

VisualAge Pacbase



# The Developer's Procedures BULL GCOS7

*Version 3.0*





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# Chapter 1. General Introduction to the Batch Procedures

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## Foreword

This manual documents the batch procedures that all the product users are likely to use.

These procedures first include all standard procedures dedicated to updating, generating, printing, and extracting.

They also include the procedures dedicated to the following functionalities:

- Personalized extraction and automated documentation,
- Integrity checks on Methodology occurrences (associated with the VA Pac WorkStation's Pacdesign module for SSADM and YSM),
- Pac/Impact.

---

## Overview of the Procedures

Batch processes are grouped into procedures. The objective of the following chapters is to present each of the procedures that are likely to be used, and to specify their execution conditions.

The following elements are included for each procedure:

- a general introduction including:
  - the Execution Conditions,
  - operations to be performed in case of Abnormal Executions.
- the description of the User Input, Processes and Results obtained, possibly including use recommendations.
- the Description of Steps.

Steps related to the shift of generation files and to the formatting in library \$BVP.DATA.&BASE.USERS (library for temporary files output by the procedure) are implied, and therefore they are not described in this manual.

To use a procedure on a given Database, the user must have the corresponding authorization.

Each user has:

- a general level of authorizations to the batch procedures,
- a specific authorization level per Database

User authorizations are defined in the Administration Database.

## User Identification '\*\*' Line

Batch procedures which access the Databases require a user identification ('\*-type) line at the beginning of user input to identify the user as well as the Library and session in which he/she wishes to work.

Some information entered on this line is the same as that entered on the Sign-on screen. It is thus possible to check if the user's commands are compatible with his/her authorizations.

Before running any batch procedure, the user must make sure he/she has the adequate authorization level.

Position	Length	Value	Meaning
2	1	*	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	Password
19	3	bbb	Library code
22	4	nnnn	Session number
26	1	T	Test session
		H	Frozen session
27	1		With the UPDT procedure in case of multiple deletion:
		N	Print all transactions, including generated transactions (default option)
		O	Print transactions entered by the user and erroneous generated transactions
		E	Print erroneous transactions only
			The 2 following fields must be valued for all extraction procedures generating update transactions which will modify a Library/session under DSMS control (you can also value them on the UPDT '**' line,
40	3		Product code (3 character-code),
43	6		Change number (6 character-code, non-significant zeros must be entered),
			These two codes will appear in the Journal after the execution of UPDT

Position	Length	Value	Meaning
49	1		Transfer of Entity Lock:
		blank	Replacement of the user code which locks the entity with the '*' line
		1	New entities created from the extracted entities are not locked after the execution of UPDT
		2	The user code which locks the entity is kept
50	1		Transfer of the password on the extraction procedures, on the '*' line of output transactions
		blank	The password is not transferred in the output file,
		1	The password is transferred, (Note : for EXTR, the '*' line is transferred in the output file only if you have entered a 'C' in Column 1)

---

## Access Authorizations

An '\*' line with a user code and password is required by all procedures.

The Administrator manages the user access authorizations on batch procedures via the Administrator workbench.

---

## Abnormal Endings

Batch programs may sometimes terminate abnormally. For example, input-output errors on the system files or on the database provoke an abnormal end (code 12 in the program, switch 20 in the procedure) accompanied by a message on the SYSOUT file.

When an ABEND occurs, the user must find this error message. It is displayed in the following manner:

```
VisualAge Pacbase Debug information
Error on file:FF Oper:-- Key:xxxxx Cause: nn
Program:BVPppppp Date:dd/dd/yyyy 11:42:32 Lib:xxx Sess: xx
-----
```

In most cases, an examination of the return code and of the type of operation will allow the user to find the cause of the abnormal end (unavailable resources, file too small, etc.).

If this message is absent and the type of ABEND generated directly signals a problem in the VA Pac System programs, contact the VA Pac Technical Support. Be sure to KEEP ALL LISTINGS that may be necessary to analyze the problem.

---

## Procedures library and invokes library

The procedures are installed in the \$BVP.SYS.PROC source directory. In the procedures, the &BASE parameter represents the database code during the execution.

An invoke JCL is used to run procedures, by the ej system command:

```
EJ IVPROC,, $BVP.SYS.PROC
```

The value of a parameter can be modified by entering a value in an invoke jcl. For this reason, it is recommended to copy all these invoke jcls in a \$BVP.DATA.&BASE.INPUT library directly linked to the database in use.

It also can be duplicated for each user, who so can keep its own procedures input.



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## Chapter 2. Generation and Printing

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### GPRT - the Generation and Printing Procedure

#### GPRT - Introduction

The Generation and Printing procedure, GPRT, has a two-fold purpose:

- To print documentation using data contained in the Database, and
- To generate Programs, Screens, Database descriptions, Data Structures and error messages.

This procedure does not affect the Database. Therefore, it may be executed while the files are open to on-line use.

However, if the generation-print requests submitted on line (+AG) are to be included, the files of the Development Database must be closed. The procedure invalidates the print requests submitted on line, therefore the file must be accessible for update.

GPRT calls a unique program (BVPACB), which is used as a monitor calling the different programs that make up the procedure.

All programs that make up the procedure are thus considered to be sub-programs of this monitor, with which they communicate by means of a communication area and certain return codes.

Since user requests are often diverse, this procedure is broken down into 'sub-chains' whose purpose is to process, in an integrated manner, the preparation of the generation-print requests for the families they manage. These families are identified by a one-position code as follows:

- A : Data Elements
- B : Database blocks
- C : COBOL programs
- D : Specifications Dictionary
- E : OLSD screens
- G : eBusiness Screens
- K : eBusiness Error messages
- L : Error messages (for OLSD)
- N : Personalized Documentation Manager
- P : Batch programs
- R : Production Environment Interface
- Q : Relational-SQL Database blocks

This code is referenced again in the names given to the programs, files and reports that are generated in this procedure. For programs, this is the sixth character of the code. Examples:

- BVPACA10 : General program.
- BVPACB30 : Database Block extractor.

Following the execution of the two general programs that are common to all chains (BVPACA10 and BVPACA20), the sub-chains are activated, if appropriate, in the following order:

- Production Environment Interface,
- Database Blocks,
- COBOL programs (COB),
- On-line Screens (OLSD),
- Client Screens,
- Server Screens,
- Error Messages and Dialog Windowing,
- Personalized Documentation Manager,
- Batch programs,
- Specifications Dictionary.

Besides, a specific coding is used for files external names. It represents their use in the procedure:

- G : Generated code
- I : Reports
- J : Print requests
- K : Preparation for printing
- L : Error messages
- M : Transactions
- S : Skeletons
- W : Work

This code is found one character before last in the external name of the procedure files. Examples:

- PAC7GL : Generated error messages
- PAC7IN : Printing of Personalized Documentation

Files containing the 'generated source code' (ready to be compiled or to be stored in an Assembler or Source Library) are concatenated into a single physical file that will be used in the following step.

The User Error Message file is updated using the file with an LG suffix, and is retrieved into the file with a GL suffix. This file is used to update the User Error Message file. It is used in input to the EMLD or EMUP procedures. In addition, these elements are printed in the IL-suffixed file.

The installed procedure does not include a name for the two versions of this file. Therefore, the names must be specified when these messages are generated.

Volumes are standardly printed in an IN-suffixed file. The GN-suffixed file can also be used (record length = 265) with the 'ASA' skip character in the first position of each record when special print characteristics are needed.

The file containing the elements necessary for the windowing of OLSD applications is coded PAC7GT (record length is 260). Its name must be specified in the generation request.

### EXECUTION CONDITIONS

The files can remain open, except if the generation-print requests have been submitted on line via the '+AG' command. In this case, the files of the Development Database must be closed.

### ABNORMAL EXECUTION

Refer to chapter 'Overview', subchapter 'Abnormal Endings' in the Administrator's Procedures' manual.

## **GPRT - User Input / Results**

### INPUT

The GPRT procedure requires the following input:

- a line which identifies the user and the generation-print context,
- one line per generation or print request,
- an optional line ('+AG') which takes into account the requests already submitted on line.

Any other type of transaction is ignored.

### RESULTS

There are two types of results:

- A report listing the requests,
- All printing requested.

Requests are sorted by user/library and are preceded by a 'banner' (title page).

The GPRT procedure sends a general return code:

Code	Meaning
4	OK with generation of source code

Code	Meaning
6	OK with generation of source code and personalized documentation or error messages
8	OK with generation of personalized documentation or error messages
10	OK without generation
12	Input-Output error
16	Sort error

#### NOTE

This procedure does not increment the session number.

### **GPRT - Generation / Print Commands**

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
2	1		Line code
		Z	Default value
3	2		PROCESSING SEQUENCE ORDER
			This field is used to specify the sequence in which print requests are processed and printed.
5	4		GENERATION-PRINT COMMANDS
			Note: Input of the entity code is required or optional depending on the command. The following indicators describe the various options:
			(A) Required entity code input (Batch column 9).
			(B) Optional entity code input. If omitted, all the occurrences of the entity type are listed in the user's hierarchical view.
			(C) Entity code input not allowed. All occurrences of the entity type are listed in the user's hierarchical view.
			(D) A blank line may be requested. Type an asterisk in the CONTINUATION OF REQUEST INDICATOR (C) field and press the ENTER key. The options for each command are listed below. This corresponds to batch columns 31 to 80 incl.
			Note: Each command may require additional information. The following list identifies these input fields by code.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			(1) SEL: _ Limit the list by keyword type: enter 'M' for explicit, 'L' for implicit, or blank for both. In batch mode, enter this value in column 30. See also SELECTION OF KEYWORD TYPE.
			(2) Same as above plus a following line on which a user may enter one or several keywords. This appears as a continuation line in on-line mode and corresponds to batch columns 31 to 80.
			(3) FORMAT: _ A format may be specified: enter 'I' for internal, 'E' for input, or 'S' for output. Enter these values in column 17 in batch mode. A blank is also valid and means that the default value is desired. See also TYPE TO SELECT.
			(4) CCF:_ CCB: The code of the control card in front of program and in back of program, respectively. Enter these codes in columns 19 to 22 in batch mode. These codes must be consistent with the codes displayed on the Dialog Definition screen.
			(5) CCF:___ CCB:___ The code of the control card in front of program and in front of map, and the code of the control card in back of program and in back of map, respectively. The user can override the default control cards. These codes should be consistent with the values on the Dialog Definition screen. In batch mode, use columns 19 to 22.
			(6) TYPE: __ The user enters the selected type which should be consistent with the corresponding field on the Definition screen of that entity type. In batch mode enter the type in columns 17 and 18.
			(7) PRINT DOCUMENT Y CHAP/SUBCHAP AND CODE:___ __ Specify the chapter and/or subchapter. Enter 'C' for chapter followed by the chapter code, or 'S' for subchapter followed by the chapter and subchapter codes. In batch mode use columns 23 through 27.
			(8) ENV:___ (CCF:___ CCB:___) For those sites that are using the PEI option, the environment may be specified. In batch mode enter the environment code in column 17 and the corresponding control cards in columns 19 through 22.
			THESAURUS
		DCK	(C) A complete Description of Keywords defined in the thesaurus which lists the SYNONYM OR DEFINITION field contents associated with each keyword.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Note: This data being specified in Inter-Library only, this command cannot be used with the U1 option. Use the C1 or I1 option which gives the same output.
		LCK	(1) (C) A listing of all keywords defined in the thesaurus, with their synonyms. It includes the number of uses of these keywords in the Database. The information is sequenced by code.
			TEXTS
		DCT	(A) Description of selected Text.
			Note: If you enter an asterisk in the ENTITY CODE field, the Descriptions of all Text occurrences are printed, sequenced by code.
		DTT	(B) (6) Descriptions of Text occurrences sequenced by type.
		L*T	List of Texts with their paragraphs titles, sequenced by code.
		LCT	(C) List of Text occurrences sequenced by code.
		LKT	(2) List of Text occurrences whose names and/or explicit Keywords contain the Keyword(s) specified.
		LNT	List of Text occurrences sequenced by name.
		LTT	(6) List of Text occurrences sequenced by type.
			DOCUMENTS (PDM)
			Note: DOCUMENT entity = VOLUME entity in the VA Pac character-mode interface.
		DCV	(B) Printing of the Description of the Document whose code is entered in the Entity field. When this code is not entered, the Descriptions of all the Documents are printed, sequenced by code.
		FLV	(C) (D) (4) This command is used to specify the job card and end-of-job delimiters: Flow control for Documents.
			Use the continuation line to define user parameters on the control cards.
		LCV	(C) List of Documents sequenced by code.
		LKV	(C) (2) List of Documents selected according to the keyword(s) entered on the continuation line.
		LNV	(C) (2) List of Documents sequenced by name.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		PCV	(B) (D) (7) Printing of the contents of the Document whose code is entered in the ENTITY CODE field. When this code is not entered, the contents of all the Documents are printed, sequenced by code. For local printing in RTF format, the Document must be generated with the C2 option. Selective Printing is documented in the 'Personalized Documentation Manager' manual, chapter Access Commands, subchapter 'Generation-Printing'.
			ELEMENTS AND PROPERTIES
		DCE	(B) A complete description of the defined Element(s). The information is sequenced by Element code.  Note: to display the assigned text, use print option '2'.
		DFE	(B) A listing of the Element(s) not defined in the Specifications Dictionary, with cross-references.
		LAE	(C) List of Elements sequenced by Cobol name.
		LCE	(B) A list of defined Elements sequenced by Element code.
		LKE	(C) (2) A list of Elements and properties sequenced by keyword.
		LNE	(C) A list of Elements and properties sequenced by name.
		LXE	(C) A list of defined Elements and properties which are not used.
			DATA STRUCTURES
		DCD	(B) A complete Description of the Data Structure(s). This includes cross-references to Programs and Screens and a list of associated Reports and Segments. The information is sequenced by Data Structure code.  Note: To get the associated text use print option '2'.
		FLD	(C) (D) (4) This command is used to specify the job card and end- of-job delimiters: flow control of Data Structures.  Use the continuation line to define user parameters on the control cards.
		GCD	(A) Generate a COBOL description (COPY book) of the Data Structure.  For more details on generation, refer to the 'Data Dictionary' manual.
			C3 : Generation of comments which will be used by VA Pac Connector (an eBusiness tool).
		LCD	(C) A list of Data Structures sequenced by code.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		LED	(A) List the error messages defined for the Data Structure and for each Segment. This list only includes messages that have already been generated.
		LKD	(C) (2) A list of the Data Structures whose names and/or explicit keywords contain the keyword(s) specified.
		LND	(C) (2) A list of the Data Structures sequenced by name.
		LOD	(C) A list of Data Structures sequenced by external name.
		LPD	(C) A list of Data Structures sequenced by Program external name.
		LTD	(C) A list of Data Structures sequenced by type.
			SEGMENTS
		DCS	(B) (D: with input of the entity code) (3)
			Note: Enter the Data Structure code in the ENTITY CODE field, and the Segment code(s) on the continuation line(s).
			A complete Description of the Segment(s). This includes cross-references to Programs and Screens for the Data Structure and to all entities for the Segment(s) and a list of associated Reports and Segments. For Segments defined as tables (Pactables function), a list of subschemas and subsystems is printed.
			Note: To get the associated text for both the Segment and the Data Structure, use print option '2'.
		LCS	(C) List of Segments sequenced by code.
		LKS	(C) (2) List of Segments whose names and/or explicit keywords contain the keyword(s) specified.
		LNS	(C) List of Segments sequenced by name.
			INPUT AIDS
		DCI	(C) A complete description of the Input Aid(s) including a list of uses of the Input Aid(s) in other entities. The information is sequenced by the PIA code.
		LCI	(C) A list of Input Aids sequenced by the PIA code.
		LKI	(C) (2) A list of the Input Aids whose names and/or explicit keywords contain the keyword(s) specified.
		LNI	(C) (2) A list of the Input Aids sequenced by name.
		LXI	(C) List of all cross-references (PIA calls) as defined on the PIA Description screen sequenced by the value of this field.
			DATABASE BLOCKS



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		DTB	(B) (6) Description(s) of Database Blocks of the type specified including cross-references to other Blocks and Screens.
			Note: To get the associated text, use print option '2'
		FLB	(C) (D) (4) (8) This command is used to specify the job card and end- of-job delimiters: Flow control of the Database Block.
		FLS	(C) (D) (4) (8) Same as FLB for Relational/SQL Blocks.
			Use the continuation line to define user parameters on the control cards.
		GCB	(A) (D) (4) Generate a DDL description of the Database Block specified (including 'DB'-type Blocks for DB2).
			Use the continuation line to define the user parameters on the control cards.
		GSQ	(A) (D) (4) Generates the SQL DDL for the Relational/SQL Database Block specified. Use the continuation line to define the user parameters on the control cards.
		LCB	(C) List of Database Blocks sequenced by code.
		LEB	(C) List of Database Blocks sequenced by external name.
		LES	(C) List of SQL objects sequenced by external name.
		LKB	(C) (2) A list of the Database Blocks whose names and/or explicit keywords contain the keyword(s) specified.
		LNB	(C) (2) A list of Database Blocks sequenced by name.
		LTB	(6) A list of Database Blocks whose Block type have been defined with the specified value.
		LTS	(C) A list of SQL objects sequenced by code.
			* FOLDERS, FOLDER VIEWS, BUSINESS COMPONENTS, * C/S SCREENS (TUI CLIENT COMPONENTS) * SCREENS, DIALOGS.
		DCO	(A) Complete Screen Description including Dialog Complement and uses in other Screens. For Screens, information is also provided on relevant Segments, Macro-Structure Calls, Beginning Insertions Modifications, Work Areas and Structured Code.
			Note: To get the associated text, use print option '2'.
		DGC	(A) Complete Description of a C/S Screen.
		DGS	(A) Complete Description of a Business Component.
		DSO	(A) Description of the selected Screen.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		FGC	(C) (D) (4) (8) This command is used to specify the job card and end-of-job delimiters: Flow control for C/S Screens.
		FGE	(C) (D) (4) This command is used to specify the job card and end-of-job delimiters: Flow control for Pacbench C/S error messages.
			Use the continuation line to define user parameters on the control cards.
		FGS	Server Component.
		FLE	(C) (D) (4) This command is used to specify the job card and end-of-job delimiters: Flow control for Dialog error messages.
			Use the continuation line to define user parameters on the control cards.
		FLO	(C) (D) (4) (8) This command is used to specify the job card and end-of-job delimiters: Flow control for Screens.
			Use the continuation line to define user parameters on the control cards.
		FME	eBusiness Error messages.
		FMS	Server.
		FSO	(C) (D) (4) (8) This command is used to specify the job card and end-of-job delimiters: Flow control for source Screen. Use the continuation line to define user parameters on the control cards.
		GCO	(A) (D) (5) Generate a COBOL Description of the Screen specified. Use the continuation line to define user parameters on the control cards.
		GGC	(A) (D) (5) Generate a C/S Screen (TUI Client Component).
		GGS	(A) (D) (5) Generation applicable to Business Component, Communication Monitor, Error Server, Folder.
		GEC	(A) (D) Pacbench C/S:
			C1 : Error messages defined for the Client or Server Dialog and for each component.
			C2 : Error messages generated through option 1 plus documentary help messages.
			C3 : Error messages for the Dialog only.
		GED	(A) (D)
			C1 : Error messages generated for a Data Structure and for each Segment.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			C2 : Error messages generated through option 1 plus documentary help messages.
		GEO	(A) (D) OLSD Function:
			C1 : Error messages defined for the Dialog and for each Screen.
			C2 : Error messages generated through option 1 plus documentary help messages.
			C3 : Error messages for the Dialog only.
			C4 : Creation of the file required by Pacbase Web Connection. This command is applicable to the Dialog.
			Note: If a Segment/Screen suffix is entered on the continuation line of one of the preceding commands, error messages are generated/printed only for the selected Segment/Screen.
		GEF	Generation of error messages for a C/S Folder.
		GEI	Generation of error messages for INIT/TERM component.
		GES	Generation of error messages for a C/S Component.
		GSO	Generate source code for the selected Screen.
		GVC	(A) (D) (5)
			Extract a Proxy object. Applicable to Folder View, Folder and Business Component.
		GMF	Generate a Folder.
		GMI	Generate an INIT/TERM Server.
		GMM	Generate a Communication Monitor.
		GMS	Generate a Server.
		GME	Generate an Error Server.
		GUT	Generate User Command.
		LCO	(C)
			List of Screens sequenced by code.
		LEC	(A) List the error messages defined for the Client Component and for each Client Screen. This list only includes messages that have already been generated.
		LEO	(A) List the error messages defined for the Dialog and for each Screen. This list only includes messages that have already been generated.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		LKO	(C) (2) List of Screens whose names and/or explicit keywords contain the keyword(s) specified.
		LNO	(C) List of Screens sequenced by name.
		LOT	(C) List of Screens sequenced by Transaction code.
		LPO	(C) List of C/S Screens sequenced by external program name.
		LSO	(C) List of C/S Screens sequenced by external map name.
		LTO	(C) List of Screens sequenced by type.
			REPORTS
		DCR	(B) (D: when the entity code has been entered)
			Note: When requesting the Description of a single Report, enter the Report code prefix in the ENTITY CODE field and the last character of of the Report code on the continuation line.
			A complete Description of the Report(s). This include Report layouts. The information is sequenced by the Report code.
			Note: To get the associated text, use print option '2'
		LCR	(C) List of Reports sequenced by code.
		LTR	(C) List of Reports sequenced by type.
		LKR	(2) A list of the Reports whose names and/or explicit keywords contain the keyword(s) specified.
		LNR	(C) List of Reports sequenced by name.
			PROGRAMS
		DCP	(B) A complete description of Program(s). The information is sequenced by the Program code.
			Note: To get the associated text, use print option '2'.
		DSP	(A) Description of the selected Program produced by Reverse Engineering.
		FLP	(C) (D) (4) (8) This command is used to specify the job card and end-of-job delimiters: Flow control for Programs.
			Use the continuation line to define user parameters on the control cards.
		FSP	(C) (D) (4) (8) This command is used to specify the job card and end-of-job delimiters: Flow control for 'reverse engineered' programs. Use the continuation line to define user parameters on the control cards.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		GCP	(A) (D) (4) Generate a COBOL description of the Program specified Use the continuation line to define user parameters o the control cards.
		GSP	(A) (D) (4) Generate a COBOL description of the 'reverse engineered' Program specified. Use the continuation line to define user parameters on the control cards.
		LCP	(C) List of Programs sequenced by program code. Note: To get keywords, use print option '2'.
		LEP	(C) List of Programs sequenced by external name.
		LKP	(2) A list of the Programs whose names and/or explicit keywords contain the keyword(s) specified.
		LNP	(2) List of Programs sequenced by name.
		LTP	(C) List of Programs sequenced by type.
			METHOD ENTITIES
		DCM	(A) A complete Description of the Method entity as specified.
		DCMC	(C) A complete Description of Method Functional Integrity Constraint(s).
		DCMO	(C) A complete Description of Method Object(s).
		DCMR	(C) A complete Description of Method Relation(s).
		LCMC	(C) List of Method Functional Integrity Constraints sequenced by F.I.C. code.
		LCMO	(C) List of Method Objects sequenced by Object code.
		LCMP	(C) List of properties sequenced by Property code.
		LCMR	(C) List of Method Relations with their Functional Integrity Constraints, sequenced by Relation code.
		LKM	(C) (2) A list of the Method entities whose names and/or explicit keywords contain the keyword(s) specified.
			META-ENTITIES
		DCF	(B) A complete Definition and Description of the Meta-Entity entered in the ENTITY field. If no code is specified, all Meta-Entities are listed. The information is sequenced by code.
		DCQ	(B) A complete Definition and Description of the User Relations entered in the ENTITY field. If no code is specified, all User Relations are listed. The information is sequenced by code.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		DCY	(B) A complete Definition and Description of the Extended User Entity entered in the ENTITY field. If no code is specified, all Extended User Entities are listed. The information is sequenced by code.
		DC\$	(B) A complete Definition and Description of the User Entity entered in the ENTITY field. If no code is specified, all User Entities are listed. The information is sequenced by code.
		LCF	(C) List of Meta-Entities sequenced by code.
		LCQ	(C) List of User Relations sequenced by code.
		LCY	(A) List of Extended User Entities sequenced by code.
		LC\$	(A) List of User Entities sequenced by code.
		LKF	(2) (C) A list of the Meta-Entities whose names and/or explicit keywords contain the keyword(s) specified.
		LKQ	(2) (C) A list of the User Entities Relations whose names and/or explicit keywords contain the keyword(s) specified.
			Note: For all printing by keyword, you can specify the TYPE OF SELECTION (BLANK, L or M) on the print line. Keywords are indicated on the continuation line sent back.
		LKY	(2) (A) A list of the Extended User-Entities whose names and/ or explicit keywords contain the keyword(s) specified.
		LK\$	(2) (A) A list of the User Entities whose names and/ or explicit keywords contain the keyword(s) specified.
		LNf	(C) A list of the Meta-Entities sequenced by name.
		LNQ	(C) A list of the User Relations sequenced by name.
		LNy	(A) A list of Extended User-Entities sequenced by name.
		LN\$	(A) A list of the User Entities sequenced by name.
			JCL INTRODUCTION
		JCL	This indicates that the COMMAND LABEL/SYSTEM RESPONSE field will contain JCL. The JCL command can only be entered in the 'C4' screen format option.
			SHIFT TO UPPER-CASE
		UPC	This command allows for the automatic transformation of lower-case letters into upper-case letters in the printed output of the GPRT procedure.
			When the UPC command is entered, the following line is displayed:
			SHIFT TO UPPERCASE MANUAL: _ DOC: _ ERROR MESS:

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			The VA Pac user must specify to which type of GPRT output the UPC command will apply (even when only one GPRT command is validated).
			In order to do this, the value '1' must be entered in one of the three fields displayed above: in the MANUAL field for Volumes (V); in the DOC field for entity related commands; in the ERROR MESS field for the generation of error messages.
			Note: This also allows the selective implementation of the UPC command when the execution of several GPRT jobs is requested and the SHIFT TO UPPER-CASE must not apply to all of them, in which case the corresponding field(s) must be left blank.
			METHOD ENTITIES PAF TABLES
		PCM	Description of PAF Tables for entities specific to a method. This command is necessarily followed by a Method code. VA PAC-GIP INTERFACE
		GIP	VisualAge Pacbase-GIP Interface generation.
9	6		ENTITY CODE
			This field is displayed with the label 'ENTITY' on screen format options '1' and '2' of the GP screen.
			When required, the user enters the entity code which corresponds to the COMMAND FOR PRINT REQUEST.
			'PCM' COMMAND: You enter in this field the code of the selected Methodology:
		M	Merise
		D	YSM
		A	SSADM
		O	OMT
		F	IFW
15	1		Library selection indicator
			Used to select the libraries from which the entities are to be generated and/or printed.
		C	Selected library and higher level libraries. In case of duplicates, the lines from the lower level library are taken into account.
16	1		PRINT OPTION

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			In this field, you specify print options: there are 4 options numbered from 1 to 4 (default option : 1); each option corresponds to presentation variants of lines to be printed, e.g. printing of additional information (with or without keywords, programs with or without associated texts, ...); the detail of each print option is given for each entity in the corresponding reference Manuals.
17	2		Entity type
		O	Screen
		P	Program
		B	Database
19	1		CONTROL CARDS IN FRONT OF PROGRAMS
			Enter the one-character code that identifies the job card to be inserted before the generated program.
			Default: Code entered on the Library Definition Screen
			NOTE: This value may be overridden on the relevant entities' Definition screens. It may also be overridden at generation time.
20	1		CONTROL CARDS BEFORE MAP
			Screen and C/S Screen entities
			Option code that identifies the job card to be inserted before each generated Screen or C/S Screen map.
		\$	No generation of map.
			NOTE: This field is not used in a Pacbench C/S development with specification of Folder.
			Business Component / single-view (with no specification of a Folder).
			Option code which selects the JCL lines to be inserted before the generated Services Manager. The value '\$' is used to disable the generation of the Services Manager and to enable the Business Component to be generated.
21	1		CONTROL CARDS IN BACK OF PROGRAMS
			Enter the one-character code that identifies the job card to be inserted after the generated program.
			Default: Code entered on the Library Definition Screen
			NOTE: This value may be overridden on the relevant entities' definitions screens. It may also be overridden at generation time.



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
22	1		CONTROL CARDS AFTER MAP
			Screen and C/S Screen entities:
			Option code that identifies the job card to be inserted after each generated Screen or Screen c/s map.
		\$	No generation of map.
			NOTE: This field is not used in a Pacbench C/S development with the specification of Folder.
			Business Component / single-view (with no specification of Folder):
			Option code which selects the JCL lines to be inserted after the Services Manager generated.
23	1		DOCUMENT SELECTIVE PRINT REQUEST
			Field displayed with PCV command only.
		blank	Print the whole Document (default value)
		C or 1	Print the selected chapter or level-1 section, respectively. Field used jointly with next field.
		S or 2	Print the selected subchapter or level-2 section (included in the level-1 section indicated in the following field), respectively. Field used jointly with next two fields.
24	2		Level-1 Section # / Chapter Code
		C	The value 'ZZ' is not authorized. CH/
26	2		Level-2 Section # / Subchapter Code
		C	SC/

## GPRT - Description of Steps

### GENERATION AND PRINTING: PACB

The generated documentation depends on the generation-print requests taken into account. Therefore, the volume of the generated documentation and of the temporary files is extremely variable.

Banners at the beginning and at the end of user documentation, which display the user code, facilitate the distribution of printouts back to their authors.

All the generated programs, screens, database blocks, etc.. are get back in only one file : BVP.DATA.&BASE.GN&USER which is used in the following step.

Some programs called by the monitor may send special return codes:

- BVPACA10 (Retrieval of Transactions) :
  - 0 : OK
  - 2 : OK with presence of the '+AG' command
  - 8 : No request.
 In this case, the procedure stops running.
- BVPACB31 (SQL generation):
  - 8 : Error detected during generation.
- Extractors or generators (30 or 40):
  - 0 : OK - No generation
  - 4 : OK - Generation
  - Other : Errors
- BVPACW10 (configuration management support)
  - 0 : OK
  - 2 : No processing
  - 4 : at least one parameterizing error detected.
  - 8 : at least one context error detected.
 This step sends a general return code.

Code	Label
4	OK with generation of source code
6	OK with generation of source code and Personalized Documentation or error messages
8	OK with generation of Personalized Documentation or of error messages
10	OK without generation
12	Input-Output error
16	Sorting error

## GPRT - Processing of Job Streams

If sources to be compiled are generated and if the return code of the previous step is lower than 8, the generated flow must be processed in order to compile and LINK-EDIT the output sources.

Each site may implement its own processing of the generated flow.

Whichever the chosen solution is, the generated sources must be preceded and/or followed by optional control lines.

## GPRT - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '   - GENERATION (IN INTERNAL READER) AND PRINTING -   ' ;
COMM '   ' ;
COMM ' ----- ' ;
COMM '   ' ;
COMM '   ' ;
COMM ' IN ADDITION TO THE GENERATED ENTITIES, THE FILE MUST ' ;
COMM ' CONTAIN THE JCL REQUIRED TO COMPILE THEM, ' ;
COMM ' USING THE BEGINNING/END OF JCL JOB STREAM OPTIONS AND ' ;
COMM ' THE BEFORE/AFTER PROGRAM OPTIONS. ' ;
COMM '   ' ;
COMM ' THE GENERATION AND PRINTING PROCEDURE, GPRT, HAS A ' ;
COMM ' TWO-FOLD PURPOSE: ' ;
COMM '   . TO PRINT DOCUMENTATION USING DATA CONTAINED IN THE ' ;
COMM '     DATABASE, AND ' ;
COMM '   . TO GENERATE PROGRAMS, SCREENS, DATABASE ' ;
COMM '     DESCRIPTIONS DATA STRUCTURES, AND ERROR MESSAGES. ' ;
COMM '   ' ;
COMM ' ----- ' ;
COMM '   ' ;
MVL  USER=$USER,PPAF='',
      SZEX=5,SZGN=2,SZWK=5,
      RFTM='DVC=$DVTM,MD=$MDTM';

MVT:
CR   IF=*GPRT,
      OF=(TMBGPRT,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);

MVTGP:
IV   GPR1,$BVP.SYS.PROC,$LIST,
      VL=(SZEX=&SZEX,SZGN=&SZGN,SZWK=&SZWK,
          BASE=&BASE,RFTM=&RFTM,USER=&USER);

JUMP NOB,SW21,EQ,0;
RUN  (TOB,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOB:
JUMP NOE,SW22,EQ,0;
JUMP GE&PPAF;
GEPPAF:
STEP BVPAFP10,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG  PAC7AE,$BVP.SYS.AE,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AE,NBBUF=2,READLOCK=STAT;
ASG  PAC7AN,$BVP.DATA.&BASE.AN,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AN,READLOCK=STAT;
ASG  PAC7AR,$BVP.DATA.&BASE.AR,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AR,READLOCK=STAT;
ASG  PAF80,TOE,TEMPRY,&RFTM;
DEF  PAF80,NBBUF=1;
ASG  COB80,TGEPPAF,TEMPRY,&RFTM,END=PASS;
DEF  COB80,NBBUF=1;
ASG  PAFREP,SYS.OUT;
ASG  PAC7EI,SYS.OUT;

ESTP;

```

```

RUN (TGEPPAF,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
JUMP NOE;
GE:
RUN (TOE,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOE:
JUMP NOP,SW23,EQ,0;
JUMP GP&PPAF;
GPPPAF:
STEP BVPAFP10,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
  ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AE,NBBUF=2,READLOCK=STAT;
  ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AN,READLOCK=STAT;
  ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AR,READLOCK=STAT;
  ASG PAF80,TOP,TEMPRY,&RFTM;
  DEF PAF80,NBBUF=1;
  ASG COB80,TGPPPAF,TEMPRY,&RFTM,END=PASS;
  DEF COB80,NBBUF=1;
  ASG PAFREP,SYS.OUT;
  ASG PAC7EI,SYS.OUT;
ESTP;
RUN (TGPPPAF,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
JUMP NOP;
GP:
RUN (TOP,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOP:
JUMP NOG,SW17,EQ,0;
JUMP GG&PPAF;
GGPPPAF:
STEP BVPAFP10,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
  ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AE,NBBUF=2,READLOCK=STAT;
  ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AN,READLOCK=STAT;
  ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AR,READLOCK=STAT;
  ASG PAF80,TOG,TEMPRY,&RFTM;
  DEF PAF80,NBBUF=1;
  ASG COB80,TGGPPPAF,TEMPRY,&RFTM,END=PASS;
  DEF COB80,NBBUF=1;
  ASG PAFREP,SYS.OUT;
  ASG PAC7EI,SYS.OUT;
ESTP;
RUN (TGGPPPAF,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
JUMP NOG;
GG:
RUN (TOG,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOG:

```

```

JUMP NOV,SW18,EQ,0;
JUMP GV&PPAF;
GVPPAF:
STEP BVPAFP10,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
  ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AE,NBBUF=2,READLOCK=STAT;
  ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AN,READLOCK=STAT;
  ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AR,READLOCK=STAT;
  ASG PAF80,TOE,TEMPRY,&RFTM;
  DEF PAF80,NBBUF=1;
  ASG COB80,TGVPPAF,TEMPRY,&RFTM,END=PASS;
  DEF COB80,NBBUF=1;
  ASG PAFREP,SYS.OUT;
  ASG PAC7EI,SYS.OUT;
ESTP;
RUN (TGVPPAF,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
JUMP NOV;
GV:
RUN (TOV,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOV:
JUMP NOK,SW16,EQ,0;
CR IF=(TGK,TEMPRY,&RFTM),
  OF=(' $BVP.DATA. '&BASE'.GK');
CR IF=(' $BVP.DATA. '&BASE'.GK'),
  OF=(' $BVP.DATA. '&BASE'.LK');
NOK:
JUMP NOL,SW24,EQ,0;
CR IF=(TGL,TEMPRY,&RFTM),
  OF=(' $BVP.DATA. '&BASE'.GL');
CR IF=(' $BVP.DATA. '&BASE'.GL'),
  OF=(' $BVP.DATA. '&BASE'.LG');
FILLIST IF=(TGT,TEMPRY,&RFTM,END=PASS) PRTFILE=DUMMY;
JUMP NOGT,SEV,GE,3;
CR IF=(TGT,TEMPRY,&RFTM),
  OF=(' $BVP.DATA. '&BASE'.GT');
NOGT: JUMP CONTINUE;
NOL:
JUMP NON,SW26,EQ,0;
CR IF=(TGN,TEMPRY,&RFTM),
  OF=(' $BVP.DATA. '&BASE'.GN');
NON:
JUMP NOD,SW27,EQ,0;
RUN (TOD,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOD:
JUMP NOQ,SW28,EQ,0;
RUN (TOQ,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOQ:
JUMP NOR,SW29,EQ,0;
RUN (TOR,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOR:

```

```

JUMP NOF,SW25,EQ,0;
RUN (TOF,TEMPRY,&RFTM) VL=(USER=&USER),HOLDOUT;
NOF:
JUMP NOKM,SW19,EQ,0;
CR IF=(TGK,TEMPRY,&RFTM),
OF=(' $BVP.DATA. '&BASE' .GK ');
NOKM:
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' GPRT - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```

---

## EMLD - Loading of User-Defined Error Messages

### EMLD - Introduction

The EMLD procedure performs the initial loading of user- defined error messages. These messages are obtained from the sequential output file of the GPRT procedure (GL-suffixed file).

#### EXECUTION CONDITIONS

Prior execution of GPRT, with an error messages generation request

### EMLD - User Input

One '\*' line with user code and password.

### EMLD - Description of Steps

Loading of User-defined error messages in an indexed file: PACL93

Code	Physical name	Type	Label
PAC7MB	TMBEMLD	Input	Input Transactions
PAC7GL	&PAC7GL	Input	Sequential user-defined error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7EM	\$BVP.DATA.&BASE.EM	Output	User-defined indexed error messages file

Code	Physical name	Type	Label
PAC7IY		Report	Output reports
PAC7DD		Report	Authorization control

Return code :

- 8 : no authorization on batch procedure

## EMLD - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - LOADING OF USER S ERROR MESSAGES -      ' ;
COMM '                                                    ' ;
COMM ' -----' ;
COMM '                                                    ' ;
COMM ' THE EMLD PROCEDURE PERFORMS THE INITIAL LOADING OF USER' ;
COMM ' DEFINED ERROR MESSAGES. THESE MESSAGES ARE OBTAINED ' ;
COMM ' FROM THE SEQUENTIAL OUTPUT FILE OF THE GPRT PROCEDURE ' ;
COMM ' (FILE WITH THE GL SUFFIX).                          ' ;
COMM '                                                    ' ;
COMM '                                                    ' ;
COMM ' INPUT :                                             ' ;
COMM ' - USER IDENTIFICATION LINE (REQUIRED)              ' ;
COMM ' -----' ;
COMM '                                                    ' ;
MVL PAC7GL='USER ERROR MESSAGES SEQUENTIAL FILE',USER=&USER,
RFTM='DVC=$DVTM,MD=$MDTM',
PAC7EM='$BVP.DATA.'&BASE'.EMLD';
CR   IF=*EMLD,
     OF=(TMBEMLD,TEMPRY,&RFTM,END=PASS),
     OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
IV   ALEM,$BVP.SYS.PROC,VL=(&SZEM,&USER,BASE=&BASE);
STEP BVPACL93,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG  PAC7MB,TMBEMLD,TEMPRY;
ASG  PAC7AE,$BVP.SYS.AE,
     ACC=READ,SHARE=MONITOR;
DEF  PAC7AE,READLOCK=STAT;
ASG  PAC7AR,$BVP.DATA.&BASE.AR,
     ACC=READ,SHARE=MONITOR;
DEF  PAC7AR,READLOCK=STAT;
ASG  PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF  PACGGR,READLOCK=STAT;
ASG  PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF  PACGGN,READLOCK=STAT;
ASG  PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF  PACGGU,READLOCK=STAT;
ASG  PAC7EM,&PAC7EM&USER;
ASG  PAC7GL,&PAC7GL;
ASG  PAC7DD,SYS.OUT;
ASG  PAC7IY,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;

```

```

JUMP END;
ERR:
SEND ' EMLD - ABNORMAL END OF RUN  ';
LET SEV 3;
END:

```

---

## EMUP - Update of User-Defined Error Messages

### EMUP - Introduction

The EMUP procedure updates the User-Defined Error Message file.

These messages are obtained from the sequential output file of the GPRT procedure (GL-suffixed file) or from transactions for error message deletions at the entity level.

### EXECUTION CONDITIONS

The User-Defined Error Message file must exist.

Prior execution of GPRT, with a generation request of error messages.

### EMUP - User Input

A '\*\*' line per library containing entities whose message(s) must be deleted:

Position	Length	Value	Meaning
2	1	'**'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Library code

One command line per entity for which error message deletion is requested:

Position	Length	Value	Meaning
1	1	'D'	Transaction code (deletion)
2	2		Entity type; same as in CHOICE field
		'O '	Screen
		'D '	Data structure
		'S '	Segment
4	6		Entity code



## EMUP - Description of Steps

Update of indexed user-defined error messages: PACL92

Code	Physical name	Type	Label
PAC7GL	&PAC7GL	Input	Sequential user-defined error messages
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database index
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database users
PAC7MB	TMBEMUP	Input	Input transactions
PAC7EM	\$BVP.DATA.&BASE.EM	Output	User-defined error message indexed file
PAC7IU		Report	Transaction report
PAC7IX		Report	Error message report
PAC7DD		Report	Authorization option

Return code :

- 8 : no batch procedure authorization option.

## EMUP - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - USER'S ERROR MESSAGES UPDATING -          ' ;
COMM ' ;
COMM ' ----- ;
COMM ' ;
COMM ' THE EMUP PROCEDURE UPDATES THE USER-DEFINED ERROR ;
COMM ' MESSAGE FILE. THESE MESSAGES ARE OBTAINED FROM THE ;
COMM ' SEQUENTIAL OUTPUT FILE OF THE GPRT PROCEDURE (FILE WITH ;
COMM ' A GL SUFFIX) OR FROM TRANSACTIONS FOR ERROR ;
COMM ' MESSAGE DELETIONS AT THE ENTITY LEVEL. ;
COMM ' ;
COMM ' INPUT : ;
COMM ' - USER IDENTIFICATION LINE (REQUIRED) ;
COMM ' - COMMAND LINE : ;
COMM ' COL 1  : "D"   TRANSACTION CODE (DELETION) ;
COMM ' COL 2  : ENTITY TYPE; SAME AS IN CHOICE FIELD. ;
COMM '          "O "   SCREEN ;
COMM '          "D "   DATA STRUCTURE ;
COMM '          "S "   SEGMENT ;
COMM ' COL 4  : (6 CAR.) ENTITY CODE ;

```

```

COMM ' ----- ' ;
COMM ' ' ;
MVL PAC7GL='USER ERROR MESSAGES SEQUENTIAL FILE',USER=&USER,
RFTM='DVC=$DVTM,MD=$MDTM';
CR IF=*EMUP,
OF=(TMBEMUP,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
STEP BVPACL92,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7MB,TMBEMUP,TEMPRY,&RFTM;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7EM,&PAC7EM&USER;
ASG PAC7GL,&PAC7GL;
ASG PAC7DD,SYS.OUT;
ASG PAC7IU,SYS.OUT;
ASG PAC7IX,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' EMUP - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```

---

## PPAF - Generated Programs PAF Preprocessor

### PPAF - Introduction

Using PAF operators, the PPAF procedure processes generated user programs containing SQL requests for access to the Database.

#### EXECUTION CONDITIONS

None.

#### IMPLEMENTATION

This procedure may be executed in different ways:

- Either after program generation using the GPRT procedure, whose output is retrieved and used as input to PPAF, before compilation or storage in a source program library,

- Or by requesting the procedure in the command lines Before/After generated program; the appropriate JCL must have been previously entered in the selected options (PC screen).

### PPAF - User Input

The input is the COBOL source code of programs containing PAF operators to be processed by the pre-processor before compilation.

After the IDENTIFICATION DIVISION, each program contains a command line for the pre-processor. Its structure is as follows :

Position	Length	Value	Meaning
1	6	nnnnnn	COBOL line number
7	1	'*'	Comment
8	5	'TP '	On-line program OR
		'BATCH'	Batch program
14	5	'LIB:'	Fixed label
19	3	bbb	Library code
22	1	blank	Not used
23	5	nnnns	Session number - Session version
28	1	blank	Not used
29	2	--	Generation variant(s)
32	4	'AR:'	Fixed label
36	1	1	Database language code
38	4	'SC:'	Batch Language program skeleton
		'SG:'	On-line program skeleton
		'SR:'	COBOL program skeleton
42	1	1	Skeleton language
43	1	blank '	Not used
44	6	'SINGLE'	Single quotes OR
		'DOUBLE'	Double quotes

### EXAMPLES

000020\*TP LIB: APP 2345 00 AR: F SG: F SINGLE

000020\*BATCH LIB: APP 2300T 4 AR: F SC: F DOUBLE

This line is automatically generated by the GPRT procedure.

## PRINTED OUTPUT

This procedure prints an error report.

## RESULT

The result of the PPAF procedure is the COBOL source in which PAF operators have been processed and calls to PAF batch or on-line sub-programs have been generated.

### **PPAF - Description of Steps**

Preprocessor: PAFP10

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAF80	TGX	Input	Generated programs
COB80	TGX	Output	Generated programs to be compiled
PAFREP		Report	Error report

### **PPAF - Execution JCL**

```
COMM 'VisualAge Pacbase 3.0';
COMM '          - VA PAC ACCESS FACILITY PRE-PROCESSING -      ',
COMM '
COMM '-----',
COMM '
COMM ' USING PAF OPERATORS, THE PPAF PROCEDURE PROCESSES      ',
COMM ' GENERATED USER PROGRAMS CONTAINING SQL REQUESTS FOR    ',
COMM ' ACCESS TO THE DATABASE.                                     ',
COMM '
COMM ' USER INPUT IS THE COBOL SOURCE CODE OF PROGRAMS        ',
COMM ' CONTAINING PAF OPERATORS TO BE PROCESSED BY              ',
COMM ' BY THE PRE-PROCESSOR BEFORE COMPILATION.                  ',
COMM '-----',
COMM '
MVL  PPAF,
      RFTM='DVC=$DVTM,MD=$MDTM';
MVT:
CR   IF=*&1,
      OF=(TGX,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80);
STEP BVPAFP10,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
```

```

ASG PAC7AE,$BVP.SYS.AE,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AE,NBBUF=2,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AN,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PAF80,TGX,TEMPRY,&RFTM,END=PASS;
DEF PAF80,NBBUF=1;
ASG COB80,&1,TEMPRY,&RFTM,END=PASS;
DEF COB80,NBBUF=1;
ASG PAFREP,SYS.OUT;

ESTP;
JUMP END,SW30,EQ,0;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' PPAF - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```



---

## Chapter 3. Extractions

---

### PACX - Introduction

The extraction procedure allows to perform various types of data extractions from the VA Pac Database via a PAF extractor (selection criteria).

See chapter 'UPDP - Update from PAF Tables' in 'The Developer's Procedures' manual.

This data is extracted in the form of transactions that can be used in input of the following procedures:

- UPDT
- UPDP
- CPSN (If the optional LCU Partitioned Database Manager utility is available.)

### EXECUTION CONDITIONS

None since the Database is not directly updated by this procedure.

---

### PACX - User Input Common to all Extractors

Position	Length	Value	Meaning
2	1	'*	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	Password
19	3	bbb	Extraction library code, or target Library code if RMEN with upload
22	4	nnnn	Session number (blank=current ses.)
26	1	T	Session status if Test session
29	4	cccc	Extractor code (1)
33	1	'1'	Formatting for UPDT
		'2'	CPSN : formatting for UPDT with explicit transaction codes
		' '	No formatting for UPDT
34	1	'1'	Formatting for UPDP (PAF)

Position	Length	Value	Meaning
		'2'	CPSN : formatting for UPDP with explicit transaction codes
		' '	No formatting for UPDP (PAF)
35	1	'1'	Formatting for CPSN
		' '	No formatting for CPSN
40	3	ppp	DSMS Product Code
43	6	nnnnnn	DSMS Change number (DSMS Function only)
49	1		Lock processing
		' '	Lock extraction: user code = '*'-line user code
		'1'	No lock extraction
		'2'	Lock extraction: user code = original user code
		'N'	For RMEN only : no extraction of locked entities by an other user
50	1	' '	No transfer of password
		'1'	Password transfer
69	3	bbb	Library code for the '*'-line of the output file(s) (For EXTR, EXLI, and EXUE only)
76	5	nnnnT	Session number for the '*'-line of the output file(s) (For EXTR, EXLI, and EXUE only)

(1) Possible values for the extractor code include:

- EXTR: Extraction of entities
- EXTA: Extraction of entities (extracted transactions are sorted, according to the input identification lines order. So if each request is preceded by a '\*' line, extracted transactions will be sorted in the order of the requests). The formatting is forced to UPDT.
- EXUE: Extraction of user entities
- EXLI: Extraction of libraries or library sub-networks
- EXPJ: Extraction of Journal (formatting for CPSN is not possible)
- EXPU: Extraction for purge (formatting for CPSN is not possible)
- RMEN: Extraction of entities for upload/replacement/ recoding (formatting for CPSN is not possible). RMEN is subject to a separate purchase agreement.



- CPSN: comparison of sub-networks.

### IMPORTANT

- One extractor type only for each run: If the procedure detects more than one type of extractors, it will take only the first one into account.
- Formatting for CPSN: This procedure is part of the ' LCU Partitioned Database Manager' optional utility. Its use is therefore subject to a separate purchase agreement.
- Maximum number of input '\*' lines : 1 for RMEN and EXPJ, 400 for EXSN, 1000 for EXTR, EXTA, EXUE and EXPU.

### RESULTS

The PACX procedure produces:

- A report containing the list of executed programs and the number of generated transactions.
- A list of requests with possible associated errors.
- One or several execution reports depending on the type of extractor.

## **Extraction of Entities**

### **EXTR/EXTA - Introduction**

These extractor types allow the selection of an entity as a whole or part of it.

If the request is of the 'ALL' type, the whole entity is extracted, i.e. the entity itself but also all the entities it uses, as well as entities used by those, and so on. Used entities that are not cross-referenced are not extracted.

Depending on the type of formatting requested, the resulting file can be used as input to the UPDT, UPDP or CPSN procedures (if the request is of the 'ALL', 'ONLY' or 'EXPT' type; the formatting for CPSN is not allowed). For EXTA, the formatting is forced to UPDT.

### **EXTR/EXTA - User Input**

One or two command lines per entity to be extracted.

First line :

Position	Length	Value	Meaning
2	1	'W'	Line code
3	1	'1'	Line number
4	2	'EX'	
6	1		Library selection code:

Position	Length	Value	Meaning
		'U'	Library alone
		'C'	Library and its upper-level libraries
7	33	'+' Choice	Library and its upper-level libraries with identification lines ('*' lines) generation Entity to be extracted, coded in the same way as the 'Choice' field in TP.
40	4		Extraction type:
		' '	Entity alone (required for EXTA)
		'ALL '	Entity and used entities
		'ONLY'	Entity and only used entities whose types are specified in the following part of the line
		'EXPT'	Entity and used entities, except those whose types are specified in the following part of the line
44			12-position table (3 char./position) containing exceptions or selections
			'DEL': Element
			'DBD': Database Block
			'DST': Data Structure
			'SEG': Segment
			'RPT': Report
			'TXT': Text
			'VOL': PDM Volume
			'PGM': Program
			'DLG': Dialog
			'SCR': Screen
			'PIA': Parameterized Input Aid
			'MET': Methodology
			'CME': Client Meta-Entity
			'CLR': Client User Relation
			'\$tt': User Entity ( tt = Meta-entity type)
			'EME': Extension Meta-Entity
			'ERL : Extension User Relation
			'Ytt': Extension User Entity ( tt = Meta-Entity type)

Second line (continuation line for selections and exceptions):

Position	Length	Value	Meaning
2	1	'W'	Line code
3	1	'2'	Line number
44			12-position table (3 characters per position) containing the exceptions or selections

(\*): The EXTR procedure also works with choices that are specific to the Development Database.

These choices must be entered from the seventh position, in the following way:

```
//A__CCCXXXXXX
```

where A is the methodology code and CCC the entity local code.

#### TYPE OF EXTRACTION

- The 'multi-layered extractor' option ('ALL', 'EXPT' or 'ONLY' extraction type) is not available for EXTA. For this procedure, the value must be blank.
- If the extraction type is not specified, the extraction of a Data Structure extracts the Data Structure only. This field must therefore be completed if Segments are to be extracted also. Enter 'EXPTSEG' in this field.
- The extraction of a Dialog extracts only the Dialog by default. To extract the Dialog 's screens, enter 'ALL'.
- Same as above for the extraction of a Meta-Entity and its User Entities.
- The extraction stops at the first level of selection or exception.  
Example: Extraction of a Program with 'EXTPSEG' - The Elements used by the Segments used by the Program are not extracted since the extractor does not consider those segments.

#### PRINTED OUTPUT

The procedure produces:

. A list of extracted entities:

- Sorted for EXTR,
- In the order of the requests for EXTA.

---

## Extraction of User Entities Contents

### EXUE - Introduction

The EXUE procedure extracts the contents of User Entities according to the Meta-Entity type code, formatted as simple records in a sequential file.

The EXUE procedure is part of the Dictionary Extensibility Function which is an optional component and whose use is subject to a separate purchase agreement.

See the 'Dictionary Extensibility' Manual.

### EXUE - User Input

#### USER INPUT

One command line per user entity:

Position	Length	Value	Meaning
2	4	W1EX	Line code
6	1	\$	Client UE Extraction identifier
		'Y'	Extension UE Extraction identifier
7	1		Library selection code:
		U	Selected Library
		C	Selected Library + higher level Libr.
8	2	CC	Meta-Entity call type

#### PRINTED OUTPUT

The EXUE procedure prints a list of the extracted UEs.

#### RESULT

The output of the EXUE procedure is a sequential file with a fixed format in which the contents of the selected user entities are recorded.

The length of each record is 230 characters.

Each record includes:

- A common part containing all the characteristics necessary to identify each extracted line.
- A specific part whose format depends on the meta-entity description.

## PACX - Description of Steps

Extraction: PACX

This step extracts transactions according to user input.

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AY	\$BVP.DATA.&BASE.AY	Input	Development Database Extension Data
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7PJ	\$BVP.DATA.&BASE.PJ	Input	Archived transactions
PAC7MB	TMBPACX	Input	User input
PAC7MA	DUMMY	Input	CPSN Master file
PAC7ES	DUMMY	Input	CPSN Slave file
PAC7BM	TBM	Input/Output	User input
PAC7MM	TMM	Input/Output	EXPU Work file
PAC7MJ	TMJ	Input/Output	EXPJ Work file
PAC7TE	TTE	Input/Output	RMEN Work file
PAC7RE	TRE	Input/Output	RMEN Work file
PAC7RM	TRM	Input/Output	RMEN Work file
PAC7WD	TWD	Input/Output	Extracted transactions
PAC7SY	\$BVP.SYS.SY	Input/Output	Work file
PAC7MV	TMV	Output	Extracted transactions for UPDT
PAC7MR	TMR	Output	Extracted transactions for REOR (EXPU)
PAC7MX	TMX	Output	Non extracted entities (PACX)

Code	Physical name	Type	Label
PAC7GY	TGY	Output	Extracted transactions for UPDP
PAC7TD	TTD	Output	Extracted transactions for CPSN
PAC7UE	TUE	Output	Extracted transactions for EXUE
PAC7IA		Report	General printout of the program stream
PAC7DD		Report	Errors on input transactions
PAC7ED		Report	Extractions report
PAC7EE		Report	Extractions report
PAC7EG		Report	Extractions report
PAC7EM		Report	Extractions report
PAC7EP		Report	Extractions report
PAC7EQ		Report	Extractions report
PAC7EU		Report	Extractions report
PAC7EZ		Report	Extractions report

Return codes:

- 0: No error
- 4: Error on user input (detailed in PAC7EE) or on the extractions for EXTR/EXUE (detailed in PAC7EZ)
- 8: Error on '\*' line (detailed in PAC7DD) or in EXLI (Database not available)

---

## PACX - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - EXTRACTIONS FROM DATABASE -          ' ;
COMM '          - EXTRACTIONS COMPARATOR   -          ' ;
COMM ' -----' ;
COMM ' ' ;
COMM ' THE PACX PROCEDURE ALLOWS TO PERFORM VARIOUS TYPES ' ;
COMM ' OF DATA EXTRACTIONS FROM THE DEVELOPMENT DATABASE ' ;
COMM ' VIA PAF EXTRACTOR. ' ;
COMM ' ' ;
COMM ' POSSIBLE VALUES FOR THE EXTRACTOR CODE INCLUDE: ' ;
COMM ' - EXTR:  EXTRACTION OF ENTITIES ' ;
COMM ' - EXTA:  EXTRACTION OF ENTITIES (EXTRACTED TRANSACTIONS ' ;
COMM '          ARE SORTED, ACCORDING TO THE INPUT ' ;

```

```

COMM ' IDENTIFICATION LINES ORDER. ' ;
COMM ' EACH REQUEST IS THUS PRECEDED BY A "*" LINE, ' ;
COMM ' EXTRACTED TRANSACTIONS WILL BE SORTED IN THE ' ;
COMM ' REQUEST ORDER). ' ;
COMM ' - EXUE: EXTRACTION OF USER ENTITIES ' ;
COMM ' FOLLOWING VALUES ARE RESERVED FOR THE ADMINISTRATOR: ' ;
COMM ' - EXLI:EXTRACTION OF LIBRARIES OR LIBRARY SUB-NETWORKS ' ;
COMM ' - EXPJ:EXTRACTION OF JOURNAL (FORMATTING FOR CPSN IS ' ;
COMM ' NOT POSSIBLE) ' ;
COMM ' - EXPU:EXTRACTION OF ENTITIES TO BE PURGED ' ;
COMM ' (FORMATTING FOR CPSN IS NOT POSSIBLE) ' ;
COMM ' - RMEN:EXTRACTION OF ENTITIES FOR UPLOAD/REPLACEMENT/ ' ;
COMM ' RECODING (FORMATTING FOR CPSN IS NOT POSSIBLE). ' ;
COMM ' RMEN IS SUBJECT TO A SEPARATE PURCHASE AGREEMENT ' ;
COMM ' - CPSN:COMPARISON OF SUB-NETWORKS. ' ;
COMM ' ' ;
COMM ' ----- ' ;
COMM ' ' ;
MVL MBCPSN1='DUMMY',MBCPSN2='DUMMY',
SZBI=5,SZX=5,SZWK=5,
PAC7PJ='$BVP.DATA.&BASE'.PJ',
RFTM='DVC=$DVTM,MD=$MDTM',
SY=$BVP.SYS.SY,USER=&USER;
IV ALMBUPDP,$BVP.SYS.PROC,
VL=(&SZX,MBUPDP=&MBUPDP,BASE=&BASE);
IV ALMBCPSN,$BVP.SYS.PROC,
VL=(&SZX,MBCPSN=&MBCPSN,BASE=&BASE);
IV ALSY,$BVP.SYS.PROC,
VL=(SY=&SY,USER=&USER);
CR IF=*PACX,
OF=(TMBPACX,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
STEP BVPACX,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT,
DEBUG=($BVP.SYS.PROC,SUBFILE=IL);
ASG PAC7SY,&SY&USER;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
ACC=READ,SHARE=MONITOR;
DEF PAC7AN,NBBUF=1,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PAC7AY,$BVP.DATA.&BASE.AY,
ACC=READ,SHARE=MONITOR;
DEF PAC7AY,NBBUF=1,READLOCK=STAT;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7PJ,&PAC7PJ,ACC=READ,SHARE=MONITOR;
ASG PAC7MB,TMBPACX,TEMPRY,&RFTM;

```

```

SWK WKDISK=(SZ=&SZWK,&RFTM);
ASG PAC7MA,&MBCPSN1;
ASG PAC7ES,&MBCPSN1;
ASG PAC7BM,TBM,TEMPRY,&RFTM,END=PASS;
DEF PAC7BM,NBBUF=1;
ASG PAC7MM,TMM,TEMPRY,&RFTM,END=PASS;
DEF PAC7MM,NBBUF=1;
ASG PAC7MJ,TMJ,TEMPRY,&RFTM;
DEF PAC7MJ,NBBUF=1;
ASG PAC7TE,TTE,TEMPRY,&RFTM;
DEF PAC7TE,NBBUF=1;
ASG PAC7RE,TRE,TEMPRY,&RFTM;
DEF PAC7RE,NBBUF=1;
ASG PAC7RM,TRM,TEMPRY,&RFTM;
DEF PAC7RM,NBBUF=1;
ASG PAC7WD,TWD,TEMPRY,&RFTM;
DEF PAC7WD,NBBUF=1;
ASG PAC7MV,TMV,TEMPRY,&RFTM,END=PASS;
DEF PAC7MV,NBBUF=1;
ASG PAC7MR,TMR,TEMPRY,&RFTM,END=PASS;
DEF PAC7MR,NBBUF=1;
ASG PAC7MX,TMX,TEMPRY,&RFTM,END=PASS;
DEF PAC7MX,NBBUF=1;
ASG PAC7TD,&MBCPSN;
ASG PAC7GY,&MBUPDP;
ASG PAC7UE,TUE,TEMPRY,&RFTM,END=PASS;
DEF PAC7UE,NBBUF=1;
ASG PAC7IA,SYS.OUT;
ASG PAC7EU,SYS.OUT;
ASG PAC7DD,SYS.OUT;
ASG PAC7EE,SYS.OUT;
ASG PAC7EM,SYS.OUT;
ASG PAC7EG,SYS.OUT;
ASG PAC7EP,SYS.OUT;
ASG PAC7EQ,SYS.OUT;
ASG PAC7EZ,SYS.OUT;
ASG PAC7ED,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
LMN SL INFIL=(TMV,TEMPRY,&RFTM),
LIB=($BVP.DATA.&BASE.USERS),
COM='MV INFIL:MBUPDT_PACX'&USER',INFORM=SARF,
TYPE=DAT,NUMBER=(1,1),REPLACE;';
JUMP ERR,SEV,GE,3;
LMN SL INFIL=(TMR,TEMPRY,&RFTM),
LIB=($BVP.DATA.&BASE.USERS),
COM='MV INFIL:MBREOR_PACX'&USER',INFORM=SARF,
TYPE=DAT,NUMBER=(1,1),REPLACE;';
JUMP ERR,SEV,GE,3;
LMN SL INFIL=(TUE,TEMPRY,&RFTM),
LIB=($BVP.DATA.&BASE.USERS),
COM='MV INFIL:MBUPDT_EXUE'&USER',INFORM=SARF,
TYPE=DAT,NUMBER=(1,1),REPLACE;';
JUMP ERR,SEV,GE,3;

```



```
JUMP END;  
ERR:  
SEND ' PACX - ABNORMAL END OF RUN  ' ;  
LET SEV 3;  
END:
```



---

## Chapter 4. Personalized Extraction/Automated Documentation

---

### Foreword

The PAF+/Extraction and the PDM+/Outline can be used separately or together.

PAF+ allows for the writing of the Extraction Master Path and for its execution when the PTE<sub>x</sub> is a User Extractor.

PDM+ allows for the writing and execution of the Master Outline (PTE<sub>d</sub>).

The PAF-PDM functions are used when the Master outline calls an Extraction Master Path of the Macro-Command type.

- If you use the PAF+/Extraction function alone, you can generate User Extractor programs and possibly format the extracted data.
- If you use the PDM+/Outline function alone, you can create skeletons to standardize the printing of Documents (standard Print Options, Text instances always called, standardized calls).
- If you use both functions together, PAF+ extracts data from the Database. This data is processed by PDM+ and finally printed in a Document.

For more information on these functions, refer to the 'Pacbase Access Facility (PAF)' and the 'Personalized Documentation Manager (PDM)' manuals.

---

### Personalized Extractions - PAF+

#### XPAF - Validation of an Extraction Master Path

##### XPAF - Introduction

The Extraction Master Path validation procedure, XPAF, allows to perform specific extractions that the standard procedures are not able to perform. See the "Pacbase Access Facility (PAF)" manual.

##### RESULTS

The type of result depends on whether or not the extracted domain is to be integrated into a Document : Macro-Command or User Extraction program.

A Macro-Command is a subroutine to be activated during a printing request by GPRT (choice: PCV).

A User Extraction program is a Source Program to be compiled and executed.

### PREREQUISITE

In order to use this procedure, the System Manager must update the Database with the transaction file supplied for installation which contains the .PPTEX Meta-Entity, whose type is 7E.

### IMPLEMENTATION

Before the procedure can be executed, the user must define an instance of this meta-entity (Y7E). Its Definition and Description determine the characteristics and format of the general extraction program.

### ABNORMAL EXECUTION

Whatever the cause of the abend, the procedure can be re-executed once the problem has been solved.

### PRINTED OUTPUT

This procedure prints a validation report and a simulation of the Extraction Master Path.

### **XPAF - User Input**

One '\*' line per library and session to be consulted

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Library code
22	4	nnnn	Session number
26	1	T	Session version
68	1	' '	Standard print
		'1'	Uppercase print

One command line 'EX' for the following elements:

Position	Length	Value	Meaning
2	2	'EX'	Line code
4	2		ME Type (7E by default)

Position	Length	Value	Meaning
6	6	eeeeee	User Entity code
			Warning: Specify library and session if the MEs whose instances are to be extracted in a parallel sub-network (UEs extractions managed by the WorkStation for example)
12	3	bbb	Library code
15	4	nnnn	Session number
19	1	T	Session version
20	6	'UPDATE'	Update of GS
		SPACE	Check of the presence of the Master Path in GS. Check of the user entity's use in the sub-network. No update of GS if presence or use.

### Examples

\*user passwordLIB

EX7EEXT001\_\_\_\_\_UPDATE

\*user passwordLIB

EX7EEXT002

### **XPAF - Description of Steps**

Access and validation: PTEX30

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AY	\$BVP.DATA.&BASE.AY	Input	Development Database Extension Data

Code	Physical name	Type	Label
PAC7MB	TMBXPAF	Input	User Input
PAC7SP	\$BVP.SYS.SP	Input	Variable skeleton file
PAC7GS	\$BVP.SYS.GS	Input/Output	Extraction Paths
PAC7ED	TED	Output	Report passed on to printing program
PAC7GP	TGP	Output	Temporary generated source
PAC7DD		Report	Report

Extractor generation: PTEX80

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error Messages
PAC7SF	\$BVP.SYS.SF	Input	Fixed skeleton file
PAC7GP	TGP	Input	Source file generated by PTEX30
PAC7ST	TST	Output	Generated source to be translated

Preprocessor: PAFP10

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAF80	TGX	Input	Generated programs
COB80	TGX	Output	Generated programs to be compiled
PAFREP		Report	Error report

PTEX printing: PTEXD0

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages

Code	Physical name	Type	Label
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7ED	TED	Input	PTEX30 Report
PAC7GS	\$BVP.SYS.GS	Input/Output	Extraction Paths
PAC7RD		Report	Control report

### XPAF - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - XPAF (PAF EXTENSION) -          ';
COMM '          ';
COMM ' -----';
COMM '          ';
COMM ' THE EXTRACTION MASTER PATH VALIDATION PROCEDURE,
COMM ' XPAF, ALLOWS FOR THE SIMULATION OF SPECIFIC EXTRACTIONS';
COMM ' THAT THE STANDARD PROCEDURES ARE NOT ABLE TO PERFORM.  ';
COMM '          ';
COMM ' INPUT :
COMM ' - USER IDENTIFICATION LINE (REQUIRED)
COMM '   COL 2 : "*"
COMM '   COL 3 : USERIDXX
COMM '   COL 11 : PASSWORD
COMM '   COL 19 : (BBB) LIBRARY CODE
COMM '   COL 22 : (4 N) SESSION NUMBER
COMM '   COL 26 : (1 CAR.) SESSION VERSION
COMM '   COL 68 : " " STANDARD PRINT
COMM '           "1" UPPERCASE PRINT
COMM ' - COMMAND LINE :
COMM '   COL 2 : "EX" LINE CODE
COMM '   COL 4 : (2 CAR.) METAENTITY TYPE (7E BY DEFAULT)
COMM '   COL 6 : (6 CAR.) USER ENTITY CODE
COMM '   COL 12 : (BBB) LIBRARY CODE (IF THE U.E.O.
COMM '   COL 15 : (4 N) SESSION NUMBER ARE IN PARALLEL
COMM '   COL 19 : (1 CAR.) SESSION VERSION SUB-NETWORK)
COMM '   COL 20 : "UPDATE" UPDATE OF GS
COMM '           " " CHECK OF THE PRESENCE OF THE
COMM '                   MASTER PATH IN GS.
COMM '          ';
COMM ' -----';
COMM '          ';
MVL RFTM='DVC=$DVTM,MD=$MDTM';
CR IF=*XPAF,
OF=(TMBXPAF,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80);
STEP BVPTX30,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;

```

```

ASG PAC7AY,$BVP.DATA.&BASE.AY,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AY,NBBUF=1,READLOCK=STAT;
ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AN,NBBUF=1,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7SP,$BVP.SYS.SP,
    ACC=READ,SHARE=MONITOR;
DEF PAC7SP,READLOCK=STAT;
ASG PAC7MB,TMBXPAF,TEMPRY,&RFTM,END=PASS;
ASG PAC7ED,TED,TEMPRY,&RFTM,END=PASS;
DEF PAC7ED,NBBUF=1;
ASG PAC7GP,TGP,TEMPRY,&RFTM,END=PASS;
DEF PAC7GP,NBBUF=1;
ASG PAC7GS,$BVP.SYS.GS;
SWK WKDISK=(SZ=5,&RFTM);
ASG PAC7DD,SYS.OUT;
ESTP;
JUMP XED,SW30,EQ,1;
JUMP ERR,SW20,EQ,1;
STEP BVPTEX80,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7SF,$BVP.SYS.SF,
    ACC=READ,SHARE=MONITOR;
DEF PAC7SF,READLOCK=STAT;
ASG PAC7GP,TGP,TEMPRY,&RFTM;
ASG PAC7ST,TST,TEMPRY,&RFTM,END=PASS;
DEF PAC7ST,NBBUF=1;
ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPAFP10,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AN,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PAF80,TST,TEMPRY,&RFTM;

```



```

DEF PAF80,NBBUF=1;
ASG COB80,TCOB80,TEMPRY,&RFTM,END=PASS;
DEF COB80,NBBUF=1;
ASG PAFREP,SYS.OUT;
ESTP;
JUMP XED,SW30,EQ,1;
JUMP ERR,SW20,EQ,1;
COBOL INFILE=(TCOB80,TEMPRY,&RFTM,END=PASS),
      MAP,NSUBCK,NCKSEQ,NOBSERV,LEVEL=NSTD,
      PSEGMAX=24,DSEGMAX=24,CULIB=($BVP.SYS.CUB);
JUMP CONTINUE;
XED:
STEP BVPTXD0,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7GS,$BVP.SYS.GS;
ASG PAC7ED,TED,TEMPRY,&RFTM;
ASG PAC7AE,$BVP.SYS.AE,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
SWK WKDISK=(SZ=5,&RFTM);
ASG PAC7RD,SYS.OUT;
ASG PAC7AE,$BVP.SYS.AE,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ESTP;
JUMP END;
ERR:
SEND ' XPAF - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```

## **XPAF - Operations of the Extraction Master Path**

### EXECUTION OF A USER EXTRACTOR (E-TYPE PTE<sub>x</sub>)

Once validated, compiled, and linked, a User Extractor is ready for execution.

### EXECUTION OF A MACRO-COMMAND (M-TYPE PTE<sub>x</sub>):

Once validated, compiled, and linked, a Macro-Command is not ready for execution. It must be called in a Master Outline.

See the 'Personalized Documentation Manager' Manual for a complete documentation on the PDM+ Functionality.

### NOTE

An Extraction Master Path is independent of the Database in which it is defined and described as long as the root is the same.

---

## Documentation Structuring - PDM+

### XPDM - Validation of a Master Outline

#### XPDM - Introduction

A Master Outline is a P-type Document ('V' entity) designed to be called in another PDM Document. Its functions are to:

- Memorize general descriptions (print option, for example) so that they do not have to be redefined in each Volume.
- Print the information extracted via an Extraction Master Path. This function may be recursive.

If no serious error is detected, the XPDM procedure updates the Extraction Master Path file (GS). It can also be used without updating the GS file.

See the 'Personalized Documentation Manager' manual for more details.

#### ABNORMAL EXECUTION

Whatever the cause of the abend, the procedure can be re-executed once the problem has been solved.

#### PRINTED OUTPUT

This procedure prints the description of a Master Outline, as well as the comments, and a list of the anomalies found, if any.

#### XPDM - User Input

One '\*' line to define the context.

Position	Length	Value	Meaning
2	1	'*	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Library code
22	4	nnnn	Session number
26	1	T	Session version
68	1	' '	Standard print
		'1'	Uppercase print

One 'EP' line for the following elements :

Position	Length	Value	Meaning
2	2	'EP'	Line code
4	6	rrrrrr	Report code
10	6	'UPDATE'	GS file update
		SPACE	Check of the volume's presence in GS Check of the volume's use in the sub-network. No GS file update if presence or use.

### Examples

\*user passwordLIB

EPMANUALUPDATE

\*user passwordLIB

EPMANUAL

### **XPDM - Description of Steps**

Extraction of master outline: PTED30

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AY	\$BVP.DATA.&BASE.AY	Input	Development Database Extension data
PAC7MB	TMBXPDM	Input	User Input
PAC7ED	TED	Output	Report passed on to BVPTED80
PAC7SG	TSG	Output	GS-Update preparation

Code	Physical name	Type	Label
PAC7DD		Report	Report

### GS update and printing of the master outline: PTED60

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7ED	TED	Input	Print file
PAC7SG	TSG	Input	GS-Update preparation file
PAC7GS	\$BVP.SYS.GS	Output	Extraction Paths
ETATGP		Report	Output report

### XPDM - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - XPDM   (PDM EXTENSION) -          ' ;
COMM '          ' ;
COMM ' -----' ;
COMM '          ' ;
COMM ' A MASTER OUTLINE IS A P-TYPE VOLUME ("V" ENTITY) ' ;
COMM ' DESIGNED TO BE CALLED IN ANOTHER PDM VOLUME. ' ;
COMM '          ' ;
COMM ' INPUT : ' ;
COMM ' - USER IDENTIFICATION LINE (REQUIRED) ' ;
COMM '   COL 2 : "*" ' ;
COMM '   COL 3 : USERIDXX ' ;
COMM '   COL 11 : PASSWORD ' ;
COMM '   COL 19 : (BBB) LIBRARY CODE ' ;
COMM '   COL 22 : (4 N) SESSION NUMBER ' ;
COMM '   COL 26 : (1 CAR.) SESSION VERSION ' ;
COMM '   COL 68 : " " STANDARD PRINT ' ;
COMM '           "1" UPPERCASE PRINT ' ;
COMM ' - COMMAND LINE : ' ;
COMM ' COL 2 : "EP" LINE CODE ' ;
COMM ' COL 4 : (6 CAR.) REPORT CODE ' ;
COMM ' COL 10 : "UPDATE" UPDATE OF GS ' ;
COMM '           " " CHECK OF THE PRESENCE OF VOLUME ' ;
COMM '                   IN GS. ' ;
COMM '          ' ;
COMM ' -----' ;

```

```

COMM '
MVL RFTM='DVC=$DVTM,MD=$MDTM';
CR IF=*XPDM,
   OF=(TMBXPDM,TEMPRY,&RFTM,END=PASS),
   OUTDEF=(CISIZE=2048,RECSZ=80);
STEP BVPTED30,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
   ASG PAC7AE,$BVP.SYS.AE,
     ACC=READ,SHARE=MONITOR;
   DEF PAC7AE,READLOCK=STAT;
   ASG PAC7AN,$BVP.DATA.&BASE.AN,
     ACC=READ,SHARE=MONITOR;
   DEF PAC7AN,NBBUF=1,READLOCK=STAT;
   ASG PAC7AR,$BVP.DATA.&BASE.AR,
     ACC=READ,SHARE=MONITOR;
   ASG PAC7AY,$BVP.DATA.&BASE.AY,
     ACC=READ,SHARE=MONITOR;
   ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
   DEF PACGGR,READLOCK=STAT;
   ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
   DEF PACGGN,READLOCK=STAT;
   ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
   DEF PACGGU,READLOCK=STAT;
   ASG PAC7MB,TMBXPDM,TEMPRY,&RFTM;
   ASG PAC7ED,TED,TEMPRY,&RFTM,END=PASS;
   DEF PAC7ED,NBBUF=1;
   ASG PAC7SG,TSG,TEMPRY,&RFTM,END=PASS;
   DEF PAC7SG,NBBUF=1;
   SWK WKDISK=(SZ=5,&RFTM);
   ASG PAC7DD,SYS.OUT;
ESTP;
JUMP END,SW30,EQ,1;
JUMP ERR,SW20,EQ,1;
STEP BVPTED60,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
   ASG PAC7GS,$BVP.SYS.GS;
   ASG PAC7ED,TED,TEMPRY,&RFTM;
   ASG PAC7SG,TSG,TEMPRY,&RFTM;
   ASG ETATGP,SYS.OUT;
   ASG PAC7AE,$BVP.SYS.AE,
     ACC=READ,SHARE=MONITOR;
   DEF PAC7AE,READLOCK=STAT;
   ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
   DEF PACGGR,READLOCK=STAT;
   ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
   DEF PACGGN,READLOCK=STAT;
   ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
   DEF PACGGU,READLOCK=STAT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' XPDM - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```

---

## Extraction Master Path and Outline File

### PRGS - Printing of Master Path / Outline File

#### PRGS - Introduction

The PRGS procedure prints the contents of the PAC7GS file, where Master Outlines and Extraction Master Paths are stored.

#### RESULT

A printout showing the Extraction Master Path and the associated Master Outlines.

#### PRGS - User Input

One '\*' line to identify the user.

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password

#### PRGS - Description of Steps

Printing of the master path and outline file: PTEP90

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7GS	\$BVP.SYS.GS	Input	Extraction Paths
PAC7MB	TMBPRGS	Input	User Input
PAC7DD		Report	Output Report
ETATGS		Report	Master Path and Outline file report

#### PRGS - Execution JCL

```
COMM 'VisualAge Pacbase 3.0';  
COMM '          - PRINT OF MASTER PATH FILE -          '  
COMM '          ;
```

```

COMM ' -----';
COMM '
COMM ' THE PRGS PROCEDURE PRINTS THE CONTENTS OF THE
COMM ' PAC7GS FILE, WHERE MASTER OUTLINES AND EXTRACTION
COMM ' MASTER PATHS ARE STORED.
COMM '
COMM ' -----';
COMM '
MVL RFTM='DVC=$DVTM,MD=$MDTM';
CR IF=*PRGS,
OF=(TMBPRGS,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80);
STEP BVPTP90,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7GR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,
ACC=READ,SHARE=MONITOR;
DEF PAC7GN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
ACC=READ,SHARE=MONITOR;
DEF PAC7GU,READLOCK=STAT;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7GS,$BVP.SYS.GS;
ASG PAC7MB,TMBPRGS,TEMPRY,&RFTM,END=PASS;
SWK WKDISK=(SZ=5,&RFTM);
ASG PAC7DD,SYS.OUT;
ASG ETATGS,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' PRGS - ABNORMAL END OF RUN ';
LET SEV 3;
END:

```





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## Chapter 5. Batch Update

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### UPDP - Update from PAF Tables

#### UPDP - Introduction

The UPDP procedure performs an update of the Database from a sequential file reflecting PAF tables.

The operating principle of UPDP is very similar to that of UPDT, with the exception that input transactions have a different format.

#### ABNORMAL EXECUTION

Refer to the 'Abnormal Execution' section of the UPDT procedure.

#### UPDP - User Input / Update Rules / Results

##### USER INPUT

The sequential file of input transactions is produced by a PAF extractor program or by the PACX procedure. Its records reflect the PAF tables format. For a detailed description of these tables, see the 'Pacbase Access Facility Tables' manual.

Position	Length	Meaning
1	1	Transaction code (C, M, X, A or D, B)
2	10	PAF table code
12	299	PAF table contents (as described in the PAF Tables Reference Manual)

There are restrictions on the Client and Extension User Entities Definition and Description tables.

The size of the UPDP input file is 310 characters long while the size of these tables exceeds 310 characters. The records must then be re-formatted in the following manner:

Client and Extension User Entities Definition Tables - \$TTDEF and YTTDEF.

Position	Length	Meaning
1	1	Transaction code (C, M, X, A or D, B)
2	10	Table code

Position	Length	Meaning
12	1	Record continuation code: blank character for the first record, any character for the continuation records.
13	1	Not used
14	55	Explicit keywords
69	237	Field containing columns specific to the associated Meta-Entity

Client and Extension User Entities Description tables - \$TTDxx and YTTDxx.

Position	Length	Meaning
1	1	Transaction code (C, M, X, A or D, B)
2	10	Table code
12	1	Record continuation code: blank character for the first record, any character for the continuation records
13	1	Not used
14	30	User Entity code
44	262	Field containing columns specific to the associated Meta-Entity

### UPDATE RULES

Update transactions are not sorted.

Each set of transactions impacting a library or session must be preceded by an ASSIGN table code line.

Position	Length	Value	Meaning
2	10	'ASSIGN'	Table code
12	8	uuuuuuuu	User code
20	8	pppppppp	Password
28	3	bbb	Library code
31	4	ssss	Session number
		' '	current session
35	1	'T'	Session status: Test session
39	1	'A' or 'F'	Language code, useful if the transactions are not in the same language as the Database in case of a Database under DSMS control:

Position	Length	Value	Meaning
40	3	ppp	Product code
43	6	nnnnnn	Product number

When the update is performed while the on line mode is active (on platforms that support this functionality), the input transaction flow must be preceded by a CHECKP table code line.

Position	Length	Value	Meaning
2	10	'CHECKP'	Table code
12	4	nnnn	Number of transactions processed between two pauses or checkpoints
16	4	'UPDT'	Update procedure
20	2	nn	LAN Platforms: Pause time, in seconds, between two update sets

### PRINTED OUTPUT

Refer to the description of the UPDT output.

### RESULT

Refer to the description of the UPDT result.

## **UPDP - Description of Steps**

Transaction formatting: PAF900

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AE	\$BVPSYS.AE	Input	Error messages
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7GY	&EXPAF	Input	Update transactions

Code	Physical name	Type	Label
PAC7MV	TMV	Output	Formatted transactions (must be able to contain all input transactions as well as elementary deletion transactions generated by multiple deletion transactions) (length=170)
PAC7ME	TME	Output	Work file (length=372)
PAC7MW	TMW	Output	Work file (length=170)
PAC7MX	TMX	Output	Work file (length=743)
PAC7MY	TMY	Output	Work file (length=743)

Update of the development database: PACA15

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Output	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Output	Development Database Index file
PAC7AY	\$BVP.DATA.&BASE.AY	Output	Development Database Extension
PAC7AJ	\$BVP.DATA.&BASE.AJ	Output	Development Database Journal
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGY	\$BVP.DATA.ADMIN.AY	Input	Administration Database Extension
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7DC	&DSMS	Input	Development Database elements DSMS file
PAC7ME	TME	Input	Work file
PAC7MV	TMV	Input	Update transactions
PAC7RB	TRB	Output	UPDT erroneous transactions (length=80)
PAC7RY	TRY	Output	UPDP erroneous transactions (length=310)

Code	Physical name	Type	Label
PAC7IE		Report	Update report (length=132)
PAC7IF		Report	List of erroneous transactions (length=132)

The list of transactions specific to a user is preceded by a banner with this user's code.

Return codes :

- 0 : OK without error
- 2 : warning error
- 4 : fatal error

### UPDP - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - BATCH UPDATE FROM PAF TABLES -          ' ;
COMM '          ' ;
COMM ' ----- ' ;
COMM ' ' ;
COMM ' THE UPDP PROCEDURE PERFORMS AN UPDATE OF THE DATABASE ' ;
COMM ' FROM A SEQUENTIAL FILE REFLECTING PAF TABLES. ' ;
COMM ' ' ;
COMM ' THE SEQUENTIAL FILE OF INPUT TRANSACTIONS IS PRODUCED ' ;
COMM ' BY A PAF EXTRACTOR PROGRAM. ITS RECORDS MIRROR ' ;
COMM ' THE PAF TABLES. ' ;
COMM ' EACH SET OF TRANSACTIONS IMPACTING A LIBRARY OR SESSION ' ;
COMM ' MUST BE PRECEDED BY AN ASSIGN TABLE CODE LINE. ' ;
COMM ' WHEN THE UPDATE IS PERFORMED WHILE THE TP IS ACTIVE ' ;
COMM ' (ON PLATFORMS THAT SUPPORT THIS FUNCTIONALITY), ' ;
COMM ' THE INPUT TRANSACTION FLOW MUST BE PRECEDED BY A CHECKP ' ;
COMM ' TABLE CODE LINE. ' ;
COMM ' ----- ' ;
COMM ' ' ;
MVL  SZMB=5,SZWK=5,
      RFTM='DVC=$DVTM,MD=$MDTM';
CR   IF=*UPDP,
      OF=(TMBUPDP,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISZ=2048,RECSZ=80,RECFORM=FB);
STEP BVPAF900,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
      ASG PAC7AE,$BVP.SYS.AE,
          ACC=READ,SHARE=MONITOR;
      DEF PAC7AE,READLOCK=STAT;
      ASG PAC7AN,$BVP.DATA.&BASE.AN,
          ACC=READ,SHARE=MONITOR;
      DEF PAC7AN,NBBUF=10;
      ASG PAC7AR,$BVP.DATA.&BASE.AR,
          ACC=READ,SHARE=MONITOR;
      DEF PAC7AR,NBBUF=4;

```

```

ASG PACGGR,$BVP.DATA.ADMIN.AR,
  ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,
  ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
  ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7GY,&EXPAF;
ALC PAC7ME,SZ=&SZMB,UNIT=CYL,INCRSZ=1;
ASG PAC7ME,TME,TEMPRY,&RFTM,END=PASS;
ALC PAC7MV,SZ=&SZMB,UNIT=CYL,INCRSZ=1;
ASG PAC7MV,TMV,TEMPRY,&RFTM,END=PASS;
ASG PAC7MB,TMBUPDP,TEMPRY,&RFTM;
ALC PAC7MW,SZ=&SZMB,UNIT=CYL,INCRSZ=1;
ASG PAC7MW,TMW,TEMPRY,&RFTM,END=PASS;
ALC PAC7MX,SZ=&SZMB,UNIT=CYL,INCRSZ=1;
ASG PAC7MX,TMX,TEMPRY,&RFTM,END=PASS;
ALC PAC7MY,SZ=&SZMB,UNIT=CYL,INCRSZ=1;
ASG PAC7MY,TMY,TEMPRY,&RFTM,END=PASS;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPACA15,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
  ASG PAC7AE,$BVP.SYS.AE,
    ACC=READ,SHARE=MONITOR;
  DEF PAC7AE,READLOCK=STAT;
  ASG PAC7AJ,$BVP.DATA.&BASE.AJ,
    ACC=WRITE,SHARE=MONITOR;
  DEF PAC7AJ,JOURNAL=BEFORE;
  ASG PAC7AN,$BVP.DATA.&BASE.AN,
    ACC=WRITE,SHARE=MONITOR;
  DEF PAC7AN,JOURNAL=BEFORE,NBBUF=10;
  ASG PAC7DC,$DSMS;
  ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=WRITE,SHARE=MONITOR;
  DEF PAC7AR,JOURNAL=BEFORE,NBBUF=4;
  ASG PAC7AY,$BVP.DATA.&BASE.AY,
    ACC=WRITE,SHARE=MONITOR;
  DEF PAC7AY,JOURNAL=BEFORE,NBBUF=4;
  ASG PAC7MV,TMV,TEMPRY,&RFTM;
  ASG PAC7ME,TME,TEMPRY,&RFTM;
  ASG PAC7IE,SYS.OUT;
  ASG PAC7IF,SYS.OUT;
  ASG H_BJRNL,FILESTAT=TEMPRY,
    DVC=$DVTM,MD=$MDTM;
  ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=WRITE,SHARE=MONITOR;
  DEF PACGGN,JOURNAL=BEFORE;
  ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=WRITE,SHARE=MONITOR;
  DEF PACGGR,JOURNAL=BEFORE;
  ASG PACGGY,$BVP.DATA.ADMIN.AY,ACC=WRITE,SHARE=MONITOR;
  DEF PACGGY,JOURNAL=BEFORE;
  ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=WRITE,SHARE=MONITOR;
  DEF PACGGU,JOURNAL=BEFORE;
  ASG PAC7RB,TRB,TEMPRY,&RFTM;

```

```
ASG PAC7RY,TRY,TEMPRY,&RFTM;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' UPDP - ABNORMAL END OF RUN  ';
LET SEV 3;
END:
```

---

## UPDT - Update

### UPDT - Introduction

The Database update procedure (UPDT) executes a batch update of the Database. It allows access to ALL libraries which make up the Database according to the different user authorizations.

With the DSMS facility (DSM), this procedure reads the VisualAge Pacbase Entity file (DC).

### EXECUTION CONDITIONS

The Database being updated, the AR, AN, AJ and AY files must be closed to on-line use, except for hardware environments that support concurrent on-line and batch access.

### NOTE

For very large updates (in terms of number of transactions, about 5000), before executing this procedure, it may be necessary to

- Save, archive and restore the Database to increase the space allocated to the files or to physically reorganize the files in order to make all the free space initially provided available.
- Temporarily suppress Journalization  
(See chapter 'Database Management' subchapter 'Database Restoration', in 'The Administrator's Procedures' manual.

This procedure updates the current session number in two cases:

- When it is the first connection of the day to the Database, and
- When it contains a Database Freeze request submitted by the Administrator (see 'The Administrator's Procedures' manual)

### ABNORMAL EXECUTION

Refer to chapter 'Overview, subchapter 'Abnormal Endings' in 'the Administrator's Procedures' manual.

There are two types of abnormal executions:

- Abnormal execution occurring before the execution of the BVPACA15 program, or during the opening of files in this program. The procedure can be restarted after the problem is corrected.
- Abnormal execution occurring during execution of the BVPACA15 program. The Database is left in an inconsistent state. If the problem appeared during input-output on a Database file, the printed error message and the file status will dictate the solution.

In either case, a restart can only take place after a restore using the Backup file including the transactions archived subsequent to this backup (REST procedure).

## **UPDT - User Input / Update Rules / Results**

A '\*' line with the user code and password.

### UPDATE RULES

Each set of transactions impacting a Library must be preceded by a \*-type line.

These transactions are not sorted.

### PRINTED OUTPUT

The two printed output generated by this procedure are:

- A global report on the update,
- A list of the rejected update transactions.

They are printed by the user, and the transaction groups are separated by a flag.

### RESULT

Output of the UPDT procedure is:

- A database ready to be used on-line or in batch mode.
- A Journal file of the transactions that have modified the Database (as long as there was no inhibit request during the last restoration).

These transactions are made up of a common part which contains the action code, a line identifier and a specific part which is detailed in the following sections for each Description of entity.



## ACTION CODES

Action code	Label
C	Creation of a line in the library
M	Modification of a line.
Blank	Creation or modification of a line, depending on its presence or absence in the library.
X	Creation or modification with possible use of ampersand (&).
D	Deletion of one line.
B	Multiple lines deletion, starting with this line.
R	End of multiple lines deletion up to and including this line.

## NOTE CONCERNING DELETION

If an entity is used in several Libraries, deletions in an inferior Library are rejected.

It is possible to globally delete (using ACTION CODE 'B') an entity and all of its uses in Screens, Reports or Segments. However, these deletions will be effective only in update Libraries.

## CAUTION

A field which is not valued is not modified. Enter the '&' character to blank out the field.

## SPECIFIC ACTION CODES: 'F' AND 'P'

The 'F' and 'P' action codes are used in extractions for updates.

The 'F' value is used to force an update, i.e. after an extraction (via EXLI or any other extractor), it allows the creation of an incomplete Definition only for these entities' X-references (usually, User Entities) to be satisfied, a sort being impossible.

This code triggers the update of the Database.

The 'P' value allows an identification line to be assigned to all the Description lines that follow without updating the Definition of this entity (e.g. 'P' lines of a Program in a Library where the Definition exists only in a higher Library).

## Checkpoints

This specification allows the user to request synchronization points during the UPDT batch update or one of the REST or RESY restorations.

A rollback is made in case of ABEND. The Database is thus always consistent. It is then possible, in case of an update (UPDT), to restart the JOB without restoring the Database (and by deleting if possible, transactions already updated).

Checkpoints are performed according to a frequency specified by the user. (ex: a frequency set to 0100 means that a checkpoint will be made every one hundred transactions processed).

### Frequency of checkpoints in a batch update

For the update (UPDT), the frequency of checkpoints is requested using a 'Y' access line placed before the first '\*' line of the update flow. This line must be defined as follows:

Pos.	Len.	Value	Meaning
2	1	'Y'	Line code
4	4	'nnnn'	frequency of checkpoints (default value : 0000)

For the restoration (REST or RESY), the frequency of checkpoints is requested using the user input defined for these procedures.

### Concurrent batch-TP update

The implementation of checkpoints in the BVPACA15 program of the UPDT procedure allows to operate this procedure concurrently with TDS. This UPDT-TDS concurrence must be reserved to exceptional small transactions sets.

Indeed, the execution of the UPDT procedure during the TDS session may trigger locks (DEADLOCK) between 2 successive restart points, thus increasing the on line response time.

In case of a non blocking abort (journal full or problem on the call of an H\_GAC\_UCOMIT checkpoint, the procedure can be restarted after deletion of the transactions already processed in the user input.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
2	2		Line code
4	4		Checkpoint frequency

## Multi-entity User Input

### Multi-purpose Line (Line VC, VG, VE, VO):

The VC-code line is used for calling Parameterized Input Aids and for assigning Comments to an Entity or some description lines.

The first line contains the type and code of the entity concerned (with the line number if it is a description) and the line number for the comment (the continuation is always set to blank).

- to call a P.I.A., the code of the entity is indicated on this first line and only one line is needed.
- for a comment line, there is a continuation line which bears the comment and, at the end of the line, the type of line ('\*' for Comments).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		VC	Line code for a 'GC' screen
		VG	Line code for a 'GG' screen.
		VE	Line code for a 'GE' screen.
			Note: Call of a P.I.A. not possible in this screen.
		VO	Line code for a 'GO' screen.
4	2		Entity type receiving the Comments
6	30		Entity code
36	3		Line number
			Numeric
39	3		Number of the commented line
			Numeric
42	1		Line Type
43	6		Code of called P.I.A.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		VC	Line code for a 'GC' screen
		VG	Line code for a 'GG' screen.
		VE	Line code for a 'GE' screen.
			Note: Call of a P.I.A. not possible in this screen.
		VO	Line code for a 'GO' screen.
4	60		Comment line
80	1		Continuation line
		*	This value must be entered to indicate a continuation line.

#### Parameterized Input Aids/Variable Parts (Line VZ):

The access line used for entering the contents of the variable parts is 'VZ'.

The structure of the VZ line must copy that of the P.I.A. Description. The variable parts follow each other. There are no delimiters. The resolution includes the maximum length of each parameter defined.

**NOTE:** This line code always comes after a VC line (call of P.I.A.).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
4	2		Number of parameter cards in a P.I.A
6	20		Printed label for level n
			This field contains the fixed part of a P.I.A. line as displayed when the P.I.A. is called. Its contents depend upon the TYPE OF P.I.A. LINE.
			On P.I.A. lines to be generated (value "G" in the LINE GENERATION OPTION field on the P.I.A. Description (-D) screen), each instruction must be left-justified, and, if it does not fit on a single line, its continuation must begin with at least one 'blank' character.
26	40		DESCRIPTION / SECOND PART
			This field is specific to a P.I.A. call.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			With value 'C2' in the OPERATION CODE field, the cursor automatically tabs to the first position of this field.
			This field is initialized with underscores (default value) or with the value specified in the INITIAL VALUE field for a Standard PIA description line (Type = 'blank').
			If symbolic parameters have been defined on the P.I.A. Description (-D), they may be entered in this field. They will be replaced by their corresponding value, and will remain displayed on the right of the screen.

### Call of Instances via Relations (Line QR):

The access line used for the call of instances via Relations is 'QR'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		QR	
4	2		Entity type receiving the Comments
6	2		Meta-Entity Type
			It is an alphanumeric code entered at creation and which characterizes the Meta-Entity in all its types (two different Meta-Entities cannot have the same type) ; the type cannot be modified if User Entities have already been defined for this ME; this type, when used to define or describe a User Entity, is preceded by the '\$' character (example: if the 'JOB' ME type is 'JO', the User Entities are referenced by '\$JO.....').
8	30		Entity code (30 characters)
38	3		Line number
			PURE NUMERIC FIELD
			It is advisable to begin with line number '100' and then number in intervals of 20. This facilitates subsequent line insertions, as necessary.
41	6		Relation code
47	30		Code of called entity (30 charac.)

### Entity Update Lock (Line R):

The access line used to lock the update of entities is 'R'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		R	
3	2		Entity type
			This field is used to specify the type of entity to which one or more keywords are assigned.
		K1	Model Entity.
		S	Text.
		C	Data Element.
		A	Data Structure.
		2	Segment.
		V1	Parameterized Input Aid.
		L1	Database Block.
		H	Screen.
		B	Report.
		0	Program.
		U	User Manual.
		W1	Volume.
		Y1	User Entity.
		tt	tt User Entity. Used for updating keywords of tt User Entities.
		Y5	User-Defined Relation.
5	2		Meta-Entity Type
			It is an alphanumeric code entered at creation and which characterizes the Meta-Entity in all its types (two different Meta-Entities cannot have the same type) ; the type cannot be modified if User Entities have already been defined for this ME; this type, when used to define or describe a User Entity, is preceded by the '\$' character (example: if the 'JOB' ME type is 'JO', the User Entities are referenced by '\$JO.....').
7	30		Entity code
37	36		Entity name/comments
73	8		User code

### Search by Keywords (Line G):

'G' is the access line used to define and assign explicit keywords.

On a first line, you find the type and code of the entity concerned.

Keywords (55 characters) are entered on a second line, a continuation line (identified by the '\*' character at the end of the line).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		G	
4	2		Entity type receiving the Comments
6	30		Entity code
36	1		Call type
		\$	Used to update keywords for User Entities.
80	1		Continuation line
		*	This value must be entered to indicate a continuation line.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		G	
4	55		Keywords
			Standard field containing all the explicit keyword entities
80	1		Continuation line
		*	This value must be entered to indicate a continuation line.

### Data Elements

#### Definition (Line C):

'C' is the access line used to define an Element.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		C	
3	6		Element code
9	1		Element TYPE
10	36		Data Element name
46	1		Type of format
		I	Internal format.
47	10		Data Element internal format
74	1		Element internal use
75	6		Code of parent Data Element

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		C	
3	6		Element code
9	1		Element TYPE
10	36		Data Element name
46	1		Type of format
		E	Input format.
47	10		Conversational format
74	1		Element internal use
75	6		Code of parent Data Element

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		C	
3	6		Element code



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
9	1		Element TYPE
10	36		Data Element name
46	1		Type of format
		S	Output format.
47	27		Output Format
74	1		Element internal use
75	6		Code of parent Data Element

### Description (Line E):

'E' is the access line used to describe an Element.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		E	
3	6		Element code
9	3		Line number
			Numeric
12	1		Line Type
13	1		Skip or action type
			Numeric
14	13		Data Element value
27	54		Data Element value - Meaning

### Model Objects

#### Definition (Line K1):

The access line used to define a model entity is 'K1'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		K1	
4	6		Object code
10	36		Name of the object
46	1		Type of the object
		O	Object,
		R	Relationship,
		C	Functional Integrity Constraint (F.I.C.).
47	9		Number of instances
			Numeric
56	6		Code of the implied Relation
			This field is used for the definition of an F.I.C.
62	6		Parent object code
68	10		Object comment

### Call of Properties in Object or Relat. (Line K3):

The line code used to call properties in an entity or a Model Relation is 'K3'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K3	
4	6		Object code
10	3		Line number
			Numeric
13	6		Element code
19	1		Identifier in Segment
20	3		Occurrences (Cobol "OCCURS" clause)
			Numeric
23	2		Number of Data Elements in a group

### Model Relations

#### Definition (Line K1):

The access line used to define a model entity is 'K1'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K1	
4	6		Object code
10	36		Name of the object
46	1		Type of the object
		O	Object,
		R	Relationship,
		C	Functional Integrity Constraint (F.I.C.).
47	9		Number of instances
			Numeric
56	6		Code of the implied Relation
			This field is used for the definition of an F.I.C.
62	6		Parent object code
68	10		Object comment

**Call of Objects in Relation or F.I.C (Line K2):**

The access line code used to call entities in a Relation or a F.I.C. is 'K2'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K2	
4	6		Model Relation code
10	3		Line number
			Numeric
13	6		Object code
19	7		Occurrence ranking (minimal)
26	7		Occurrence ranking (maximal)
33	7		Average occurrence ranking

### Call of Properties in Object or Relat. (Line K3):

The line code used to call properties in an entity or a Model Relation is 'K3'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K3	
4	6		Object code
10	3		Line number
			Numeric
13	6		Element code
19	1		Identifier in Segment
20	3		Occurrences (Cobol "OCCURS" clause)
			Numeric
23	2		Number of Data Elements in a group

### Model F.I.C.'s

#### Definition (Line K1):

The access line used to define a model entity is 'K1'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K1	
4	6		Object code
10	36		Name of the object
46	1		Type of the object
		O	Object,
		R	Relationship,
		C	Functional Integrity Constraint (F.I.C.).
47	9		Number of instances
			Numeric
56	6		Code of the implied Relation

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			This field is used for the definition of an F.I.C.
62	6		Parent object code
68	10		Object comment

### Call of Objects in Relation or F.I.C (Line K2):

The access line code used to call entities in a Relation or a F.I.C. is 'K2'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		K2	
4	6		Model Relation code
10	3		Line number
			Numeric
13	6		Object code
19	7		Occurrence ranking (minimal)
26	7		Occurrence ranking (maximal)
33	7		Average occurrence ranking

### Data Structures

#### Definition (Line A):

'A' is the access line used to define a Data Structure.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		A	
3	2		Data Structure code
5	30		Data Structure label
35	44		Data Structure comment
79	1		Type

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
80	1		File reporting option
		O	file descriptions will include vet and update markers. This option is to be used only for files with vets, update markers, fields with variable repetitions, or with initial values. It is mandatory for generating error messages.
		N	File descriptions will not include vet and update markers. In this case, field lengths and addresses in the record will be indicated (default option)
		E	file descriptions will be presented in their input format with addresses , lengths, and initial values of the fields in the record
		I	file descriptions will be presented in internal format with addresses, lengths, and initial values of the fields in the record

## Segments

### Definition (Line 2):

'2' is the access line used to define a Segment.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		E	
4	4		Segment code
8	1		TYPE OF SEGMENT DEFINITION LINE
		S	Sub-schema definition.
		Y	Sub-system definition.
12	10		Structure Code value
22	36		Label
58	1		Create: segment presence
59	1		Modify: segment presence
60	1		Delete: segment presence
61	1		Mod-4 : segment presence
62	1		Mod-5 : segment presence

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
63	1		Mod-6 : segment presence
64	4		Occurs in Table
			Numeric
68	9	NUMER.	Estimated number of instances
			Numeric

**Description (Line 3):**

'3' is the access line used to call Elements into a Segment.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		3	
3	4		Segment code
7	3		Line number
			Numeric
10	6		Element code
16	18		Element short name
34	10		Data Element internal format
44	1		Element internal use
45	3		Occurrences (Cobol "OCCURS" clause)
			Numeric
48	2		Number of Data Elements in a group
50	1		Identifier in Segment
51	1		Creation
52	1		Modification
53	1		Deletion
54	1		Type 4
55	1		Type 5
56	1		Type 6
57	1		Class (alpha/numeric)
58	1		Operators (and/or)

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
59	1		NEGATION (NOT)
		N	NEGATION ('NOT' is generated).
		blank	No negation.
60	1		Type: validation, update, values
61	10		Values / sub-function code
71	2		Update target / first part
73	2		Update target / second part
75	6		Update target / last part

### Pactables Sub-Schemas and Sub-Systems (Line 21):

The line code used to define all sub-schemas and sub-systems of a Table is '21'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		21	
4	4		Segment code
8	1		TYPE OF SEGMENT DEFINITION LINE
		S	Sub-schema definition.
		Y	Sub-system definition.
9	1		Sub-schema / sub-system number
10	30		Sub-schema/sub-system clear name
40	4		Occurs in Table
			Numeric

### Reports

#### Definition (Line B):



'B' is the line code used to define a Report.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		B	
3	3		Report Code
6	30		Report name
36	36		Comments
72	1		Nature code
73	1		Type
74	3	NUMER.	Line length (maximum)
			Numeric
77	2	NUMER.	No. of digits left of the decimal
			Numeric
79	2	NUMER.	No. of digits right of the decimal
			Numeric

#### Report Layout Description (Line 4):

'4' is the line code used to describe a Report layout.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		4	
3	3		Report Code
6	2		Line number
			Numeric
8	2	NUMER.	Constant part number
			Numeric
10	1		Number of printed literals part
11	1		Line skip/page break
			Numeric
12	1		Char. set option: special printer

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
15	66		Edition label

### Report Characteristics Description (Lines 5, E):

Batch Form '5' (type E) is used to describe the report characteristics.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		5	
3	3		Report Code
6	2		Category (report)
8	3		Line number
			Numeric
14	1		Line Type
15	3		Length of the variable part
18	2	NUMER.	Structure number
			Numeric
20	2	NUMER.	Constant part number
			Numeric
22	2		Line skip/page break
			Numeric
24	1		Line skip type
25	2	NUMER.	Lines per page
			Numeric
27	2		Function code
		AA-99	
		\$n	In a macro-structure, the function code can be parameterized.
29	2		Sub-function
		AA-99	
		\$n	In a macro-structure, the sub-function code can be parameterized.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
31	2		Section priority
33	13		Comments
46	35		Conditions of report execution

**List of Categories (Line 5):**

'5' is the line code used to describe the report categories.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		5	
3	3		Report Code
6	2		Category (report)
8	3		Line number
			Numeric
14	1		Line Type
15	3		Length of the variable part
18	2	NUMER.	Structure number
			Numeric
20	2	NUMER.	Constant part number
			Numeric
22	2		Line skip/page break
			Numeric
24	1		Line skip type
25	2	NUMER.	Lines per page
			Numeric
27	2		Function code
		AA-99	
		\$n	In a macro-structure, the function code can be parameterized.
29	2		Sub-function
		AA-99	

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		\$n	In a macro-structure, the sub-function code can be parameterized.
31	2		Section priority
33	13		Comments
46	35		Conditions of report execution

### Description of Structures (Line 6):

'6' is the line code used to call Elements into Structures.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		6	
3	3		Report Code
6	2	NUMER.	Structure number
			Numeric
8	3	NUMER.	Starting address (column number)
			Numeric
11	1		Data element line number
12	6		Element code
18	2		Continuation of D.S. Description
		blank	First line of a Data Structure description. This line must contain all information defining the input-output characteristics, all technical characteristics and the description of the Data Structure.
			Two-letter code indicating a continuation line.
			The continuation lines are used to select the records of the different Data Structures in the Library and to request their description in a specified position.
20	14		Output Format
			(Default option: INTERNAL FORMAT)
			This is the format of a data element as it is used in a printed report, or in a screen as a display field. It can also be used in a segment description.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			It must be coded like a COBOL picture. USAGE is always DISPLAY.
			In previous versions, this field was used to generate the BLANK WHEN ZERO clause, which may be displayed in this field.
			When creating or updating a data element, the BLANK WHEN ZERO CLAUSE field must be used for this purpose.
			For data elements representing a date, it is possible to assign a symbolic format:
			Display type formats (input):
		D	Without century (picture x(6)).
		C	With century (picture x(8)).
			Internal type formats:
		I	Without century (picture x(6)).
		S	With century (picture x(8)).
			Extended type formats (output) (with slashes):
		E	Without century (picture x(8)).
		M	With century (picture x(10)).
		G	Gregorian format (picture x(10)).
		T	TIME format.
		TS	TIMESTAMP format
			PACMODEL function: This field may be omitted for a property.
			For details on the use of the formats with the various types of database blocks, see the summary tables in chapter "COLUMNS: DATA ELEMENTS" of the "Relational SQL Database Description" Reference Manual.
34	1		Operation on source field
35	1		Working-Storage Prefix of Source
36	2		Source field - first part
38	2		Source field - second part
40	6		Code of source field
46	3		Source field - last part
49	32		Execution condition

## On-Line Screens

### Definition (Line H):

'H' is the line code used to define a Dialogue or a Screen information (name, number of lines and columns, etc.), and a second part, which contains:

- With a blank in the continuation field (col.80): the attributes, documentation call fields (PFkeys or characters), initialization character for entry fields (with NATURE = 'V'),
- With '\*' in the continuation field (col.80): the external name of the program, the external name of the map, the transaction code.

Usually, only one 'H' line code with the attributes is necessary to define a dialogue and only one 'H' line code with the external names is necessary to define a screen: in general, a screen takes on the attributes defined at the dialogue level.

However, both layout formats of line code 'H' can be entered to define a Dialogue or a Screen.

**NOTE:** on Screen Description lines ('I-type' access lines), enter the '?' character in column 31 to blank out the 'Type of Label' field.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		H	
4	2		Dialogue code
6	4		Screen code within the dialogue
10	30		Dialogue or screen name
40	2	NUMER.	Screen size - number of lines
			Numeric
42	3	NUMER.	Screen size - number of columns
			Numeric
45	1		Label type
46	2	NUMER.	Number of tabs per line
			Numeric
48	2		Transactional language variant
50	1		Optional Command Lines Set/BEFORE

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
51	1		Control cards in front of map
52	1		Optional Command Lines Set/AFTER
53	1		Control cards in back of map
54	1		Intensity attribute - label
55	1		Intensity attribute - display field
56	1		Intensity attribute - input field
57	1		Intensity attribute - error message
58	1		Intensity attribute-erroneous field
59	1		Color attribute - label
60	1		Color attribute - display field
61	1		Color attribute - input field
62	1		Color attribute - error message
63	1		Color attribute - erroneous field
64	1		Presentation attribute - label
65	1		Presentation attribute-display field
66	1		Presentation attribute - input field
67	1		Presentation attribute-error message
68	1		Presentation att. - erroneous field
70	2		Help character: screen help
72	2		Help character: data element help
74	1		Initialization character: variables
78	2		Screen type
80	1		Continuation line

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		H	
4	2		Dialogue code
6	4		Screen code within the dialogue
10	30		Dialogue or screen name
40	2	NUMER.	Screen size - number of lines

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Numeric
42	3	NUMER.	Screen size - number of columns
			Numeric
45	1		Label type
46	2	NUMER.	Number of tabs per line
			Numeric
48	2		Transactional language variant
50	1		Optional Command Lines Set/BEFORE
51	1		Control cards in front of map
52	1		Optional Command Lines Set/AFTER
53	1		Control cards in back of map
54	8		External name of program
62	8		External name of map
70	8		Transaction code
78	2		Screen type
80	1		Continuation line

### Dialog Complement (Line H3):

'H3' is the line code used to enter the Dialogue Complement. It must be preceded by line code 'H', which specifies the Dialogue Code.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		H3	
4	2		Common area - data structure code
6	1		Organization
7	8		External name of error message file
15	4		First screen code of the dialogue
19	6		Database Block code
25	4	NUMER.	Complementary common area length
			Numeric



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
29	47		Options

**Description (Line I):**

'I' is the line code used to describe a screen. It must be preceded by a line code H which specifies the dialogue Code.

On the lines codes of screens description (I-type line code), enter the ? character in the column 31 to clear the 'label type' field.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		I	
3	3		Line number
			Numeric
6	6		Element code
12	1		Positioning type
13	2	NUMER.	Line number positioning
			Numeric
15	3	NUMER.	Column number positioning
			Numeric
18	1		Nature of the data element
19	1		Label type
20	1		Intensity attribute - label
21	1		Intensity attribute - data
22	1		Presentation attribute - label
23	1		Presentation attribute - data
24	1		Color attribute - label
25	1		Color attribute - data
26	1		Cursor default position/skip option
27	2	NUMER.	Horizontal repetitions
			Numeric
29	2	NUMER.	Vertical repetitions

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Numeric
31	1		Presence validation of data element
32	1		Validation conditions/set variables
33	1		Update option
34	4		Update target: segment code
38	6		Update target / last part
44	1		Working-Storage Prefix of Source
45	4		Source segment code
49	6		Code of source field
60	2		Level

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		I	
3	3		Line number
			Numeric
6	6		Element code
12	1		Positioning type
13	2	NUMER.	Line number positioning
			Numeric
15	3	NUMER.	Column number positioning
			Numeric
18	1		Nature of the data element
19	1		Label type
20	1		Intensity attribute - label
21	1		Intensity attribute - data
22	1		Presentation attribute - label
23	1		Presentation attribute - data
24	1		Color attribute - label
25	1		Color attribute - data
26	1		Cursor default position/skip option

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
27	2	NUMER.	Horizontal repetitions
			Numeric
29	2	NUMER.	Vertical repetitions
			Numeric
31	1		TYPE OF LITERAL
			Defines the contents of the next field, which is displayed on the Call of Elements (-CE) with OPERATION = '2' (O: C2 or I2, etc.).
		blank	The field contains a fixed label value.
		I	The field contains an initial value automatically displayed when the screen is invoked.
		P	The field contains a presentation value used for the screen simulation only.
		A	This value indicates that the following label is made up of one character repeated more than 30 times.
			INPUT EXAMPLE:
			LABEL
			T LITERALS
			A 045-
			The corresponding label is a line of 45 dashes.
			IBM 36, IBM 38, IBM AS/ 400:
		Y	This value specifies that the next field contains an INDICATOR number for attribute positioning.
32	30		Displayed literal

### Call of Segments (Line H2):

'H2' is the line code used to call segments into a screen.

It must be preceded by a line code 'H' which specifies the Screen Code.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		H2	

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
4	1		Category indicator (screen)
5	4		Segment code in program
			This group column contains the following elementary columns:
			CDSTPG, CRECPG.
9	2		Line number
			Numeric
11	1		ACCESS MODE
		S	Sequential (default option).
		R	Random - Direct (indexed sequential organization only).
			Note: With random access input files, the READ is not generated automatically.
		D	Dynamic (VSAM files only - ORGANIZATION = 'V')
12	1		Use in reception
13	1		Use in display
14	4		Preceding segment code
18	14		Access key source
			This group column contains the following elementary columns:
			CSEGSR, CDELSR.
32	6		Element code
38	1		Control break indicator for display
39	1		Organization
40	1		Generated description type
41	8		External name of the file
49	2		Data Structure code
51	2		code
53	1		Sub-schema / sub-system number
54	2		Level

### Call of Macro-Structures (Line M):

Macro-structures are called using the line code 'M'.

Since it contains no program code, this line code must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		M	
3	2		Line number
			Numeric
5	1		Expansion option for Macro-Struct.
		blank	The macro-structure lines are expanded in the calling programs during the update
		N	No expansion of macro-structure lines during the update
6	1		Delimiter of parameter values
7	6		Macro-structure code
13	50		Parameter values
80	1		Continuation line

#### Program Beginning Insertions (Line D):

The 'Beginning of Program' is modified using the line code 'D'.

Since it contains no program or screen code, this line must always be preceded by a program or screen definition line.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		D	
4	2		Section to generate
7	2		Paragraph title
9	3		Line number
13	66		Instruction

#### Working Areas (Line 7):

The Work areas and Linkage areas are described using the line code '7'.

Since it contains no program or screen code, this line must always be preceded by a program or screen definition line.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		7	
5	2		Line beginning
7	3		Line number
10	1		TYPE OF LINE OR DATA ELEMENT FORMAT
			TYPE OF LINE values:
		blank	Data entered in the LEVEL AND SECTION and WORK AREA DESCRIPTION fields are to be generated as entered.
		-	Continuation character for a literal.
		*	Comment. Data entered in the LEVEL AND SECTION and WORK AREA DESCRIPTION fields contain comments to be inserted into the generated Program (ANSI COBOL only).
		\$	This value appears in column 7 of the generated COBOL and the other Elements of the WORKING line appear as it is.
		F	Call of a Data Structure.
			When 'F' is entered, the system responds with a formatted line which is used to facilitate data entry. The fields are the same as those used on the Call of Data Structures (-CD) screen for D.S. with ORGANIZATION = 'W' or 'L'.
			.DATA STRUCTURE CODE IN THE PROGRAM.
			.DATA STRUCTURE CODE IN THE LIBRARY.
			.SEGMENT SELECTION (enter the SEGMENT CODE without an asterisk).
			(A segment code can only be renamed in batch).
			.NON-PRINTING DATA STRUCTURE FORMAT (1 to 8).
			.RECORD TYPE / USE WITHIN D.S. (I, E or S).
			.LEVEL NUMBER (COBOL) OF THE RECORD (1 to 5).
			.ORGANIZATION.
			.SUB-SCHEMA NUMBER.
			.LINE SEQUENCE.
			Type 'F' '-W' lines are processed as Data Structure call lines (-CD) only for batch.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			If two Type 'F' '-W' lines referring to the same Data Structure (same DATA STRUCTURE CODE IN THE PROGRAM) are separated, they will nevertheless be generated one after the other.
			ELEMENT FORMAT values:
		E	Use of the INPUT FORMAT of a Data Element.
		I	Use of the INTERNAL FORMAT of a Data Element.
		S	Use of the OUTPUT FORMAT of a Data Element.
			For these format types, the presence of the Data Element in the Specifications Dictionary is checked. A cross-reference is established, which prohibits the deletion of the Data Element whenever the lines in which it is called have not been deleted themselves.
			If the Element does not exist in the Specifications Dictionary, the System sends a warning.
			When a global replacement is required (.C2), the Element is not checked but the cross-references will still be created.
			For these three format types, the data-name entered in the WORK AREA DESCRIPTION must therefore have the following format:
			W-DDSS-EEEEEE where:
			W = a working-storage prefix,
			DDSS = a given DATA STRUCTURE and SEGMENT CODE,
			EEEEEE = a DATA ELEMENT CODE which exists in the Specifications Dictionary.
			The corresponding format is automatically attributed by the System.
			For IMS sub-monitors:
		M	Sub-monitor; enter the code of the sub-monitor in the LEVEL OR SECTION field.
		C	Call of a screen into the sub-monitor named above.
			Enter the SCREEN CODE of the screen belonging to the sub-monitor in the LEVEL OR SECTION field, followed by a space and a 'D' for Dynamic call or 'S' for Static.
			Example: C OOSCRN D
			Note: Enter one SCREEN CODE per 'C'-type line.
11	17		Level or section

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
28	48		Description
76	5		Table size (occurs clause)
			Numeric

### Procedural Code (Line P):

Procedural code is written using the line code 'P'.

Since it contains no program code, this form must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		P	
3	2		Function code
		AA-99	
		\$n	In a macro-structure, the function code can be parameterized.
5	2		Sub-function
		AA-99	
		\$n	In a macro-structure, the sub-function code can be parameterized.
7	3		Line number
10	3		Operator
13	32		Operand
45	2		Level
47	2		Condition type
49	32		Execution condition

### Programs

#### Definition (Line 0):

'0' (zero) is the line code used to define a program. It must always precede all description lines of a program (Batch 'D', 'M', '1' '7' 'P' and '9').



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		0	
7	6		Program code
13	6		Code for sequence of generation
19	30		Program name
49	1		Type of Cobol
50	1		Order of insertion in cobol Library
51	1		Cobol numbering and alignment option
54	1		SQL generation option
55	1		Optional Command Lines Set/BEFORE
56	1		Optional Command Lines Set/AFTER
57	8		Cobol program id
65	1		Programming mode
66	1		Type and structure of program
67	1		Type of presence validation
68	1		Program classification code

### Call of Data Structures (Line 1):

'1' is the line code used for the 'Call of Data Structures'.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		1	
3	2		Data structure code in the program
5	2		Data Structure code
7	6		External name
13	1		Organization
14	1		Access mode
15	1		Recording mode
16	1		Opening mode

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
17	1		Unit type
18	5	NUMER.	Block size
			Numeric
23	1		Block size unit type
24	10		File status
34	6		INDEXED DATA STRUCTURE ACCESS KEY
			Required for indexed Data Structures: Enter the DATA ELEMENT CODE of the access key Element.
40	1	NUMER.	Number of control breaks
			Numeric
41	1	NUMER.	File matching level number
			Numeric
42	1		Usage
43	6		Element code
49	2		Resulting file data structure code
51	2		Source or error data structure code
53	1		Transaction control break level
59	4		Physical Unit Type
63	1		Unit Complement
64	9		Sort key / seg select / report codes
73	1		Format type
74	1		Selected description
75	1		Generated description type
76	1		Level
77	2		Line beginning
79	2		Continuation of D.S. description

### Call of Macro-Structures (Line M):

Macro-structures are called using the line code 'M'.

Since it contains no program code, this line code must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		M	
3	2		Line number
			Numeric
5	1		Expansion option for Macro-Struct.
		blank	The macro-structure lines are expanded in the calling programs during the update
		N	No expansion of macro-structure lines during the update
6	1		Delimiter of parameter values
7	6		Macro-structure code
13	50		Parameter values
80	1		Continuation line

#### **Program Beginning Insertions (Line D):**

The 'Beginning of Program' is modified using the line code 'D'.

Since it contains no program code, this line code must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		D	
4	2		Section to generate
7	2		Paragraph title
9	3		Line number
13	66		Instruction

#### **Working Areas (Line 7):**

The working and linkage areas are described using the line code '7'.

Since it contains no program code, this line code must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		7	
5	2		Line beginning
7	3		Line number
10	1		TYPE OF LINE OR DATA ELEMENT FORMAT
			TYPE OF LINE values:
		blank	Data entered in the LEVEL AND SECTION and WORK AREA DESCRIPTION fields are to be generated as entered.
		-	Continuation character for a literal.
		*	Comment. Data entered in the LEVEL AND SECTION and WORK AREA DESCRIPTION fields contain comments to be inserted into the generated Program (ANSI COBOL only).
		\$	This value appears in column 7 of the generated COBOL and the other Elements of the WORKING line appear as it is.
		F	Call of a Data Structure.
			When 'F' is entered, the system responds with a formatted line which is used to facilitate data entry. The fields are the same as those used on the Call of Data Structures (-CD) screen for D.S. with ORGANIZATION = 'W' or 'L'.
			.DATA STRUCTURE CODE IN THE PROGRAM.
			.DATA STRUCTURE CODE IN THE LIBRARY.
			.SEGMENT SELECTION (enter the SEGMENT CODE without an asterisk).
			(A segment code can only be renamed in batch).
			.NON-PRINTING DATA STRUCTURE FORMAT (1 to 8).
			.RECORD TYPE / USE WITHIN D.S. (I, E or S).
			.LEVEL NUMBER (COBOL) OF THE RECORD (1 to 5).
			.ORGANIZATION.
			.SUB-SCHEMA NUMBER.
			.LINE SEQUENCE.
			Type 'F' '-W' lines are processed as Data Structure call lines (-CD) only for batch.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			If two Type 'F' '-W' lines referring to the same Data Structure (same DATA STRUCTURE CODE IN THE PROGRAM) are separated, they will nevertheless be generated one after the other.
			ELEMENT FORMAT values:
		E	Use of the INPUT FORMAT of a Data Element.
		I	Use of the INTERNAL FORMAT of a Data Element.
		S	Use of the OUTPUT FORMAT of a Data Element.
			For these format types, the presence of the Data Element in the Specifications Dictionary is checked. A cross-reference is established, which prohibits the deletion of the Data Element whenever the lines in which it is called have not been deleted themselves.
			If the Element does not exist in the Specifications Dictionary, the System sends a warning.
			When a global replacement is required (.C2), the Element is not checked but the cross-references will still be created.
			For these three format types, the data-name entered in the WORK AREA DESCRIPTION must therefore have the following format:
			W-DDSS-EEEEEE where:
			W = a working-storage prefix,
			DDSS = a given DATA STRUCTURE and SEGMENT CODE,
			EEEEEE = a DATA ELEMENT CODE which exists in the Specifications Dictionary.
			The corresponding format is automatically attributed by the System.
			For IMS sub-monitors:
		M	Sub-monitor; enter the code of the sub-monitor in the LEVEL OR SECTION field.
		C	Call of a screen into the sub-monitor named above.
			Enter the SCREEN CODE of the screen belonging to the sub-monitor in the LEVEL OR SECTION field, followed by a space and a 'D' for Dynamic call or 'S' for Static.
			Example: C OOSCRN D
			Note: Enter one SCREEN CODE per 'C'-type line.
11	17		Level or section

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
28	48		Description
76	5		Table size (occurs clause)
			Numeric

### Procedural Code (Line P):

Procedural code is written using the line code 'P'.

Since it contains no program code, this form must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		P	
3	2		Function code
		AA-99	
		\$n	In a macro-structure, the function code can be parameterized.
5	2		Sub-function
		AA-99	
		\$n	In a macro-structure, the sub-function code can be parameterized.
7	3		Line number
10	3		Operator
13	32		Operand
45	2		Level
47	2		Condition type
49	32		Execution condition

### Cobol Source Lines (Line FC):

Source Code is written using the line code 'FC'.

Since it contains no program code, this line code must always be preceded by line code '0' (Program Definition).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		FC	
4	2		Function code
		AA-99	
		\$n	In a macro-structure, the function code can be parameterized.
6	2		Sub-function
		AA-99	
		\$n	In a macro-structure, the sub-function code can be parameterized.
8	3		Line number
11	3		Operator
14	67		Source line

### **Pur Cobol Source Lines (Line 9):**

Pure COBOL Source Code (-9) lines may be entered on line code '9'.

Since it contains no program code, this line must always be preceded by a program definition line.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		9	
3	6		Cobol line number
9	1		Continuation line
10	65		Cobol instruction
75	6		End of cobol line

### **Database Blocks (Hierarchical)**

#### **Definition (Line L1):**

'L1' is the line code used to define a Database Block.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L1	
4	6		Database Block code
10	36		Name of the block
46	8		Database block external name
54	2		Block type
56	8		External name of the schema
64	1		Control cards in front of block
65	1		Control cards in back of block
66	4		Version number

**Description (Line L2):**

'L2' is the line code used to describe a Hierarchical Database Block.

The same line code is used for the Descriptions of SOCRATE/CLIO sub-structures but only the following lines are filled in: the action code, the line number and, in the column reserved for the Model Relationship code, the code of the structure to which the sub-structure belongs.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L2	
4	6		Database Block code
10	3		Line number
			Numeric
13	4		Child segment code
17	4		Parent segment code
21	6		Model Relation code
27	1		Identifier in Segment
28	5	NUMER.	Estimated number: child/parent links



POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Numeric
33	36		Comment/relation/key length
69	6		Path item (turboimage)
75	6		Sort path item (turboimage)

### Database Blocks (CodasyI)

#### Definition (Line L1):

'L1' is the line code used to define a Database Block.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L1	
4	6		Database Block code
10	36		Name of the block
46	8		Database block external name
54	2		Block type
56	8		External name of the schema
64	1		Control cards in front of block
65	1		Control cards in back of block
66	4		Version number

#### Description (Line L3):

'L3' is the line code used to describe CODASYL, DB2, and TANDEM Database blocks.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L3	
4	6		Database Block code

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
10	3		Line number
			Numeric
13	1		TYPE
		S	Set.
		*	Continuation of a set.
			For a set with multiple members, the first MEMBER Segment is indicated on an 'S'-type line, the others on '*'-type lines.
		R	Record.
		A	Area.
14	6		Area or set code
20	4		Parent segment code
24	4		Child segment code
28	6		Model Relation code
34	5	NUMER.	Estimated number: child/parent links
			Numeric
39	36		Comment/relation/key length

## Database Blocks (Relational-SQL)

### Definition (Line L1):

'L1' is the line code used to define a Database Block.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L1	
4	6		Database Block code
10	36		Name of the block
46	8		Database block external name
54	2		Block type
56	8		External name of the schema
64	1		Control cards in front of block

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
65	1		Control cards in back of block
66	4		Version number

**Description (Line L4):**

'L4' is the line code used to describe a Relational/SQL Database Block.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L4	
4	6		Database Block code
10	3		Line number
			Numeric
13	1		Structure code SQL batch transact
14	1		SQL RECORD TYPE
		P	Tablespace (except for INTEREL RDBC, INTEREL RFM, INGRES/SQL, DB2/400, VAX/SQL, NONSTOP SQL, INFORMIX, SYBASE and SQL SERVER)
		T	Table For ALLBASE/SQL, when a Primary Key or Foreign Key is defined in the Table (T line type) creation, the closing bracket must be entered on the line 690 of the -DRnnnGG screen.
		V	View
		I	Index
		A	Alter Table: Column updating
		K	RDMS 1100, ALLBASE/SQL: Primary Key (Processed with the generation of the table that precedes it.)
			DB2, DATACOM/DB, INFORMIX-ESQL, SQL/DS, ORACLE V6 and V7, DB2/2, DB2/6000, SYBASE and SQL SERVER: Primary key (Processed with the generation through an ALTER TABLE command.)
		J	DB2, DATACOM/DB, SQL/DS, ORACLE V6 and V7, INFORMIX, SYBASE and SQL SERVER: Foreign key (Processed with the generation through an ALTER TABLE command.)

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			ALLBASE/SQL: Foreign Key (Processed with the generation of the table that precedes it.)
		C	Package (ORACLE V7 only)
		E	Function (ORACLE V7 only)
		Q	Procedure (ORACLE V7, INGRES, SYBASE, SQL SERVER and INFORMIX)
		R	ORACLE V7, SYBASE and SQL SERVER: Trigger
			INGRES/SQL: Rule
15	18		Method external name
33	4		Segment code
37	1		Order
41	1		Key type
43	1		Type of generated transaction
44	6		Code of key data element no.1
50	1		Sort order 1
51	6		Code of key data element no.2
57	1		Sort order 2
58	6		Code of key data element no.3
64	1		Sort order 3
65	6		Code of key data element no.4
71	1		Sort order 4
72	6		Code of key data element no.5
78	1		Sort order 5

### Database Blocks (Turboimage)

#### Definition (Line L1):

'L1' is the line code used to define a Database Block.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L1	

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
4	6		Database Block code
10	36		Name of the block
46	8		Database block external name
54	2		Block type
56	8		External name of the schema
64	1		Control cards in front of block
65	1		Control cards in back of block
66	4		Version number

### Description (Line L2):

'L2' is the line code used to describe a Hierarchical Database Block.

The same line code is used for the Descriptions of SOCRATE/CLIO sub-structures but only the following lines are filled in: the action code, the line number and, in the column reserved for the Model Relationship code, the code of the structure to which the sub-structure belongs.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		L2	
4	6		Database Block code
10	3		Line number
			Numeric
13	4		Child segment code
17	4		Parent segment code
21	6		Model Relation code
27	1		Identifier in Segment
28	5	NUMER.	Estimated number: child/parent links
			Numeric
33	36		Comment/relation/key length
69	6		Path item (turboimage)
75	6		Sort path item (turboimage)

## Texts

### Definition (Line S):

'S' is the line code used to define a Text.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		S	
3	6		Text code
9	36		Text name
45	2		Type of text
47	2		Paragraph type

### Description (Line T):

'T' is the line code used to describe a text.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	1		Line code
		T	
3	6		Text code
9	2		Text paragraph
11	3		Line number
			Numeric
14	1		TYPE OF TEXT LINE
			SECTION TITLE
			A section must always contain a title. In batch, this title must be at the beginning of the section.
		L	Section title. It will NOT appear in an end-user documentation (User Manuals and Volumes).
		K	Same as type 'L' except that this title will appear in the end-user documentation (User Manuals and Volumes).
		-	Same as type 'K' but the title will be underlined with the '-' (dash) character when a Volume is printed.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		_	Same as type 'K' but the title will be underlined with the '_' (underscore) character when a Volume is printed.
		=	Same as type 'K' but the title will be underlined with the '=' character when a Volume is printed.
		+	Same as type 'K' but the title will be underlined with the '+' character when a Volume is printed.
			TEXT DESCRIPTION LINE
		blank	Default option.
			LINE/PAGE SKIP
			Taken into account when the text is printed in a User Manual or a Volume, or in Text simulation.
		1	New line.
		1-9	Skip of 1-8 lines before the given line is printed.
		*	PAGE skip before the given line is printed.
			TEXT ASSIGNMENT
		I	This code is used to assign a text to instances of other entities called in the TEXT DESCRIPTION LINE field. The assignment starts at the beginning of the section which contains the I-type line and terminates at the end of the text or after a J-type line. The assignment for one instances, all instances of a given entity or of all entities can be terminated.
			To facilitate data entry, key in an 'I' in this field and press ENTER. A dotted line will appear in the TEXT CONTENTS field to indicate where each entity type/ Instance code combination is to be entered.
		J	Explicit end of assignment.
			If there is no data in the TEXT CONTENTS field, the assignment of text to all entities is terminated.
			Using the same technique and format as with type 'I' above, the user may selectively end the text assignment by entity type/instance code, or by entity type.
			If no 'J' line is entered, the assignment goes to the end of the text.
		Y	This code is used to create a link between this section of text and another text or section, i.e. 'refer to..'. The System displays the title of this text or section.
			For the referenced text:

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Choice -XT gives the list of texts referring to the whole text, Choice -LT gives the list of sections, each followed by the sections referring to it.
			With the PACMODEL function:
		F D	Heading line allowing Activity Calculation. Detail line allowing Activity Calculation.
			NOTE: The L, I, J, Y, F and D Type lines are not printed in User Manuals or Volumes.
15	60		Text contents
75	6		Element code

## Documents

### Definition (Line W1):

'W1' is the line code used to define a Document.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		W1	
4	6		Volume code
10	36		Volume name
46	1		Volume type
47	1		Title page option
48	1		Table of contents source
49	1		Table of contents placement
50	6		Text code
56	3		Report Code
59	3		Report code for font types
62	3		Report code for specific layout
65	1		Volume description organization mode

### Description (Line W2):



'W2' is the line code used to describe a Document.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		W2	
4	6		Volume code
10	2		Level 1 code
12	2		Level 2 code
14	3		Line number
			Numeric
17	1		Type of volume description line
18	1		Section level number
19	1		Line skip/page break
			Numeric
20	1		Character for title underlining
21	1		Print window
22	1		Alignment option
23	50		Title, printing opt. or entity sel.
73	4		Reference cursor

### Parameterized Input Aids

#### Definition (Line V1):

'V1' is the access line used to define a P.I.A.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		V1	
4	6		Input Aid code
10	36		Parameterized Input Aid name
46	1		Parameterized Input Aid type
		C	Comment

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		G	Generation
		O	Option

### Description (Line V2):

'V2' is the line code used to describe a P.I.A.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		V2	
4	6		Input Aid code
10	3		Line number
			Numeric
13	1		Line Type
14	20		Label
34	29		Initial value of P.I.A. line
63	3		Length
			Numeric
66	6		Reference Name
72	1		Line Option

### Meta-Entities

#### Definition (Line Y1):

'Y1' is the line code used to define a Meta-Entity.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		Y1	
4	6		Client Meta-Entity code
10	36		Client Meta-Entity label

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
46	2		Meta-Entity calling code

**Detail Line Definition (Line Y6):**

'Y6' is the line code used to define the UE detail lines of the Meta-Entity.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction Code
		SPACE	Creation-Modification
		X	Creation-Modification with data containing an ampersand
		C	Creation
		M	Modification
		A	Deletion
		B	Beginning of multiple deletion
		R	End of multiple deletion
		S	Standard function deletion
2	2		Line code
		Y6	
4	6		Client Meta-Entity code
10	2		Description type
12	1		Description type
13	30		Meta Entity Description Label
43	8		Subprogram code
51	1		Data storage mode
54	2		Parent description type

**Description (Line Y2):** Meta Entity : BATCH ACCESS MODE

'Y2' is the line code used to describe a Meta-Entity.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		Y2	
4	6		Client Meta-Entity code
10	2		Description type
12	3		Line number
			Numeric
15	6		Element code
21	2		Range
23	1		Element top nature
24	1		Uppercase top change
25	1		Element format top ctrl
26	1		Presence top ctrl
27	1		Value top ctrl
28	6		User Relation Code
73	1		Identifier code called by Relation
74	1		Parent identifier code

## User-Defined Relations

### Definition (Line Y5):

'Y5' is the line code used to define a User-Defined Relation.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		Y5	
4	6		Client User Relation
10	36		Client User Relation label
46	14		Client User Relation short label
60	1		Client User Relation type
61	3		Entity Type (3 characters)
			The authorized values are the Entity type values given in chapter "DAF Entities: Coding rules", subchapter "Tables" of the "DSMS Access Facility Tables" manual.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
64	1		Deletion flag

## User Entities

### Definition (Line Y3):

'Y3' is the line code used to define a User Entity.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		Y3	
4	2		Meta-Entity calling code
6	6		User Entity short code
12	2		Range
14	1		Transaction number for User Entity
		blank	First line
		*	Continuation line
15	66		User Entity Definition Transaction

### Description (Line Y4):

'Y4' is the line code used to describe the detail lines of a UE.

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		Y4	
4	2		Description number
6	6		User Entity descr. short identifier
12	2		Range
14	1		Transaction number for User Entity
		blank	First line
		*	Continuation line

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
15	66		User Entity Definition Transaction

## Thesaurus

### Enrichment of the Thesaurus (Line G1):

'G1' is the access line used to document keywords (enrichment of the Thesaurus).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		Transaction code
2	2		Line code
		G1	
4	13		KEYWORD
17	1		Continuation line
18	1		Keyword description type
		D	Comments
		S	Synonym(s)
19	55		Keyword description

## UPDT - Description of Steps

Transactions formatting: PACA05

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AY	\$BVP.DATA.&BASE.AY	Input	Development Database extension data
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users

Code	Physical name	Type	Label
PAC7MB	TMBUPDT	Input	Update transactions
PAC7ME	TME	Output	Work file (length=372)
PAC7MV	TMV	Output	Formatted transactions (length=170, must be able to contain all input transactions plus the elementary delete transactions generated by the multiple delete transactions)
PAC7MW	TMW	Output	Work file

Update of the development database: PACA15

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Output	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Output	Development Database index
PAC7AY	\$BVP.DATA.&BASE.AY	Output	Development Database extension
PAC7AJ	\$BVP.DATA.&BASE.AJ	Output	Development Database journal
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGY	\$BVP.DATA.ADMIN.GY	Input	Administration Database Extension
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database users
PAC7DC	&DSMS	Input	DSMS file of Development Database Elements
PAC7ME	TME	Input	Work file
PAC7MV	TMV	Input	Update transactions
PAC7RB	TRB	Output	UPDT erroneous transactions (length=80)
PAC7RY	TRY	Output	UPDP erroneous transactions (length=310)
PAC7IE		Report	Update report (length=132)

Code	Physical name	Type	Label
PAC71F		Report	List of erroneous transactions (length=132)

The list of user transactions is preceded by a banner with the user code.

Return codes:

- 0: OK, no error
- 2: Warning
- 4: Critical error

### UPDT - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - BATCH UPDATE -
COMM '
COMM ' -----
COMM '
COMM ' REFER TO THE BATCH FORMS AND TO THE DESCRIPTION OF THE
COMM ' INPUT CORRESPONDING TO EACH ENTITY.
COMM '
COMM ' INPUT :
COMM ' - USER IDENTIFICATION LINE (REQUIRED)
COMM '   COL 2 : "*"
COMM '   COL 3 : USERIDXX
COMM '   COL 11 : PASSWORD
COMM '   COL 28 : LANGUAGE CODE, USEFUL WHEN TRANSACTION ARE
COMM '           NOT IN THE SAME LANGUAGE AS THE DATABASE.
COMM '   COL 67 : "N" NOT UPPERCASE/LOWERCASE CONVERSION
COMM ' - COMMAND LINE
COMM '   THE LIST OF ALL AVAILABLE VALUES FOR THE ENTITY
COMM '   TO BE UPDATED IS FOUND IN REFERENCE MANUAL.
COMM '
COMM ' -----
COMM '
MVL JCL, LABJCL=JCL, JLAB='&LAB'&1,
    USER=$USER, SZMB=1, SZMV=2,
    RFTM='DVC=$DVTM, MD=$MDTM';
JUMP CR&&JLAB;
CRJCL:
CR IF=*UPDT,
    OF=(TMBUPDT, TEMPRY, &RFTM, END=PASS),
    OUTDEF=(CISIZE=2048, RECSZ=80, RECFORM=FB);
JUMP CREND;
CR:
CR IF=($BVP.DATA.&BASE.USERS,,SUBFILE=MBUPDT_&1&USER),
    OF=(TMBUPDT, TEMPRY, &RFTM, END=PASS),
    OUTDEF=(CISIZE=2048, RECSZ=80, RECFORM=FB),
    COMFILE=($BVP.SYS.PROC,,SUBFILE=BVPPDSL), START=2;
CREND:

```



```

STEP BVPACA05, FILE=$BVP.SYS.PGM, REPEAT;
  ASG PAC7AE, $BVP.SYS.AE, ACC=READ, SHARE=MONITOR;
  DEF PAC7AE, READLOCK=STAT;
  ASG PAC7AY, $BVP.DATA.&BASE.AY, ACC=READ, SHARE=MONITOR;
  DEF PAC7AY, NBBUF=1, READLOCK=STAT;
  ASG PAC7AN, $BVP.DATA.&BASE.AN, ACC=READ, SHARE=MONITOR;
  DEF PAC7AN, NBBUF=10, READLOCK=STAT;
  ASG PAC7AR, $BVP.DATA.&BASE.AR, ACC=READ, SHARE=MONITOR;
  DEF PAC7AR, NBBUF=4, READLOCK=STAT;
  ASG PACGGN, $BVP.DATA.ADMIN.AN, ACC=READ, SHARE=MONITOR;
  DEF PACGGN, READLOCK=STAT;
  ASG PACGGR, $BVP.DATA.ADMIN.AR, ACC=READ, SHARE=MONITOR;
  DEF PACGGR, READLOCK=STAT;
  ASG PACGGU, $BVP.DATA.ADMIN.GU, ACC=READ, SHARE=MONITOR;
  DEF PACGGU, READLOCK=STAT;
  ASG PAC7MB, TMBUPDT, TEMPRY, &RFTM, END=PASS;
  ASG PAC7ME, TME, TEMPRY, &RFTM, END=PASS;
  DEF PAC7ME, CISIZE=$CISEQ, NBBUF=2, RECSZ=372, RECFORM=FB;
  ALC PAC7ME, SZ=&SZMV, UNIT=CYL, INCRSZ=1;
  ASG PAC7MV, TMV, TEMPRY, &RFTM, END=PASS;
  DEF PAC7MV, CISIZE=$CISEQ, NBBUF=2, RECSZ=170, RECFORM=FB;
  ALC PAC7MV, SZ=&SZMV, UNIT=CYL, INCRSZ=1;
  ASG PAC7MW, TMW, TEMPRY, &RFTM, END=PASS;
  DEF PAC7MW, RECSZ=170, RECFORM=FB, CISIZE=$CISEQ, NBBUF=2;
  ALC PAC7MW, SZ=&SZMB, UNIT=CYL, INCRSZ=1;
ESTP;
JUMP ERR, SW20, EQ, 1;
STEP BVPACA15, FILE=$BVP.SYS.PGM, REPEAT, DUMP=DATA;
  ASG PAC7AE, $BVP.SYS.AE, ACC=READ, SHARE=MONITOR;
  DEF PAC7AE, READLOCK=STAT;
  ASG PAC7AJ, $BVP.DATA.&BASE.AJ, ACC=WRITE, SHARE=MONITOR;
  DEF PAC7AJ, JOURNAL=BEFORE;
  ASG PAC7AN, $BVP.DATA.&BASE.AN, ACC=WRITE, SHARE=MONITOR;
  DEF PAC7AN, JOURNAL=BEFORE, NBBUF=10;
  ASG PAC7DC, $DSMS;
  ASG PAC7AR, $BVP.DATA.&BASE.AR, ACC=WRITE, SHARE=MONITOR;
  DEF PAC7AR, JOURNAL=BEFORE, NBBUF=4;
  ASG PAC7AY, $BVP.DATA.&BASE.AY, ACC=WRITE, SHARE=MONITOR;
  DEF PAC7AY, JOURNAL=BEFORE, NBBUF=4;
  ASG PAC7ME, TME, TEMPRY, &RFTM;
  ASG PAC7MV, TMV, TEMPRY, &RFTM;
  ASG PAC7IE, SYS.OUT;
  ASG PAC7IF, SYS.OUT;
  ASG H_BJRNL, FILESTAT=TEMPRY, DVC=$DVTM, MD=$MDTM;
  ASG PACGGN, $BVP.DATA.ADMIN.AN, ACC=READ, SHARE=MONITOR;
  DEF PACGGN, READLOCK=STAT;
  ASG PACGGR, $BVP.DATA.ADMIN.AR, ACC=READ, SHARE=MONITOR;
  DEF PACGGR, READLOCK=STAT;
  ASG PACGGU, $BVP.DATA.ADMIN.GU, ACC=READ, SHARE=MONITOR;
  DEF PACGGU, READLOCK=STAT;
  ASG PACGGY, $BVP.DATA.ADMIN.GY, ACC=READ, SHARE=MONITOR;
  DEF PACGGY, READLOCK=STAT;
  ASG PAC7RB, TRB, TEMPRY, &RFTM;
  ASG PAC7RY, TRY, TEMPRY, &RFTM;
ESTP;

```

```
JUMP ERR,SW20,EQ,1;  
JUMP END;  
ERR:  
SEND ' UPDT - ABNORMAL END OF RUN  ';  
LET SEV 3;  
END:
```

---

## Chapter 6. Pactables

---

### GETD-GETA - Description Generators

#### GETD-GETA - Introduction

The Table Description Generator is the interface between the Specifications Dictionary and Pactables. For further information, refer to chapter 'General Introduction', subchapter "Introduction to the Pactables Facility" in the "Pactables" manual.

Its use is subject to a purchase agreement.

This interface extracts from the VisualAge Pacbase Database the descriptions of Tables necessary to the operation of the Pactables Facility.

This extraction is executed via either the GETA or GETD procedure according to the installation environment of the Pactables Facility:

- GETA if the Dictionary and Pactables are running under the same environment.
- GETD if the Dictionary and Pactables are running under different environments. In this case, GETD processes a table description file which is the image of the file containing the table descriptions used by the Pactables Facility. As a result, this file must be initialized before the first GETD run, by:
  - either duplicating the description file of the Pactables Facility, if it exists,
  - or executing the initialization procedure (GETI) described in this chapter.

GETA or GETD provide an interface file which is used as input to the GETT procedure of the Pactables Facility. For further details, refer to the 'Pactables' manual.

#### EXECUTION CONDITIONS

None with regard to the Specifications Database, which is only read by this procedure.

#### ABNORMAL EXECUTION

If the generation abends before the update of the table description file, the procedure can be restarted as it is once the error has been corrected.

If the generation abends during the update of the table description file, this file must be restored before the procedure is restarted.

### GETD - GETA - User Input / Result

A '\*'-type line indicating the Library which contains the table descriptions.

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Library code
22	4	nnnn	Session number
26	1	t	Session status

One 'Z' line per generation or print request.

Position	Length	Value	Meaning
2	1	'Z'	Line code
5	4		Request code:
		'TGS '	Request for table descrip. generation
		'TDS '	Request for printing of table descr.
		'TLS '	Request for list of table descriptions
		'TAS '	Request for table deletion
		'TMS '	Request for modification of frozen table characteristics
		'TGC '	Request for comments generation
9	6	ssss	Segment code of table description to be extracted ('TGS ', 'TGC ')
		ttttt	Table code (other requests)
15	2	' '	Not significant
17	8	MMDDCCYY	Date from which the table description can be modified. (Optional)
25	8	MMDDCCYY	Date of description historical account for a G-type table. Default: last historical account.
		*****	Table generation without hist. account
33	1		Data Element format type:
		' '	Internal format

Position	Length	Value	Meaning
		'E'	Input format
75	6	ttttt	Table number (if generating for a table other than that of the Segment's Definition file in the database).

For further information on this user input, please refer to the Pactables Reference Manual.

**NOTE:** Table keys cannot be modified: table generation requests applying to defined tables and involving such modifications are rejected.

### RESULT

The output of the GETA procedure is a sequential file containing table descriptions, which will be used as input to the GETT procedure of the Pactables Facility.

## **GETD / GETA - Description of Steps**

Extraction & update preparation: PACT40

Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AY	\$BVP.DATA.ADMIN.AY	Input	Development Database extension data
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database index
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database data
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database users
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7TD	\$BVP.DATA.&BASE.TD	Input	Tables descriptions
PAC7MB	TMBGETD or TMBGETA	Input	Descriptions requests
PAC7MD	\$BVP.DATA.&BASE .GETA&USER	Output	Descriptions update transactions, version greater than or equal to 2.0
PAC7ET		Report	Output report
PAC7DD		Report	Batch procedure authorization option

Return Codes :

- 8 : no batch procedure authorization.

Formatting of descriptions < R 2.0: PACT45

Code	Physical name	Type	Label
PAC7MD	\$BVP.DATA.&BASE .GETA&USER	Input	Description-update transactions greater than or equal to 2.0
PAC7ND	\$BVP.DATA.&BASE .GETA2&USER	Output	Description-update transactions lower than or equal to 1.2

Update of table-description file: PACT50

(GETD procedure only)

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7TD	\$BVP.DATA.&BASE.TD	Input	Tables descriptions
PAC7MB	TMBGETD or TMBGETA	Input	Descriptions requests
PAC7MD	\$BVP.DATA.&BASE .GETA&USER	Input	Update transactions
PAC7ET		Report	Update report

**GETD - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - TABLE DESCRIPTIONS GENERATION -          ' ;
COMM ' ' ;
COMM ' ----- ' ;
COMM ' ' ;
COMM ' TABLE DESCRIPTION GENERATOR IS THE INTERFACE BETWEEN ' ;
COMM ' THE SPECIFICATIONS DICTIONARY AND PACTABLES.FOR FURTHER ' ;
COMM ' INFORMATION, REFER TO CHAPTER GENERAL INTRODUCTION ' ;
COMM ' SUBCHAPTER INTRODUCTION TO THE PACTABLES FACILITY IN ' ;
COMM ' THE PACTABLES MANUAL. ' ;
COMM ' ' ;
COMM ' GETD IF THE DICTIONARY AND PACTABLES ARE RUNNING UNDER ' ;
COMM ' DIFFERENT ENVIRONMENTS. ' ;
COMM ' ' ;
COMM ' ----- ' ;

```

```

COMM '
MVL USER=&USER,SZMV=1,
RFTM='DVC=$DVTM,MD=$MDTM';
CR IF=*GETD,
OF=(TMBGETD,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
IV ALTA,$BVP.SYS.PROC,VL=(&SZMV,&USER,BASE=&BASE);
STEP BVPACT40,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
ACC=READ,SHARE=MONITOR;
DEF PAC7AN,NBBUF=1,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PAC7AY,$BVP.DATA.ADMIN.AY,ACC=READ,SHARE=MONITOR;
DEF PAC7AY,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7MB,TMBGETD,TEMPRY,&RFTM;
ASG PAC7MD,$BVP.DATA.&BASE.GETA&USER;
ASG PAC7TD,$BVP.DATA.&BASE.TD,
ACC=READ,SHARE=MONITOR;
DEF PAC7TD,NBBUF=1,READLOCK=STAT;
ASG PAC7DD,SYS.OUT;
ASG PAC7ET,SYS.OUT;
ASG PAC7EI,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPACT45,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7MD,$BVP.DATA.&BASE.GETA&USER;
ASG PAC7ND,$BVP.DATA.&BASE.GETA2&USER;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPACT50,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7MD,$BVP.DATA.&BASE.GETA&USER;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PAC7TD,$BVP.DATA.&BASE.TD,ACC=WRITE,SHARE=MONITOR;
DEF PAC7TD,JOURNAL=BEFORE,NBBUF=4;
ASG H_BJRNL,FILESTAT=TEMPRY,
DVC=$DVTM,MD=$MDTM;
ASG PAC7ET,SYS.OUT;
ASG PAC7EI,SYS.OUT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;

```

```

DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7MB,TMBGETD,TEMPRY,&RFTM;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' GETD - ABNORMAL END OF RUN  ';
LET SEV 3;
END:

```

## GETA - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - TABLES DESCRIPTION GENERATION -          ';
COMM '          ';
COMM '-----';
COMM '          ';
COMM ' TABLE DESCRIPTION GENERATOR IS THE INTERFACE BETWEEN  ';
COMM ' THE SPECIFICATIONS DICTIONARY AND PACTABLES.FOR FURTHER';
COMM ' INFORMATION, REFER TO CHAPTER GENERAL INTRODUCTION    ';
COMM ' SUBCHAPTER INTRODUCTION TO THE PACTABLES FACILITY IN   ';
COMM ' THE PACTABLES MANUAL.                                   ';
COMM '          ';
COMM ' GETA IF THE DICTIONARY AND PACTABLES ARE RUNNING UNDER';
COMM ' THE SAME ENVIRONMENTS.                                 ';
COMM '          ';
COMM '-----';
COMM '          ';
MVL  USER=&USER,SZMV=1,TRTAB=$TRTAB,
      RFTM='DVC=$DVTM,MD=$MDTM';
CR   IF=*GETA,
      OF=(TMBGETA,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
IV   ALTA,$BVP.SYS.PROC,VL=(&SZMV,&USER,BASE=&BASE);
STEP BVPACT40,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG  PAC7AE,$BVP.SYS.AE,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AE,READLOCK=STAT;
ASG  PAC7AN,$BVP.DATA.&BASE.AN,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AN,NBBUF=1,READLOCK=STAT;
ASG  PAC7AR,$BVP.DATA.&BASE.AR,
      ACC=READ,SHARE=MONITOR;
DEF  PAC7AR,NBBUF=1,READLOCK=STAT;
ASG  PAC7AY,$BVP.DATA.ADMIN.AY,ACC=READ,SHARE=MONITOR;
DEF  PAC7AY,READLOCK=STAT;
ASG  PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF  PACGGR,READLOCK=STAT;
ASG  PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF  PACGGN,READLOCK=STAT;
ASG  PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF  PACGGU,READLOCK=STAT;

```



```

ASG PAC7MB,TMBGETA,TEMPRY,&RFTM;
ASG PAC7MD,$BVP.DATA.PB00.GETA&USER;
ASG PAC7TD,&TRTAB.TD,
    ACC=READ,SHARE=MONITOR;
DEF PAC7TD,NBBUF=1,READLOCK=STAT;
ASG PAC7DD,SYS.OUT;
ASG PAC7ET,SYS.OUT;
ASG PAC7E1,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPACT45,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
    ASG PAC7MD,$BVP.DATA.PB00.GETA&USER;
    ASG PAC7ND,$BVP.DATA.PB00.GETA2&USER;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' GETA - ABNORMAL END OF RUN  ';
LET SEV 3;
END:

```

---

## GETI - Initialization of Description Line

### GETI - Introduction

The GETI procedure must be executed when first using Pactables files that are stored in an environment other than the VisualAge Pacbase environment. It initializes the description file in a way similar to the Pactables INTA procedure does.

### GETI - User Input

Position	Length	Value	Meaning
2	1	'I'	Line code
3	36		Installation name
39	1		Language code
		'F'	French (default option)
		'E'	English
53	4	cccc	Class for Security System
57	1		Type of Security System
		'R'	RACF
		'S'	Top secret
58	2	nn	Number of lines per printing page
60	1		Type of resource controls
		' '	Definition of Security system tables resources

Position	Length	Value	Meaning
		'P'	Definition of resources in the Development Database
61	1		User code lock
		' '	other user code authorized
		'N'	other user code not authorized

## GETI - Description of Steps

Initialization of description file: PACTIN

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Entrée	Error messages
PACGGN	\$BVP.DATA.ADMIN.A	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.A	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.C	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.A	Input	Development Database Data file
PAC7MB	TMBGETI	Input	Parameter line
PAC7TD	\$BVP.DATA.&BASE.TD	Output	Table description file
PAC7ED		Report	Initialization report
PAC7DD		Report	Batch procedures authorization option

## GETI - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '    - INITIALIZATION OF TABLES MANAGEMENT FILE -      ';
COMM '                                                                 ';
COMM ' -----                                                                 ';
COMM '                                                                 ';
COMM ' THE GETI PROCEDURE MUST BE EXECUTED WHEN FIRST USING      ';
COMM ' PACTABLES FILES THAT ARE STORED IN ANOTHER ENVIRONMENT    ';
COMM ' FROM THE PRODUCT ENVIRONMENT.                               ';
COMM ' IT INITIALIZES THE DESCRIPTION FILE IN A SIMILAR WAY      ';
COMM ' AS THE PACTABLES INTA PROCEDURE DOES.                       ';
COMM '                                                                 ';
COMM ' -----                                                                 ';
COMM '                                                                 ';
MVL  RFTM='DVC=$DVTM,MD=$MDTM';
CR   IF=*GETI,
     OF=(TMBGETI,TEMPRY,&RFTM,END=PASS),
     OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
IV   ALTD,$BVP.SYS.PROC,VL=(BASE=&BASE);
STEP BVPACTIN,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
     ASG PAC7MB,TMBGETI,TEMPRY,&RFTM;

```

```
ASG PAC7TD,$BVP.DATA.&BASE.TD;
ASG PAC7AE,$BVP.SYS.AE,
ACC=READ,SHARE=MONITOR;
ASG PAC7AR,$BVP.DATA.&BASE.AR;
ASG PACGGR,$BVP.DATA.ADMIN.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7GR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,
ACC=READ,SHARE=MONITOR;
DEF PAC7GN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
ACC=READ,SHARE=MONITOR;
DEF PAC7GU,READLOCK=STAT;
ASG PAC7ED,SYS.OUT;
ASG PAC7EI,SYS.OUT;
ASG PAC7DD,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' GETI - ABNORMAL END OF RUN  ';
LET SEV 3;
END:
```



---

## Chapter 7. Pac/Impact

---

### Foreword

**NOTE:** Pac/Impact users may also refer to the 'Pac/Impact for VisualAge Pacbase' manual.

Impact analysis requires a very large amount of machine-time. It is therefore recommended to limit the scope of the analysis.

You can limit your analysis to two distinct levels. You can also combine two levels, to define a more precise analysis domain.

- The UXSR procedure, documented in 'The Administrator's Procedures' manual, allows you to create a new image of the VA Pac Database, by zooming on a given sub-network. This creates a new Database which is a subset (restructured and/or renamed) of the initial Database. The analysis is then performed on this subset.

Extraction of a session is also possible.

Furthermore, the REOR procedure (which must always be run after a UXSR) allows you to cancel instances which are not relevant to the analysis.

- You may also choose to limit your analysis to some instances of the Program, Screen or Database Block entities. Additional selection options are available to this effect.

This analysis limitation is performed by the INFP utility, documented in this manual.

- The procedures in this Function do not impact the Database files. However, it is recommended to close the on-line files for better performance.

---

### IINI - Initialization of User files

The IINI procedure creates the user's work files (FH, FO, and FR). It is recommended to execute this procedure to initialize a new impact analysis study.

Execute the IINI procedure:

```
S: EJ IVIINI,, $BVP.SYS.PROC VL=&1
```

where \$BVP.SYS.PROC is the name of the VA Pac JCL library

If no file name is indicated in the value, FH, FO and FR files are set by the procedure.

To have only one file set, specify &1=FH or &1=FO or &1=FR as parameter.

```
COMM 'VisualAge Pacbase 3.0';
MVL ALL,INIT=&1,LABALL=ALL,JLAB='&LAB'&INIT,
    PAC7FH='$BVP.DATA.'&BASE'.FH',SZFH=3,
    PAC7FO='$BVP.DATA.'&BASE'.FO',SZFO=3,
    PAC7FR='$BVP.DATA.'&BASE'.FR',SZFR=3,
    DVD='DVC=$DISCTYPE',MDD='MD=$DISCNAME';
JUMP &INIT;
ALL:
FH:
DALC &PAC7FH;
JUMP CONTINUE;
DALC &PAC7FH!!/G-1;
JUMP CONTINUE;
UNCAT &PAC7FH,TYPE=FILE;
JUMP CONTINUE;
CAT &PAC7FH,TYPE=FILE,NBGEN=2,SHARE=UNSPEC;
PALC &PAC7FH!!/G+1,
    UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFH),INCRSZ=1,
    UFAS=(SEQ=(CISIZE=4096,RECSZ=160)),
    FILESTAT=CAT;
PALC &PAC7FH!!/G+1,
    UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFH),INCRSZ=1,
    UFAS=(SEQ=(CISIZE=4096,RECSZ=160)),
    FILESTAT=CAT;
JUMP EFH&&JLAB;
EFH: JUMP END;
EFHALL:
FO:
DALC &PAC7FO;
JUMP CONTINUE;
DALC &PAC7FO!!/G-1;
JUMP CONTINUE;
UNCAT &PAC7FO,TYPE=FILE;
JUMP CONTINUE;
CAT &PAC7FO,TYPE=FILE,NBGEN=2,SHARE=UNSPEC;
PALC &PAC7FO!!/G+1,
    UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFO),INCRSZ=1,
    UFAS=(SEQ=(CISIZE=4096,RECSZ=266)),
    FILESTAT=CAT;
PALC &PAC7FO!!/G+1,
    UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFO),INCRSZ=1,
    UFAS=(SEQ=(CISIZE=4096,RECSZ=266)),
    FILESTAT=CAT;
JUMP EFO&&JLAB;
EFO: JUMP END;
EFOALL:
FR:
DALC &PAC7FR;
JUMP CONTINUE;
DALC &PAC7FR!!/G-1;
JUMP CONTINUE;
UNCAT &PAC7FR,TYPE=FILE;
JUMP CONTINUE;
CAT &PAC7FR,TYPE=FILE,NBGEN=2,SHARE=UNSPEC;
```

```

PALC &PAC7FR!!/G+1,
      UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFR),INCRSZ=1,
      UFAS=(SEQ=(CISIZE=4096,RECSZ=72)),
      FILESTAT=CAT;
PALC &PAC7FR!!/G+1,
      UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFR),INCRSZ=1,
      UFAS=(SEQ=(CISIZE=4096,RECSZ=72)),
      FILESTAT=CAT;
JUMP EFR&&JLAB;
EFR: JUMP END;
EFRALL:
END:

```

---

## INFP - FP File Initialization (Impact Analysis)

### INFP - Introduction

The INFP procedure initializes the FP file. It allows to specify the entities which are to be analyzed and thus to narrow the scope of the impact analysis to some (or all) instances of the entities.

For the FP file to be updated by INFP, you must re-state in the procedure's input all the lines previously introduced. You always start with an empty file, i.e. a file containing no particular selection.

### RESULT

The procedure outputs a file which contains the entities selected for the analysis (FP).

### INFP - User Input

Input is optional for the INFP procedure knowing that if no input is provided, all entities of all entity types will be searched for the impact analysis.

If all existing entities of a given entity type are specified (code = \*\*\*\*\*), particular entities specified for the same type will be refused.

If an entity type is specified in an input (whether an instance is specified or not for this type), and if you wish the analysis to take into account the other types as well, you must specify those types in additional input lines.

Position	Length	Value	Meaning
1	3		Entity type Possible values are:
		'B '	Database Blocks
		'F '	Meta-Entities
		'O '	Screens
		'P '	Programs

Position	Length	Value	Meaning
		'T '	Texts
		'V '	Documents
		'\$nn'	User Entities of type code 'nn'
		'\$**'	All UEs
4	6		Entity code (generic selection through code *****) (This code may not exist in the Database)

## INFP - Description of Steps

Check on transactions and FP update: PAN205

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7MB	TMBINFP	Input	User input
PAC7FP	\$BVP.DATA.&BASE.FP	Output	Entities in production
PAC7IP		Report	Check report

Return codes:

- 0 : OK.
- 12 : System error.

## INFP - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '      - IMPACT ANALYSIS:  INITIALIZATION OF "FP" FILE -  ' ;
COMM '      ' ;
COMM '      -----' ;
COMM '      ' ;
COMM ' THE INFP PROCEDURE INITIALIZES THE FP FILE. IT ALLOWS ' ;
COMM ' TO SPECIFY THE ENTITIES WHICH ARE TO BE ANALYZED AND ' ;
COMM ' THUS TO NARROW THE SCOPE OF THE IMPACT ANALYSIS TO SOME ' ;
COMM ' (OR ALL) OCCURRENCES OF THE ENTITIES. ' ;
COMM '      ' ;
COMM '      -----' ;
COMM '      ' ;

```



```

MVL PAC7FP='$BVP.DATA.'&BASE'.FP',SZFP=3,
DVD='DVC=$DISCTYPE',MDD='MD=$DISCNAME';
CR IF=*INFP,
OF=(TMBINFP,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
DALC &PAC7FP;
JUMP CONTINUE;
UNCAT &PAC7FP,TYPE=FILE;
JUMP CONTINUE;
CAT &PAC7FP,TYPE=FILE,SHARE=UNSPEC;
PALC &PAC7FP,
UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFP),INCRSZ=1,
UFAS=(INDEXED=(CISIZE=4096,RECSZ=33,KEYLOC=1,KEYSZ=33)),
FILESTAT=CAT;
STEP BVPAN205,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7MB,TMBINFP,TEMPRY,&RFTM;
ASG PAC7FP,&PAC7FP;
ASG PAC7AE,$BVP.SYS.AE,
SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,
ACC=READ,SHARE=MONITOR;
DEF PAC7GR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,
ACC=READ,SHARE=MONITOR;
DEF PAC7GN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
ACC=READ,SHARE=MONITOR;
DEF PAC7GU,READLOCK=STAT;
ASG PAC7IP,SYS.OUT;
ESTP;
JUMP END;
ERR:
SEND ' INFP - ABNORMAL END OF RUN ';
LET SEV 3;
END:

```

---

## ISEP - Selection of Entry Points

### ISEP - Introduction

The ISEP procedure is designed to select the entry points -- Elements and/or character strings -- which will be used as criteria by the impact analysis (IANA procedure).

The identification line of the selection context (\* line) is required. It allows you to specify the session and the sub-network (view Z1) from which the selection will be made.

Elements and character strings are considered as entry points when they meet selection criteria entered in ISEP user input lines.

Three types of criteria may be used (see below) and at least one selection criterion is required, knowing that no particular criterion type is required.

A selection may combine several types of criteria, and several command lines for each type.

- The E-type line allows you to extract Elements by selecting a code (generic code authorized) and/or one or several format(s).
- The S-type line allows you to extract character strings by selecting a code (generic code authorized) and/or one or several format(s).
- The W-type line allows you to select Elements via a keyword. You may also indicate the keyword type, Element formats and code.

EXECUTION CONDITIONS

None.

ABNORMAL EXECUTION

Whatever the cause of the abend, the procedure can be restarted as it is, once the problem has been solved.

RESULT

Output of the ISEP procedure is two files which are to be used in the IANA procedure:

- 'FH' file which contains the selected entry points,
- 'FR' file which contains the entry points to be purged.

**ISEP - User Input**

Only one '\*' line (required, placed at the beginning of the stream):

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	Password
19	3	bbb	Code of the highest library in the sub-network
22	4	ssss	Session number (blank if current session)
26	1		Session status (' ' or 'T')
69	3	iii	Code of the lowest Library in the sub-network (optional)

One E-type line: Selection of Elements (optional):

Position	Length	Value	Meaning
2	1	'E'	Line code
3	6		Element code (generic code possible with the '*' character, at beginning or end of code: ***XXX or XXX***, or with the '?' character followed by the string to be included in the code (?XXX))
9	10		Element input format
19	10		Element internal format
29	1		Internal usage (default: D)
30	27		Element output format
57	1	'N' ''	Child Elements not impacted Child Elements impacted

One S-type line: Selection of character strings (optional)

Position	Length	Value	Meaning
2	1	'S'	Line code
3	30		String code (generic code possible with the '*' character anywhere in the code), or ?xx where xx is a string located anywhere in the sequence of char.
33	10		Internal format of the string
43	1		Internal usage (Default: D)

One W-type line: Selection on keyword (optional)

Position	Length	Value	Meaning
2	1	'W'	Line code
3	1		Keyword type (implicit 'L', explicit 'M', or both '')
4	13		Keyword code (no generic code)
17	10		Element input format
27	10		Element internal format
37	1		Internal usage (Default: D)
38	27		Element output format

Position	Length	Value	Meaning
65	6		Element code (generic code possible with the '*' character anywhere in the code)
71	1	'N'	Child Elements not impacted
		' '	Child Elements impacted

## ISEP - Description of Steps

Selection of entry points: PAN210

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7FP	\$BVP.DATA.&BASE.FP	Input	File of entities to be analyzed
PAC7MB	TMBISEP	Input	User input

Return Codes :

- 0 : OK.
- 12 : System error

Removal of duplicate entry points: PAN215

Code	Physical name	Type	Label
PAC7IE		Report	Validation report

.Return codes:

- 0 : OK.
- 12 : System error.

## ISEP - Execution JCL

```
COMM 'VisualAge Pacbase 3.0';
COMM '      - IMPACT ANALYSIS : SELECTION OF ENTRY POINTS -  ' ;
COMM '                                                                 ' ;
COMM ' -----' ;
COMM '                                                                 ' ;
COMM ' THE ISEP PROCEDURE IS DESIGNED TO SELECT THE ENTRY ' ;
COMM ' POINTS -- DATA ELEMENTS AND/OR CHARACTER STRINGS -- ' ;
COMM ' WHICH WILL BE USED AS CRITERIA BY THE IMPACT ' ;
COMM ' ANALYSIS (IANA PROCEDURE). ' ;
COMM '                                                                 ' ;
COMM ' -----' ;
COMM '                                                                 ' ;
CR   IF=*ISEP,
     OF=(TMBISEP,TEMPRY,&RFTM,END=PASS),
     OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
COMM '*** PAN210 ***';
STEP BVPAN210,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
     ASG PAC7AE,$BVP.SYS.AE,
        SHARE=MONITOR;
     DEF PAC7AE,READLOCK=STAT;
     ASG PAC7AN,$BVP.DATA.&BASE.AN,
        SHARE=MONITOR;
     DEF PAC7AN,READLOCK=STAT;
     ASG PAC7AR,$BVP.DATA.&BASE.AR,
        SHARE=MONITOR;
     DEF PAC7AR,READLOCK=STAT;
     ASG PACGGR,$BVP.DATA.ADMIN.AR,
        ACC=READ,SHARE=MONITOR;
     DEF PAC7GR,READLOCK=STAT;
     ASG PACGGN,$BVP.DATA.ADMIN.AN,
        ACC=READ,SHARE=MONITOR;
     DEF PAC7GN,READLOCK=STAT;
     ASG PACGGU,$BVP.DATA.ADMIN.GU,
        ACC=READ,SHARE=MONITOR;
     DEF PAC7GU,READLOCK=STAT;
     ASG PAC7FP,$BVP.DATA.&BASE.FP,
        SHARE=MONITOR;
     DEF PAC7FP,READLOCK=STAT;
     ASG PAC7MB,TMBISEP,TEMPRY,&RFTM;
     OUTDEF=(CISIZE=4096,RECSZ=160);
COMM '*** PAN215 ***';
STEP BVPAN215,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
     ASG PAC7IE,SYS.OUT;
     ASG PAC7EI,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
COMM '*** PAN215 ***';
STEP BVPAN215,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
JUMP END;
ERR:
SEND ' ISEP - ABNORMAL END OF RUN  ' ;
LET  SEV 3;
END:
```

---

## ISOS - Selection of Strings and Operators

### ISOS - Introduction

ISOS is a complement to the ISEP procedure. Its purpose is to select the following items:

- VA Pac-processed dates, such as DATOR and DAT8, that will be used as entry points to perform the impact analysis from the first iteration (IANA procedure),
- Character-strings, without considering them as entry points (such as ORDER BY). For the strings which provide entry points, see the description of the 'S'-type line in the ISEP procedure's USER INPUT section,
- Operators used in procedural code (-P) lines, such as ADT. Some of these operators trigger the generation of date-type entry points (such as DATOR for ADT),
- Lines that use constant values, either defined (VALUE), moved (MOVE), or conditioned ('IF').

Reports on entities using these operators and character-strings can be produced on request (IPIA procedure).

### NARROWING THE SCOPE OF SELECTION

For better performance, it is advisable to narrow the scope of the selection. This can be done at two different levels, and should always be done before running the procedure.

- Via the UXSR procedure, documented in 'The Administrator's Procedures' manual, you can create another VA Pac Database. The new Database is a subset (restructured and/or renamed) of the initial Database. The analysis will be performed on this subset. "INFP : Initializing FP file (procedure PBININIT)",
- Via the INFP utility, documented in this manual: FP File Initialization (Impact Analysis)', you can decide to restrict the scope of the selection to entities of a particular type or types, or to particular entities of a given type. Further selection options are also available.

The selection context's identification line (\*-line) is required. It allows you to specify, besides the session, the Library from which you want to build the sub-network that will be analyzed (view Z1).

Three types of selection may be used (see below). At least one type of selection is required, no particular type being requested.

The selection may include more than one type of selection, and more than one command line for each type.

- The 'D'-type line allows you to request the extraction of date-type Elements handled by VisualAge Pacbase.  
The maximum number of 'D'-lines is 40.
- The 'C'-type line allows you to extract character-strings that are likely to include one or more blanks. In this case, the separator must be specified, and the number of blanks is significant. These strings are not entry points.  
The maximum number of 'C'-lines is 50 characters for each one of the three search domains.
- The 'O'-type line allows you to select operators processed in -P lines.  
The maximum number of 'O'-lines is 50.

#### EXECUTION CONDITIONS

None.

#### ABNORMAL EXECUTION

Whatever the cause of an abnormal ending, the procedure may be restarted as it is after correction of the problem.

#### RESULT

Output of the ISOS procedure is:

- a 'FH' file (contains selected entry points),
- a 'FR' file (contains entry points to be purged),  
two files which are to be used in the IANA procedure,
- a 'FO' file (contains analysis results)  
to be used in the IANA or IPIA procedure.

### **ISOS - User Input**

Only one '\*'-line (required, placed at the beginning of the stream):

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	Password
19	3	bbb	Code of the highest Library in the sub-network
22	4	ssss	Session number (blank if current session)
26	1		Session status (' ' or 'T')
28	1	F or E	Language code if different from that of the site (bilingual sites only)
69	3	iii	Code of the lowest Library in the sub-network (optional)

One 'D'-line for the selection of generated dates (optional):

Position	Length	Value	Meaning
2	1	'D'	Line code
3	9		Code of generated date Element to be extracted (which must be recognized by the system)

One 'O'-line for the selection of operators (optional):

Position	Length	Value	Meaning
2	1	'O'	Line code
3	3		Code of wanted operator (which must be recognized by the system)

One 'C'-line for the selection of character strings (optional):

Position	Length	Value	Meaning
2	1	'C'	Line code
3	1		End-of-string separator (Required if the string contains at least one blank)
4	31		Code of searched string. (Must be ended by the separator if a separator is specified)
35	1		Where the string is to be searched:
		'D'	Search in the Definition part (-W of Programs and/or Screens, and -9 of programs)
		'T'	Search in Procedural Code part (-P of programs and/or screens, -8, -9, -SC of programs, -CE and -CS of screens)
		'R'	Search in Report-specific Procedural code part: .Category condition and Structure .Source Element code (Struct.)
		' '	Search in the three above mentioned parts

One 'V'-line for the selection of constant values (optional):

Position	Length	Value	Meaning
2	1	'V'	Line code



Position	Length	Value	Meaning
3	1		Beginning-of-value separator Required (either ' or ")
4	31		Code of searched value Required, ending with the separator (either ' or ")
35	1		Where the constant is to be searched
		'D'	Search in the Definition part (-W of Programs and/or Screens, and -9 of Programs)
		'T'	Search in the Procedural Code part (-P of Programs and/or Screens, -8, -9, -SC of Programs, -CE and -CS of Screens)
		'R' ''	Search in Report-specific Procedural code part: .Category condition and Structure .Source Element code (Struct.) Search in the three above mentioned parts

## ISOS - Description of Steps

Selection of strings and operators: PAN212

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administrator Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administrator Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administrator Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7FP	\$BVP.DATA.&BASE.FP	Input	Entities to analyze
PAC7MB	TMBISOS	Input	User input
PAC7FH	TFH	Output	Selected entry points (length=160)
PAC7MF	TFO	Output	Impact analysis result (length=266)
PAC7IE		Report	Validation control

.Return Codes :

- 0: OK

- 12: System error

Deletion of duplicate entry points: PAN215

Code	Physical name	Type	Label
PAC7FH	TFH	Input	Selected entry points
PAC7HF	\$BVP.DATA.&BASE.FH/G+1	Output	Sorted selected entry points
PAC7FR	\$BVP.DATA.&BASE.FR/G+1	Output	Reduced entry points to be purged

Return codes :

- 0 : OK
- 12 : System error

Update of impact analysis results: PAN260

Code	Physical name	Type	Label
PAC7MF	TFO	Input	Impact analysis result (for that iteration)
PAC7OF	\$BVP.DATA.&BASE.FO	Input	Results from preceding analysis
PAC7FO	\$BVP.DATA.&BASE.FO/G+1	Output	Sorted impact-analysis results

Return codes:

- 0 : OK.
- 12 : System error.

**ISOS - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM ' - IMPACT ANALYSIS: SELECTION OF STRINGS AND OPERATORS  ' ;
COMM ' ;
COMM ' ----- ' ;
COMM ' ;
COMM ' ISOS IS A COMPLEMENT TO THE ISEP PROCEDURE. ' ;
COMM ' FOR BETTER PERFORMANCE, IT IS ADVISABLE TO NARROW THE ' ;
COMM ' SCOPE OF THE SELECTION. THIS CAN BE DONE ' ;
COMM ' AT TWO DIFFERENT LEVELS, AND SHOULD ALWAYS ' ;
COMM ' BE DONE BEFORE RUNNING THE PROCEDURE. ' ;
COMM ' ;
COMM ' ----- ' ;
COMM ' ;
MVL RFTM='DVC=$DVTM,MD=$MDTM',
    SZWK=2,
    PAC7FH='$BVP.DATA.'&BASE'.FH',

```

```

PAC7FO='$BVP.DATA.'&BASE'.FO',
PAC7FQ='$BVP.DATA.'&BASE'.FQ',
PAC7FR='$BVP.DATA.'&BASE'.FR';
CR IF=*ISOS,
OF=(TMBISOS,TEMPRY,&RFTM,END=PASS),
OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
COMM '*** PAN212 ***';
STEP BVPAN212,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7AE,$BVP.SYS.AE,
SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
SHARE=MONITOR;
DEF PAC7AN,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7FP,$BVP.DATA.&BASE.FP,
SHARE=MONITOR;
DEF PAC7FP,READLOCK=STAT;
ASG PAC7MB,TMBISOS,TEMPRY,&RFTM;
ASG PAC7FH,TFH,TEMPRY,&RFTM,END=PASS;
ALC PAC7FH,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
ASG PAC7MF,TFO,TEMPRY,&RFTM,END=PASS;
ALC PAC7MF,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
ASG PAC7IE,SYS.OUT;
ASG PAC7EI,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
COMM '*** PAN215 ***';
STEP BVPAN215,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7FH,TFH,TEMPRY,&RFTM;
ASG PAC7HF,&PAC7FH!!/G+1;
ASG PAC7FR,&PAC7FR!!/G+1;
ASG PAC7EI,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
COMM '*** PAN260 ***';
STEP BVPAN260,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7MF,TFO,TEMPRY,&RFTM;
ASG PAC7OF,&PAC7FO;
ASG PAC7FO,&PAC7FO!!/G+1;
ESTP;
JUMP ERR,SW20,EQ,1;
SHIFT &PAC7FH;
SHIFT &PAC7FO;
SHIFT &PAC7FR;
JUMP END;

```

```

ERR:
SEND ' ISOS - ABNORMAL END OF RUN ';
LET SEV 3;
END:

```

---

## IMFH - Merge of FH Files - Creation of FH and FR

### IMFH - Introduction

The IMFH procedure allows you to merge two or more FH files so as to:

- Have only one FH file (selected entry points), after eliminating possible duplicates;
- Obtain a FR file (entry points to be purged) in phase with the FH file created.

This procedure should be used when you want to merge the FH file produced by the ISEP procedure with that issued by the ISOS procedure.

A subsidiary use of this procedure is to recreate the FR file from a FH file.

### RESULT

Output of the ISEP procedure is two files which are to be used in the IANA procedure:

- 'FH' file which contains the selected entry points,
- 'FR' file which contains the entry points to be purged.

### IMFH - Description of Steps

Deletion of duplicate entry points: PAN215

Code	Physical name	Type	Label
PAC7FH	TFH	Input	Selected entry points to be merged
PAC7HF	\$BVP.DATA.&BASE.FH/G+1	Output	Sorted selected entry points
PAC7FR	\$BVP.DATA.&BASE.FR/G+1	Output	Reduced entry points to be purged

Return codes:

- 0 : OK.
- 12 : System error.

### IMFH - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM ' - IMPACT ANALYSIS: MERGE FH FILES AND CREATION FR FILE ';
COMM '

```

```

COMM ' -----';
COMM '
COMM ' THIS PROCEDURE SHOULD BE USED WHEN YOU WANT TO MERGE
COMM ' THE FH FILE PRODUCED BY THE ISEP PROCEDURE WITH THAT
COMM ' ISSUED BY THE ISOS PROCEDURE.
COMM '
COMM '
COMM '
COMM ' -----';
COMM '
MVL RFTM='DVC=$DVTM,MD=$MDTM',
    SZWK=2,
    PAC7FH='$BVP.DATA.'&BASE'.FH',
    PAC7FR='$BVP.DATA.'&BASE'.FR';
CR  INFILES=($BVP.DATA.&BASE.FH! /G-1,$BVP.DATA.&BASE.FH)
    OF=(TFH,TEMPRY,&RFTM,END=PASS),
    OUTDEF=(CISIZE=4096,RECSZ=160);
COMM '*** PAN215 ***';
STEP BVPAN215,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
    ASG PAC7FH,TFH,TEMPRY,&RFTM;
    ASG PAC7HF,&PAC7FH!!/G+1;
    ASG PAC7FR,&PAC7FR!!/G+1;

ESTP;
JUMP ERR,SW20,EQ,1;
SHIFT &PAC7FH;
SHIFT &PAC7FR;

```

---

## INFQ - FQ File Reinitialization (Impact Analysis)

### INFQ - Introduction

The INFQ procedure reinitializes the FQ file, which accumulates all the search criteria that have already been impacted by the analysis. This accumulation prevents these criteria from being analyzed again in future analyses.

This action should be performed before a new impact analysis either because the entry points have changed or because the analysis context has changed.

However, it must not be used between two iterations of the same impact analysis.

### RESULT

The procedure outputs a reinitialized file of search criteria (FQ).

### INFQ - Description of Steps

FQ file Reinitialization : PAN200

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages

Code	Physical name	Type	Label
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7MB	TMBINFQ	Input	User input
PAC7FQ	\$BVP.DATA.&BASE.FQ	Output	Impacted criteria reinitialized sequential file
PAC7DD		Report	Error report

### INFQ - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '      - IMPACT ANALYSIS:  INITIALIZATION OF "FQ" FILE -  ' ;
COMM '      ' ;
COMM '      -----' ;
COMM '      ' ;
COMM ' THIS ACTION SHOULD BE PERFORMED BEFORE A NEW IMPACT ' ;
COMM ' ANALYSIS EITHER BECAUSE THE ENTRY POINTS HAVE CHANGED ' ;
COMM ' OR BECAUSE THE ANALYSIS CONTEXT HAS CHANGED. ' ;
COMM '      ' ;
COMM '      -----' ;
COMM '      ' ;
MVL  PAC7FQ='$BVP.DATA.'&BASE'.FQ',SZFQ=3,
      DVD='DVC=$DISCTYPE',MDD='MD=$DISCNAME';
CR   IF=*INFQ,
      OF=(TMBINFQ,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
DALC &PAC7FQ;
JUMP CONTINUE;
UNCAT &PAC7FQ,TYPE=FILE;
JUMP CONTINUE;
CAT  &PAC7FQ,TYPE=FILE,SHARE=UNSPEC;
PALC &PAC7FQ,
      UNIT=CYL,&DVD,GBL=(&MDD,SZ=&SZFQ),INCRSZ=1,
      UFAS=(INDEXED=(CISIZE=4096,RECSZ=100,KEYLOC=2,KEYSZ=94)),
      FILESTAT=CAT;
STEP BVPAN200,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG  PAC7MB,TMBINFQ,TEMPRY,&RFTM;
ASG  PAC7FQ,&PAC7FQ;
ASG  PAC7AE,$BVP.SYS.AE,
      SHARE=MONITOR;
DEF  PAC7AE,READLOCK=STAT;
ASG  PAC7AR,$BVP.DATA.&BASE.AR,
      ACC=READ,SHARE=MONITOR;
ASG  PACGGR,$BVP.DATA.ADMIN.AR,

```

```

        ACC=READ,SHARE=MONITOR;
DEF PAC7GR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,
    ACC=READ,SHARE=MONITOR;
DEF PAC7GN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
    ACC=READ,SHARE=MONITOR;
DEF PAC7GU,READLOCK=STAT;
ASG PAC7DD,SYS.OUT;
ESTP;
JUMP END;
ERR:
SEND ' INFQ - ABNORMAL END OF RUN  ';
LET SEV 3;
END:

```

---

## IGRA - Breaking down of Group Fields

### IGRA - Introduction

The IGRA procedure breaks down group fields into Elementary Fields:

- Entry points detected by the ISEP procedure, if they are of the Group type.
- Impact search criteria obtained by running the IANA procedure, if they are of the Group type.

The IGRA procedure is optional and does not generate any impact search criterion.

Before running the IGRA procedure, you may purge:

- Entry points --after execution of the ISEP procedure.
- Impact search criteria --after execution of the IANA procedure which precedes.

In both cases, deletions are made in the FR file (under an editor) by inhibiting them (value 'E' in the action code of the corresponding lines), in order to save them for future executions of IANA.

It is not necessary to eliminate non-Group fields since they will simply be ignored by the procedure.

The notions of 'level' and 'iterations' are not relevant for the IGRA procedure.

Entry points (first iteration) or impact search criteria (further iterations) are printed once the purged criteria have been taken into account. This printout sorts criteria into 'accepted' and 'rejected' criteria'.

The impact results file may either be empty or contain the results of other IANA, ISOS, or IGRA executions, either in the same execution context or in

different contexts. This allows you to compound the results of all iterations of the impact analysis for one or several contexts.

Restitution of all the information for a given context may be customized (parameter setting) when printing with the IPIA procedure.

The file of Entities to be analyzed (FP) is used as input to this procedure. It contains a list of Entities or Entity Types which should be analyzed. If no user input is entered in this file before its initialization by the INFP procedure, all analyzable Entities will be analyzed.

Entities to be analyzed are specified as follows: 3-character Type, and 6-character code (\*\*\*\*\* being the Entity generic code).

### EXECUTION CONDITIONS

None, except that the FH file (entry points or impact search criteria) must exist and must not be empty.

### ABNORMAL EXECUTION

Whatever the cause of the abnormal ending, the procedure may be restarted as it is after correcting the problem. However, the status of generation files (FH, FR, and FO) should be checked.

### RESULT

The procedure outputs a file which contains the analysis results (FO) to be used in the IPIA procedure.

### USER INPUT

One '\*' line with user code and password.

## **IGRA - Description of Steps**

Recognition of purged criteria: PAN230

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users



Code	Physical name	Type	Label
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7MB	TMBIGRA	Input	User input
PAC7FH	\$BVP.DATA.&BASE.FH	Input	Search criteria file
PAC7FR	\$BVP.DATA.&BASE.FR	Input	Reduced file of purged criteria
PAC7HF	THF	Output	Search criteria file (length=160)
PAC7DD		Report	Error file

Printing entry points: PAN220

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7HF	THF	Input	Sorted criteria file
PAC7IL		Report	List of accepted/rejected criteria

Group field breaking-down: PAN255

Code	Physical name	Type	Label
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Data index file
PAC7FP	\$BVP.DATA.&BASE.FP	Input	Entities to analyze
PAC7FH	THF	Input	Impacted criteria
PAC7MF	TFO	Output	Impact analysis results (length=266)

Return Codes :

- 0 : OK

- 12 : System error

Update of impact analysis results: PAN260

Code	Physical name	Type	Label
PAC7MF	TFO	Input	Impact analysis result (by level)
PAC7OF	\$BVP.DATA.&BASE.FO	Input	Results of previous analysis
PAC7FO	\$BVP.DATA.&BASE.FO/G+1	Output	Sorted results of the impact analysis

Return codes:

- 0 : OK
- 12 : System error

**IGRA - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - IMPACT ANALYSIS: PRINT OF "FQ" FILE -  ';
COMM '          ';
COMM ' -----  ';
COMM '          ';
COMM ' THE IGRA PROCEDURE BREAKS DOWN GROUP FIELDS  ';
COMM ' INTO ELEMENTARY FIELDS:  ';
COMM ' 1. ENTRY POINTS DETECTED BY THE ISEP PROCEDURE, IF  ';
COMM ' THEY ARE OF THE GROUP TYPE.  ';
COMM ' 2. IMPACT SEARCH CRITERIA OBTAINED BY RUNNING THE IANA  ';
COMM ' PROCEDURE, IF THEY ARE OF THE GROUP TYPE.  ';
COMM '          ';
COMM ' -----  ';
COMM '          ';
MVL  RFTM='DVC=$DVTM,MD=$MDTM',
      SZWK=2,
      PAC7FH='$BVP.DATA.'&BASE'.FH',
      PAC7FO='$BVP.DATA.'&BASE'.FO',
      PAC7FR='$BVP.DATA.'&BASE'.FR';
CR   IF=*IGRA,
      OF=(TMBIGRA,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
STEP BVPAN230,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
      ASG PAC7FR,&PAC7FR;
      ASG PAC7FH,&PAC7FH;
      ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
      DEF PACGGR,READLOCK=STAT;
      ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
      DEF PACGGN,READLOCK=STAT;
      ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
      DEF PACGGU,READLOCK=STAT;
      ASG PAC7AE,$BVP.SYS.AE,
          ACC=READ,SHARE=MONITOR;
      DEF PAC7AE,READLOCK=STAT;
      ASG PAC7HF,THF,TEMPRY,&RFTM,END=PASS;

```

```

ASG PAC7MB,TMBIGRA,TEMPRY,&RFTM,END=PASS;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
  ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PAC7DD,SYS.OUT;
ALC PAC7HF,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
STEP BVPAN220,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7AE,$BVP.SYS.AE,
  SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7HF,THF,TEMPRY,&RFTM,END=PASS;
ASG PAC7IE,SYS.OUT;
ASG PAC7IL,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
STEP BVPAN255,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7AE,$BVP.SYS.AE,
  SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7AN,$BVP.DATA.&BASE.AN,
  SHARE=MONITOR;
DEF PAC7AN,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
  SHARE=MONITOR;
DEF PAC7AR,READLOCK=STAT;
ASG PAC7FP,$BVP.DATA.&BASE.FP,
  SHARE=MONITOR;
DEF PAC7FP,READLOCK=STAT;
ASG PAC7FH,THF,TEMPRY,&RFTM,END=PASS;
ASG PAC7MF,TFO,TEMPRY,&RFTM,END=PASS;
ALC PAC7MF,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
ESTP;
STEP BVPAN260,FILE=$BVP.SYS.PGM,DUMP=DATA,REPEAT;
ASG PAC7MF,TFO,TEMPRY,&RFTM;
ASG PAC7OF,&PAC7FO;
ASG PAC7FO,&PAC7FO!!/G+1;
ESTP;
SHIFT &PAC7FO;

```

---

## IANA - Impact Search Criteria

### IANA - Introduction

The IANA procedure is used to search impacted Data Elements and character-strings according to:

- The entry points provided by the ISEP procedure when IANA is run for the first time,
- The impact search criteria produced by a preceding execution of IANA.

IANA is therefore an iterative process, which runs until no more impact search criteria are found.

Prior to an IANA execution, you have the choice to inhibit:

- Entry points, after an execution of the ISEP procedure,
- Impact search criteria, after a preceding execution of the IANA procedure.

In both cases, deletions are made in the FR file, (under an editor) either by physical deletion, or by inhibition (value 'E' in the action code of the corresponding lines).

The entry points (first iteration) or impact search criteria (further iterations) are printed once the purged criteria have been taken into account. This printout sorts criteria into 'accepted' and 'rejected' criteria. The file which contains the already impacted criteria (FQ) may be reinitialized if you do not need to save them.

However, it is recommended to reinitialize this file before the first execution of IANA which follows a new execution of ISEP. To reinitialize the FQ file, run the INFQ procedure.

The impact analysis file may either be empty or contain the results of different execution contexts. It allows to compound the results of all iterations of the impact analysis for a given context.

The FP file used as input for the analysis procedures, contains the list of entities or entity types to be analyzed. If no user input is entered in this file before it is initialized by the INFP procedure, all analyzable entities will be analyzed.

Entities which are to be analyzed are specified in the FP file via the following coding: type coded on 3 characters, entity coded on 6 characters (\*\*\*\*\* being the generic entity code).

### EXECUTION CONDITIONS

The FH file -- entry points or impact search criteria -- must exist and must not be empty.

### ABNORMAL EXECUTION

Whatever the cause of the abend, you can run the procedure again as it is, after the problem has been solved.

However, the status of the FH, FR, and FO generation files should be checked.

### USER INPUT

One '\*' line with user code and password.

This procedure is iterative as long as the FH file (impact search criteria) is not empty (return code set to value 4 if empty, and to value 0 otherwise).

### RESULT

This procedure outputs a file which contains the analysis results (FO) to be used in the IPIA procedure.

## **IANA - Description of Steps**

Recognition of criteria after the purge: PAN230

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7MB	TMBIANA	Input	User input
PAC7FH	\$BVP.DATA.&BASE.FH	Input	Search criteria file
PAC7FR	\$BVP.DATA.&BASE.FR	Input	Search criteria after purge (reduced file)
PAC7HF	THF	Output	Search criteria file (length=160)
PAC7DD		Report	Error report

Printing of entry points: PAN220

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7HF	THF	Input	Sorted criteria
PAC7IL		Report	List of accepted / rejected criteria

Impact analysis: PAN250

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7AY	\$BVP.DATA.&BASE.AY	Input	Development Database extension data
PAC7FP	\$BVP.DATA.&BASE.FP	Input	File of entities to be analyzed
PAC7FH	THF	Input	Impacted criteria
PAC7FQ	\$BVP.DATA.&BASE.FQ	Input/Output	Impacted criteria already processed
PAC7HF	TFH	Output	New impacted criteria (length = 160)
PAC7MF	TFO	Output	Impact analysis results (length = 266)

Return codes:

- 0 : OK
- 4 : OK. Ended iteration
- 12 : System error

Update of impact analysis results: PAN260

Code	Physical name	Type	Label
PAC7MF	TFO	Input	Impact analysis results (level)
PAC7OF	\$BVP.DATA.&BASE.FO	Input	Results of previous analysis
PAC7FO	\$BVP.DATA.&BASE.FO/G+1	Output	Sorted results of impact analysis

Return codes:

- 0 : OK
- 12 : System error

Removal of duplicate entry points: PAN215

Code	Physical name	Type	Label
PAC7FH	TFH	Input	Selected entry points
PAC7HF	\$BVP.DATA.&BASE.FH/G+1	Output	Sorted selected entry points
PAC7FR	\$BVP.DATA.&BASE.FR/G+1	Output	Reduced entry points to be purged

Return codes:

- 0 : OK
- 12 : System error

**IANA - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - IMPACT ANALYSIS -                               ';
COMM '                                                                 ';
COMM ' -----                                                     ';
COMM '                                                                 ';
COMM ' THE IANA PROCEDURE IS USED TO SEARCH DATA ELEMENTS AND     ';
COMM ' CHARACTER-STRINGS ACCORDING TO:                               ';
COMM ' 1.THE ENTRY POINTS PROVIDED BY THE ISEP PROCEDURE WHEN      ';
COMM '     IANA IS RUN FOR THE FIRST TIME,                           ';
COMM ' 2.THE IMPACT SEARCH CRITERIA PRODUCED                         ';
COMM '     BY A PRECEDING EXECUTION OF IANA.                          ';
COMM ' IANA IS THEREFORE AN ITERATIVE PROCESS, WHICH RUNS         ';
COMM ' UNTIL NO MORE IMPACT SEARCH CRITERIA ARE FOUND.             ';
COMM '                                                                 ';
COMM ' -----                                                     ';
COMM '                                                                 ';
MVL  RFTM='DVC=$DVTM,MD=$MDTM',
      SZWK=2,
      PAC7FH='$BVP.DATA.'&BASE'.FH',
      PAC7FO='$BVP.DATA.'&BASE'.FO',

```

```

PAC7FQ=' $BVP.DATA.'&BASE'.FQ',
PAC7FR=' $BVP.DATA.'&BASE'.FR';
CR  IF=*IANA,
    OF=(TMBIANA, TEMPRY, &RFTM, END=PASS),
    OUTDEF=(CISIZE=2048, RECSZ=80, RECFORM=FB);
STEP BVPAN230, FILE=$BVP.SYS.PGM, REPEAT, DUMP=DATA;
    ASG PAC7FR, &PAC7FR;
    ASG PAC7FH, &PAC7FH;
    ASG PACGGR, $BVP.DATA.ADMIN.AR, ACC=READ, SHARE=MONITOR;
    DEF PACGGR, READLOCK=STAT;
    ASG PACGGN, $BVP.DATA.ADMIN.AN, ACC=READ, SHARE=MONITOR;
    DEF PACGGN, READLOCK=STAT;
    ASG PACGGU, $BVP.DATA.ADMIN.GU, ACC=READ, SHARE=MONITOR;
    DEF PACGGU, READLOCK=STAT;
    ASG PAC7AE, $BVP.SYS.AE,
        ACC=READ, SHARE=MONITOR;
    DEF PAC7AE, READLOCK=STAT;
    ASG PAC7HF, THF, TEMPRY, &RFTM, END=PASS;
    ASG PAC7MB, TMBIANA, TEMPRY, &RFTM, END=PASS;
    ASG PAC7AR, $BVP.DATA.&BASE.AR,
        ACC=READ, SHARE=MONITOR;
    DEF PAC7AR, NBBUF=1, READLOCK=STAT;
    ASG PAC7DD, SYS.OUT;
ESTP;
JUMP ERR, SW20, EQ, 1;
JUMP END, SW30, EQ, 1;
STEP BVPAN220, FILE=$BVP.SYS.PGM, REPEAT, DUMP=DATA;
    ASG PAC7AE, $BVP.SYS.AE,
        SHARE=MONITOR;
    DEF PAC7AE, READLOCK=STAT;
    ASG PAC7HF, THF, TEMPRY, &RFTM, END=PASS;
    ASG PAC7IL, SYS.OUT;
ESTP;
JUMP ERR, SW20, EQ, 1;
JUMP END, SW30, EQ, 1;
STEP BVPAN250, FILE=$BVP.SYS.PGM, REPEAT, DUMP=DATA;
    ASG PAC7AE, $BVP.SYS.AE,
        SHARE=MONITOR;
    DEF PAC7AE, READLOCK=STAT;
    ASG PAC7AN, $BVP.DATA.&BASE.AN,
        SHARE=MONITOR;
    DEF PAC7AN, READLOCK=STAT;
    ASG PAC7AR, $BVP.DATA.&BASE.AR,
        SHARE=MONITOR;
    DEF PAC7AR, READLOCK=STAT;
    ASG PAC7FP, $BVP.DATA.&BASE.FP,
        SHARE=MONITOR;
    DEF PAC7FP, READLOCK=STAT;
    ASG PAC7FH, THF, TEMPRY, &RFTM;
    ASG PAC7FQ, &PAC7FQ;
    ASG PAC7HF, TFH, TEMPRY, &RFTM, END=PASS;
    ALC PAC7HF, SZ=&SZWK, UNIT=CYL, INCRSZ=2;
    ASG PAC7MF, TFO, TEMPRY, &RFTM, END=PASS;
    ALC PAC7MF, SZ=&SZWK, UNIT=CYL, INCRSZ=2;
    ASG PAC7EI, SYS.OUT;

```



```

ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7AY,$BVP.DATA.&BASE.AY,
ACC=READ,SHARE=MONITOR;
DEF PAC7AY,NBBUF=1,READLOCK=STAT;

ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPAN260,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7MF,TFO,TEMPRY,&RFTM;
ASG PAC70F,&PAC7FO;
ASG PAC7FO,&PAC7FO!!/G+1;

ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPAN215,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7FH,TFH,TEMPRY,&RFTM;
ASG PAC7HF,&PAC7FH!!/G+1;
ASG PAC7FR,&PAC7FR!!/G+1;
ASG PAC7EI,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
SHIFT &PAC7FH;
SHIFT &PAC7FO;
SHIFT &PAC7FR;
JUMP END;
ERR:
SEND ' IANA - ABNORMAL END OF RUN ';
LET SEV 3;
END:

```

---

## IPFQ - FQ File Printout (Impact Analysis)

### IPFQ - Introduction

The IPFQ procedure prints all the entry points and impact search criteria used (accepted or rejected) during a thorough impact analysis.

All the criteria and entry points are stored in the FQ file.

IPFQ offers four types of printouts:

- List of accepted entry points
- List of rejected entry points
- List of accepted impact search criteria
- List of rejected impact search criteria.

The printout shows criteria and entry points sorted by alphabetical order within each category, and by definition Library of these criteria.

The printing order for the categories are:

- Character strings
- Element defined in the Dictionary,
- Element defined in Segment Descriptions,
- Element defined in Report Structures,
- Element defined in Screen- or Program-Working sections.

The IPFQ procedure can be used to select the entry points and impact search criteria of one or more categories.

In case of selection, only the selected criteria are printed.

#### EXECUTION CONDITIONS

None, but the FQ file must exist.

Run the PBININIT procedure with 'VL=FH' as parameter in order to initialize the FH file.

#### ABNORMAL EXECUTION

Whatever the cause of the abnormal ending, the procedure can be restarted as it is, after correction of the problem.

#### RESULT

The procedure prints the entry points and the search criteria.

### **IPFQ - User Input**

One 'S' line per criteria selection (optional).

Position	Length	Value	Meaning
2	1	'S'	Line code
3	1		Type of criterion
		'E'	Element defined in the Dictionary
		'C'	Character string
		'X'	Group-type Element or Element not defined
		'*'	All types of criteria
4	1		Source code
		'3'	Line from Segment's -CE
		'6'	Line from Report's -CE

Position	Length	Value	Meaning
		'7'	-W line of a Screen or Program
		'*'	All sources
6	1		For the type of field
		'G'	For a Group field
		' '	For an elementary field
		'*'	For all types of fields

## IPFQ - Description of Steps

Extraction of criteria: PAN240

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7FQ	TFQ	Input	Criteria impacted during analysis
PAC7MB	TMBIPFQ	Input	User input
PAC7FH	TFH	Output	Search criteria file
PAC7IX		Report	Output report

Printing of impacted criteria: PAN220

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7HF	TFH	Input	Sorted entry points or criteria
PAC7IL		Report	List of entry points and criteria

Return codes:

- 0 : OK.
- 12 : System error.

## IPFQ - Execution JCL

```
COMM 'VisualAge Pacbase 3.0';
COMM '          - IMPACT ANALYSIS:  GROUP FIELDS ANALYSIS -  ';
COMM '                                                                 ';
COMM ' -----                                                                 ';
COMM '                                                                 ';
COMM ' THE IPFQ PROCEDURE PRINTS ALL THE ENTRY POINTS AND  ';
COMM ' IMPACT SEARCH CRITERIA USED (ACCEPTED OR REJECTED)  ';
COMM ' DURING A THOROUGH IMPACT ANALYSIS.                  ';
COMM ' ALL THE CRITERIA AND ENTRY POINTS ARE STORED IN THE FQ  ';
COMM ' FILE.                                                  ';
COMM ' PROCEDURE, IF THEY ARE OF THE GROUP TYPE.            ';
COMM ' -----                                                                 ';
COMM '                                                                 ';
MVL RFTM='DVC=$DVTM,MD=$MDTM',
    SZWK=2,
    PAC7FQ='$BVP.DATA.'&BASE'.FQ';
CR  IF=&PAC7FQ,
    OF=(TFQ,&RFTM,TEMPRY,END=PASS),
    OUTDEF=(CISIZE=4096,RECSZ=100,RECFORM=FB);
COMM '*** PAN240 ***';
STEP BVPAN240,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
    ASG PAC7AE,$BVP.DATA.&BASE.AE,
        SHARE=MONITOR;
    DEF PAC7AE,READLOCK=STAT;
    ASG PAC7AN,$BVP.DATA.&BASE.AN,
        SHARE=MONITOR;
    DEF PAC7AN,READLOCK=STAT;
    ASG PAC7AR,$BVP.DATA.&BASE.AR,
        SHARE=MONITOR;
    DEF PAC7AR,READLOCK=STAT;
    ASG PAC7FQ,TFQ,TEMPRY,&RFTM,END=PASS;
    ASG PAC7FH,TFH,TEMPRY,&RFTM,END=PASS;
    ALC PAC7FH,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
    ASG PAC7EI,SYS.OUT;
    ASG PAC7IX,SYS.OUT;
    ASG PAC7MB,TMBIPFQ,TEMPRY,&RFTM,END=PASS;
ESTP;
JUMP ERR,SW20,EQ,1;
COMM '*** PAN220 ***';
STEP BVPAN220,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
    ASG PAC7AE,$BVP.SYS.AE,
        SHARE=MONITOR;
    DEF PAC7AE,READLOCK=STAT;
    ASG PAC7HF,TFH,TEMPRY,&RFTM,END=PASS;
    ASG PAC7IE,SYS.OUT;
    ASG PAC7IL,SYS.OUT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' IPFQ - ABNORMAL END OF RUN  ';
LET SEV 3;
END:
```

---

## IPEP - Entry Points Printout

### IPEP - Introduction

The IPEP procedure produces two types of printouts.

- List of entry points:

This list is obtained after the ISEP procedure, since this procedure selects the entry points.

- List of impact search criteria:

This list is obtained after the IANA procedure, since this procedure selects the impact search criteria.

In the printout, the criteria or entry points are sorted by alphabetical order (Elements and character strings altogether) for each definition library of these criteria.

The order of printing of the categories is:

- character string
- Element defined in Dictionary
- Element defined in Segment Description
- Element defined in Report Structure
- Element defined in the Screen or Program Working Section.

### EXECUTION CONDITIONS

None, but the FH file must exist.

### ABNORMAL EXECUTION

Whatever the cause of theabend, the procedure can be restarted as it is, after the problem has been solved.

### PRINTOUTS

Printout of entry points.

### USER INPUT

No user input is required for the execution of the IPEP procedure.

## IPEP - Description of Steps

Printing out entry points: PAN220

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7HF	\$BVP.DATA.&BASE.FH	Input	Sorted entry points file
PAC7IL		Report	List of entry points

.Return Codes :

- 0 : OK.
- 12 : System error

## IPEP - Execution JCL

```
COMM 'VisualAge Pacbase 3.0';
COMM '      - IMPACT ANALYSIS:  PRINTING OF ENTRY POINTS -      ' ;
COMM '                                                                 ' ;
COMM ' -----' ;
COMM '                                                                 ' ;
COMM ' THE IPEP PROCEDURE PRODUCES TWO TYPES OF PRINTOUTS.      ' ;
COMM '   1. LIST OF ENTRY POINTS:                                  ' ;
COMM ' THIS LIST IS OBTAINED AFTER THE ISEP PROCEDURE, SINCE      ' ;
COMM ' THIS PROCEDURE SELECTS THE ENTRY POINTS.                  ' ;
COMM '   2. LIST OF IMPACT SEARCH CRITERIA:                       ' ;
COMM ' THIS LIST IS OBTAINED AFTER THE IANA PROCEDURE, SINCE      ' ;
COMM ' THIS PROCEDURE SELECTS THE IMPACT SEARCH CRITERIA.        ' ;
COMM ' -----' ;
COMM '                                                                 ' ;
MVL  PAC7FH='$BVP.DATA.'&BASE'.FH';
COMM '*** PAN220 ***';
STEP BVPAN220,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
     ASG PAC7AE,$BVP.SYS.AE,
       SHARE=MONITOR;
     DEF PAC7AE,READLOCK=STAT;
     ASG PAC7HF,&PAC7FH;
     ASG PAC7IE,SYS.OUT;
     ASG PAC7IL,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
JUMP END;
ERR:
SEND ' IPEP - ABNORMAL END OF RUN  ' ;
LET  SEV 3;
END:
```

---

## IPIA - Printing of the Impact Analysis Results

### IPIA - Introduction

The IPIA procedure is used to print Reports on the analysis results and to format these results in batch update transactions.

Possible reports produced by IPIA are the following:

- Analysis results by entry point:  
Analysis follow-up of the subsequent iterations. Report requested by value '1' in Position 7 of the P-type user input line.
- List of impact search criteria by entry point:  
Valid when the IANA iteration is completed. Report requested by value '1' in Position 8 of the P-type user input line.
- Analysis results by Library:  
Results are formatted in batch update transactions (print or file output). Report requested by value '1' in Position 9 of the P-type user input line.  
Additional option (page and line skips) requested by value '2' in Position 9.  
File requested by value '1' in Position 12.
- Impacted-instances summary:  
List of all impacted instances with the number of impacted lines, for each type of line, not sorted by entry points. Report requested by value '1' in Position 10 of the P-type user input line.
- List of entry points by impacted search criterion for each impacted field:  
list of entry points and impact search criteria which originated the impact, after each iteration. Report requested by value '1' in Position 14 of the P-type user input line.
- Statistics:  
Number of impacted lines sorted by library and by entity type, all lines considered. Report requested by value '1' in Position 11 of the P-type user input line.
- Character-string analysis:  
List of uses of each of the character strings searched by the ISOS procedure. Report requested by value '1' in Position 19 of the P-type user input line.
- Operator analysis:  
List of uses of each of the operators searched by the ISOS procedure. Report requested by value '1' in Position 20 of the P-type user input line.
- List of entities impacted by entry point:  
List of entities impacted by Element-type entry points, all search criteria considered. Report requested by value '1' in Position 21 of the P-type user input line.
- Number of modified lines, dispatched by Description for each entity:

This summary report allows for finer statistics by line types, compounded by Library. Report requested by value '1' in Position 22 of the P-type user input line.

- Constant analysis:  
List of uses of each constant searched by the ISOS procedure. Report requested by value '1' in Position 23 of the P-type user input line.

EXECUTION CONDITIONS

None, but the FO file must exist and must not be empty.

ABNORMAL EXECUTION

Whatever the cause of the abend, the procedure can be restarted as it is after the problem has been solved.

RESULT

The procedure outputs a printout of the analysis results and of the list of transactions sorted by Library.

**IPIA - User Input**

A line identifying the context (\* line) is required. It must be inserted at the beginning of the generated stream.

If you specified a lowest library for the ISEP procedure, it must be repeated in this line.

The \*-type line must be followed by one P-type, formatted as follows:

Position	Length	Value	Meaning
2	1	'P'	Line code
3	1		NOTHING TO ENTER, EXCEPT FOR DOS/VSE
		'I'	Default option for all hardware
		'N'	If CURRENT-DATE = MM/DD/YY
4	3	bbb	Library code (this selection is available with requests entered in Positions 9 and 10 only)
7	1	' '	No Result of impact analysis by entry point
		'1'	Result of impact analysis by entry point



Position	Length	Value	Meaning
8	1	''	No List of impacted criteria by entry point
		'1'	List of impacted criteria by entry point
9	1	''	No Printing of formatted results
		'1'	Printing of results formatted as batch update transactions, sorted per Library
		'2'	Same list with page and line skips
10	1	''	No summary of impacted occurrences
		'1'	List of impacted instances
11	1	''	No statistics, sorted per Library
		'1'	Statistics, sorted per Library
12	1	''	Identical to values in Pos. 9 but output is a file instead of print
13	1	''	Does not inhibit lines indirectly impacted
		'1'	General option: Inhibits the lines indirectly impacted (e.g. -CD)
14	1	''	No list of entry points by impact
		'1'	List of entry points by impact search criterion
15	2	nn	Number of the wanted level (IANA iteration)
17	2	pp	Number of lines printed per page
19	1	''	No Result of character-string analysis
		'1'	Result of character-string analysis
20	1	''	No Result of operator analysis
		'1'	Result of operator analysis
21	1	''	No entities impacted by entry point
		'1'	Impacted entities by entry point
22	1	''	No Number of lines per description
		'1'	Number of lines per description
23	1	''	No Constant-analysis result
		'1'	Constant-analysis result
24	1	''	No Result of group fields
24	1	'1'	Result of group fields

Position	Length	Value	Meaning
25	10		Selection of generated transactions
		Blank	Selection of all entities
		other	Requested selection, where possible values (compoundable) are:
		'B'	Database blocks
		'E'	Elements
		'F'	Meta-Entities
		'O'	Screens, C/S Screens...
		'P'	Programs
		'R'	Reports
		'S'	Segments and Data-Structures
		'T'	Texts
		'V'	Documents
35	1	'\$ ' '	User Entities No Result with ISOS transactions
		'1'	Result with ISOS transactions

## IPIA - Description of Steps

Printing of impact results: PAN270

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7FO	\$BVP.DATA.&BASE.FO	Input	Impact results
PAC7MB	TMBIPIA	Input	User input
PAC7MB	TBMIPIA	Output	Converted user input
PAC7GY	TGYIPIA	Output	PAF transactions for UPDP (length=310)
PAC7MV	TMV	Output	Batch transactions for printing (length=80)

Code	Physical name	Type	Label
PAC7IF		Report	Analysis results

Return Codes :

- 0 : OK
- 12 : System error

Printing of generated transactions: PAN280

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PAC7BM	TBMPIA	Input	User input
PAC7MV	TMV	Input	Generated batch transactions
PAC7VM	TVM		Selected batch transactions (length=80)
PAC7IT		Report	List of transactions per Library

Return Codes :

- 0 : OK
- 12 : System error

### **IPIA - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - IMPACT ANALYSIS : PRINTING OF RESULTS -      |';
COMM '                                                                 |';
COMM ' -----|';
COMM '                                                                 |';
COMM ' THE IPIA PROCEDURE IS USED TO PRINT                      |';
COMM ' REPORTS ON THE ANALYSIS RESULTS                          |';
COMM ' AND TO FORMAT THESE RESULTS IN                           |';
COMM ' BATCH UPDATE TRANSACTIONS.                               |';
COMM ' -----|';
COMM '                                                                 |';
MVL  USER=$USER,
      RFTM='DVC=$DVTM,MD=$MDTM',
      SZWK=2,
      PAC7FO='$BVP.DATA.'&BASE'.FO';
CR   IF=*IPIA,
      OF=(TBMPIA,TEMPRY,&RFTM,END=PASS),
      OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
COMM '*** PAN270 ***';
STEP BVPAN270,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
      ASG PAC7AE,$BVP.SYS.AE,

```

```

        SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7AR,$BVP.DATA.&BASE.AR,
    ACC=READ,SHARE=MONITOR;
DEF PAC7AR,NBBUF=1,READLOCK=STAT;
ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
DEF PACGGR,READLOCK=STAT;
ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
DEF PACGGN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
DEF PACGGU,READLOCK=STAT;
ASG PAC7FO,&PAC7FO;
ASG PAC7MB,TMBIPIA,TEMPRY,&RFTM,END=PASS;
ASG PAC7MV,TMV,TEMPRY,&RFTM,END=PASS;
ALC PAC7MV,SZ=&SZWK,UNIT=CYL,INCRSZ=2;
ASG PAC7BM,TBMIPIA,TEMPRY,&RFTM,END=PASS;
ASG PAC7GY,TGYIPIA,TEMPRY,&RFTM,END=PASS;
ASG PAC7IF,SYS.OUT;
ASG PAC7EI,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
COMM '*** PAN280 ***';
STEP BVPAN280,FILE=$BVP.SYS.PGM,REPEAT,DUMP=DATA;
ASG PAC7AE,$BVP.SYS.AE,
    SHARE=MONITOR;
DEF PAC7AE,READLOCK=STAT;
ASG PAC7BM,TBMIPIA,TEMPRY,&RFTM;
ASG PAC7MV,TMV,TEMPRY,&RFTM,END=PASS;
ASG PAC7VM,TVM,TEMPRY,&RFTM,END=PASS;
ASG PAC7IT,SYS.OUT;
ASG PAC7EI,SYS.OUT;

ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END,SW30,EQ,1;
COMM '*** LIBMAINT ***';
LMN SL INFILE=(TMV,TEMPRY,&RFTM),
    LIB=($BVP.DATA.&BASE.USERS),
    COM='MV INFILE:MBUPDT_IPIA1&USER',INFORM=SARF,
        TYPE=DAT,NUMBER=(1,1),REPLACE;';
JUMP ERR,SEV,GE,3;
COMM '*** LIBMAINT ***';
LMN SL INFILE=(TVM,TEMPRY,&RFTM),
    LIB=($BVP.DATA.&BASE.USERS),
    COM='MV INFILE:MBUPDT_IPIA2&USER',INFORM=SARF,
        TYPE=DAT,NUMBER=(1,1),REPLACE;';
JUMP ERR,SEV,GE,3;
JUMP END;
ERR:
SEND ' IPIA - ABNORMAL END OF RUN ';
LET SEV 3;
END:

```

---

## Chapter 8. Methodology Integrity Check

---

### ADM - SSADM Pacdesign Methodology

#### SADM - Introduction

This procedure is supplied for users of the WorkStation and the SSADM Pacdesign application Design Methodology.

It checks the validity and the consistency of the entities that have been uploaded by the user from the workstation to the specifications Database.

#### NOTE

The SSADM methodology and the features of the SADM procedure are available only in English.

For further information, refer to the 'Pacdesign' manual.

#### EXECUTION CONDITIONS

None.

#### SADM - User Input

One '\*' line for library access:

Position	Length	Value	Meaning
2	1	*	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Library code
22	4	nnnn	Session number (blank=current session)
26	1	T	Session version if test session
37	25	.....	Reserved IMS: request identifier (cf. IMS BATCH PAF)

Print request lines:

Position	Length	Value	Meaning
2	1	'T'	Line code

Position	Length	Value	Meaning
3	1		Code for Report to be printed
		'V'	Validation of SSADM Entities
		'1'	Cross-boundaries Data flows within a DFD
		'2'	Operational Masters within a DSD
		'3'	All Entities with their attributes
4	6	eeeeee	Entity code (required for '1' or '2')

### PRINTED OUTPUT

This procedure prints the following, based on print requests:

- A 'Validation of SSADM entities' report,
- A 'List of cross-boundaries data flows within a DFD',
- A 'List of operational masters within a DSD',
- A 'List of all entities with their attributes'.

## **SADM - Description of Steps**

SSADM-entity consistency check: PADM10

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7MB	TMBSADM	Input	User input
SYPAF	&SY&USER	Input/Output	Standard PAF KSDS file
PAC7EJ		Report	List of checked SSADM entities
PAC7DD		Report	List of errors

## SADM - Execution JCL

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - PACDESIGN SSADM INTEGRITY CHECKING -          ';
COMM '                                                                 ';
COMM '-----                                                                 ';
COMM ' THIS PROCEDURE IS SUPPLIED FOR USERS OF THE WORKSTATION';
COMM ' AND THE SSADM PACDESIGN APPLICATION DESIGN METHODOLOGY. ';
COMM '                                                                 ';
COMM ' INPUT :                                                                 ';
COMM ' - USER IDENTIFICATION LINE (REQUIRED)                                                                 ';
COMM '   COL 2 : "*"                                                                                               ';
COMM '   COL 3 : USERIDXX                                                                                       ';
COMM '   COL 11 : PASSWORD                                                                                       ';
COMM '   COL 19 : (BBB)      LIBRARY CODE                                                                       ';
COMM '   COL 22 : (4 N)     SESSION NUMBER                                                                    ';
COMM '   COL 26 : (1 CAR.)  SESSION VERSION                                                                    ';
COMM '   COL 37 : (25 CAR.) RESERVED IMS                                                                       ';
COMM ' - COMMAND LINE :                                                                                         ';
COMM ' COL 2  : "T"          LINE CODE                                                                         ';
COMM ' COL 3  : CODE FOR REPORT TO BE PRINTED                                                                ';
COMM '           "V" : VALIDATION OF SSADM ENTITIES                                                           ';
COMM '           "1" : CROSS-BOUNDARIES DATA FLOWS                                                           ';
COMM '                   WITHIN A DFD                                                                         ';
COMM '           "2" : OPERATIONAL MASTERS WITHIN A DSD                                                       ';
COMM '           "3" : ALL ENTITIES WITH THEIR ATTRIBUTES                                                    ';
COMM ' COL 4  : (6 CAR.)  ENTITY CODE                                                                           ';
COMM '                   (REQUIRED FOR "1" OR "2")                                                            ';
COMM '-----                                                                 ';
COMM '
MVL RFTM='DVC=$DVTM,MD=$MDTM',
    SY=$BVP.SYS.SY,USER=&USER;
IV  ALSY,$BVP.SYS.PROC,
    VL=(SY=&SY,USER=&USER);
CR  IF=*SADM,
    OF=(TMBSADM,TEMPRY,&RFTM,END=PASS),
    OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
STEP BVPADM10,FILE=$BVP.SYS.PGM,REPEAT;
    ASG PAC7AE,$BVP.SYS.AE,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AE,READLOCK=STAT;
    ASG PAC7AN,$BVP.DATA.&BASE.AN,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AN,NBBUF=10;
    ASG PAC7AR,$BVP.DATA.&BASE.AR,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AR,NBBUF=4;
    ASG PAC7MB,TMBSADM,TEMPRY,&RFTM,END=PASS;
    ASG SYSPAF,&SY&USER;
    ASG PAC7EJ,SYS.OUT;
    ASG PAC7DD,SYS.OUT;
    DEF PAC7GR,READLOCK=STAT;
    ASG PACGGN,$BVP.DATA.ADMIN.AN,
        ACC=READ,SHARE=MONITOR;

```

```

DEF PAC7GN,READLOCK=STAT;
ASG PACGGU,$BVP.DATA.ADMIN.GU,
ACC=READ,SHARE=MONITOR;
DEF PAC7GU,READLOCK=STAT;
ESTP;
JUMP ERR,SW20,EQ,1;
JUMP END;
ERR:
SEND ' SADM - ABNORMAL END OF RUN ' ;
LET SEV 3;
END:

```

---

## YSMC - YSM Methodology / WorkStation

### YSMC - Introduction

This procedure is supplied for users of the WorkStation and the YSM Pacdesign application Methodology.

- It checks the validity and the integrity of the entities uploaded from the WorkStation to the Host Specifications Dictionary by the user.
- It checks the consistency between a Data flow Diagram and its parent diagram.
- It establishes different hierarchical lists of certain entities of the Database.

#### NOTE

The YSM Methodology and the procedure functionalities exist only in English.

For complete details, refer to the 'Pacdesign' manual.

#### EXECUTION CONDITIONS

None.

### YSMC - User Input

#### USER INPUT

One '\*'-line for library access (required):

Position	Length	Value	Meaning
2	1	'*'	Line code
3	8	uuuuuuuu	User code
11	8	pppppppp	User password
19	3	bbb	Code of the selected library
22	4	nnnn	Session number (space = current)
26	1	T	Session status if Test session



Position	Length	Value	Meaning
37	25	.....	Only for IMS: Request identifier (cf. PAF batch IMS)

Entity validation request line (optional):

Position	Length	Value	Meaning
2	1	'T'	Line code
3	1		Code of report to be printed
		'W'	'Validation of YSM entities'

PRC entity control request lines (optional):

Position	Length	Value	Meaning
2	1	'T'	Line code
3	1		Code of report to be printed
		'Y'	'Inter process consistency checking'
4	6	eeeeee	Entity code (PRC)

Print-request lines (optional):

Position	Length	Value	Meaning
2	1	'T'	Line code
3	1		Code of report to be printed
		'0'	'List of Relationships'
		'4'	'Process Decomposition list (CTX)'
		'5'	'Process Decomposition list (DFD)'
		'6'	'Datastore Decomposition list'
		'7'	'Event flow Decomposition list'
		'8'	'Group Data flow Decomposition list'
		'9'	'Multiple Data flow Decomposition list'
4	6	eeeeee	Entity code (REL/CTX/PRC/DST/EFL/DFL)

## PRINTED REPORT

This procedure prints:

- A 'Validation of YSM entities' report.
- An 'Inter-process consistency check' report.
- The reports:
  - 'List of relationships'.
  - 'Process decomposition list (CTX)'.
  - 'Process decomposition list (DFD)'.
  - 'Data store decomposition list'.
  - 'Event flow decomposition list'.
  - 'Group Data flow Decomposition list'.
  - 'Multiple Data flow Decomposition list'.

## YSMC - Description of Steps

### YSM method integrity checking: PYSMCC

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7MB	TMBYSMC	Input	User input
SYSPAF	&SY&USER	Input/Output	Standard PAF KSDS file
PAC7EJ		Report	Integrity checking lists
PAC7EI		Report	Validation reports
PAC7DD		Report	Error list

### Inter-process consistency: PYSMC3

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file

Code	Physical name	Type	Label
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7MB	TMBYSMC	Input	User input
SYSPAF	&SY&USER	Input/Output	Standard PAF KSDS file
PAC7EJ		Report	Integrity checking Lists

LIST OF RELATIONSHIPS AND REPORTS: PYSMC2

Code	Physical name	Type	Label
PAC7AE	\$BVP.SYS.AE	Input	Error messages
PACGGN	\$BVP.DATA.ADMIN.AN	Input	Administration Database Index file
PACGGR	\$BVP.DATA.ADMIN.AR	Input	Administration Database Data file
PACGGU	\$BVP.DATA.ADMIN.GU	Input	Administration Database Users
PAC7AR	\$BVP.DATA.&BASE.AR	Input	Development Database Data file
PAC7AN	\$BVP.DATA.&BASE.AN	Input	Development Database Index file
PAC7MB	TMBYSMC	Input	User input
SYSPAF	&SY&USER	Input/Output	Standard PAF KSDS file
PAC7EJ		Report	Integrity checking lists

**YSMC - Execution JCL**

```

COMM 'VisualAge Pacbase 3.0';
COMM '          - PACDESIGN YSM INTEGRITY CHECKING -          ';
COMM '          ';
COMM ' -----';
COMM '          ';
COMM ' THIS PROCEDURE IS SUPPLIED FOR USERS OF THE WORKSTATION';
COMM ' AND THE YSM PACDESIGN APPLICATION METHODOLOGY.          ';

```

```

COMM '
COMM '
COMM '          IT CHECKS THE VALIDITY AND THE INTEGRITY OF THE
COMM ' ENTITIES UPLOADED FROM THE WORKSTATION TO THE HOST
COMM ' SPECIFICATIONS DICTIONARY BY THE USER.
COMM '          IT CHECKS THE CONSISTENCY BETWEEN A DATA FLOW
COMM ' DIAGRAM AND ITS PARENT DIAGRAM.(PRC)
COMM '          IT ESTABLISHES DIFFERENT HIERARCHICAL LISTS OF
COMM ' CERTAIN ENTITIES OF THE DATABASE.
COMM ' -----
COMM '
MVL RFTM='DVC=$DVTM,MD=$MDTM',
    SY=$BVP.SYS.SY,USER=&USER;
IV  ALSY,$BVP.SYS.PROC,
    VL=(SY=&SY,USER=&USER);
CR  IF=*YSMC,
    OF=(TMBYSMC,TEMPRY,&RFTM,END=PASS),
    OUTDEF=(CISIZE=2048,RECSZ=80,RECFORM=FB);
STEP BVPYSMCC,FILE=$BVP.SYS.PGM,REPEAT;
    ASG PAC7AE,$BVP.SYS.AE,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AE,READLOCK=STAT;
    ASG PAC7AN,$BVP.DATA.&BASE.AN,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AN,NBBUF=10;
    ASG PAC7AR,$BVP.DATA.&BASE.AR,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AR,NBBUF=4;
    ASG PAC7MB,TMBYSMC,TEMPRY,&RFTM,END=PASS;
    ASG SYSPAF,&SY&USER;
    ASG PAC7EI,SYS.OUT;
    ASG PAC7EJ,SYS.OUT;
    ASG PAC7DD,SYS.OUT;
    ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;
    DEF PACGGR,READLOCK=STAT;
    ASG PACGGN,$BVP.DATA.ADMIN.AN,ACC=READ,SHARE=MONITOR;
    DEF PACGGN,READLOCK=STAT;
    ASG PACGGU,$BVP.DATA.ADMIN.GU,ACC=READ,SHARE=MONITOR;
    DEF PACGGU,READLOCK=STAT;
ESTP;
JUMP ERR,SW20,EQ,1;
STEP BVPYSMCC3,FILE=$BVP.SYS.PGM,REPEAT;
    ASG PAC7AE,$BVP.SYS.AE,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AE,READLOCK=STAT;
    ASG PAC7AN,$BVP.DATA.&BASE.AN,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AN,NBBUF=10;
    ASG PAC7AR,$BVP.DATA.&BASE.AR,
        ACC=READ,SHARE=MONITOR;
    DEF PAC7AR,NBBUF=4;
    ASG PAC7MB,TMBYSMC,TEMPRY,&RFTM,END=PASS;
    ASG SYSPAF,&SY&USER;
    ASG PAC7EJ,SYS.OUT;
    ASG PACGGR,$BVP.DATA.ADMIN.AR,ACC=READ,SHARE=MONITOR;

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DEF PACGGR, READLOCK=STAT;
ASG PACGGN, $BVP.DATA.ADMIN.AN, ACC=READ, SHARE=MONITOR;
DEF PACGGN, READLOCK=STAT;
ASG PACGGU, $BVP.DATA.ADMIN.GU, ACC=READ, SHARE=MONITOR;
DEF PACGGU, READLOCK=STAT;
ESTP;
JUMP ERR, SW20, EQ, 1;
STEP BVPYSMC2, FILE=$BVP.SYS.PGM, REPEAT;
ASG PAC7AE, $BVP.SYS.AE,
    ACC=READ, SHARE=MONITOR;
DEF PAC7AE, READLOCK=STAT;
ASG PAC7AN, $BVP.DATA.&BASE.AN,
    ACC=READ, SHARE=MONITOR;
DEF PAC7AN, NBBUF=10;
ASG PAC7AR, $BVP.DATA.&BASE.AR,
    ACC=READ, SHARE=MONITOR;
DEF PAC7AR, NBBUF=4;
ASG PAC7MB, TMBYSMC, TEMPRY, &RFTM, END=PASS;
ASG SYSPAF, &SY&USER;
ASG PAC7EJ, SYS.OUT;
ASG PACGGR, $BVP.DATA.ADMIN.AR, ACC=READ, SHARE=MONITOR;
DEF PACGGR, READLOCK=STAT;
ASG PACGGN, $BVP.DATA.ADMIN.AN, ACC=READ, SHARE=MONITOR;
DEF PACGGN, READLOCK=STAT;
ASG PACGGU, $BVP.DATA.ADMIN.GU, ACC=READ, SHARE=MONITOR;
DEF PACGGU, READLOCK=STAT;
ESTP;
JUMP ERR, SW20, EQ, 1;
JUMP END;
ERR:
SEND ' YSMC - ABNORMAL END OF RUN  ';
LET SEV 3;
END:

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Part Number: DEPD7003301A - 6061

Printed in U.S.A.

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