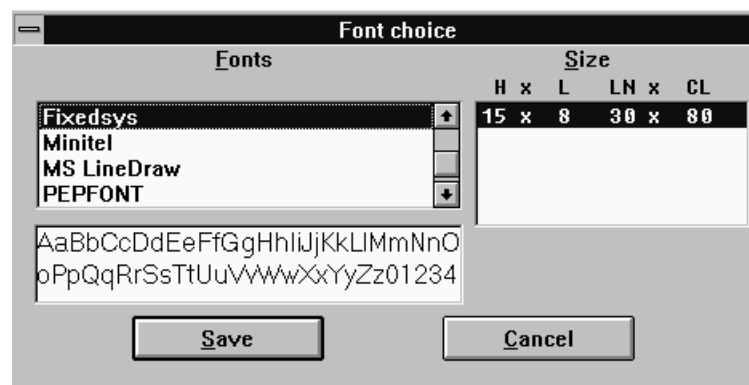
If **Personalized Color** is selected in the **Mode** area, this area allows you to choose a color for each type of text area. In this case, it also allows you to choose a color to assign to the attribute characters when these will be displayed (See paragraph **Use of the keyboard**).

You can exit the dialog box without saving your changes, you just have to click on the **Cancel** button.

If you wish to cancel your parameters without exiting the dialog box, click on the **Defaults** button.

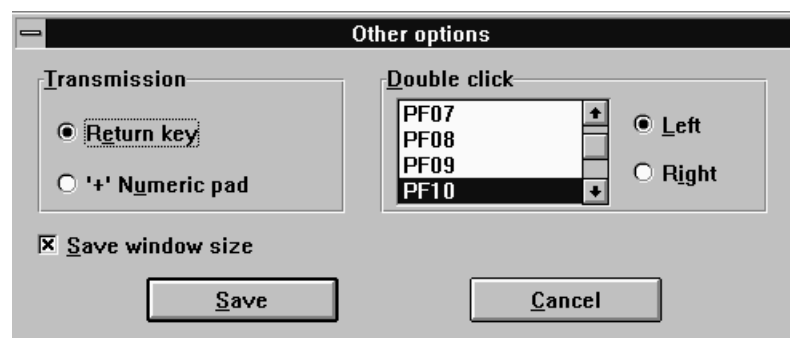
## FONT

This choice opens a dialog box in which you can choose a character font and size for display in PACLINK. The size is a combination of height and width of the characters (in pixels), it has an impact on the number of lines and columns which can be displayed in a full screen window).



## OTHER OPTIONS

Open a dialog box which allows you to choose the keys assigned to the transmit operation to the server.



### TRANSMISSION

One of two keys may be assigned to the transmit operation: the **Return key** or the **"+" Numeric pad key**. Click on one of the radio buttons to make your choice.

### DOUBLE CLICK

Use this area to assign a double click of the mouse left or right button to a special function.



**SAVE WINDOW SIZE**

When you enable this option, the size of the PACLINK window will be saved and retrieved for the next session. Otherwise, when you next run PACLINK, its window will be displayed at random.

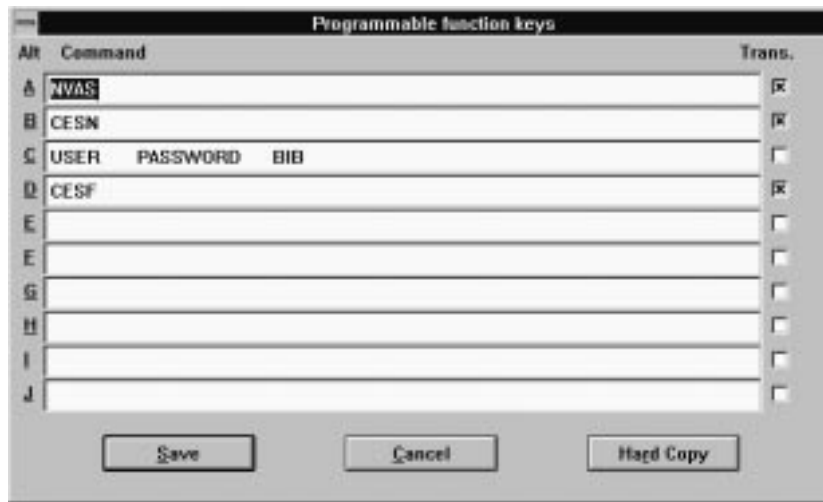
Once you have made all your selections, click on **Save**.

**PROGRAMMABLE FUNCTION KEYS**

Use this dialog box to memorize sequences of commands as combinations of keys (ALT + A through ALT + J). The memorized sequence may end by an automatic transmit command, which you specify by clicking in the Trans column.

If this series of characters require several Input areas, they must be consecutive. In this case, if the values entered don't reach the maximum length of the areas, you must add blanks to complete. (Refer to line C in the following example).

EXAMPLE :



ALT + C will provoke the automatic input of "PDSG PASS BIB", which is a sequence of user ID, password and library, provided that the cursor is positioned in the first position of the user code field in VisualAge Pacbase Paclan and paclan/x. As the **Trans** option has not been selected, no transmit will be made.

A click on the **Hard Copy** push button of the dialog box creates a PACLINK.TCH file which contains the list of programmed keys. This file, like the PACLINK.IMP file, is located in the directory which contains PACLINK.EXE. The PACLINK.TCH file is automatically cleared before any new hard copy.

**SCREEN COPY**

Copies the contents of the current screen in a file called PACLINK.IMP.

If this file does not exist, it is automatically created in the directory which contains the PACLINK.EXE program.

However, PACLINK.IMP is not cleared automatically and the screen copy is concatenated to the initial contents of the file. If you want to start an empty file, you must delete PACLINK.IMP first before starting your next session of screen copies.

To print the contents of PACLINK.IMP, run the `PRINT PACLINK.IMP` command or it can be edited with a text editor.

## 3.6. Using PACLINK

### 3.6.1. Cursor

The cursor may be moved throughout the entire screen using either the cursor control keys or the mouse. However, the form of the cursor changes according to its location in the screen. It appears as a fine line when placed in an input field, as a thick line when on a hidden field, and as a full rectangle when on a protected field.

### 3.6.2. Input

The default input mode is the overwrite mode. When you switch to the insertion mode (through the INSERT key) the cursor changes its form: it becomes vertical but keeps the characteristics (thickness) that belong to the type of field. If you try to input characters in a protected field, the system sends a "beep".

### 3.6.3. Selecting elements

To select a character string with the mouse, place the cursor at the beginning of the string, click, then place the cursor after the last character of the string while simultaneously clicking the mouse and pressing the SHIFT key. You may also click the left button of the mouse at the beginning of the string, drag the mouse cursor to the end of the string and release the button.

You can delete a selected character string by simply pressing the DELETE key or replacing it with any keyboard input.

### 3.6.4. Use of the keyboard

The keyboard is managed according to the standards of the IRMA emulator.

#### Function key assignments

PF1 through PF12	ALT + 1 à ALT + "+" (3270 or VIP7800).
PF13 through PF24	CTRL + 1 à CTRL + "+" (3270 or VIP7800).
ENTER	ENTER or "+"numeric pad, according to the parameters chosen

Activating any of the above keys causes a transmit to the Host, a transmit symbol is displayed on the system message line in the lower part of the screen.

**Edit key assignment**

TAB	Next input field.
SHIFT+ TAB	Previous input field.
END	Places the cursor after the last character of the current field.
CTRL +END	Clears the end of the field from the cursor position.
HOME	Places the cursor on the first input field of the screen.
ESCAPE	Restores the initial contents of the field.
CTRL + V	Displays the Low Values.
INSERT	Switches from "overwrite" mode to "insertion" mode, and vice-versa.
SHIFT+ INSERT	Inserts the contents of the clipboard.
SUPPR	Deletes one or several characters of the current field.
CTRL + F2	Switches from the display attribute characters mode to the standard mode and vice-versa.
SHIFT +END	Selects all characters from the current cursor position to the end of the field.
SHIFT + Left Arrow	Selects characters to the left, starting from the current cursor position.
SHIFT + Left Arrow	Selects characters to the right, starting from the current cursor position.
F9 or ENTER	Places the cursor on the following line.
ALT + F1	Equivalent of the SYS REQ key of dumb terminal keyboards (3270).
F1	Equivalent of the ATTN key of dumb terminal keyboards (3270).
F2	Equivalent of the CLEAR key of dumb terminal keyboards (3270).
F4	Equivalent of the ERASE INPUT key of dumb terminal keyboards (3270). This key is used to cancel all input entered since the last transmit
F7	Equivalent of the PRINT key of dumb terminal keyboards (3270).
F10	Equivalent of the RESET key of dumb terminal keyboards (3270).
CTRL + J	Equivalent of the PA1 key of dumb terminal keyboards (3270).
CTRL + K	Equivalent of the PA2 key of dumb terminal keyboards (3270).