VisualAge Pacbase 2.5

PACTABLES
REFERENCE MANUAL

DDTAB000251A

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1. GENERAL INTRODUCTION

1.1. INTRODUCTION TO PACTABLES

INTRODUCTION

Pactables operates within VisualAge Pacbase.

However, it includes particular features which are directly related to its specific goals.

The purpose of Pactables is to manage tables defined and described by its users. The descriptions and validations of table contents are independent of the Specifications Dictionary. Pactables users can create and/or modify the description and contents of tables as needed.

Pactables operates on:

- Table descriptions,
- Table contents, i.e., data.

This is reflected in the physical organization of Pactables which uses two files:

- Table Description File (length, data element labels, validations, etc.),
- Table Data file.

The Table Description File is closely related to the Specifications Dictionary since all table descriptions are extracted from, and updated at, the Specifications Dictionary level.
Update of this file is the responsibility of the Pactables Manager.

The Table Contents file contains table data.

GENERAL DESCRIPTION

The logical description and documentation of a table is built in the VisualAge Pacbase Specifications Dictionary;

A logical table description is extracted, on request, with an interface utility which selects the elements necessary to build and manage a table; All tables are grouped into a single physical file, common to all systems of an installation and containing historical versions of tables.

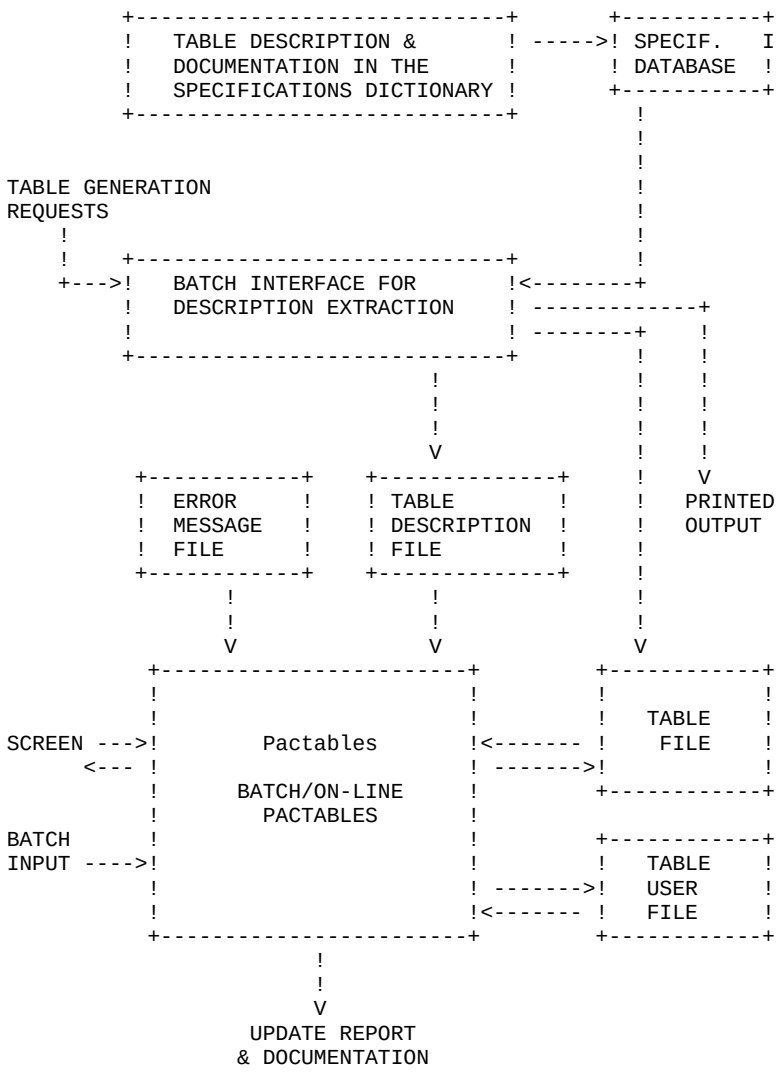
Pactables also allows the user to:

. Consult the contents of a table or sub-groups of tables;

. Update the contents of a table (in on-line or batch mode);

. Ensure that descriptions and contents are consistent.

Upon request, Pactables stores historical versions of table descriptions and contents.



1.2. INTRODUCTION TO TABLES

INTRODUCTION TO TABLES

A table is a set of 'n' occurrences of a Segment described in the Specifications Dictionary.

This segment contains a unique Data Element which constitutes the data access key.

Pactables distinguishes between two types of Data Elements used in Segment descriptions: 'information' or 'technological'.

'Information' Data Elements are managed by Pactables in the input, validation, update and consultation procedures. These are the elementary Data Elements of the description. Refer to Chapter "CREATION OF A TABLE", Subchapter "DESCRIPTION OF A TABLE".

Group Data Elements, called 'technological' Data Elements, can be introduced for programming needs and are ignored by Pactables.

The key Data Element can also be defined as a group. The input of the key for update is performed on the elementary Data Elements which compose it.

EXAMPLE OF A TABLE

```
<----------------- SEGMENT ------------------>
<-- KEY --><------------ DATA -------------->

   01      ALABAMA                            OCCURRENCE  1
   02      ARIZONA                            OCCURRENCE  2
   ..      .......                            ..........  .
   28      MICHIGAN                           OCCURRENCE 28
   ..      .......  etc.                      ..........  .
```

1.3. TABLE SUB-GROUPS

TABLE SUB-SETS

Two types of selection allow the user to access sub-sets of a Table.

SUB-SCHEMA

The sub-schema is used to perform a selection from the description Data Element of a Table item.

The use of sub-schemas provides a partial view of the Table data.

If a data element belongs to a sub-schema, this is indicated in the logical description of the table at the Specifications Dictionary level.

SUB-SYSTEM

A sub-system is a selection of Table items.

The user can define several sub-groups/sub-systems within a Table, each one being a different subset of the data.

If a Table item belongs to a sub-system, this is indicated during the update of this item.

EXAMPLE

An illustration of these concepts is presented in the following 'Table of states' example. It includes:

- A telephone sub-schema,

- Two sub-systems, one of 'eastern' states, the other of 'western' states.

The fact that the data elements belong to a sub-schema is indicated on the logical description in the Dictionary:

ELEMENT CODE	ELEMENT NAME	SUB-SCHEMA
CITNO	City number	yes
STATNA	State name	
AREACO	Area code	yes
SUBSYS	Sub-system	

The fact that the table items belong to a sub-system is specified for a table update.

CITY NUMBER (key)	AREA CODE	CITY NAME	SUB-SYSTEMS (east-1)	(west-2)
007	415	SAN FRANCISCO		2
001	212	NEW YORK	1	
031	703	McLEAN	1	
019	517	SEATTLE		2

If the sub-system 'EAST' is selected, the table view would be:

CITY NUMBER	AREA CODE	CITY NAME	SUB-SYSTEMS (east-1)	(west-2)
001	212	NEW YORK	1	
031	703	McLEAN	1	

The view of this table after selection of the 'WEST' sub-system and the 'Area Code' sub-schema would be:

CITY NUMBER	AREA CODE
007	415
019	517

1.4. PRINCIPLES OF USE

PRINCIPLES OF USE

Tables can be accessed in several ways:

IN ON-LINE MODE

Three types of operations:

- Lists consultation (tables, historical accounts, etc.),
- Table consultation,
- Table update.

IN BATCH MODE

Six types of operations:

- Table description lists,
- Table generation,
- Table deletion,
- Table updating,
- Table printing,
- Table extraction.

IN USER PROGRAMS

Tables can be accessed by both on-line and batch programs.

Tables with historical accounts can only be consulted (whether sequentially or directly).
However, tables without historical accounts can be updated (without data validation).

1.5. DATA PROTECTION

DATA PROTECTION

Only users registered as Pactables users are authorized to work on Pactables.

Each authorized user is assigned a user code and a password (optional).

A user can modify his/her password on-line. (Refer to subchapter "ON-LINE UPDATING OF PASSWORDS" in chapter "DATABASE MANAGEMENT").

Each user is granted a general authorization for tables as a whole: read-write access, read-only access, or no access at all.

It is possible to restrict or broaden a user's general access authorization to selected tables or sub-schemas and/or sub-systems.

Additionally, a user not granted a general access authorization can still be granted a read-write access on specific tables and a read-only access on some sub-systems and/or sub-schemas.

User code and access authorization batch updating is detailed in chapter "PACTABLES: BATCH PROCEDURES", subchapter "USER PARAMETERS UPDATE".

TABLES ADMINISTRATOR

A pseudo user code ('********') is available for initialization purposes. It is to be used on-line or in batch mode by the Pactables Administrator to:

- Create user codes,
- Grant General and/or Specific Access Authorizations,
- Create and maintain the basic JCL necessary to execute on-line printing jobs (see chapter "PACTABLES ON-LINE USE", subchapter "ON-LINE PRINTING REQUESTS").
- Manage Pactables parameters (Function Keys, Language Option, etc.),
- Reorganize tables.

For further details, refer to chapter "DATABASE MANAGEMENT".

2. TABLE CREATION

2.1. TABLE DEFINITION

PRELIMINARY NOTE

Refer to the SPECIFICATIONS DICTIONARY Reference Manual for a complete description of the entities. In the subchapters which follow, the user will find a description of the characteristics of a table as they relate to Pactables. The same is also true for the descriptions of input screens related to Pactables. There are complete descriptions of these screens in the Specifications Dictionary Reference Manual.

TABLE DEFINITION

All tables must be defined and described in the Specifications Dictionary. They make up one or several data structures defined in one or several libraries of the Specifications Database.

The following entities are used to define a table:

- The Data Structure entity, defined by a CODE, a CLEAR NAME, as well as a Table-specific TYPE.

- The Segment entity, defined by a CODE and a CLEAR NAME. This code is used for table access by Pactables.

```
--------------------------------------------------------------------------------
!                  Purchasing Management System             *DOC.PA03.PMS.930 !
!                                                                              !
! DATA STRUCTURE DEFINITION      1 TT                                          !
!                                                                              !
! NAME.............: 2 TABLE DESCRIPTION                                       !
!                                                                              !
! COMPLEMENT.........: 3                                                       !
!                                                                              !
! TYPE..............: 4 G TABLES                                               !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
! EXPLICIT KEYWORDS..: 5                                                       !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
! SESSION NUMBER.....: 0093        LIBRARY......: PMS    LOCK....:             !
! *** END ***                                                                  !
! O: C1 CH: Dtt                         ACTION:                                !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	2		DATA STRUCTURE CODE (REQUIRED) This code is made up of two alphanumeric characters. This is a logical code internal to the Database and therefore independent of the names used in Database Blocks and Programs.
2	30		NAME OF DATA STRUCTURE (REQ. IN CREATION) This clear name should be as explicit as possible. Words used here become implicit keywords (subject to limitations specified in chapter "KEYWORDS", subchapter "HOW TO BUILD THE THESAURUS" in the Specifications Dictionary Reference Manual).
3	44		COMPLEMENT OF DATA STRUCTURE NAME With the Batch Systems Development function only: Error messages corresponding to validation of a transaction file are coded in at most two programs. Those two program codes are indicated in this field, as follows: Blank in column 1, 'E' in column 2, then one or two program codes. Example: Eerrpg1errpg2 Note: The 'E' is entered in column 36, in batch mode. For more information, refer to the BATCH SYSTEMS DEVELOPMENT Reference Manual, chapter "ERROR MESSAGES", subchapter "CODING OF ERROR MESSAGES".
4	1		DATA STRUCTURE TYPE This code is required when defining a table-type data structure.
		G	Tables with historical accounts.
		T	Tables without historical accounts.
		M	Table with historical account, with century
		N	Table without historical account, with century
5	55		EXPLICIT KEYWORDS This field allows the user to enter additional (explicit) keywords. By default, keywords are generated from an occurrence's clear name (implicit keywords). This field only exists on-line. In batch mode, keywords are entered on Batch Form 'G'. Keywords must be separated by at least one space. Keywords have a maximum length of 13 characters which must be alphanumeric. However, '=' and '*' are reser-

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			ved for special usage, and are therefore not permitted in keywords. Keywords are not case-sensitive: upper-case and lower-case letters are equivalent. NOTE: Characters bearing an accent and special characters can be declared as equivalent to an internal value in order to make easy the search of occurrences by keywords. Refer to the Operations Manual - Part II 'Administrator's Guide', Chapter 'Database Management Utilities', Subchapter 'PARM : Update of User Parameters'. A maximum of ten explicit keywords can be assigned to one entity. For more details, refer to the SPECIFICATIONS DICTIONARY Reference Manual, Chapter 'Keywords', Subchapter 'Building the Thesaurus'.

TABLE CREATION 2
TABLE DEFINITION 1

```
--------------------------------------------------------------------------------
!                  Purchasing Management System              *DOC.PA03.PMS.930 !
!                           1 2                                                  !
! SEGMENT DEFINITION........: TT20                                              !
!                                                                               !
! NAME......................: 3 AREA CODES                                       !
!                                                                               !
! OCCUR. OF SEGMENT IN TABLE: 4 5000                                            !
! EST. NUMBER OF INSTANCES..: 5                                                 !
!                                                                               !
!                                                                               !
!                                                                               !
! END USER TABLE ID.........: 6 COMMON                                          !
! CODE OF ACTION CODE ELEM..: 7                                                 !
! VALUES OF TRANSACTION CODE: CR:       MO:       DE:                           !
!                             M4:       M5:       M6:                           !
!                                                                               !
!                                                                               !
! EXPLICIT KEYWORDS..: 8                                                        !
!                                                                               !
!                                                                               !
! SESSION NUMBER.....: 0093        LIBRARY......: PMS    LOCK....:              !
!                                                                               !
! O: C1 CH: Stt20                       ACTION:                                 !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			DATA STRUCTURE / SEGMENT CODE
1	2		DATA STRUCTURE CODE (REQUIRED) This code is made up of two alphanumeric characters. This is a logical code internal to the Database and therefore independent of the names used in Database Blocks and Programs.
2	2		SEGMENT CODE FOR TABLE RECORD (REQUIRED) The first character must be numeric, the second either numeric or alphabetic. However, the second character can be alphabetic only if the first character is other than zero.
		00	This value is not allowed for a data structure defined as a table.
		01-99	Designates a specific record; each record corresponds to a table.
3	36		TABLE CLEAR NAME (REQ. IN CREATION) This name must be as explicit as possible as it allows for the automatic creation of keywords. This name will be the Table clear name for Pactables.
4	4		OCCURRENCES OF SEGMENT IN TABLE PURE NUMERIC FIELD WITH THE BATCH SYSTEMS DEVELOPMENT function: This is the amount of space reserved for a Segment in memory (USAGE OF DATA STRUCTURE 'T' or 'X', or RECORD TYPE = 3, or 4. For tables (USAGE OF DATA STRUCTURE 'T' or 'X'), the default value at generation time is 100. Pactables: This field is strictly for documentation purposes. PACBENCH CLIENT/SERVER: The value entered in this field indicates the repetitive read or update capacity of the server which calls the Logical View. This capacity is expressed by a maximum number of repetitions. The Logical View can then be used as a repeated structure. NOTE: The use of a Logical View in a card layout does not exclude its use in a row layout. It is therefore strongly recommended to

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			systematically fill in this field. Moreover, the entered value must be high enough to limit the exchanges between the client and the server.
		999	Maximum authorized value.
5			UNUSED FIELD Input in this field is not taken into account by Pactables. For a complete description of this field, refer to the SPECIFICATIONS DICTIONARY Reference Manual.
6	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
7			UNUSED FIELD Input in this field is not taken into account by Pactables. For a complete description of this field, refer to the SPECIFICATIONS DICTIONARY Reference Manual.
8	55		EXPLICIT KEYWORDS This field allows the user to enter additional (explicit) keywords. By default, keywords are generated from an occurrence's clear name (implicit keywords). This field only exists on-line. In batch mode, keywords are entered on Batch Form 'G'. Keywords must be separated by at least one space. Keywords have a maximum length of 13 characters which must be alphanumeric. However, '=' and '*' are reserved for special usage, and are therefore not permitted in keywords. Keywords are not case-sensitive: upper-case and lower-case letters are equivalent. NOTE: Characters bearing an accent and special characters can be declared as equivalent to an internal value in order to make easy the search of occurrences by keywords. Refer to the Operations Manual - Part II 'Administrator's Guide', Chapter 'Database Management Utilities', Subchapter 'PARM : Update of User Parameters'. A maximum of ten explicit keywords can be assigned to one entity.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			For more details, refer to the SPECIFICATIONS DICTIONARY Reference Manual, Chapter 'Keywords', Subchapter 'Building the Thesaurus'.

2.2. TABLE DESCRIPTION

TABLE DESCRIPTION

A table is described via the Segment Call of Elements (-CE) screen.

The different Data Elements called are:

- The key Data Element,
- The 'information' Data Elements,
- The Data Element specifying the sub-systems,
- The 'technological' Data Elements.

ACCESS KEY DATA ELEMENT

The access key Data Element is used to access a table item, an item being an individual location in the table.

The key is indicated on the Segment Call of Elements (-CE) by the value 'U' in the KEY INDICATOR FOR ACCESS OR SORT field.

The table access key can be defined as a group Data Element. However, the access key is updated via the elementary data elements which make it up.

By default, the access key of a table belongs to all of the sub-schemas defined for the table.

Once a table is generated, it is not possible to modify its structure or the length of the key.

'INFORMATION' DATA ELEMENTS

These Data Elements represent all of the information contained in a table. They correspond to all elementary Data Elements.

For every 'information' Data Element, it is possible to code a certain number of validations. The coding of these validations is explained in subchapter "VALIDATION CODING".

A Data Element specified with an OCCURS is considered a single 'information' data element with the following characteristics:

- Alphanumeric usage,
- The length of this information equals the length of the data element multiplied by the number of occurrences.

The elementary Data Elements in a group must belong to the same sub-schemas.

DATA ELEMENT SPECIFYING THE SUB-SYSTEMS

This 'information' Data Element is used during update to assign a table item to one or more sub-systems.

This Element is indicated on the Segment Call of Elements (-CE) screen with the value 'S' in the KEY INDICATOR FOR ACCESS OR SORT field.

It must have a length equal to at least the number of subsystems defined for the table (for potential assignment of the table item to all the sub-systems).

EXAMPLE: If there are three sub-systems in a table, the Data Element specifying the sub-systems must be defined with PICTURE X(3).

'TECHNOLOGICAL' DATA ELEMENTS

These Data Elements correspond to group Data Elements; they are only entered in the description of a table for technological purposes (programming, etc.) and are not used by Pactables.

CONSTRAINTS

The Data Elements used in the description of a table must have a USAGE = DISPLAY.

The maximum length allowed for a table is 999 characters, keeping in mind that the length of the data file is variable.

The maximum length allowed for a table key is 20 characters.

The maximum number of Data Elements called in a table is 40.

ASSIGNING A DATA ELEMENT TO A SUB-SCHEMA

If a table contains sub-schemas, it is advisable to specify, for each Data Element, the sub-schema(s) to which it belongs.

Ten sub-schemas are authorized per description; they are numbered 1, 2, ... 9, 0, and correspond to the 10 positions in the VALUE/SUB-FUNCTION CODE (VALUE/SFC) field.

The TYPE: VALIDATION, UPDATE, VALUES and the VALUE/SUB-FUNCTION CODE fields must be used together to assign Data Elements to sub-schemas.

For Data Elements in a group, it is advisable to indicate, at the group level, to which sub-schemas they belong.

```
--------------------------------------------------------------------------------
!                  Purchasing Management System              *DOC.PA03.PMS.930 !
!                           1 2                                                  !
! SEGMENT CALL OF ELEMENTS TT20 AREA CODES                                       !
!                                                                                !
!                                    12 15  18 21                                !
!                                     13 16  19                                  !
! 3 4     5     7         8 9   10 11  14 17  20 22        23                    !
! A LIN : ELEM. INT.FORM. U OCC GR K CMD456 CONT VALUE/SFC UPD/TRGET DOC LIBR.   !
!   100 : ARECO                  2 U                                  053        !
!   110 : DPTCO                    OOO                                054        !
!   120 : ARECO                    OOO                                053        !
!   130 : ARENM                    O         S O                      053        !
!   140 : TWNSH                    O         S O                      053        !
!   145 : ZDTAN                              P PGUT02                 053        !
!   150 : TELEP                    O         S  O                     053        !
!   160 : SSYST                  S O                                  053        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       : NAME    : 6                                                          !
!                                                                                !
! O: C1 CH: Stt20CE                                                              !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			DATA STRUCTURE / SEGMENT CODE
1	2		DATA STRUCTURE CODE (REQUIRED) This code is made up of two alphanumeric characters. This is a logical code internal to the Database and therefore independent of the names used in Database Blocks and Programs.
2	2		SEGMENT CODE FOR TABLE RECORD (REQUIRED) The first character must be numeric, the second either numeric or alphabetic. However, the second character can be alphabetic only if the first character is other than zero.
		00	This value is not allowed for a data structure defined as a table.
		01-99	Designates a specific record; each record corresponds to a table.
3	1		ACTION CODE
4	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.
5	6		DATA ELEMENT CODE ELEMENTARY DATA ELEMENT DEFINED IN THE DICTIONARY --- The data element automatically assumes the characteristics defined at the Specifications Dictionary level. If the data element is used as a group, its format depends on the characteristics of the elementary elements that make up the group. If the group is used as a key (sort or access key), the composite format of the elementary elements must be compatible with the format specified for the group. RESERVED DATA ELEMENT CODES --- It is forbidden in Pactables to create data elements that are not defined in the Dictionary. The Data Element code 'SUITE' is forbidden. It is used by VisualAge Pacbase when generating programs. The following data elements are also reserved and cannot be used with Pactables:

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			FILLER, ENRP, GRPR, and ERUT. For additional information concerning these reserved data element codes, refer to the SPECIFICATIONS DICTIONARY Reference Manual. CONTINUATION LINES ---------- It is possible to create continuation lines. This may be necessary if there are many validations on a data element. In this case, leave the DATA ELEMENT CODE field blank, and use a LINE NUMBER value that sequentially follows that of the line where the data element code was entered. A sub-schema must always be entered on the first line of the data element.
6	18		NAME OF DATA ELEMENT It is required for a Data Element which is not defined in the Specifications Dictionary. However, it is optional for a data aggregate or a FILLER. Note: For on-line entry of Data Elements that are not declared in the Dictionary, this field cannot be used to input more than one Data Element at a time. There is actually only one available field on this screen, whether for input or for display. To define an Element at the Segment level : - Enter the Element code (and possibly the format) on the -CE, line nnn, - On the 'name' line, repeat the line number (nnn), and indicate the name (18 characters maximum), - Use the C2 option to view the name and format. Note: If several undefined Elements have been named in this fashion, the name displayed will be the one that refers to the Element with the lowest line number on the display. To view a specific Element's name use the CHOICE field, selecting the appropriate Element by line number. Example: O: C2 CH: -ce130 will display all Data Elements starting with the one on line 130. If it is an undefined Element, its name will appear in the NAME OF DATA ELEMENT field.
7	10		DATA ELEMENT INTERNAL FORMAT

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			It is required only in the following cases : - For an elementary Data Element not defined in the Dictionary (COBOL format), - For a group Data Element that is or belongs to a key; its length must be the sum of the lengths of its elementary Data Elements, - For a FILLER-type field. It is the internal format; input and output formats will be the same (but with usage Display). It is defined as on a Data Element Definition screen.
8	1		INTERNAL USE For Data Elements not defined in the Specifications Dictionary when the INTERNAL FORMAT OF DATA ELEMENT field has been given a value, enter the appropriate USAGE (default : 'D' for DISPLAY). For valid values, see the USAGE field on the Data Element Definition Screen.
9	3		OCCURRENCES (COBOL "OCCURS" CLAUSE) PURE NUMBERIC FIELD This field represents the 'OCCURS' clause at an elementary data element level, or at a group level (Maximum of 3 levels).
10	2	1 to 99	NO. OF ELEMENTARY ELEMENTS IN GROUP PSEUDO NUMERIC FIELD For group data elements, enter the number of elementary elements that belong to the group. Groups may contain up to 99 elementary elements. Group elements may contain embedded groups however the total number of elementary elements cannot exceed 99. (The group data element codes are not counted).
11	1		ACCESS OR SORT KEY This field identifies all data elements that might be used as control break sort keys, or as access keys to a file, a database or a Pactables table. Each data element that may belong to a sort key must be referenced by a unique alphabetic or numeric character. It is recommended to reference the indicators by a series (1, 2, 3 ...). The actual sort sequence will be chosen at the program

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			level (on the Call of Data Structures (-CD) screen) by sequencing the characters in the appropriate order. Reminder: The format of key group data elements must have been entered in the Dictionary or at the segment level. PACTABLES: ---
		U	References the access key for a VisualAge Pacbase table. This value must be indicated on the group data element if it is a group key.
		S	Indicates that the data element belongs to at least one sub-system. DL1 DBD ---
			(See the DL/1 DATABASE DESCRIPTION Reference Manual)
		U	References a unique key for an DL/1 database.
		M	References a multiple key for an DL/1 database.
		1 to 9	Secondary index All other values designate a search field. DBD AS400 physical file ---
			(See the corresponding DBD Reference Manual)
		0 to 9	AS400 physical file key. Relational databases ---
			(See the corresponding DBD Reference Manual)
		V	Variable length column
		Blank	Fixed length column
		W	For DB2 SQL, SQL/DS and ORACLE, generation of a variable length column (VARCHAR).
		L	For DB2 SQL, SQL/DS and ORACLE, generation of a LONG VARCHAR.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			NOTE: Sort keys are not allowed on data elements redefining other data elements (see VALIDATION and UPDATE FIELDS, below).
			DATA ELEMENT PRESENCE VALIDATION
12	1		CREATION : ELEMENT PRESENCE
		O	Required.
		F	Optional (Default option).
		I	Not allowed.
13	1		MODIFY : ELEMENT PRESENCE
		O	Required.
		F	Optional (Default option).
		I	Not allowed.
14	1		DELETION : ELEMENT PRESENCE
		O	Required.
		F	Optional (Default option).
		I	Not allowed.
15	1		MOD-4 : ELEMENT PRESENCE
			This field is not used by Pactables.
16	1		MOD-5 : ELEMENT PRESENCE
			This field is not used by Pactables.
17	1		MOD-6 : ELEMENT PRESENCE
			This field is not used by Pactables.
			DATA ELEMENT CONTENTS VALIDATION
18	1		CLASS VALIDATION
			This validation must be indicated on the FIRST line for a data element.
		9	Numeric.
		A	Alphabetic.
		Z	Numeric or consists of spaces, which are replaced with zeros.
		blank	No class validation.
19	1		OPERATORS (AND / OR)
			Must not appear on the first line for a data element.
		E	AND,
		O	OR.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
20	1		NEGATION (NOT)
		N	NEGATION ('NOT' is generated).
		blank	No negation.
21	1		TYPE: VALIDATION, UPDATE, VALUES Numeric or alphanumeric literal.
		>	Greater than the value to be validated.
		<	Less than the value to be validated.
		=	Equal to the value to be validated.
		D	Date in DDMMYY format.
		I	Date in YYMMDD format.
		K	Date in DDMMCCYY format.
		L	Date in CCYYMMDD format.
		P	Call of a user's validation sub-program.
		S	This indicates that the data element belongs to one or more sub-schemas. The sub-schemas are entered in the VALUE/SUB-FUNCTION CODE field.
22	10		VALUE/SUB-FUNCTION CODE Numeric or alphanumeric literal. When a user validation sub-program is called, this field contains its external name. It is possible to insert asterisks ('*') into the external name of the program. They will be interpreted as 'B's for batch or as 'O's for on-line. Example: PRG**1 will be interpreted as PRGBB1 for batch and as PRGOO1 for on-line.
		O	With value 'S' in the TYPE: VALIDATION, UPDATE, VALUES field, this value is entered in the position in this field that corresponds to the sub-schemas to which the element belongs. EXAMPLE: ELEM. CONT VALUE/SFC DELCO S O O In this example, the data element 'DELCO' belongs to

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			sub-schemas 1 and 3.
23	10		UNUSED FIELD

2.3. VALIDATION CODING

VALIDATION CODING

The validations to be performed during a table update are specified on the Segment Call of Elements (-CE) screen. The possible validations are:

- Presence validation during creation, modification, and deletion,

- Class validation (numericity),

- Value validations, limited to two operands on two segment description lines in the form:

```
                    Negation Type Value
          Relation Negation Type Value
```

- User validations, limited to one per elementary data element.

  User validations are written in sub-programs called by update programs (batch or on-line).

  Sub-program calls are indicated by the value 'P' in the TYPE: VALIDATION, UPDATE, VALUES field. The called sub-program is entered in the VALUE/SUB-FUNCTION CODE field.

  An example of a validation sub-program is presented in chapter "EXAMPLES OF USER VALIDATIONS".

NOTE: If an error is detected during on-line updating, the table item is displayed from the Data Element on which the sub-program call was indicated on the Segment Call of Elements (-CE) screen.

  Therefore, it is advisable to indicate the user validation sub-program call on the screen's first Data Element.

2.4. DEFINITION OF SUB-SCHEMAS AND SUB-SYSTEMS

DEFINITION OF SUB-SCHEMAS AND SUB-SYSTEMS

The sub-schemas and sub-systems of a table are defined on the Segment Sub-schemas and Sub-systems (-SS) screen.

It is possible to define 10 sub-systems and 10 sub-schemas per table.

The sub-systems are referenced by numbers from 1 to 0 (the value '0' identifies sub-system 10).

The same principle is used for the sub-schemas.

Each sub-schema and sub-system must be given a clear name.

TABLE CREATION **2**
DEFINITION OF SUB-SCHEMAS AND SUB-SYSTEMS **4**

```
--------------------------------------------------------------------------------
!                  Purchasing Management System              *DOC.PA03.PMS.930 !
!           1 2                                                                  !
! TABLE   : TT20 AREACO AREA CODES                                               !
! SUB-SCHEMAS AND SUB-SYSTEMS                                                    !
!                                                                                !
!   3 4   5                              6                                       !
! A T N : NAME                           ENT.                              LIBR.!
!   S 1 : AREA GENERAL INFORMATION                 SUB-SCHEMA   1         0093 !
!   S 2 : INDICATIVE                               SUB-SCHEMA   2         0093 !
!   Y 1 : COUNTIES                       0500      SUB-SYSTEM   1         0093 !
!   Y 2 : CITIES                         1500      SUB-SYSTEM   2         0093 !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
!       :                                                                        !
! *** END ***                                                                    !
! O: C1 CH: Stt20SS                                                              !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	2		DATA STRUCTURE CODE (REQUIRED) This code is made up of two alphanumeric characters. This is a logical code internal to the Database and therefore independent of the names used in Database Blocks and Programs.
2	2		SEGMENT CODE FOR TABLE RECORD (REQUIRED) The first character must be numeric, the second either numeric or alphabetic. However, the second character can be alphabetic only if the first character is other than zero.
		00	This value is not allowed for a data structure defined as a table.
		01-99	Designates a specific record; each record corresponds to a table.
3	1		TYPE OF SEGMENT DEFINITION LINE (REQUIRED)
		S	Sub-schema definition.
		Y	Sub-system definition.
4	1	NUMER.	NUMBER OF SUB-SCHEMA OR SUB-SYSTEM (REQUIRED)
		1 - 0	Sub-schema or sub-system number associated with the clear name indicated on this line. The value '0' corresponds to number 10.
5	30		SUB-SCHEMA/SUB-SYSTEM NAME (REQ. IN CREATION) Standardized label in Pactables.
6	4		OCCURRENCES OF SEGMENT IN TABLE PURE NUMERIC FIELD WITH THE BATCH SYSTEMS DEVELOPMENT function: This is the amount of space reserved for a Segment in memory (USAGE OF DATA STRUCTURE 'T' or 'X', or RECORD TYPE = 3, or 4. For tables (USAGE OF DATA STRUCTURE 'T' or 'X'), the default value at generation time is 100. Pactables: This field is strictly for documentation purposes. PACBENCH CLIENT/SERVER: The value entered in this field indicates the repetitive read or update capacity of the server which calls the Logical View.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			This capacity is expressed by a maximum number of repetitions. The Logical View can then be used as a repeated structure. NOTE: The use of a Logical View in a card layout does not exclude its use in a row layout. It is therefore strongly recommended to systematically fill in this field. Moreover, the entered value must be high enough to limit the exchanges between the client and the server.
		999	Maximum authorized value.

2.5. TABLE GENERATION

TABLE GENERATION

Once a table is described in the Specifications Dictionary, the PACTABLE Manager can create or modify, either globally or partially, table descriptions through the generation of their descriptions.

The request for generation of a table description is executed table by table via generation request lines. These are preceded by a user identification ('*') line, which includes the library where the description of the table to be generated is located.

The Table Generation (GETT) procedure is described in chapter "PACTABLE FUNCTION: BATCH PROCEDURES", subchapter "TABLE GENERATION".

NOTE: The modification of a table key is not allowed; for this reason, any generation request involving the modification of a key will be rejected.

2.6. HISTORICAL ACCOUNTS OF TABLES

HISTORICAL ACCOUNTS OF TABLES

Pactables manages two types of historical accounts:

- Historical accounts of a Table's DESCRIPTION, which allow the Pactables user to manage the data of this table according to descriptions generated on different dates.

- Historical accounts of a Table's CONTENTS, which allow the Pactables user to manage several versions of the same table item.

A. GENERATION OF TABLE DATA HISTORICAL ACCOUNT

Pactables allows for the management of several versions (i.e., historical accounts) of an item's data for a given table description.

In order to create an item historical account, the Pactables user specifies the corresponding date when updating the item.

Updates made without a date will be performed in the most recent historical account.

NOTE: When generating a table description, the Pactables user can specify a date after which NO item historical account can be created.

If this date is not specified, the date of the next table description historical account will apply.

B. GENERATION OF A HISTORICAL ACCOUNT OF A TABLE DESCRIPTION

1. The generation of a new table description automatically adjusts the data contained in historical account(s) dated AFTER this new table description.

   However, it may be useful to keep the previous version in order to avoid possible data loss (e.g., when an item's length is shortened).

   If the new table description is assigned an expiration date, historical accounts dated AFTER this date will be assigned this expiration date.

2. Data contained in historical account(s) dated BEFORE the new table description will not be adjusted to the new description.

   In order to adjust this data, a reorganization must be run. As a result, this data can be managed with the general access module.

A historical account of a table description is managed on the Table Definition screen.

The date is required when generating a table with historical accounts (Table type 'G' or 'M').

Generation is rejected in the following cases:

- If the description already exists at this given date,
- If the date of the new table description precedes the expiration date of the previous table description.

GENERATION OF A TABLE DESCRIPTION WITHOUT A HISTORICAL ACCOUNT

When generating the description of a table without a historical account (Table type 'T' or 'N'), you must enter the DATE field with asterisks. Any other input is ignored by the system.

As each new description is a modification of the current description, table data is automatically adjusted to the new description.

2.7. PACTABLES USER HELP DOCUMENTATION

TABLE USER DOCUMENTATION

Pactables users can generate documentation lines related to tables and their Data Elements. This documentation is accessed on-line.

A table is documented via the extraction of the corresponding segment's documentation lines (from the S....G screen).
Only ' ' (BLANK) or numeric type lines are extracted.

Also, text description lines ('T'-type lines only) can be extracted in order to document a table.

EXAMPLE:

TA05 SEGMENT GENERAL DOCUMENTATION LINES

```
A LIN : T COMMENT
  100 :   This line is an example of user-defined help docu-
  110 :   mentation on the TA05 table
  120 : T      TTTTTTCC
```

Table items can also be documented. Documentation lines are extracted from the corresponding data element's description lines ('E.....D' screen, blank type lines only).

EXAMPLE:

ELEMENT DESCRIPTION

```
A LIN : T S VALUE SIGNIFICANCE - DESCRIPTION
  100 :           This line is an example of user documenta-
  110 :           tion on the ZIP CODE item in table TA05.
```

Documentation lines are extracted during table generation (refer to chapter "BATCH TABLE MANAGEMENT", subchapter "TABLE GENERATION").

ACCESS TO TABLE DOCUMENTATION

In order to access the documentation on a table (or table item) the user positions the cursor on the table number (or on the item field) and presses the assigned PFKey (standard PFKey is PF10). If function keys are not supported by the hardware in use, the user enters '?' on the table number (or item field) and '??' in the ACTION CODE field.

EXITING FROM DOCUMENTATION

In order to return to the documented table or item, the Pactables user enters "FT" in the OPERATION CODE field. This value is automatically displayed when the last documentation page is reached. Blanking out this value calls back the first page.

```
--------------------------------------------------------------------------------
!                                                                              !
!                  DOCUMENTATION                          *DOC.PA03.PMS.930 !
! COMMENTS OF SEGMENT TT20  AREA CODES                                         !
!                                                                              !
! A NLG : T COMMENT                                                    LIBR.!
!   100 : T      CLIINF22                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!                                                                              !
! *** END ***                                                                  !
! O: C1 CH: Stt20G                                                             !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
!                                                                              !
!                  DOCUMENTATION                          *DOC.PA03.PMS.930 !
! DOCUMENTATION OF THE DATA ELEMENT AREACO  AREA CODE                          !
!                                                                              !
! A NLG : T S VALEUR    EXTRA DESCRIPTION                                      !
!   100 :               IT MUST BE CONTROLED IN RELATION TO THE                !
!   110 :               CLIENTS TABLE.                                         !
!   250 : C             NUMBER/CLIENT      *** COLUMN LABEL ***                !
!   300 : P             11111                                                  !
!   500 :               NUMBER ATTRIBUTED IN THE CLIENT TABLE                  !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!       :                                                                      !
!                                                                              !
! O: C1 CH: Eareaco D                                                          !
!                                                                              !
--------------------------------------------------------------------------------
```

2.8. BATCH ACCESS COMMANDS

BATCH ACCESS COMMANDS

For more detail on Data Structures, Segments and Data Elements, refer to the SPECIFICATIONS DICTIONARY Reference manual.

DATA STRUCTURE: BATCH ACCESS

DEFINITION

Batch Form 'A' is used to define a data structure.

ACTION CODES

```
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 a single line (not possible if the
        data structure contains segments, reports or
        is used in programs).

B     = Deletion of the data structure and of its use
        in reports, segments, programs, screens and
        database blocks.
```

SEGMENTS: BATCH ACCESS

DEFINITION

Batch Form '2' is used to define a segment.

ACTION CODES

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 a segment definition line (if no description lines).

B = Deletion of a segment including all its description lines and its use in other entities.

DESCRIPTION

Batch Form '3' is used to call elements into a segment.

ACTION CODES

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 a line.

B = Deletion of a data element/property in a segment starting from this line.
NOTE: You cannot delete several data elements with transaction code 'B'.

R = End of multiple deletion.

3. DATABASE MANAGEMENT

3.1. INTRODUCTION

DATABASE MANAGEMENT TRANSACTION

The xx90 transaction, where xx represents the Pactables transaction root, allows the user to update his/her password on-line and to look up the list of function keys with their assignment, as well as the system parameters (security system and class, language code, date inversion).

Only the Pactables Administrator (user code '********') can update the function keys and the system parameters. By entering his/her user code and password, and pressing the ENTER key, the previously locked fields can be entered.

The Pactables Administrator also updates user codes and passwords, and General and Specific Access Authorizations.

NOTE

On OS/2 and UNIX platforms, user parameters are managed by the submission of the on-line PROCTAPA procedure. For information refer to the operations manual.

3.2. ON-LINE UPDATING OF PASSWORDS

```
--------------------------------------------------------------------------------
!                                                                              !
!                                                                              !
!               ****       PARAMETERS UPDATING        ****                   !
!                                                                              !
!          USER'S CODE .................: -------- 1                          !
!          PASSWORD ....................:2 --------                          !
!                                                                              !
!                 ****  PARAMETERS AND PF FUNCTION  ****                       !
!                                                                              !
!          SECURITY, CLASS, TYPE AND LOCK..: 3 - 4 ---- 5 - 6 -                !
!          LANGUAGE AND DATE REVERSAL .....: 7 - 8  -                          !
!          LINES PER PAGE IN DOCUMENTATION.:  9 --                             !
!          BACK TO 1ST MEMORIZED SCREEN....: PF01 --  10                       !
!          BACK TO 2ND MEMORIZED SCREEN....: PF02 --  11                       !
!          BACK TO 3RD MEMORIZED SCREEN....: PF03 --  12                       !
!          1ST SCREEN MEMORIZATION .........: PF04 --  13                      !
!          2ND SCREEN MEMORIZATION .........: PF05 --  14                      !
!          3RD SCREEN MEMORIZATION .....:  : PF06 --  15                       !
!          JUMP TO PRECEDING SCREEN ....:  : PF07 --  16                       !
!          VALIDATION ..................:  : PF08 --  17                       !
!          'HELP' FUNCTION .............:  : PF10 --  18                       !
!          BACK TO INITIAL SCREEN ......:  : PF11 --  19                       !
!          CONVERSATION EXIT ...........:  : PF12 --  20                       !
!                                                                              !
! O : U1 KEY :                                                                 !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	8		PACTABLES USER CODE (REQUIRED) This code allows the user to access tables.
2	8		PACTABLES PASSWORD This is the password associated with the user code (alphanumeric, uppercase).
			SECURITY SYSTEM AND CLASS Can only be entered by the Pactables manager.
3	1		SECURITY SYSTEM The Pactables manager enters the value which identifies the Security System operating on-site. R RACF A ACF2 BLANK No security system.
4	4		SECURITY CLASS The Pactables manager enters any four characters that will identify the Pactables Database to the Security System.
5	1		SECURITY SYSTEM - RESOURCES P Definition of resources in VisualAge Pacbase BLANK Definition of resources in RACF or TOPSECRET tables
6	1		SECURITY SYSTEM - USER BLANK Possible to enter another user code/password on the initial screen and on * lines. N Not possible to enter another user code/password.
7	1		LANGUAGE CODE This field can only be entered by the Pactables Manager F French E English
8	1		DATE INVERSION This field can only be entered by the Pactables Manager BLANK Machine date MM/DD/CCYY I Inverted date DD/MM/CCYY
9	2	NUMER.	LINES PER PAGE IN DOCUMENTATION STRICTLY NUMERIC FIELD. Defines the number of lines printed on a page for documenting tables. 60 Default value.
			FUNCTION KEYS
10	2		RECALL FIRST MEMORIZED SCREEN

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			In this field the Pactables manager enters the number corresponding to the function key used to recall the first memorized screen.
11	2		RECALL SECOND MEMORIZED SCREEN In this field the Pactables manager enters the number corresponding to the function key used to recall the second memorized screen.
12	2		RECALL THIRD MEMORIZED SCREEN In this field the Pactables manager enters the number corresponding to the function key used to recall the third memorized screen.
13	2		MEMORIZATION OF SCREEN 1 In this field the Pactables manager enters a number corresponding to the function key used for memorization of screen 1.
14	2		MEMORIZATION OF SCREEN 2 In this field the Pactables manager enters a number corresponding to the function key used for memorization of screen 2.
15	2		MEMORIZATION OF SCREEN 3 In this field the Pactables manager enters a number corresponding to the function key used for memorization of screen 3.
16	2		JUMP TO PREVIOUS SCREEN In this field the Pactables manager enters the number corresponding to the function key used to recall the previous screen.
17	2		PACTABLE VALIDATION PFKEY In this field the Pactables Manager enters a Function Key number. This PFKey will allow for a validation on a consulted or updated mono-item screen without displaying the continuation screens if the item's contents exceeds one page.
18	2		HELP FUNCTION In this field the Pactables manager enters the number corresponding to the function key used to call user help documentation.
19	2		BACK TO INITIAL SCREEN In this field the Pactables manager enters the number corresponding to the function key used to recall the initial screen.
20	2		SIGN-OFF In this field the Pactables manager enters the number corresponding to the function key used for transaction

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			exit.

3.3. USE OF FUNCTION KEYS

STANDARD FUNCTION KEYS

Inputting CHOICEs used frequently with Pactables is facilitated by the use of function keys.

A set of standard function keys is provided at installation time.

The xx90 transaction allows the user to change these standard assignments.

STANDARD ASSIGNMENT OF FUNCTION KEYS

	PF1	Recall screen memorized in M1
	PF2	Recall screen memorized in M2
	PF3	Recall screen memorized in M3
	PF4	Memorization of a first screen
	PF5	Memorization of a second screen
	PF6	Memorization of a third screen
	PF7	Call of previous screen
	PF8	Validation
	PF9	Not used
(*)	PF10	User-defined help documentation
	PF11	Return to initial screen
	PF12	End of conversation WITHOUT save

(*) To request the documentation related to a table item (as opposed to a whole screen), position the cursor on this particular item before pressing the PF10 key. This function key calls the user-defined documention related to table data.

For more information, refer to Subchapter "PACTABLES USER HELP DOCUMENTATION", Chapter "TABLE CREATION".

Where hardware does not provide for function keys, the OPERATION field should be entered with the corresponding function key number. Documentation on a given field is obtained by entering '?' in this field and '??' or the PFKey number in the OPERATION field.

3.4. ON-LINE UPDATING OF USER PARAMETERS

UPDATING OF USER PARAMETERS

User parameters are managed in a specific screen called by the value "U2" in the OPERATION CODE field (with access level '3').

This screen can be accessed by the Pactables Manager only (i.e., "********" user code).

It is used to define and update user codes, initialize passwords, and grant General Access Authorizations:

'3' : parameters updating authorized
'2' : consultation and updating
'1' : consultation only
'0' : no general access authorization

This authorization can be modified at the individual table level in the Access Authorization Updating screen specific to each Pactables user (See next subchapter).

When an item is updated, the first six characters of the user code are memorized.

DATABASE MANAGEMENT 3
ON-LINE UPDATING OF USER PARAMETERS 4

USER CODES UPDATING

1	***2***	***3***	***4***
A	CODE	PASSWORD	GLOBAL AUTHORIZATION
	********	MANA	2
	AMIE	GEEZ	2
	BEE	BUSY	1
	BERNIE	HAT	0
	CLARA0	A0	0
	CLARA1	SWEET	0
	CLARA2	NUTRA	2
	DAISY	DAY	2
	DEEDEE	WATER	2
	DWAYNE	TAB	2
	GOOD	GRIEF	0
	JERRY	LEE	1
	JPTOP	TOP	2
	LEAPO	JUMP	2
	LEROY	BROWN	2
	MARY	WIDOW	1
	MOWER	AP2	1
	PINK	ELEPHANT	2

O : U2 KEY :

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	8		PACTABLES USER CODE This code allows the user to access tables.
3	8		PACTABLES PASSWORD This is the password associated with the user code (alphanumeric, uppercase).
4	1		GENERAL ACCESS AUTHORIZATION Indicates the type of general access authorization for a given Pactables user.
		0	Access prohibited.
		1	Consultation authorized.
		2	Consultation and updating authorized.
		3	Parameters updating authorized.

3.5. ON-LINE UPDATING OF ACCESS AUTHORIZATIONS

UPDATING ACCESS AUTHORIZATIONS

Access authorizations are managed in a specific screen called by the value "U3" in the OPERATION CODE field.

This screen can be accessed by the Pactables Manager only (i.e., "********" user code).

It is used to consult and update a Pactables user's table- specific access authorizations.

A user code entered in the KEY field allows the Pactables Manager to directly access the Specific Authorizations screen corresponding to that user.

NOTE: Input in the KEY field need not be a defined user code. It may just be used as a starting mark for searching purposes.

The "U3" screen can be called for any user. If no specific authorizations have been granted to a user, only his/her user code and global authorization will be displayed.

```
--------------------------------------------------------------------------------
!                                                                              !
!              **** ACCESS AUTHORIZATION UPDATING ****                         !
!           USER CODE ...................: MOWER                               !
!           GLOBAL ACCESS AUTHORIZATION .: 1                                   !
! 1  2       3       456                                                       !
! A  TABLE   LIN     ACCESS AUTHORIZATIONS                                     !
!    ADRE    000     121                                                       !
!                                                                              !
!    DISVAL  000     **1                                                       !
!                                                                              !
!    DOMAIN  000     1*1                                                       !
!                                                                              !
!    BOOKS   000     1*1   4*0   1*0   2*0   3*0                               !
!                                                                              !
!    BOOKS   001     1*0   110   120   130   140   150   2*0                   !
!                                                                              !
!    BOOKS   002     2*0                                                       !
!                                                                              !
!    BOOKS   003     1*0   110   120   130   140   150   2*0                   !
!                                                                              !
!    BOOKS   004     **0   4*0   1*0   2*0   3*0                               !
!                                                                              !
!                                                                              !
! O : U3 KEY : MOWER                                                           !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
3	3		LINE NUMBER
			TABLE ACCESS AUTHORIZATION NUMBER OF REPETITIONS : 20 This field allows the Pactables Manager to grant an access authorization specific to a given table. This field is made up of three sub-fields described below.
4	1		SUB-SCHEMA NUMBER
		0 to 9	Number of sub-schema to which the access authorization applies. The value '0' corresponds to sub-schema 10.
		*	All sub-schemas.
5	1		SUB-SYSTEM NUMBER
		0 to 9	Number of sub-system to which the access authorization applies. The value '0' corresponds to sub-system 10.
		*	All sub-systems.
6	1		SPECIFIC AUTHORIZATIONS Authorization applies to the sub-schema/sub-system couple defined in the preceding fields.
		0	Access prohibited.
		1	Consultation authorized.
		2	Consultation and updating authorized.

4. PACTABLES: ON-LINE USE

4.1. INTRODUCTION

GENERAL INFORMATION

Pactables allows the user to consult the contents of a table as a whole, or to consult a table sequentially, item by item. It also permits the update of a particular table item on-line.

The table description must have previously been entered in the Specifications Dictionary, and the batch table generation procedure must have previously been executed.

Once these descriptions and procedures are completed, the user can access the table.

LOWER AND UPPER CASE PROCESSING

Lower case input in the USER CODE, PASSWORD, and OPERATION fields entered in lower case is automatically changed into upper case. No such processing is performed for the other fields.

EXCEPTION:

Lower case is automatically changed into upper case in the JCL input screen accessed with 'LJ' in the OPERATION field, except if 'X' is entered in the ACTION CODE field.

4.2. PACTABLES SIGN-ON SCREEN

PACTABLES SIGN-ON SCREEN

In order to consult a table's contents the following input must be entered on the initial Pactables screen:

- USER code (Required)

- User PASSWORD (Required)

- TABLE code (Optional)

- Historical account DATE (MMDDYY) (Optional)

  The system takes the current version by default which is the most recent historical account.

- SUB-SCHEMA number (Optional)

- SUB-SYSTEM number (Optional)

  (For both numbers, '0' = '10')

- Operation code (Optional)

  By default, consultation (='LD'),

  If the Table code is entered, the Operation code default value is:

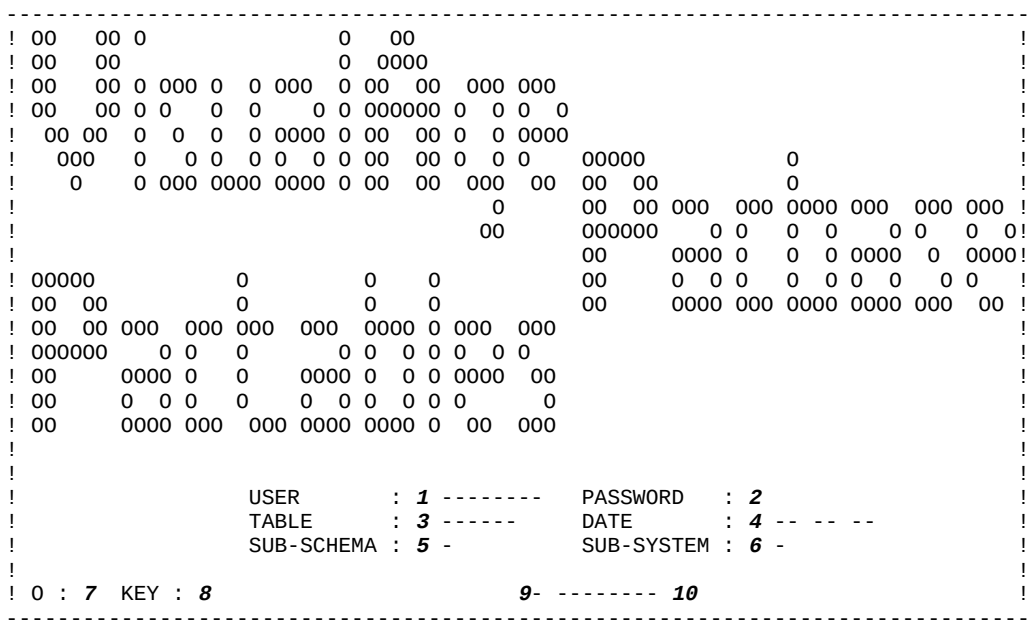
    'C2' if the contents of the item fit on one line,
    'C1' if they do not fit on one line.

- Key (Optional)

  Beginning of consultation; item to be updated; first item displayed in lists.

The user may modify his/her password by entering 'M' in the action code field and the new password in the appropriate field. The new password must be confirmed and lower case letters are automatically transformed in upper case letters.

PACTABLES: ON-LINE USE 4
PACTABLES SIGN-ON SCREEN 2



NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	8		PACTABLES USER CODE (REQUIRED) This code allows the user to access tables.
2	8		PACTABLES PASSWORD (REQUIRED) This is the password associated with the user code (alphanumeric, uppercase).
3	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
4	6		DATE OF HISTORICAL ACCOUNT This is the date in DDMMCCYY format of the Historical Account of the table to be accessed. If this field is not entered, the most recent date is taken into account.
5	1	NUMER.	SUB-SCHEMA NUMBER Number of sub-schema selected for consultation. Sub-schemas are defined and managed by the user when the corresponding tables are defined.
		blank	The whole table.
		1,2..9,0	Sub-schema number (1 to 10, the value 0 corresponds to sub-schema No. 10).
6	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
7	2		OPERATION CODE
		LD	On-line documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification
		DE	Item deletion
		LT	List of tables

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	List of JCL for Table printing
		FT	Return to Pactables Sign-On screen. End of Conversation when entered in that screen.
8	20		KEY Input in this field is related to the input in the OPERATION CODE field. With "C1", "CR", "CM", "MO", or "DE" in the OPERATION CODE field, input in the KEY field identifies the concerned item. With "C2" in the OPERATION CODE field, input in the KEY field identifies the item from which the table is to be consulted. With "C3" in the OPERATION CODE field, inputting the KEY field identifies the item from which historical accounts are displayed. For information regarding "LT", "LS", "LH", "LD", "LE", or "LJ" in the OPERATION CODE field, refer to chapter "PACTABLES: ON-LINE USE", subchapter "LISTS".
9	1		ACTION CODE
		M	Password modification.
		BLANK	No modification of the password.
10	8		NEW PASSWORD The user should enter his/her new password in this field. This password will only be taken into account if the value 'M' is entered in the preceding field.

4.3. CONSULTATION/UPDATE OF TABLES

CONSULTATION/UPDATE OF TABLES

On-line use of Pactables provides three display options:

- Single item display ('C1', 'CR', 'CM', 'DE', 'MO'),

- Multi-item display ('C2'),

- Display of an item's historical accounts ('C3').

Regarding the first two display options, consultation is possible:

- On all the table items, or on only a part of the items (selection of a sub-system);

and/or

- On all the data of a table item, or on only a part of the data of an item (selection of a sub-schema).

No such selection is possible with the third display option.

Alphanumeric input fields are delimited by a period which allows the user to check the field's real length when entering changes. For creation, the field is underscored.

At any time during consultation, the user can access:

. Another table by overriding the displayed table code,

. Another sub-schema and/or sub-system,

. Another historical account by overriding the date.

SINGLE ITEM DISPLAY

The 'single item' screen is used to display an item or a part of an item if the whole item cannot be totally displayed on one screen.

This screen is called by different values in the OPERATION CODE field:

```
C1   : CONSULTATION
CR   : CREATION
DE   : DELETION
MO   : MODIFICATION
```

The KEY field is used for item selection. Its input is required when the item is to be deleted (except when the deletion is performed after the display of the item).

It is also possible to enter the key in the data elements making up the item's key (their label is followed by an asterisk).

This screen is divided into two parts:

LEFT: Short title of the data element, or clear name of the data element truncated to 18 characters, if no title was defined on the General Documentation (-G) screen of the data element.

The data element titles are followed by a colon, except for the titles of data elements which make up a key, in which case they are followed by an asterisk.

RIGHT: Contents of a data element limited by a period when alphanumeric. The decimal separator is also a period. Signed data elements are identified by the letter "S" in the "CR" single item screen.

The contents of a data element can be placed on one or more lines of the screen. For a numeric data element, the decimal point and sign are displayed if they are defined in the Specifications Dictionary.

If the contents of a table item cannot fit on one screen, '.../...' is displayed at the bottom right of the screen in order to indicate a continuation screen.

The date of the last update on a selected historical account of an item is displayed at the bottom right of the screen.

Alphanumeric input fields are marked off by a period '.' (displayed immediately after each input field), which indicates to the user the real length of the input field in case of a modification.

For numeric fields, the following may be displayed:

. The character '.' to indicate the location of the point,

. The character 'S' for signed fields.

CREATION AND MULTIPLE CREATION OF TABLE ITEMS

1. ITEM CREATION:

The value "CR" in the OPERATION CODE field allows for the creation of an item by entering its code in the KEY field.
After the ENTER key is pressed, the new item is displayed and the value in the OPERATION CODE is changed to "C1".

2. MULTIPLE CREATION OF ITEMS:

The value "CM" in the OPERATION CODE field allows for the creation of an item by entering its code in the KEY field.
After the ENTER key is pressed, the new item is displayed and the value in the OPERATION CODE remains "CM", thus allowing the PACTABLE user to request another creation by entering the new item's key in the KEY field.

If no item key is entered, and the ENTER key is pressed, a blank item screen is displayed.

In order to stop the Multiple Creation, the Pactables user enters the OPERATION CODE with a value other than "CM".

3. NOTE:

An already existing item may be used to create another item. In this case, the Pactables user calls that first item, enters the new item's key in the KEY field. All the values previously entered in the existing item's data elements are reproduced onto the new item unless modified by the Pactables user (with the new item's key in the KEY field).

PACTABLES: ON-LINE USE 4
CONSULTATION/UPDATE OF TABLES 3

```
-------------------------------------------------------------------------------
!                      1 INFOS  CLIENTS INFOS DESCR 02 10 88    AT 2 02/10/84 !
! S-SC: 3                              S-SY: 4                                  !
!                                                                               !
! CLIENT NUMBER 1    * 11111                                                    !
! CLIENT NUMBER 2    * 22                                                       !
! CLIENT NAME        : AREND          .                                         !
! STREET             : CHEYENNE       .                                         !
! TOWN (L)           : NEW YORK       .                                         !
! ZIP CODE           : 10016                                                    !
! TELEPHONE NUMBER   : (212) 555-1234                                           !
! STARTING DATE      : 790202                                                   !
! PRECED. YEAR TOTAL : +2000.00                                                 !
! ORDER TOTAL        : +5000.00                                                 !
! UNPAID INV. TOTAL  : +1000.00                                                 !
! DISCOUNT RATE CODE : AB.                                                      !
! SUB-SYSTEM TC10    : 13.                                                      !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!     5       6                                                                 !
! O : C1 KEY :                       CLIENT N0 (L)                              !
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
!                      1 INFOS  CLIENTS INFOS DESCR 02 10 88    AT 2 02/10/84 !
! S-SC: 3                              S-SY: 4                                  !
!                                                                               !
! CLIENT NUMBER 1    * -----                                                    !
! CLIENT NUMBER 2    * --                                                       !
! CLIENT NAME        : ---------------.                                         !
! STREET             : ---------------.                                         !
! TOWN (L)           : ---------------.                                         !
! ZIP CODE           : -----                                                    !
! TELEPHONE NUMBER   : ---------------                                          !
! INCEPTION DATE     : ------                                                   !
! PRECED. YEAR TOTAL : S----.--                                                 !
! ORDER TOTAL        : S----.--                                                 !
! UNPAID INV. TOTAL  : S----.--                                                 !
! REDUCT. RATE CODE  : --.                                                      !
! SUB-SYSTEM TC10    : ---.                                                     !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!     5       6                                                                 !
! O : CR KEY :                           CLIENT N0 (L)                          !
-------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
2	6		DATE OF HISTORICAL ACCOUNT This is the date in DDMMCCYY format of the Historical Account of the table to be accessed. If this field is not entered, the most recent date is taken into account.
3	1	NUMER.	SUB-SCHEMA NUMBER Number of sub-schema selected for consultation. Sub-schemas are defined and managed by the user when the corresponding tables are defined.
		blank	The whole table.
		1,2..9,0	Sub-schema number (1 to 10, the value 0 corresponds to sub-schema No. 10).
4	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
5	2		OPERATION CODE
		LD	On-line documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification
		DE	Item deletion
		LT	List of tables
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	List of JCL for Table printing
		FT	Return to Pactables Sign-On screen. End of Conversation when entered in that screen.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			On mono-item consultation screen:
		CM	Item multiple creation.
6	20		KEY Input in this field is related to the input in the OPERATION CODE field. With "C1", "CR", "CM", "MO", or "DE" in the OPERATION CODE field, input in the KEY field identifies the concerned item. With "C2" in the OPERATION CODE field, input in the KEY field identifies the item from which the table is to be consulted. With "C3" in the OPERATION CODE field, inputting the KEY field identifies the item from which historical accounts are displayed. For information regarding "LT", "LS", "LH", "LD", "LE", or "LJ" in the OPERATION CODE field, refer to chapter "PACTABLES: ON-LINE USE", subchapter "LISTS".

MULTI-ITEM SCREEN DISPLAY

The 'multi-item' screen allows the user to consult the contents of several subsequent items in a table. It is accessed with 'C2' in the OPERATION field.

This screen displays one to three lines of column titles defined in the Specifications Dictionary, and several lines of data contents, one item per line.

If no column title is indicated on the General Documentation screen of a data element, Pactables creates a column title directly from the clear name of the data element.

The column titles for the successive data elements are separated by a blank and their length depends on their description in the VisualAge Pacbase Specifications Dictionary.

As with the single item display screen, the decimal point and the sign for numeric data elements are indicated if they are defined in the VisualAge Pacbase Specifications Dictionary.

If the contents of the table item do not entirely fit onto one screen line, '.../...' will be displayed in the bottom right of the screen in order to indicate that there is a continuation screen. In order to access this screen, the RANK field should be entered with the horizontal rank of the data element which begins the continuation line.

If a data element is too large to fit on one screen line, the second part of the RANK field should be entered with the appropriate column number to obtain the rest of display. Note that this facility can only be used with alphanumeric data elements.

PACTABLES: ON-LINE USE 4
CONSULTATION/UPDATE OF TABLES 3

```
--------------------------------------------------------------------------------
!                      1 INFOS  CLIENTS INFOS DESCR 02 10 88    AT 2 02/10/84 !
! S-SC: 3                                S-SY: 4                               !
!                                                                              !
! CLIENT  NAME            STREET          TOWN (L)        CODE  TEL. NUMBER   !
! N0      OF                                                                   !
!         CLIENT                                                               !
! 1111111 SMITH           Doctor NO       LYONS           36001 123 45 67      !
! 1111122 WESSON          Royale          CHAMPLAIN       37021 222 45 67      !
! 1111133 EWING           BLUE MOUNTAIN   DRYDEN          47033 456 45 67      !
! 2222211 Cesar           Maple           Greenwich       13098 009 00 01      !
! 2222222 O'HARA          LINDEN          GRAND GORGE     13098 077 00 01      !
! 2222233 McGRAER         MAIN            FULTON          54077 067 30 11      !
! 3333311 ALABAMA         LAKEWOOD        RIPLEY          65087 498 65 29      !
! 3333322 WHITE           GEORGE WASHING  WATERLOO        87043 438 57 81      !
! 3333333 Pureyfory       North           Horseheads      45894 222 01 03      !
! 4444411 ENGLISH         WYCKOFF         ONEIDA          72094 452 01 03      !
! 4444422 BROWN           McGILL          OWEGO           66084 785 64 87      !
! 4444433 McCRONKITE      HOT POINT       MARGARETVILLE   24704 434 51 93      !
! 5555511 Connaly         South           Saratoga Spring 75008 789 58 96      !
! 5555522 MARSHALL        SUN             POUGHKEEPSIE    75198 476 94 31      !
! 5555533 Ford            Magnolia        ADAMS           75008 555 88 99      !
! 6666611 JACKSON         HIGH            CARTHAGE        34018 565 99 99      !
!    5                                                              .../...    !
! O : C2 KEY : 6                          CLIENT N0 (L)       RANK 7 01 001    !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
2	6		DATE OF HISTORICAL ACCOUNT This is the date in DDMMCCYY format of the Historical Account of the table to be accessed. If this field is not entered, the most recent date is taken into account.
3	1	NUMER.	SUB-SCHEMA NUMBER Number of sub-schema selected for consultation. Sub-schemas are defined and managed by the user when the corresponding tables are defined. blank — The whole table. 1,2..9,0 — Sub-schema number (1 to 10, the value 0 corresponds to sub-schema No. 10).
4	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated. BLANK — The whole table. 1,2..9,0 — Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
5	2		OPERATION CODE LD — On-line documentation C1 — Single item consultation C2 — Multi-item consultation C3 — Consultation of an item's historical accounts CR — Item creation MO — Item modification DE — Item deletion LT — List of tables LS — List of sub-schemas and sub-systems sorted by table LH — List of table historical accounts LE — List of Table Print requests sorted by user LJ — List of JCL for Table printing FT — Return to Pactables Sign-On screen. End of Conversation when entered in that screen.
6	20		KEY

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Input in this field is related to the input in the OPERATION CODE field. With "C1", "CR", "CM", "MO", or "DE" in the OPERATION CODE field, input in the KEY field identifies the concerned item. With "C2" in the OPERATION CODE field, input in the KEY field identifies the item from which the table is to be consulted. With "C3" in the OPERATION CODE field, inputting the KEY field identifies the item from which historical accounts are displayed. For information regarding "LT", "LS", "LH", "LD", "LE", or "LJ" in the OPERATION CODE field, refer to chapter "PACTABLES: ON-LINE USE", subchapter "LISTS".
7	5	NUMER.	RANK Input in this field allows the PACTABLE user to request the display of the Multi-Item screen from a given data element by entering its rank in the first two positions and from a given position of this data element in the last three positions. EXAMPLE: With "04 008" in the RANK field, the Multi-Item screen display will start from the 8th character of the 4th data element. NOTE: The item's first data element, i.e., the item key, is always displayed.

DISPLAY OF HISTORICAL ACCOUNTS OF ITEMS

The user can consult historical accounts of a table's items by entering 'C3' in the OPERATION field.

The screen displays the following data for each item:

. The date of the historical account,

. The date of the last update, followed by 'D' if it was a deletion,

. The code of the user who performed this update. Only the first 6 characters are displayed.

The item's contents are not displayed.

Data displayed on this screen cannot be updated.

HISTORICAL ACCOUNTS OF TABLE ITEMS INFOS5

KEY	HISTORICAL DATE	LAST UPDATE		USER
0000001	02/15/87	01/01/89	D	******
0000001	01/15/88	01/01/89	D	BEE
0000002	01/15/88	01/09/89	D	MOWER
0000055	02/15/86			
0000066	02/15/84			
0000077	02/15/83			
1111111	01/15/88			
1111111	01/01/86	03/27/88		BEE
1111122	01/01/88			
1111133	01/01/85			
2222211	01/01/85	03/27/88		PINK
2222222	01/01/85			
2222233	01/01/86			
2300053	02/15/88			
3333311	01/01/87			
3333322	01/01/86			
3333333	01/01/84			
4444411	01/01/82			
4444422	01/01/89			

O : C3 KEY :

4.4. LISTS

LISTS

Table, Sub-schema, and Sub-system Lists are accessed via the following input in the OPERATION CODE field:

LT: List of tables. A table code specified in the KEY field indicates with which table the list begins.

LS: List of the sub-schemas and sub-systems by table. A table code specified in the KEY field indicates with which table the list begins.

LH: List of Historical Accounts of Tables. A table number specified in the KEY field indicates with which table the list begins.

LD: Documentation. In order to access documentation starting from a specific line number, enter that line number in the LINE field at the bottom of the screen.

LE: List of table data print requests sorted by user. The ACTION CODE is implicit in this screen. A table code entered in the KEY field specifies with which table the list begins.

LJ: List of JCL lines for table printing, sorted by user. The ACTION CODE is implicit in this screen. A line number entered in the KEY field specifies with which line the list begins.

PACTABLES: ON-LINE USE **4**
LISTS **4**

```
!                            LIST OF TABLES UP TO 05/11/88                      !
!                                                                               !
! NUMBER              NAME                    ARCHIVAL LAST-UPDATE  DESCRIPTION !
! INFUS1 GENERAL INFORMATION                  03/10/88    03/10/88    03/10/88  !
! INFUS2 INFORMATION ON ACTIVITIES            03/10/88    03/10/88    03/10/88  !
! INFUS3 INFORMATION ON QUALITY               03/10/88    03/10/88    03/10/88  !
! LIPAYS COUNTRY NAMES                        03/10/88    03/10/88    03/10/88  !
! MONNAI CURRENCY CODES                       03/10/88    03/10/88    03/10/88  !
! NATURE NATURE OF CUSTOMERS                  03/10/88    03/10/88    03/10/88  !
! SALLES LIST OF OFFICES                      03/10/88    03/10/88    03/10/88  !
! TUBES  DIAMETERS AND LENGTHS                03/10/88    03/10/88    03/10/88  !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
! 7  0 END OF DATA: TRANSMIT         TO RETURN TO BEGINNING                     !
! O : LT        KEY :                                                           !
```

```
!                      LIST OF SUB-SCHEMAS AND SUB-SYSTEMS UP TO  05/11/88     !
!                                                                               !
!                        TABLE INFOS2 CLIENTS INFOS2  DESC 05 10 88             !
!                                                                               !
!                                                                               !
!  NO. NAME OF SUB-SCHEMA                    NO. NAME OF SUB-SYSTEM             !
!                                                                               !
!   1  CLIENT ADDRESSES                       1  CLIENTS-NEW YORK               !
!   2  ORDER-TOTAL                            2  CLIENTS-OTHER STATES           !
!   3  UNPAID INVOICES-TOTAL                  3  CLIENTS-FOREIGN                !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
!                                                                               !
! O : LS        KEY :                                                           !
```

```
--------------------------------------------------------------------------------
!                          LIST OF HISTORICAL ACCOUNTS OF TABLES                 !
!                                                                                !
! NUMBER            NAME             ARCHIVAL UPD.DATE ----- DESCRIPTION -----  !
! INFUS1 GENERAL INFORMATION         03/10/88 03/10/88 03/10/88 TC21 TES 0533Z  !
! INFUS2 INFORMATION ON ACTIVITIES   03/10/88 03/10/88 03/10/88 TC22 TES 0533Z  !
! INFUS3 INFORMATION ON QUALITIES    03/10/88 03/10/88 03/10/88 TC23 TES 0533Z  !
! LIPAYS COUNTRY NAMES               03/10/88 03/10/88 03/10/88 TC24 TES 0533Z  !
! MONNAI CURRENCY CODES              03/10/88 03/10/88 03/10/88 TC26 TES 0533Z  !
! NATURE NATURE OF CUSTOMERS         03/10/88 03/10/88 03/10/88 TC27 TES 0533Z  !
! SALLES LIST OF OFFICES             03/10/88 03/10/88 03/10/88 TC28 TES 0533Z  !
! TUBES  DIAMETERS AND LENGTHS       03/10/88 03/10/88 03/10/88 TC42 TES 0533Z  !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
!                                                                                !
! O : LH        KEY :                                                            !
--------------------------------------------------------------------------------
```

4.5. ON-LINE PRINTING REQUESTS

ON-LINE PRINTING REQUESTS

The List of Table Data Print Requests (O: LE) allows the Pactables user to submit the execution of a printing job via the following input:

- The table code,
- The sub-system number (by default, ALL sub-systems),
- The sub-schema number (by default, NO sub-schema),
- The historical account date (by default, the most recent historical account),
- The key print option.

On this screen, the action code is implicit.

Print requests can be submitted on-line if the JOB function is available. Once the print request is validated ('V' entered in the VALIDATION OF PRINT REQUEST field on the 'LE' screen), the user can submit the JCL by filling in the JOB field on the 'LE' or 'LJ' screen.

```
-------------------------------------------------------------------------------
!                          PRINT REQUESTS                       USER: MOWER  !
! 1    2      3 4  5 6      7                                                 !
! A CO TABLE  C Y  V YYMMDD O                                                 !
!   TZ INFOS  1 2  V                                                          !
!   TZ INFOS2              O                                                  !
!   TZ LP0020      V 880208                                                   !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!   TZ                                                                        !
!     8                                                                       !
! O : LE KEY : 9                                          JOB: 10           !
-------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
3	1		SUB-SCHEMA NUMBER PRINTING OF TABLE CONTENTS ----------
		0 to 9	Indicates the sub-schema to be processed. The value '0' corresponds to sub-schema '10'. This sub-schema number is entered only when requesting a print-out of the contents of a table. When entered with another procedure, input in this field is ignored.
4	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
5	1		VALIDATION OF COMMAND REQUEST This field does not appear on the "C2" screen format option.
		blank	The value in the COMMAND FOR PRINT REQUEST field is not to be taken into account.
		V	The COMMAND FOR PRINT REQUEST is validated. NOTE: These commands must be re-validated each time a request is made.
6	6		DATE OF HISTORICAL ACCOUNT

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			If this field is not entered, the most recent date is taken into account.
7	1		PRINT OPTION This field is used when the key is a group data element.
		BLANK	Print of the group data element,
		O	Print of elementary data elements.
8	2		OPERATION CODE
		LD	On-line documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification
		DE	Item deletion
		LT	List of tables
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	List of JCL for Table printing
		FT	Return to Pactables Sign-On screen. End of Conversation when entered in that screen.
9	20		KEY Input in this field is related to the input in the OPERATION CODE field. With "C1", "CR", "CM", "MO", or "DE" in the OPERATION CODE field, input in the KEY field identifies the concerned item. With "C2" in the OPERATION CODE field, input in the KEY field identifies the item from which the table is to be consulted. With "C3" in the OPERATION CODE field, inputting the KEY field identifies the item from which historical accounts are displayed. For information regarding "LT", "LS", "LH", "LD", "LE", or "LJ" in the OPERATION CODE field, refer to chapter "PACTABLES: ON-LINE USE", subchapter "LISTS".
10	3		JOB SUBMISSION REQUEST Used to automatically submit the generation or printing job when the hardware and TP monitor allow for it. The job stream will contain only validated commands for print requests.
		BLANK	No job submission.

NUM LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
	JOB	Job submission.
	SUB	Job submission.

JCL OF TABLE PRINTING

The JCL of Print Requests screen (O: LJ) allows the Pactables user to consult and update the JCL for table printing and to submit the execution of a print job.

Each JCL line entered with the '********' user code is preceded by an asterisk (refer to chapter "PACTABLES: BATCH PROCEDURES", subchapter "USER PARAMETER UPDATING").

Each user may modify this standard JCL by overriding existing lines.

On this screen, the action code is implicit.

NOTE

On OS/2 and UNIX Pactables platforms, the 'LJ' screen cannot be accessed, since the user does not have to input JCL lines to submit printing requests.

```
--------------------------------------------------------------------------------
!                       JCL OF PRINT REQUESTS                    USER: MOWER  !
! 1    2            3                                                         !
! C CO LINE         CONTENT                                                   !
!   TJ 000100       //PSTEDTA JOB (632),'EDIT',CLASS=X,MSGCLASS=X             !
! * TJ 000200       //JOBCAT   DD DSN=PAC.VSAMCAT,DISP=SHR                    !
!   TJ 000210       //*        PROCEDURES IN TEST                             !
! * TJ 000300       //PTA320 EXEC PGM=PTA320                                  !
! * TJ 000400       //*     ***   PRINT REQUESTS TABLES 8.0 ***               !
! * TJ 000500       //STEPLIB  DD DSN=PDV.LULU.MBR7,DISP=SHR                  !
! * TJ 000600       //SYSUDUMP DD SYSOUT=X                                    !
! * TJ 000700       //SYSOUT   DD SYSOUT=X                                    !
! * TJ 000800       //SYSOUX   DD SYSOUT=X                                    !
! * TJ 000900       //PAC7TD   DD DSN=CICS.PAC.PG00TD,DISP=SHR                !
! * TJ 001000       //PAC7TV   DD DSN=CICS.PAC.PG00TV,DISP=SHR                !
! * TJ 001100       //PAC7TE   DD DSN=CICS.PAC.PG00TE,DISP=SHR                !
! * TJ 001200       //PAC7TG   DD DSN=CICS.PAC.PG00TG,DISP=SHR                !
! * TJ 001300       //PAC7ED   DD DSN=&&TABLE,DISP=(NEW,PASS),UNIT=SYSDA,     !
! * TJ 001400       //            DCB=(RECFM=FB,LRECL=80,BLKSIZE=800),        !
! * TJ 001500       //            SPACE=(TRK,5,,CONTIG)                       !
! * TJ 001600       //PAC7XE   DD SYSOUT=X                                    !
! * TJ 001700       //PAC7CA   DD *                                           !
! * TJ 600100       //PTA350   EXEC PGM=PTA350                                !
!     4                                                                      !
! O : LJ KEY : 5                                              JOB: 6         !
--------------------------------------------------------------------------------
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		LINE OWNERSHIP - ACTION CODE This field is used to differentiate JCL lines common to all Pactables users (i.e., to user '********') from those belonging to the connected user:
		*	JCL line commom to all users,
		BLANK	User-specific JCL line.
			This field is also used for ACTION CODE input:
		BLANK	Creation or Modification
		X	Creation or Modification without transformation of lowercase into uppercase input.
		C	Creation
		M	Modification
		D	Deletion
2	6		LINE NUMBER FOR THE JCL (REQUIRED) This field contains the line number used to put the JCL lines in order.
		< 600000	Lines at the beginning of the stream.
		> 599999	Lines at the end of the stream.
3	65		CONTENTS OF THE JCL LINE
4	2		OPERATION CODE
		LD	On-line documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification
		DE	Item deletion
		LT	List of tables
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	List of JCL for Table printing
		FT	Return to Pactables Sign-On screen. End of Conversation when entered in that screen.
5	20		KEY Input in this field is related to the input in the OPERATION CODE field. With "C1", "CR", "CM", "MO", or "DE" in the OPERATION CODE field, input in the KEY field identifies the concerned item. With "C2" in the OPERATION CODE field, input in the KEY field identifies the item from which the table

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			is to be consulted. With "C3" in the OPERATION CODE field, inputting the KEY field identifies the item from which historical accounts are displayed. For information regarding "LT", "LS", "LH", "LD", "LE", or "LJ" in the OPERATION CODE field, refer to chapter "PACTABLES: ON-LINE USE", subchapter "LISTS".
6	3		JOB SUBMISSION REQUEST Used to automatically submit the generation or printing job when the hardware and TP monitor allow for it. The job stream will contain only validated commands for print requests.
		BLANK	No job submission.
		JOB	Job submission.
		SUB	Job submission.

5. PACTABLES: BATCH PROCEDURES

5.1. INTRODUCTION

BATCH TABLE MANAGEMENT

In addition to table on-line processing, specific procedures allow the Pactables user to work on tables in batch mode.

The purpose of this chapter is to give the user information on each Pactables procedure.

This chapter does not contain the JCL description associated with each procedure since JCL lines vary with hardware and operating systems. JCL lines are found in the corresponding Pactables Operations Manuals.

The procedures described in this chapter are the following:

- User Parameter Update — PMTA
- Table Generation — GETA/GETT or GETD/GETT
- Table Update — UPTA
- Incorporation of Existing Tables — IMTA
- Table Printing — PRTA
- Extraction of Data from a Table — EXTA
- Direct Consultation of Tables — TUTA
- List of Table Descriptions — LDTA
- Table Reorganization — RETA
- Dispatched Table Management:
  - Table Description Comparison — CDT1
  - Table Description Update — CDT2
  - Table Contents Comparison — CVTA

The forms needed to execute these procedures are described in chapter "DESCRIPTION OF BATCH FORMS".

5.2. USER PARAMETERS UPDATE (PMTA)

USER PARAMETERS UPDATE (PMTA PROCEDURE)

This procedure updates:

- User codes,
- Access authorizations,
- Table printing request JCL lines via the JOB function.

During the execution of this procedure, the table files must be closed.

UPDATE OF USER CODES

All Pactables user codes are stored in the User Parameters File 'TG'. Batch Form 'TA' is used for updating user codes. Each user is identified by a code and a password which must be entered for each table access, whether in on-line or batch mode.

ACCESS AUTHORIZATIONS

For all or some tables a given user may have:

- No access authorization,
- Consultation only,
- Consultation and update.

There are two types of access authorizations entered in two different ways:

- A global authorization granting access to all tables, defined together with the user code (Batch Form 'TA');
- Specific authorization access by table, which can either broaden or restrict the global authorization. These specific table access authorizations are entered on Batch form 'TC'.

Batch form 'TC' includes the user code, the table number, a line number and a series of 20 triplets, each triplet containing:

- The number of the sub-schema affected by the authorization,
- The number of the sub-system affected by the authorization,
- The authorization level assigned to the sub-schema/subsystem couple.

No consistency validation is performed during update.

REMINDER: Update applies to the item as a whole, it cannot be limited to one (or several) sub-schema(s).

USER CODE: '********'

The Pactables user code '********' has a specific purpose. It supports the initial JCL needed to print table contents (On-line submission via the JOB function). In addition, it is used in order to obtain the list of all user codes with their associated passwords, access authorization(s) and JCL cards.

A password may be assigned to this special user code for security purposes.

CONTROL CARDS

The JCL necessary for printing table contents may be updated in batch mode.

This update is done with Batch form 'TJ' for each user.

PRINTED REPORTS

This procedure prints:

- A procedure report including encountered errors,
- If the '********' user code was entered in the input transactions:

. A list of all user parameters,

. A list sorted by table of users granted access to that table including their access authorization level.

5.3. TABLE GENERATION (GETA-GETT)

TABLE DESCRIPTION GENERATION

The generation of a table description consists of:

- The extraction of table Segments from the Specifications Dictionary.
- The update of the table description file.
- The initialization of the table heading when a new description is created.

Two procedures are executed:

- The GETA procedure:

  Related to the Dictionary environment, it generates table descriptions in an intermediary file.

- The GETT procedure:

  Related to the Pactables environment, it physically updates table descriptions and contents according to the intermediary file obtained in GETA output.

REMINDERS ON GENERATION PRINCIPLES

GENERATION OF TABLES WITH HISTORICAL ACCOUNTS

1. The generation of a new table description automatically adjusts the data contained in historical account(s) dated AFTER this new table description. If the new table description is assigned an expiration date, historical accounts dated AFTER this date will be assigned the same expiration date.

2. Data contained in historical account(s) dated BEFORE the new table description will not be adjusted to the new description. In order to adjust this data, a reorganization must be run. As a result, this data can be managed with the general access module.

GENERATION OF TABLES WITHOUT HISTORICAL ACCOUNT

Since each new description is a modification of the current description, table data is automatically adjusted to the new description.

Possible actions on table descriptions are:

- Creation of a new description,
- Modification of a description (except key modifications)
- Physical deletion of all table descriptions & contents.

NOTE: When a table WITH historical accounts is transformed into a table WITHOUT historical accounts, its description may be modified and only the historical account (description and data) with the most recent date is kept.

During the execution of these procedures, the Pactables files must be closed to on-line use.

USER INPUT

A user identification line ('*') must contain the user code and the associated password. Also needed is the code of the library where the table segments are described.

A request line for the printing generation ('Z') for each table on which the user must enter the segment code and, if needed, the table number with the operation to be carried out.

REPORT RESULTS

Two reports are generated:

- A report on generation, modification, deletion and print requests related to table descriptions as well as all encountered errors.
- A description of each table created or modified during the generation program run.

MULTI-SYSTEM SITES

Tables may be used in one (or several) environment(s) different from the one used by the Specifications Dictionary.

EXAMPLE: If VisualAge Pacbase is running on CICS, then Pactables can run in an IMS environment.

Table descriptions must be centralized in the Specifications Dictionary environment, which means they must exist in both environments (VisualAge Pacbase Dictionary environment and Pactables environment).

Table descriptions may then be modified directly in their specific environment. As a result, table descriptions under the VisualAge Pacbase environment may differ from table descriptions in the Pactables environment. This may happen when tables are used at different sites, each site managing only its own tables.

Each site may decide to delete the tables that are no longer used, through its own table reorganization procedure which has no influence on the centralized table descriptions previously entered in the VisualAge Pacbase environment.

The procedure generating table descriptions is then broken down into two sub-procedures:

GETD: A procedure running under the VisualAge Pacbase system generating table descriptions into an intermediary file, and updating the centralized descriptive file.

GETT: A procedure running under the Pactables system which physically updates both table descriptions and contents. This procedure uses as input the intermediary file obtained as output of the GETD procedure.

5.4. TABLE UPDATE (UPTA)

TABLE UPDATE (UPTA PROCEDURE)

Tables must be closed when an update is executed in batch mode.

Updating requires user input on three different types of lines:

- A Pactables user identification line (form '*'),
- A table identification line (form 'A') for each table to be updated, which specifies the table number, the date of the historical account to be updated (optional) (the most recent historical account by default) and the possible Data Element separators ('/' by default).

  You may create an item historical account by indicating the date of a historical account which does not exist.

- Table data lines (form 'V') indicating the contents of the table. Each elementary Data Element of the table must be delimited by a separator defined on the table identification line (including the elementary Data Elements making up the key, if the key is a group Data Ele- ment).

User validations may be included in batch updating. Therefore, batch updating programs should have access to these user validation sub-programs.

ASSIGNMENT OF AN ITEM TO A SUB-SYSTEM

In order to assign an item to one (or several) sub-system(s) the SUB-SYSTEM field on the table identification line should be entered with the corresponding number(s). The item will then belong to the indicated sub-system(s).

USER INPUT

The user must provide:

. a Pactables user identification line

. one Table identification line ('A') per table to be updated, followed by 'V' lines for the update data.

REPORT RESULTS

- Report on update transactions with encountered errors.

- Printing of updated tables.

5.5. PRINTING OF TABLE CONTENTS (PRTA)

PRINTING OF TABLE CONTENTS (PRTA PROCEDURE)

Table printing may be selective: the user has the option to request printing of sub-schemas, sub-systems, or a given historical account.

This procedure can be submitted on-line (JOB function) or in batch mode.

USER INPUT

The user should enter the following parameters:

- A Pactables user identification line (form '*'),
- A table identification line (form 'A') for each table to be printed.

If the key data element is a group item there are two printing possibilities:

```
-
 Grouped   : The key is printed as a single data element,

-
 Separated : The elementary data elements are printed se-
             parately.
```

REPORT RESULTS

- A report on table print requests, including encountered errors,
- Print-outs of selected tables with the same layout as the multi-item screen display (O: C2).

5.6. EXTRACTION OF DATA FROM A TABLE (EXTA)

EXTRACTION OF TABLE DATA (EXTA PROCEDURE)

The purpose of this procedure is to extract data from a table's historical account. The output of the EXTA procedure is formatted batch transactions which can be retrieved for batch table updating.

USER INPUT

The user must enter:

- A Pactables user identification line (form '*'),
- A table identification line (form 'A') for each table to be extracted in the form of transactions.

REPORT RESULTS

- A report on extraction requests, including encountered errors.
- The list of extracted data.

GENERAL RESULTS

The result obtained is a sequential file containing data formatted as update transactions preceded by the user identification line (without password).

5.7. INCORPORATION OF EXISTING TABLES (IMPA)

INCORPORATION OF EXISTING TABLES (IMPA PROCEDURE)

This procedure is used to incorporate any external user table into the Pactables function. This operation can take place only if the tables have previously been closed.
The user must first describe the table in VisualAge Pacbase, generate the description, and convert the external table into a 999-byte long sequential file.
Work stations are validated before being updated.

USER INPUT

The user must enter:

. a Pactables user identification line ('*'),

. an identification line for the table to be incorporated ('A'),

. a sequential file corresponding to the table to be incorporated.

REPORT RESULTS

- A report on incorporation requests, including encountered errors.

- An update report including possible rejected transactions.

When an error is detected, all of the item's contents is listed.

- Print-out of the update table.

- List of extracted data.

GENERAL RESULTS

The result obtained is a sequential file containing print commands for the table that has just been incorporated. This file can be used as input to the PRTA procedure.

5.8. OPTIMIZED USE (TUTA)

DIRECT CONSULTATION OF TABLES (TUTA PROCEDURE)

This procedure is used to extract one or several tables, for the current date or any other date, as a table without an historical account and not as a series of transactions. The output of this procedure is one or several tables with direct read-only access.

USER INPUT

The user must enter:

. A Pactables user identification line (form '*'),

. A table identification line (form 'A') for each table to be extracted. This line is optional. If it is not entered, it is understood that the user is requesting the extraction of all tables which exist for the current date and for which the user is granted sufficient access authorization. The date may be parameterized on a single 'A' line without the table number.

REPORT RESULTS

- A report on extraction requests with encountered errors.

- The list of input transactions.

GENERAL RESULTS

The output of this procedure is an indexed file containing the extracted data (with direct read-only access).

5.9. PRINTING OF TABLE DESCRIPTIONS (LDTA)

LIST OF TABLE DESCRIPTIONS (LDTA PROCEDURE)

The purpose of this procedure is either to list all table descriptions or the description of a given table for a given historical account date.

USER INPUT

The user must enter the following data:

- A Pactables user identification line (form '*'),
- A print or list request line (form 'Z').

OUTPUT REPORT

- Description of each selected table or the list of all table descriptions.

  Also included in the reports are the tables which were logically deleted by the GETA procedure.

NOTE: Invalid requests are simply ignored.

5.10. TABLE REORGANIZATION (RETA)

TABLE REORGANIZATION (RETA PROCEDURE)

The role of the Table Reorganization Procedure is to physically delete records that have been deleted on-line or in batch mode, and to 'realign' historical accounts of table contents and descriptions according to the reorganization request.

This procedure purges the files by validating historical accounts that the user wishes to save and by physically deleting the non-validated historical accounts.

This procedure consults the Pactables files and descriptives to produce a backup file which is ready to be restored for use.

USER INPUT

- A '*' Pactables user identification line,
- One or several 'A' identification lines per table.

The ACTION CODE on these lines indicates if the historical accounts must be saved or purged.

* ACTION CODE = 'S':

- OPTION = BLANK:

The historical account identified in the TABLE HISTORICAL ACCOUNT DATE field is purged, all other accounts are saved.

NOTE: For tables without historical account, the TABLE HISTORICAL ACCOUNT DATE field must be entered with the '******' value.

- OPTION = '<' or '>':

Historical accounts dated BEFORE ('<') or AFTER ('>') the specified date are purged.

NOTE: Accounts dated that very date are purged with the '>' option only.

* ACTION CODE = 'G':

. When no historical account date is specified, all historical accounts are saved.

. With an historical account date:

- OPTION = BLANK:

The historical account (identified in the TABLE HISTORICAL ACCOUNT DATE field) is saved, all other accounts are purged.

- OPTION = '<' or '>':

Historical accounts dated BEFORE ('<') or AFTER ('>') the specified date are saved.

NOTE: Accounts dated that very date are saved with the '>' option only.

If the table code is not indicated in the transactions, this table is deleted after the reorganization.

All the transactions of a reorganization must contain only one value for the ACTION CODE, either 'S' or 'G', since these two values are incompatible in the same run.

REPORT RESULTS

- A list of user transactions.

- A list of the saved historical accounts.

GENERAL RESULTS

Pactables backup file.

5.11. DISPATCHED TABLE MANAGEMENT (CDT1-CDT2-CVTA)

INTRODUCTION

The Dispatched Table Manager (DTM) Facility allows the Pactables user to compare two Table Description Files which may be located at two different sites.

Also, with the DTM facility, two images of the Table Data File can be compared, and extracted differences can be used for updating purposes.

The Dispatched Table Manager Facility operates with two sets of procedures:

1. TABLE DESCRIPTION COMPARISON (CDT1/CDT2)

The CDT1 procedure compares two Table Description Files with or without table selections. The output of the CDT1 procedure is a file which contains extracted differences. This file is used as input in the CDT2 procedure, which updates the "outdated" Table Description File.

2. TABLE DATA COMPARISON (CVTA/UPTA)

The CVTA procedure compares two images of the Table Data File using the update date of each table item as the comparison criterion. Modified, created, or deleted items are extracted and formatted into batch transactions, which are used as input to the UPTA procedure.

CDT1 PROCEDURE

The CDT1 procedure allows the Pactables user to compare two Table Description Files, which may or may not be installed at different sites. All table descriptions can be taken into account by this procedure, or only those selected by the user.

Only created or modified descriptions are extracted.

USER INPUT

. An '*'-type user identification line,

. One 'A'-type line per selected table description, or just ONE 'A'-type line if all table descriptions are to be compared by the CDT1 procedure.

PRINTED REPORT

. Validation report on comparison requests including errors, if any.

. List of extracted table descriptions.

CDT1 OUTPUT

The CDT1 procedure creates a sequential file containing the table descriptions for which differences were found.

NOTE: Refer to the GETA or RETA procedures regarding deleted table descriptions.

CDT2 PROCEDURE

The CDT2 procedure updates the description(s) of one or several tables with the transactions contained in the output file of the CDT1 procedure.

Updating an "outdated" description is possible only if there is no historical account dated after the description extracted by the CDT1 procedure.

EXAMPLE:

```
      LAST HISTORICAL ACCOUNT OF TABLE: 01/15/87
TABLE DESCRIPTION 1        ....TABLE DESCRIPTION 2: 02/15/87
      DATEL1 DATEL2        ....DATEL1 DATEL2 DATEL3
ITEM1    A     B                 A       B
ITEM2    C     D                 C       D
ITEM3    E     F                 E       F
```

The last historical account is dated before the date of the description extracted by the CDT1 procedure: updating is allowed.

CDT2 INPUT

Results of the CDT1 procedure.

PRINTED REPORT

Update report, including encountered errors.

CVTA PROCEDURE

The CVTA procedure allows the Pactables user to compare two images of the Table Data File. Detected differences are extracted and formatted into batch transactions which will be used to update (via the UPTA procedure) the corresponding Table Data File(s) installed at other sites.

All tables or selected tables may be compared. The comparison may be for a specified period of time.

USER INPUT

. An '*'-type user identification line,

. One 'A'-type line per selected table, or just ONE 'A'-type line if all tables are to be compared by the CVTA procedure.

The user may also specify a time interval within which the comparison should be made. When just one date is entered, the procedure will search for items updated on that particular date.

PRINTED REPORT

. Report on comparison requests including encountered errors, if any.

. List of extracted data.

CVTA OUTPUT

The output of the CVTA procedure is a sequential file which contains data formatted into batch update transactions.

6. DESCRIPTION OF BATCH FORMS

6.1. USER IDENTIFICATION (*)

PACTABLES USER IDENTIFICATION FORM

The '*' line must be entered with all batch procedures (except with the GETA and GETD procedures).

It allows a check on whether the user is authorized or not to execute the requested procedure.

DESCRIPTION OF BATCH FORMS 6
USER IDENTIFICATION (*) 1

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE Unused
2	8		PACTABLES USER CODE This code allows the user to access tables.
3	8		PACTABLES PASSWORD This is the password associated with the user code (alphanumeric, uppercase).
4	1		DELETED DATA SAVING OPTION This option, used in the RETA reorganization procedure enables the user to save records logically deleted. By default, they are physically deleted.
		BLANK	Purging deleted records.
		O	Saving deleted records.

6.2. TABLE ACCESS (A)

TABLE ACCESS FORMS

In the batch procedures, the 'A' lines indicate which tables are to be processed.

A validation of table access authorization is performed according to the user's code.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE This code is only used in order to reorganize, print, or compare table data. REORGANIZATION ----------
		S	Historical account to be purged, other accounts are saved.
		G	Historical account to be saved, other accounts are purged. For more information, please refer to chapter "PACTABLES", subchapter "TABLE REORGANIZATION PRINCIPLE". PRINTING OF TABLE CONTENTS ----------
		E	Printing of a table.
		L	List of the tables (do not enter the table number).
		H	List of historical accounts (do not enter the table number).
		S	List of sub-schemas and sub-systems.
		X	List of items with their historical accounts. TABLE DATA COMPARISON ----------
		S	Table selection
2	6		TABLE CODE This code is the code entered on the Segment Definition line at the Specifications Dictionary level. It indicates which table is to be processed. BATCH TABLE UPDATE (UPTA) ---------- Identifies the table to be updated. PRINTING OF TABLE CONTENTS (PRTA) ---------- Identifies the table to be printed if the ACTION CODE is 'E'. Otherwise, the table number is not entered. EXTRACTION OF DATA FROM A TABLE (EXTA) ---------- Identifies the table from which transactions will be extracted. TABLE REORGANIZATION (RETA) ---------- Identifies the table to be reorganized. Otherwise, with action code 'G': all historical

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			accounts are saved. TABLE DESCRIPTION COMPARISON (CDT1) ---------- Selected table number. Otherwise, all tables are selected. TABLE DATA COMPARISON (CVTA) ---------- Selected table number. Otherwise, all tables are selected.
3	8		TABLE HISTORICAL ACCOUNT DATE This date must be entered in DDMMCCYY format. UPDATE (UPTA) ---------- Date of the historical account to be updated.
		BLANK	Default option: the most recent historical account will be updated.
			PRINTING OF TABLE CONTENTS (PRTA) ---------- Date of the historical account to be printed.
		BLANK	Default option: the most recent historical account.
			EXTRACTION OF DATA FROM A TABLE (EXTA) ---------- Date of the historical account to be extracted.
		BLANK	Default option: the most recent historical account.
			TABLE REORGANIZATION (RETA) ---------- WITH OPTION FIELD = BLANK: If a date is entered and the ACTION CODE = 'G': That table's historical account is saved, others are deleted if there are no other transactions with ACTION CODE = 'G'.
		BLANK	If a date is not entered and the ACTION CODE = 'G': All historical accounts are saved. With ACTION CODE = S, this date is required: it indicates that the description is deleted.
		******	Tables without historical accounts.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			WITH OPTION FIELD = '<': With ACTION CODE = S, purge of historical accounts dated BEFORE the date entered in this field. With ACTION CODE = G, only historical accounts dated BEFORE the date entered in this field are saved. WITH OPTION FIELD = '>': With ACTION CODE = S, purge of historical accounts dated AFTER the date entered in this field. NOTE: Accounts dated that very date are also purged. With ACTION CODE = G, only historical accounts dated AFTER the date entered in this field are saved. NOTE: Accounts dated that very date are not purged either. TABLE DATA COMPARISON (CVTA) --- Date from which data should be compared and the differences extracted.
4	1		SUB-SCHEMA NUMBER PRINTING OF TABLE CONTENTS --- Indicates the sub-schema to be processed. The value '0' corresponds to sub-schema '10'. This sub-schema number is entered only when requesting a print-out of the contents of a table. When entered with another procedure, input in this field is ignored.
5	1		SUB-SYSTEM NUMBER This number indicates the sub-system to be processed. The value '0' corresponds to sub-system '10'. BATCH TABLE UPDATE (UPTA) --- Updating is only authorized on the sub-system indicated in this field. Updating is authorized on all sub-systems. PRINTING OF TABLE CONTENTS (PRTA) --- Only items belonging to the indicated sub-system are printed. Printing of all items without sub-system selection.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			EXTRACTION OF DATA FROM A TABLE (EXTA) ----------
		0 to 9	Only items belonging to the indicated sub-system are extracted.
		blank	Extraction of all items without sub-system selection.
			TABLE REORGANIZATION (RETA) ---------- No sub-system number should be entered for this procedure. Any input is ignored by the system.
			TABLE COMPARISON (CDT1) ---------- No sub-system number should be entered for this procedure. Any input is ignored by the system.
6	1		DELIMITER OR PRINT OPTION
			BATCH TABLE UPDATE (UPTA) EXTRACTION OF DATA FROM A TABLE (EXTA) TABLE DATA COMPARISON (CVTA) This field is used to indicate the data separation character.
		/	Default value.
			PRINTING OF TABLE DATA (PRTA) Entered only when the table key is a group key.
		BLANK	The key is printed as one data element.
		O	All the data elements in the key are printed separately.
			TABLE REORGANIZATION (RETA)
			WITH ACTION CODE = G (Historical accounts to be saved)
		BLANK	If a date is entered in the TABLE HISTORICAL ACCOUNT DATE, the corresponding historical account is saved, all other accounts are purged. If no date is entered in the TABLE HISTORICAL ACCOUNT DATE, all historical accounts are saved.
		<	Only historical accounts dated BEFORE the date entered in this field are saved.
		>	Only historical accounts dated AFTER the date entered in this field are saved. NOTE: Accounts dated that very date are also saved.
			WITH ACTION CODE = S (Historical accounts to purge)

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		BLANK	The historical account identified by the date entered in the TABLE HISTORICAL ACCOUNT DATE field is purged.
		<	Historical accounts dated BEFORE the date entered in this field are purged.
		>	Historical accounts dated AFTER the date entered in this field are purged. NOTE: Accounts dated that very date are also purged.
7	8		DATE OF END OF SELECTION TABLE DATA COMPARISON (CVTA) Input is formatted as follows: DDMMCCYY Input is entered in this field only if the TABLE HISTORICAL ACCOUNT DATE field has been entered. The ending date for comparison of table data is indicated in this field.
		BLANK	Only table items created, modified, or deleted on the date entered in the TABLE HISTORICAL ACCOUNT DATE field are taken into account.

6.3. TABLE DATA (V)

TABLE DATA ENTRY FORM

These lines are only used for the update of table data.

Each elementary information item must be separated from the others by a delimiter specified on the table access line.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	1		CONTINUATION OF DATA
		BLANK	First line of data.
		-	Continuation of data.
3	77		TABLE DATA The data of different data elements is separated by the delimiter specified in table access form 'A'. An empty data element is located by two successive delimiters.

6.4. GENERATION REQUEST (Z)

TABLE DESCRIPTION GENERATION FORM

These lines must be used for all Batch procedures which consult the VisualAge Pacbase Database.

DESCRIPTION OF BATCH FORMS 6
GENERATION REQUEST (Z) 4

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	2		PRINT ORDER CRITERION (UNUSED)
2	4		TABLE GENERATION PRINTING REQUEST In case of print, deletion or modification request, this field contains the table number. In case of generation request this field contains the segment code defined in the Specifications Dictionary and identifies the table to generate.
		TLS	List of all table descriptions.
		TDS	Description of table whose number is entered in the entity code field. When no entity code is entered: all table descriptions
		TGS	Generation of the table whose associated segment code (defined in the Specifications Dictionary) is indicated in the entity code field.
		TGC	Generation of PACTABLE user documentation only.
		TAS	Deletion of the whole table whose number is entered in the entity code field.
		TMS	Table with historical accounts changed into a table without historical accounts or modification of expiration date.
3	6		TABLE ENTITY CODE With print and deletion requests, this field should be entered with the table number. With generation requests, this field should be entered with the segment code identifying the table in the Specifications Dictionary.
4	2		PROCEDURE FUNCTION (UNUSED)
5	6		TABLE DESCRIPTION EXPIRATION DATE DDMMCCYY formatted date indicating the point after which the table description is no longer valid.
		BLANK	The table description is valid until the next description generation.
6	6		DATE ASSOC. WITH TABLE DESCRIPTION TABLE WITH HISTORICAL ACCOUNT(S) Required when requesting the generation of a table description (in DDMMCCYY format).
		********	TABLE WITHOUT HISTORICAL ACCOUNT
7	1		TABLE FORMAT TYPE Indicates the format of the data elements when the table description is being generated ('TGS' request).

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		BLANK	Internal format (Default value).
		E	Input format. The description generation programs take into account the table data elements' input format thus implying a DISPLAY usage. 'E' should be entered in this field if data elements are defined in the Specifications Dictionary with an internal format different than DISPLAY.
8	1		TYPE OF SELECTION (UNUSED)

6.5. UPDATING OF USER PARAMETERS (TA)

USER CODE AND GENERAL ACCESS AUTHORIZATION UPDATE FORM

These lines are only used for the update of user parameters (PMTA) procedure.

Each line allows the update of a user code and its corresponding general access authorizations.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	8		PACTABLES USER CODE (REQUIRED)
			This code allows the user to access tables.
3	2		BATCH CODE IDENTIFIER (REQUIRED)
		TA	Required value.
4	8		PACTABLES PASSWORD
			This is the password associated with the user code (alphanumeric, uppercase).
5	1		GENERAL ACCESS AUTHORIZATION
			Indicates the type of general access authorization for a given Pactables user.
		0	Access prohibited.
		1	Consultation authorized.
		2	Consultation and updating authorized.
		3	Parameters updating authorized.

6.6. TABLE ACCESS AUTHORIZATION (TC)

TABLE ACCESS AUTHORIZATION UPDATE FORM

These lines are only used in the procedure for updating user parameters. Here, they are specifically used in order to update access authorizations restricted to one table.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1		ACTION CODE
		C	Creation.
		M	Modification.
		BLANK	Creation or modification.
		D	Deletion.
2	8		PACTABLES USER CODE (REQUIRED) This code allows the user to access tables.
3	2		BATCH CODE IDENTIFIER (REQUIRED)
		TC	Required value.
4	6		TABLE CODE (REQUIRED)
5	3		LINE NUMBER (REQUIRED)
			TABLE ACCESS AUTHORIZATION NUMBER OF REPETITIONS : 20 This field allows the Pactables Manager to grant an access authorization specific to a given table. This field is made up of three sub-fields described below.
6	1		SUB-SCHEMA NUMBER
		0 to 9	Number of sub-schema to which the access authorization applies. The value '0' corresponds to sub-schema 10.
		*	All sub-schemas.
7	1		SUB-SYSTEM NUMBER
		0 to 9	Number of sub-system to which the access authorization applies. The value '0' corresponds to sub-system 10.
		*	All sub-systems.
8	1		SPECIFIC AUTHORIZATIONS Authorization applies to the sub-schema/sub-system couple defined in the preceding fields.
		0	Access prohibited.
		1	Consultation authorized.
		2	Consultation and updating authorized.

6.7. VALIDATION CARDS (TJ)

CONTROL CARDS UPDATE FORM

These lines are only used for the Update of User Parameters procedure.

The JCL entered with a user code of '********' is accessible by all users.

DESCRIPTION OF BATCH FORMS 6
VALIDATION CARDS (TJ) 7

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE	
1	1		ACTION CODE	
		C	Creation.	
		M	Modification.	
		BLANK	Creation or modification.	
		D	Deletion.	
2	8		PACTABLES USER CODE	(REQUIRED)
			This code allows the user to access tables.	
3	2		BATCH CODE IDENTIFIER	(REQUIRED)
		TJ	Required value.	
4	6		LINE NUMBER FOR THE JCL	(REQUIRED)
			This field contains the line number used to put the JCL lines in order.	
		< 600000	Lines at the beginning of the stream.	
		> 599999	Lines at the end of the stream.	
5	65		CONTENTS OF THE JCL LINE	

7. TABLE ACCESS BY PROGRAM

7.1. INTRODUCTION

INTRODUCTION

Two modules are provided in order to access tables:

- One access module for batch programs,
- One access module for on-line programs.

NOTE
With MS-DOS, OS/2 and UNIX, the same access module is used for batch and on-line programs.

	BATCH		ON-LINE	
	STANDARD	OPTIMIZED	STANDARD	OPTIMIZED
CICS	PTA900	PTA800	xxP920	xxP820
IMS	PTA920	PAP820	PAP920	PAP820
DPS7	PTA900	PTA800	PAP930	PAP830
DPS8	PTA900	PTA800	PAP930	PAP830
MS-DOS	PTA900	PTA800	PTA900	PTA800
OS/2	PTA900	PTA800	PTA900	PTA800
UNIX	PTA900	PTA800	PTA900	PTA800

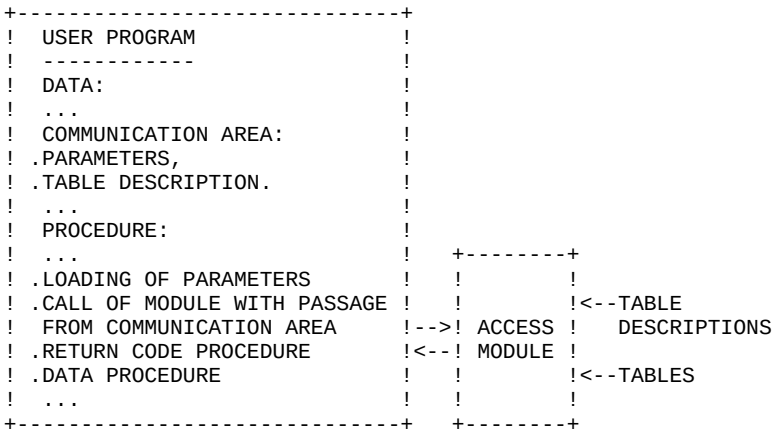
The user can access items belonging to one or more tables by calling the access module in the program.

Both modules allow access to tables with or without historical accounts.

Access to a table's historical account may be costly in terms of input/output because access is required to both Table Description and Data Files.

To access a table without historical account and with no selection of sub-system or sub-schema, access modules are much more efficient since they require access to the Table Data File only.

USAGE DIAGRAM:



7.2. COMMUNICATION AREA AND VALUES

COMMUNICATION AREA

Both access modules use a common area allowing reception of the program's request and transmission of the corresponding data to the program.

Thre are two possible structures for this communication area. This depends on the nature of the structure defined in VisualAge Pacbase: a structure corresponding to release 2.0 (with century) and a structure corresponding to releases earlier than 2.0 (without century). To access data with the second structure, the access facilities the year '61' as the transition year to impact the century. If the year supplied is greater than '61', the year concerned is '19'. In the opposing case, the '20' century is concerned.

The access facilities accept the communication area's two different structures indifferently.

This common area is divided into two parts:

. A section containing access parameters,
. A section containing data from table item(s).

See below for description and coding.

The common area is generated in the program under the name G-FFEE.

Access modules use both the Table Data and Description Files.

The common area must be described in the LINKAGE section in a user validation sub-program. However, in a program accessing a table this area must be described in the WORKING-STORAGE SECTION.

USE OF COMMUNICATION AREA

The communication area must be described in the following situations:

. Table access through a program,

. Call of user validation sub-program.

(Refer to subchapter "PROGRAMMING" in this chapter).

In the first case, the user must input the following data in the communication area:

. Consultation type,

. Table access key in the TABLE DESCRIPTION field.

In the latter case, the system uses the communication area description in order to send the following data to the subprogram before performing the call:

. Update type in G-FFEE-TABFO:

- 'C': creation,
- 'M': modification,
- 'D': deletion.

. Table code in G-FFEE-NUTAB,

. Date of historical account in G-FFEE-DAHTA,

. User code in the 8 first positions of G-FFEE-FILSYS.

7.3. COMMUNICATION AREA WITH CENTURY

STRUCTURE 1 COMMUNICATION AREA

This communication area is obtained with the tables described in the 'M' or 'N' Data Structures. The historic date for this structure 1 communication area gives the century. It is generated on option.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			TABLE CONSULTATION PARAMETERS
1	2	NUMER.	LENGTH OF PROCESSED AREA Length of table or table's sub-schema not including the length of the consultation parameters.
2	2	NUMER.	ADDRESS OF THE TABLE KEY
3	2	NUMER.	LENGTH OF THE USER KEY
4	1		COMMUNICATION AREA INDICATOR This indicator allows the access modules to recognize the communication area structure with dates that include the century. It must have a value equal to High-Value
5	2		CONSULTATION KEY The consultation key includes the following: - Table code, - Number of selected sub-schema (optional), - Date associated with historical account (optional). In batch programs, this key is managed entirely by the system and therefore must not be modified by the user. In on-line programs, the user may have to enter the consultation key in order to specify a FIRST call for a consultation. This is the case, in particular, when consultation parameters are lost while being passed on to the access module.
		00	First call for consultation (initial value).
		01	Another call for an already defined consultation (automatically assigned value).
6	6		TABLE CODE
7	2		FUNCTION CONSULTATION FUNCTIONS ----------
		R1	Direct read of a table item with transfer to the input output area.
		R2	Direct read of a table item without transfer to the input-output area. For tables without historical accounts, sub-schemas and sub-systems cannot be selected. Therefore, there will be a minimum number of input-output performed by the system (only one access).
		L1	Sequential read. The key given in the input-output area indicates the

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			'starting' key for this read, for the first 'L1' request. The input-output area must not be modified between two 'L1' operations.
		L2	Explicit reinitialization of a sequential read starting from the key indicated in the input-output area. The system automatically sends back the 'L1' code.
		OP	Initialization of a table consultation. This operation is reserved for batch programs. A consultation is defined by a table number, a sub-schema number and a date associated with the selected table's historical account. When this function is used for the first time, consultation files are physically opened. NOTE: If several tables are accessed for consultation AND if one of them is to be updated within the same program, then the function to use must be the "OU" function described below.
		CL	End of a table consultation. This function is reserved for batch programs. NOTE: 'OP' and 'CL' have no purpose under IMS.
			UPDATING FUNCTIONS: TABLES WITHOUT HISTORICAL ACCOUNTS ----------
		RU	Read access for update. Equivalent to R1 with additional compatibility validations. The record is not blocked.
			The next three functions do not include validations:
		W	Write access (creation)
		RW	Re-Write access (modification)
		D	Deletion
		OU	Initialization for table update. Reserved for batch programs. When this function is used for the first time, files are physically opened for update. NOTE: If several tables are accessed for consultation AND if one of them is to be updated within the same program,

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			then also use the "OU" function. USER SUB-PROGRAM CALL ---------- When a user validation sub-program is called, the system will automatically input one of the following values in this field:
		C	Creation
		M	Modification
		D	Deletion
8	2		RETURN CODE Once a consultation is requested, the system sends a return code:
		00	Request correctly executed.
		09	Error in communication area length.
		10	Key not found (direct read), end of table (sequential read), or already existing key (creation).
		20	Erroneous request: - Unknown type of consultation, - Non-numeric sub-schema or sub-system number, - Incorrect date of historical account, - Incorrect length of input-output area, - Update of a table with historical account(s), - Update of a table with sub-schema(s).
		21	Request to initialize an already initialized table.
		22	Consultation or closing of a non-initialized table.
		23	More than 50 tables consulted simultaneously (return code relevant only in batch mode).
		24	No table associated with requested historical account.
		25	No table description or sub-schema associated with requested historical account.
		26	Missing key for an update request
		27	Update incompatible with initialization request.
		29	Table item description does not exist (not generated) impossible read.
		OTHERS	Return code specific to access method.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			The non-accessed file code is entered in the FUNCTION field or in the CONSULTATION TYPE field ('TD' = TABLE DESCRIPTION file, 'TV' = TABLE CONTENTS file).
9	6		DATE OF HISTORICAL ACCOUNT TABLES WITH HISTORICAL ACOUNTS: The date of the table's historical account to be consulted should be formatted as follows: CCYYMMDD. If no date is entered, the access module looks for the 'current' historical account whose associated date is the closest to the current date. When a user validation sub-program is accessed, the system automatically inputs the date of the historical account in this field. TABLES WITHOUT HISTORICAL ACCOUNT: The date must be 8-characters long.
10	1		SUB-SCHEMA NUMBER G- or H-type organizations: For Tables defined in Pactables, this specifies the number of the Table sub-description (or sub-schema) to which the input-output area description corresponds. If the Segment called corresponds to a View and no sub-schema has been specified, the value will be that specified on the Block '-DR'.
		BLANK	All the Data Elements of the Segment.
		0 to 9	Sub-description (or sub-schema) number (1 to 10, where value 0 corresponds to sub-schema 10). V-type organizations: Secondary access keys to indexed files:
		2	The secondary key is specified with the value '2' in the SUB-SCHEMA NUMBER field. The primary key must be indicated on line '00' of the Segment without use in display or reception, even if it is not used, in order to generate the RECORD KEY clause. If the secondary key is a group area, the number of the sub-schema must only be indicated for this group area.
		3	The value 3 indicates that the secondary key is DUPLICATE. NOTE: This specification is not implemented in

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			the CICS variant because the declaration of the secondary keys is performed at the VSAM definition.
11	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
12	4		TRANSACTION CODE Transaction code entered only in on-line programs which access the tables for consultation.
13	30		SYSTEM FILLER DO NOT MODIFY. When a user validation sub-program is accessed by the program, the system automatically inputs the user code in the first eight positions of this field.
14	999		TABLE DESCRIPTION AREA This area is named after the segment code which identifies the table in the Specifications Dictionary. It is entered in the FFEE format. The Data Elements belonging to the table or table sub-schema requested in the program are described in this area. Its length is that of the table or sub-schema indicated in position 1 of the parameter area: 'length of processed area'.

7.4. COMMUNICATION AREA WITHOUT CENTURY

STRUCTURE 2 COMMUNICATION AREA

This communication area is obtained with the tables described in the 'T' or 'G' Data Structures. The historical date for this structure 2 communication area does not give the century. It is generated by default.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			TABLE CONSULTATION PARAMETERS
1	2	NUMER.	LENGTH OF PROCESSED AREA Length of table or table's sub-schema not including the length of the consultation parameters.
2	2	NUMER.	ADDRESS OF THE TABLE KEY
3	2	NUMER.	LENGTH OF THE USER KEY
4	2		CONSULTATION KEY The consultation key includes the following: - Table code, - Number of selected sub-schema (optional), - Date associated with historical account (optional). In batch programs, this key is managed entirely by the system and therefore must not be modified by the user. In on-line programs, the user may have to enter the consultation key in order to specify a FIRST call for a consultation. This is the case, in particular, when consultation parameters are lost while being passed on to the access module.
		00	First call for consultation (initial value).
		01	Another call for an already defined consultation (automatically assigned value).
5	6		TABLE CODE
6	2		FUNCTION CONSULTATION FUNCTIONS ----------
		R1	Direct read of a table item with transfer to the input output area.
		R2	Direct read of a table item without transfer to the input-output area. For tables without historical accounts, sub-schemas and sub-systems cannot be selected. Therefore, there will be a minimum number of input-output performed by the system (only one access).
		L1	Sequential read. The key given in the input-output area indicates the 'starting' key for this read, for the first 'L1' request. The input-output area must not be modified between two 'L1' operations.
		L2	Explicit reinitialization of a sequential read starting from the key indicated in the input-output area. The system automatically sends back the 'L1' code.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		OP	Initialization of a table consultation. This operation is reserved for batch programs. A consultation is defined by a table number, a sub-schema number and a date associated with the selected table's historical account. When this function is used for the first time, consultation files are physically opened. NOTE: If several tables are accessed for consultation AND if one of them is to be updated within the same program, then the function to use must be the "OU" function described below.
		CL	End of a table consultation. This function is reserved for batch programs. NOTE: 'OP' and 'CL' have no purpose under IMS.
			UPDATING FUNCTIONS: TABLES WITHOUT HISTORICAL ACCOUNTS ----------
		RU	Read access for update. Equivalent to R1 with additional compatibility validations. The record is not blocked.
			The next three functions do not include validations:
		W	Write access (creation)
		RW	Re-Write access (modification)
		D	Deletion
		OU	Initialization for table update. Reserved for batch programs. When this function is used for the first time, files are physically opened for update. NOTE: If several tables are accessed for consultation AND if one of them is to be updated within the same program, then also use the "OU" function.
			USER SUB-PROGRAM CALL ----------
			When a user validation sub-program is called, the sys-

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			tem will automatically input one of the following values in this field:
		C	Creation
		M	Modification
		D	Deletion
7	2		RETURN CODE Once a consultation is requested, the system sends a return code:
		00	Request correctly executed.
		09	Error in communication area length.
		10	Key not found (direct read), end of table (sequential read), or already existing key (creation).
		20	Erroneous request: - Unknown type of consultation, - Non-numeric sub-schema or sub-system number, - Incorrect date of historical account, - Incorrect length of input-output area, - Update of a table with historical account(s), - Update of a table with sub-schema(s).
		21	Request to initialize an already initialized table.
		22	Consultation or closing of a non-initialized table.
		23	More than 50 tables consulted simultaneously (return code relevant only in batch mode).
		24	No table associated with requested historical account.
		25	No table description or sub-schema associated with requested historical account.
		26	Missing key for an update request
		27	Update incompatible with initialization request.
		29	Table item description does not exist (not generated) impossible read.
		OTHERS	Return code specific to access method. The non-accessed file code is entered in the FUNCTION field or in the CONSULTATION TYPE field ('TD' = TABLE DESCRIPTION file, 'TV' = TABLE CONTENTS file).
8	6		DATE DE L'HISTORIQUE DE LA TABLE For tables with historic accounts:

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			The historic of the date to be consulted in Year-Month-Day format. If there is no date, the access facility searches for the 'current' historic (i.e. the historic whose date is the same as the day's or the day before's date. If accessing a user control sub-program system communicates the Table's historic date in this area. For tables without historic accounts: In this case, the date must be 8-characters long.
9	1		SUB-SCHEMA NUMBER G- or H-type organizations: For Tables defined in Pactables, this specifies the number of the Table sub-description (or sub-schema) to which the input-output area description corresponds. If the Segment called corresponds to a View and no sub-schema has been specified, the value will be that specified on the Block '-DR'.
		BLANK	All the Data Elements of the Segment.
		0 to 9	Sub-description (or sub-schema) number (1 to 10, where value 0 corresponds to sub-schema 10). V-type organizations: Secondary access keys to indexed files:
		2	The secondary key is specified with the value '2' in the SUB-SCHEMA NUMBER field. The primary key must be indicated on line '00' of the Segment without use in display or reception, even if it is not used, in order to generate the RECORD KEY clause. If the secondary key is a group area, the number of the sub-schema must only be indicated for this group area.
		3	The value 3 indicates that the secondary key is DUPLICATE. NOTE: This specification is not implemented in the CICS variant because the declaration of the secondary keys is performed at the VSAM definition.
10	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
11	4		TRANSACTION CODE Transaction code entered only in on-line programs which access the tables for consultation.
12	30		FILLER SYSTEME Must not be modified. If accessing the user control sub-program, the system transfers the user code in the first six characters of the area.
13	999		TABLE DESCRIPTION AREA This area is named after the segment code which identifies the table in the Specifications Dictionary. It is entered in the FFEE format. The Data Elements belonging to the table or table sub-schema requested in the program are described in this area. Its length is that of the table or sub-schema indicated in position 1 of the parameter area: 'length of processed area'.

7.5. PROGRAMMING

PROGRAMMING

Programs accessing tables are coded at two levels:

. Common area description,

. Input of parameters and access requests.

DESCRIPTION OF THE COMMON AREA

This description is automatically generated by the BATCH S.D. or the ON-LINE S.D. VisualAge Pacbase functions.

BATCH SYSTEMS DEVELOPMENT FUNCTION

Generation of the common area description requires a data structure call line (-CD) containing the following data:

. The data structure code of the table.

. 'G' in the ORGANIZATION field.

. The USAGE OF DATA STRUCTURE field (authorized values are 'C', 'D', 'T' or 'X').

. Selection of segments corresponding to the tables accessed by the program. 'T' or 'X' usage: ONE segment selected per table.

. OPTION: Table sub-schema selection with one-digit input (0 to 9, where 0 corresponds to sub-schema 10) in the SELECT field. If no selection is made, the whole table description will be generated.

The possible selection of a sub-system must be initialized directly in the program.

ON-LINE S.D.

Generation of the common area description requires a Call of Segments line (-CS) containing the following data:

. The segment code of the table,

. 'G' in the ORGANIZATION field,

. OPTION: Table sub-schema selection with one-digit input (0 to 9, where 0 corresponds to sub-schema 10) in the SUB-SCHEMA NUMBER field.

. OPTION: Table sub-system selection with NUSSY entered in the ACCESS KEY (DATA ELEMENT CODE) field and a 1-digit input (0 to 9) in the ACCESS KEY SOURCE field.

. Tables access transaction code in the EXTERNAL NAME OF THE FILE field.

. Type of description:

I = Internal format (default value),
E = Input Format.

BATCH OR ON-LINE S.D.

The common area can also be generated using a Work Area screen (-W) of the calling program 'Type of Line or Data Element Format' value 'F' (no access generated) by coding:

. The data structure code and the selection of segments corresponding to the tables,

. 'G' in the ORGANIZATION field,

. OPTION: selection of a table sub-schema with one-digit input (0 to 9, where 0 corresponds to sub-schema 10) in the SELECTED DESCRIPTION field.

NOTE: These fields appear on a formatted line which appears after the 'F' is entered in the TYPE OF LINE field. (Refer to the STRUCTURED CODE Reference Manual.)

One common area per table is generated, that is, one per selected segment from a call line ('-CD' or '-CS' or 'W' of type 'F' with a 'G' in the ORGANIZATION field).

This common area is generated at the requested level by the data structure call line (01: level default value) under the code G-FFEE, with FFEE = table segment code.

. The field containing the access parameters is called 'G-FFEE-PARAM' (at level 04), and the parameterized data elements described in the preceding subchapter are in the form G-FFEE-DELCO (at level 05).

. The data area is in the standard format: FFEE (at level 04) with data in the format FFEE-DELCO.

. The parameter area of each table is automatically initialized if the user requests a description type with a 'value', with the exception of the "Function or Type of Consultation" (TABFO), the "Date of Historical Account" (DAHTA) and the "Sub-system Number" (NUSSY). In On-line, the description type always has a 'VALUE'.

INPUT OF PARAMETERS AND ACCESS REQUESTS

Refer to the preceding subchapter for instructions on inputting parameters.

BATCH S.D. FUNCTION

The table access commands must be written by the user, preferably using standard macro-structures that will be called into programs at specific locations.

For values of 'C', 'T', and 'X', the read statement generated is 'PERFORM F95FF' (FF being the "Data Structure Code in the Program"), which allows insertion of the access command in the sub-function F95FF.

An access command is broken down into three parts:

. Loading the parameters,

. Calling the access module and passing to it the G-FFEE field,

. The return code test (G-FFEE-TABCR), and branching based on its value.

(See P.M.S. examples on the following pages.)

ON-LINE S.D. FUNCTION

Access to tables called in programs is automatically generated. Loading parameters are either generated by the values in the programs or written by the user.

Physical access by the 'General Access Module' to each table is generated in F80:

. F80-FFEE-A
. F80-FFEE-1 to call the General Access Module.
"A" may have the following values:

VALUE	MEANING
R	DIRECT ITEM READ ACCESS
P	POSITIONING & SEQUENTIAL READ ACCESS
RU	READ ACCESS FOR UPDATE
W	WRITE ACCESS
RW	RE-WRITE ACCESS
D	DELETION
1	GENERAL ACCESS MODULE CALL

The name of the General Access Module is 'Pactables' by default.

This name can be changed by using a general documentation line with "Type of Line" value 'G' at the dialogue level, and with value 'C2' in the OPERATION field. Two fields should be entered on this line:

. '04': justified on the left margin in the COMMENT field,

. The new name: justified on the tabulation spot in the center of the COMMENT field (COMMENT/SECOND PART).

PROCESSING OF THE RETURN CODE

The procedures to be executed based on the value of the return code can be as detailed as needed in order to satisfy user requirements. It is advisable to clearly distinguish between physical integrity errors on table files and command or table contents errors.

Refer to the preceding subchapter for the list of return code values (RETURN CODE field).

CODING THE INTERNAL SUB-SYSTEM FIELD

The assignment of an item to a sub-system during update is coded by a number ('1' ... '0') in the SUB-SYSTEM NUMBER field. A 10-character internal field corresponds to this sub-system coding, i.e., the numeric coding is translated into a 'O' in the corresponding position.

EXAMPLE: DELCO belongs to the sub-systems 3, 5, and 6. The sub-system internal field is coded as follows:

```
POS.             1---5---90
     2          '  O OO    '
```

Any update in this field via access modules must take this coding into account.

7.6. EXAMPLES OF MACRO-STRUCTURES

EXAMPLES OF MACRO-STRUCTURES FOR TABLE ACCESS

BATCH TABLE ACCESS:

1. OPEN AND CLOSE

```
01 $1     N   OPENING $1$2      10BL
01 $1 010 M   'OP' G-$1$2-TABFO
01 $1 020 CAL 'PTA900'
01 $1 025     USING G-$1$2
01 $1 030 P   $3                99IT G-$1$2-TABCR NOT = '00'

with $1$2 = DDSS and $3 = return code processing function.

TABFO = Function or Type of Consultation
TABCR = Return Code

(Identical for closing in function 20 and with 'CL').
```

2. DIRECT READ

```
FF SF nn1 M   'R1' G-$1$2-TABFO
FF SF nn2 M   xxxxx  $1$2-DELCO    (DELCO = item key)
FF SF nn3 CAL 'PTA900'
FF SF nn4     USING g-$1$2
FF SF nn5 P   $3                99IT G-$1$2-TABCR NOT = '00'

where FF SF and nn can also be parameterized.
```

3. SEQUENTIAL READ (value 'T' or 'X')

```
95 $1     N   READ      $1$2    10BL
95 $1  2  COB GO TO F95$1-200   99IT I$1$2L NOT = ZERO
95 $1  4  M   'OP' G-$1$2-TABFO 99BL
95 $1  6  CAL 'PTA900'
95 $1  7      USING G-$1$2
95 $1  8  P   $3                99IT G-$1$2-TABCR not = '00'
95 $1 10  GT  10
95 $1 20  COA F95$1-200.
95 $1 22  M   'L1' G-$1$2-TABFO 99BL
95 $1 24  CAL 'PTA900'
95 $1 26      USING G-$1$2
95 $1 27  GT  10                99IT G-$1$2-TABCR='00'
95 $1 28  P   $3                99IT G-$1$2-TABCR NOT = '10'
95 $1 30  GT  10
95 $1 32  M   '1' $1-FT         99BL
95 $1 34  M   'CL' G-$1$2-TABFO
95 $1 36  CAL 'PTA900'
95 $1 38      USING G-$1$2
95 $1 40  P   $3                99IT G-$1$2-TABCR NOT = '00'
```

NOTES:

. With IMS, MS-DOS, OS/2, and UNIX, batch access to Pactables is coded in the same way as on-line access.

. With MS-DOS, OS/2, and UNIX (Microfocus COBOL), it is better to use " (double quote) instead of ' (quote).

ON-LINE ACCESS:

The ON-LINE S.D. function automatically generates table access. However, for specific purposes, the user may enter his own access to the general access module. This is possible through the use of a macro-structure. The writing of this macro structure depends on which monitor is used.

An on-line access request is basically the same as a batch request. However, the table access transaction code should be transferred to the access module and, if desired, the consultation key number should be specified. (Refer to subchapter "COMMUNICATION AREA AND VALUES" in this chapter, where Consultation Key is covered.)

$1$2 = DDSS, $3 = Return Code Processing Function,
TRANID = "Transaction Code",
TABFO = "Function or Type of Consultation",
TABCR = "Return Code"

CICS example:

```
FF SF nn1 M   'PA01' G-$1$2-TRANID
FF SF nn2 M   'R1' G-$1$2-TABFO
FF SF nn3 M   xxxxx  $1$2-DELCO    (DELCO = table key)
FF SF nn4 EXC LINK PROGRAM ('PAP920')
FF SF nn5     COMMAREA (G-$1$2)
FF SF nn6     LENGTH ($4)
FF SF nn7 P   $3               99IT G-$1$2-TABCR NOT = '00'
```

IMS example:

```
LINKAGE SECTION
01   $3-TD    PICTURE X(78).
01   $3-TV    PICTURE X(78).
PROCEDURE DIVISION USING
                         $3-TD
                         $3-TV
FF SF nn1 M   'PG00' G-$1$2-TRANID
FF SF nn2 M   'R1' G-$1$2-TABFO
FF SF nn3 M   TC11-ZCORED $1$2-ZCORED
FF SF nn4 CAL 'PAP920' USING $3-TD
FF SF nn5                    $3-TV
FF SF nn6                    G-$1$2
FF SF nn7 M   'PGUT029921' EM00-XCLEF 99IT G-$1$2-TABCR='00'
```

NOTE: -TD corresponds to the PCB of the TD Table Description file.

-TV corresponds to the PCB of the TV Table Data file.

DPS7 & DPS8 EXAMPLE:

```
FF SF nn1 M   "R1" G-$1$2-TABFO
FF SF nn2 M   xxxxx  $1$2-DELCO    (DELCO = table key)
FF SF nn3 CAL "PAP930"
FF SF nn4          G$1$2
FF SF nn5 P   $3               99IT G-$1$2-TABCR NOT = "00"
```

7.7. PACTABLES BATCH ACCESS SUB-PROGRAMSDYNAMIC CALL

DYNAMIC CALL OF A PACTABLES BATCH ACCESS SUB-PROGRAM

A non-dynamic call of Pactables batch access sub-programs into many validation programs causes a significant amount of maintenance on the executable load-modules of the end-user applications when new versions of these sub-programs are implemented.

Depending on the Operating System and COBOL compiler in use, it is more or less simple to dynamically call a Pactables batch access sub-program, i.e., to load its last version from the library of executable load modules when the program is executed.

If this dynamic call can be implemented, the COBOL Reference Documentation provides the necessary information.

DYNAMIC CALL WITH DOS/VSE AND DOS/SP2

The standard DOS COBOL compiler does not allow for such a dynamic call. It is necessary to use a sub-program, coded PACDYNAM, which is statically called and inserted in the validation program.

Pactables includes the load-module of PACDYNAM sub-program.

A dynamic call is implemented as follows:

by replacing the instruction:

"CALL 'pgname' USING PARM1"

by

"MOVE 'pgname' TO FIELD1"
"CALL 'PACDYNAM' USING FIELD1 PARM1"

or

by declaring the 'pgname' value in the Work Areas of the user program and replacing the instruction:

"CALL 'pgname' USING PARM1"

by

"CALL 'PACDYNAM' USING FIELD1 PARM1"

On the next page, there is an example of a dynamic call using this second method.

The COBOL data 'FIELD1' is an 8-character alphanumeric field.

NOTE: The 'PACDYNAM' sub-program cannot be called in programs that contain the 'SORT' COBOL instruction used with the IBM DOS/VS SM2 sort. Otherwise, the sort will end abnormally or with return code "16".

EXAMPLE OF DYNAMIC CALL DOS/VSE - DOS/SP2

WORK AREAS OF TAT800 USER PROGRAM

```
LINE  T LEVEL              DESCRIPTION
----- - ------------------ -----------------------------------
W8000 * WORKING FOR DYNAMIC CALL OF PTA800 SUB-PROGRAM
W8020   01               7-W800-PGNAME  PIC X(8) VALUE 'PTA800'.
```

PROCESSING OF PROGRAM ATADY0 CALL MACROSTRUCTURE

```
FF SF LIN OPE OPERANDS                          LVTY CONDITION
-- -- --- --- ------------------------------- ---- -------------------
95 $1 000 N   DYNAMIC CALL OF ACCESS SUB-PGM   10BL
95 $1 ...
95 $1 ...     CALL PREPARATION
95 $1 ...
95 $1 ... CAL 'PACDYNAM' USING 7-W800-PGNAME
95 $1 ...                      G-$1$2
95 $1 ...
95 $1 ...     RESULT EXAMINATION
95 $1 ...
```

8. EXAMPLES OF USER VALIDATION SUB-PROGRAMS

8.1. INTRODUCTION

EXAMPLES OF USER VALIDATIONS

The purpose of this chapter is to give an example of a user validation sub-program that may be called by Pactables during an update.

Two sub-programs performing the same validations are presented in this chapter:

. The first sub-program is written for on-line updating (CICS-OS and DPS7/DPS8 variants).

. The second sub-program is written for batch updating (CICS-OS and Micro Focus variants).

VALIDATION PRINCIPLES

The validated table is defined in the Specifications Dictionary under the segment code 'TC11' with the table number being 'INFOS'. A certain number of validations are coded on the Call of Data Elements screen (-CE of TC11).

The call of the validation sub-program PGUT02 is coded at the 'ZDTANC' data element level. This sub-program performs compatibility validations between some of the data elements of the 'TC11' table. It also performs a validation in regard to another table's contents (segment TC20, CODTAU table).

THE COMMON AREA

This area is used as a link between Pactables and the user's program. Thus, it must be defined in the LINKAGE SECTION of a COBOL program.

It is made up of:

- A field of 90 characters corresponding to the description of the Error Message File ('EM'),
- A COMMUNICATION field identical to the one used in table access described in chapter "TABLE ACCESS BY PROGRAM", subchapter "COMMUNICATION AREA AND VALUES".

ERROR DETECTION

Pactables considers an error has been detected by the user's program when there is a value in the data elements 'ERCOD' and/or 'ERTYP' of the error message.

The data element 'ERCOD', with a length of three, is found in the 11th position of the common area.

The data element 'ERTYP', with a length of one, is found in the 14th position of the common area.

In a batch update, an error is considered severe if the data element 'ERLVL' (length 1, position 18) has been set to the value 'E'. Otherwise, the error is simply pointed out and updating takes place.

8.2. IBM-CICS ON-LINE EXAMPLE

ON-LINE VALIDATION SUB-PROGRAM

Such a program can be written:

- With the help of the Structured Code function if it has been installed at the user's site, or
- Directly in COBOL.

In the following example, the program is written in Structured Code. The sub-program is defined as the Program entity. The on-line type is specified on the definition screen.

For additional information on the Program entity, refer to the STRUCTURED CODE Reference Manual.

For information on the system constraints related to the call of user sub-programs, refer to the PACTABLE Operations Manual.

CALLING THE DATA STRUCTURES

The COMMUNICATION area belonging to the LINKAGE section is defined by the data structure 'EM' as well as by the table description 'TC11'.

The table description 'CODTAU' called in the program 'TD20' must appear in the WORKING-STORAGE SECTION.

DESCRIPTION OF THE F45 FUNCTION

This function corresponds to the validation in relation to the 'TD20' table. It is broken down into:

- Coding the request,
- Filling in the table key,
- Calling the program accessing the tables,
- Processing based on the return code with possible error positioning.

DESCRIPTION OF THE F50 FUNCTION

If the 'TD20' table is read without any errors, this function validates the compatibility of the data between the two tables.

DISPLAY AFTER VALIDATIONS

If any errors were detected after completing all validations, Pactables displays the contents of the following fields:

- Data element 'ERCOD' (Length 3, Position 11),
- Data element 'ERTYP' (Length 1, Position 14),
- Data element 'ERMSG' (Length 66, Position 19).

```
--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! PROGRAM DEFINITION..... PGUT02                                               !
!                                                                              !
! PROGRAM NAME.....................: 'INFOS' TABLE VALI TP SB-PROG             !
!                                                                              !
! CODE FOR SEQUENCE OF GENERATION....: PGUT02                                  !
!                                                                              !
! TYPE OF CODE TO GENERATE...........: 0                                       !
! COBOL NUMBERING AND ALIGNMENT OPT..:                                         !
! CONTROL CARDS IN FRONT OF PROGRAM..: C                                       !
! CONTROL CARDS IN BACK OF PROGRAM.. : C                                       !
! COBOL PROGRAM-ID...................: PGUT02                                  !
! MODE OF PROGRAMMING................: P                                       !
! TYPE AND STRUCTURE OF PROGRAM......: T                                       !
! PROGRAM CLASSIFICATION CODE........: P   PROGRAM                             !
! TYPE OF PRESENCE VALIDATION........:                                         !
! SQL INDICATORS GENERATION WITH '_'.:                                         !
!                                                                              !
!                                                                              !
! EXPLICIT KEYWORDS..:                                                         !
!                                                                              !
! SESSION NUMBER.....: 0337        LIBRARY......: DOC    LOCK....:             !
!                                                                              !
! O: C1 CH: Ppgut02                     ACTION:                                !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! DATA STRUCTURES USED IN PROGRAM :    PGUT02 'INFOS' TABLE VALI TP SB-PROG    !
!                                                                              !
! A DP CO : DL EXTERN OARFU BLOCK T  B M U RE SE L UNIT C SELECTION F E R L PL !
!   EM    : EM EM     LSFOU     O R      D                          I     2  8 !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!   TC    : TC TC     GSFOU     O R      D                  *11       I   1 2  8 !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!   TD    : TC TD     GSFOU     O R      D                  *20       I   2 1  T !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                     !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!                                                                              !
! O: C1 CH: Ppgut02CD                                                          !
--------------------------------------------------------------------------------
```

```
--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! WORK AREAS.........ENTITY TYPE P PGUT02 'INFOS' TABLE VALI TP SB-PROG       !
!                                                                              !
! CODE FOR PLACEMENT..:      80                                                !
! A LIN T LEVEL OR SECTION WORK AREA DESCRIPTION                      OCCURS   !
!   000   LINKAGE SECTION.                                                     !
!   100   01               DFHCOMMAREA.                                       !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
! O: C1 CH: Ppgut02W80                                                         !
--------------------------------------------------------------------------------
```

PROCEDURAL CODE OF PGUT02 PROGRAM

```
FF SF LIN OPE OPERANDS                          LVTY CONDITION
45    000 N   ACCESS  TABLE 'CODTAU' (TD20)    05BL
-- -- --- --- -------------------------------- ---- ------------------
45 AL 000 N   READ                             10BL
45 AL 020 M   'PG00' G-TD20-TRANID
45 AL 040 M   'R1' G-TD20-TABFO
45 AL 060 M   TC11-ZCORED TD20-ZCORED
45 AL 080 EXC LINK PROGRAM ('PGP920')
45 AL 100     COMMAREA (G-TD20)
45 AL 120     LENGTH (90)
45 AL 140 M   'PGUT029921' EM00-EMKEY          99IT G-TD20-TABCR  ='10'
45 AL 220 M   'DISCOUNT CODE NOT FOUND TC20'
45 AL 240     EM00-ERMSG
45 AL 260 GT  05
45 AL 310 M   'PGUT029922' EM00-EMKEY          99IT G-TD20-TABCR  NOT =
45 AL 315 M   'RETURN CODE TABCR : '                '00'
45 AL 340     EM00-ERMSG1
45 AL 345 M   G-TD20-TABCR
45 AL 350     EM00-ERMSG2
45 AL 360 GT  05
-- -- --- --- -------------------------------- ---- ------------------
50 CC 000 N   COMPATIBILITY ZCORED AND ZDTANC  10IT TC11-ZDTANC >
50 CC 040                                           TD20-ZDTANC
50 CC 100 M   'PGUT029923' EM00-EMKEY
50 CC 120 M   'INSUF. SENIORITY FOR DISC. REQ'
50 CC 140     EM00-ERMSG
50 CC 200 GT  05
-- -- --- --- -------------------------------- ---- ------------------
50 DD 000 N   COMPATIBILITY ZCORED AND ZTOTAN  10IT TC11-ZTOTAN <
50 DD 040                                           TD20-ZTOTAN
50 DD 100 M   'PGUT029924' EM00-EMKEY
50 DD 120 M   'INSUF. TOTAL FOR DISC. REQUEST'
50 DD 140     EM00-ERMSG
50 DD 200 GT  05
-- -- --- --- -------------------------------- ---- ------------------
60    000 N   RETURN                           05BL
60    100     EXC RETURN
60    200 COB GOBACK.
-- -- --- --- -------------------------------- ---- ------------------
```

8.3. BULL-TDS ON-LINE EXAMPLE

```
--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! PROGRAM DEFINITION....... PGUT78                                             !
!                                                                              !
! PROGRAM NAME.....................: 'INFOS' TABLE VALI BA SB-PROG             !
!                                                                              !
! CODE FOR SEQUENCE OF GENERATION....: PGUT78                                  !
!                                                                              !
! TYPE OF CODE TO GENERATE...........: 5                                       !
! COBOL NUMBERING AND ALIGNMENT OPT..:                                         !
! CONTROL CARDS IN FRONT OF PROGRAM..: B                                       !
! CONTROL CARDS IN BACK OF PROGRAM.. : B                                       !
! COBOL PROGRAM-ID..................: PGUT78                                  !
! MODE OF PROGRAMMING...............: P                                       !
! TYPE AND STRUCTURE OF PROGRAM......: T                                       !
! PROGRAM CLASSIFICATION CODE........: P   PROGRAM                             !
! TYPE OF PRESENCE VALIDATION........:                                         !
! SQL INDICATORS GENERATION WITH '_'.:                                         !
!                                                                              !
!                                                                              !
! EXPLICIT KEYWORDS..:                                                         !
!                                                                              !
! SESSION NUMBER.....: 0337        LIBRARY......: DOC    LOCK....:             !
!                                                                              !
! O: C1 CH: Ppgut78                     ACTION:                                !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! DATA STRUCTURES USED IN PROGRAM :    PGUT78 'INFOS' TABLE VALI BA SB-PROG    !
!                                                                              !
! A DP CO : DL EXTERN OARFU BLOCK T  B M U RE SE L UNIT C SELECTION F E R L PL !
!   LE    : LE LE     LSFOU     0 R       D                          I     2 80 !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!   TC    : TC TC     GSFOU    10 R       D                *11       I   1 2 81 !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!   TD    : TC TD     GSFOU    10 R       D                *20       I   2 1 TD !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:             ACC. KEY:            RECTYPEL            !
!                                                                              !
! O: C1 CH: Ppgut78CD                                                          !
--------------------------------------------------------------------------------
```

WORK AREAS OF PGUT78 PROGRAM

```
LINE  T LEVEL       DESCRIPTION
80000 LINKAGE SECTION.
80100 01            DFHCOMMAREA.
----- ------------------------------------------------------------
99999 PROCEDURE DIVISION USING DFHCOMMAREA.
```

PROCEDURAL CODE OF PGUT78 PROGRAM

```
FF SS LIN OPE OPERANDS                          LVTY CONDITION
45    000 N   ACCESS TABLE "CODTAU" (TD20)      05BL
-- -- --- --- -------------------------------- ---- ------------------
45 AL 000 N   READ                              10BL
45 AL 020 M   "PG00" G-TD20-TRANID
45 AL 040 M   "R1" G-TD20-TABFO
45 AL 060 M   TC11-ZCORED TD20-ZCORED
45 AL 080 *   CALL ACCESS MODULE                99BL
45 AL 100 CAL "PAP930"
45 AL 120 M   USING G-TD20
45 AL 140 M   "PGUT879921" EM00-EMKEY           99IT G-TD20-TABCR  ="10"
45 AL 220 M   "DISCOUNT CODE NOT FOUND TC20"
45 AL 240     EM00-ERMSG
45 AL 260 GT  05
45 AL 310 M  "PGUT879922" EM00-EMKEY            99IT G-TD20-TABCR  NOT =
45 AL 315 M  "RETURN CODE TABCR : " "00"
45 AL 340     EM00-ERMSG
45 AL 345 M   G-TD20-TABCR
45 AL 350     LE00-LIERC
45 AL 360 GT  05
-- -- --- --- -------------------------------- ---- ------------------
50 CC 000 N   COMPATIBILITY ZCORED AND ZDTANC   10IT TC11-ZDTANC >
50 CC 040                                           TD20-ZDTANC
50 CC 100 M   "PGUT879923" EM00-EMKEY
50 CC 120 M   "INSUF. SENIORITY FOR DIS. REQ."
50 CC 140     EM00-ERMSG
50 CC 200 GT   05
-- -- --- --- -------------------------------- ---- ------------------
50 DD 000 N   COMPATIBILITY ZCORED AND ZTOTAN   10IT TC11-ZTOTAN <
50 DD 040                                           TD20-ZTOTAN
50 DD 100 M   "PGUT879924" EM00-EMKEY
50 DD 120 M   "INSUF. TOTAL FOR DISCOUNT REQ."
50 DD 140     EM00-ERMSG
50 DD 200 GT  05
-- -- --- --- -------------------------------- ---- ------------------
60    000 N   RETURN                            05BL
60    100 *   END OF SUB-PROGRAM
60    200 COB EXIT PROGRAM.
-- -- --- --- -------------------------------- ---- ------------------
```

8.4. BATCH VALIDATION SUB-PROGRAM

BATCH VALIDATION SUB-PROGRAM

A batch validation sub-program can be written:

- With the help of the Structured Code function if it is installed at the user's site.
- Directly in COBOL otherwise.

In the following example, the program is written with the Structured Code function. The sub-program is defined through the Program entity.

For additional information on the program entity, please refer to the STRUCTURED CODE Reference Manual.

CALLING THE DATA STRUCTURES

The communication area belonging to the LINKAGE section is defined by the data structure 'EM' as well as by the table description 'TC11'.

The table description 'CODTAU' called in the program 'TD20' must appear in the WORKING-STORAGE SECTION.

DESCRIPTION OF THE F45 FUNCTION

This function corresponds to the validation in relation to the 'TD20' table. It is broken down into:

- Table Files OPEN,
- Request coding,
- Filling in the table key,
- Calling the program accessing the tables,
- Processing depending on the return code with possible error positioning,
- Table Files CLOSE.

DESCRIPTION OF THE F50 FUNCTION

If the 'TD20' table is read without any errors, this function validates the compatibility of the data between the two tables.

DISPLAY AFTER VALIDATIONS

If any errors were detected after completing all validations, Pactables displays the contents of the following fields:

- Data element 'ERCOD' (Length 3, Position 11),
- Data element 'ERTYP' (Length 1, Position 14),
- Data element 'ERMSG' (Length 66, Position 19).

Notes about Micro Focus COBOL

Only the TYPE OF CODE TO GENERATE must be adapted (value 3) on the program definition screen of the example presented on the following pages.

The same validation programs can be used in a batch or an on-line mode.

```
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! PROGRAM DEFINITION....... PGUT22                                             !
!                                                                              !
! PROGRAM NAME.....................: 'INFOS' TABLE BA VAL SB-PROGR             !
!                                                                              !
! CODE FOR SEQUENCE OF GENERATION....: PGUT22                                  !
!                                                                              !
! TYPE OF CODE TO GENERATE...........: 0                                       !
! COBOL NUMBERING AND ALIGNMENT OPT..:                                         !
! CONTROL CARDS IN FRONT OF PROGRAM..: B                                       !
! CONTROL CARDS IN BACK OF PROGRAM.. : B                                       !
! COBOL PROGRAM-ID...................: PGUT02                                  !
! MODE OF PROGRAMMING................: P                                       !
! TYPE AND STRUCTURE OF PROGRAM......: B                                       !
! PROGRAM CLASSIFICATION CODE........: P   PROGRAM                             !
! TYPE OF PRESENCE VALIDATION........:                                         !
! SQL INDICATORS GENERATION WITH '_'.:                                         !
!                                                                              !
!                                                                              !
! EXPLICIT KEYWORDS..:                                                         !
!                                                                              !
! SESSION NUMBER.....: 0337        LIBRARY......: DOC    LOCK....:             !
!                                                                              !
! O: C1 CH: Ppgut22                     ACTION:                                !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! DATA STRUCTURES USED IN PROGRAM :    PGUT22 'INFOS' TABLE BA VAL SB-PROGR    !
!                                                                              !
! A DP CO : DL EXTERN OARFU BLOCK T B M U RE SE L UNIT C  SELECTION F E R L PL !
!   EM    : EM EM     LSFOU     O R     D                          I     2  8 !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!   TC    : TC TC     GSFOU     O R     D                  *11       I   1 2  8 !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!   TD    : TD TC     GSFOU     O R     D                  *20       I   2 1  T !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!         :                                                                    !
!         :    STAT.FLD:            ACC. KEY:             RECTYPEL            !
!                                                                              !
! O: C1 CH: Ppgut22CD                                                          !
--------------------------------------------------------------------------------
```

```
--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! WORK AREAS.........ENTITY TYPE P PGUT22 'INFOS' TABLE O-L VAL SB-PROG       !
!                                                                              !
! CODE FOR PLACEMENT..:      80                                                !
! A LIN T LEVEL OR SECTION WORK AREA DESCRIPTION                      OCCURS !
!   000   LINKAGE SECTION.                                                     !
!   100   01               DFHCOMMAREA.                                       !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
! O: C1 CH: Ppgut22W80                                                         !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
!                  CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.337 !
! WORK AREAS.........ENTITY TYPE P PGUT22 'INFOS' TABLE VAL BA SB-PROGR       !
!                                                                              !
! CODE FOR PLACEMENT..:      99                                                !
! A LIN T LEVEL OR SECTION WORK AREA DESCRIPTION                      OCCURS !
!   999   PROCEDURE DIVISION USING DFHCOMMAREA.                                !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
!                                                                              !
! O: C1 CH: Ppgut22W99                                                         !
--------------------------------------------------------------------------------
```

PROCEDURAL CODE OF PGUT22 PROGRAM

```
FF SF LIN OPE OPERANDS                          LVTY CONDITION
45    000 N   ACCESS TABLE 'CODTAU' (TD20)      05BL
-- -- --- --- ------------------------------- ---- ------------------
45 AL 000 N   READ                            10BL
45 AL 020 M   'PG00' G-TD20-TRANID
45 AL 030 M   'OP' G-TD20-TABFO
45 AL 035 P   F90CA
45 AL 040 M   'R1' G-TD20-TABFO
45 AL 060 M   TC11-ZCORED TD20-ZCORED
45 AL 065 P   F90CA
45 AL 140 M   'PGUT229921' EM00-EMKEY         99IT G-TD20-TABCR  ='10'
45 AL 220 M   'DISCOUNT CODE NOT FOUND TC20'
45 AL 240     EM00-ERMSG
45 AL 250 M   'E' EM00-ERLVL
45 AL 260 GT  05
45 AL 310 M   'PGUT229922' EM00-EMKEY         99IT G-TD20-TABCR  NOT =
45 AL 320                                          '00'
45 AL 330 M   'RETURN CODE TABCR : '
45 AL 340     EM00-ERMSG1
45 AL 345 M   G-TD20-TABCR
45 AL 350     EM00-ERMSG2
45 AL 355 M   'E' EM00-ERLVL
45 AL 360 GT  05
-- -- --- --- ------------------------------- ---- ------------------
50 CC 000 N   COMPATIBILITY ZCORED AND ZDTANC 10IT TC11-ZDTANC >
50 CC 020                                          TD20-ZDTANC
50 CC 100 M   'PGUT229923' EM00-EMKEY
50 CC 120 M   'INSUF. SENIORITY FOR DIS. REQ.'
50 CC 140     EM00-ERMSG
50 CC 150 M   'E' EM00-ERLVL
50 CC 200 GT  05
-- -- --- --- ------------------------------- ---- ------------------
50 DD 000 N   COMPATIBILITY ZCORED AND ZTOTAN 10IT TC11-ZTOTAN <
50 DD 040                                          TD20-ZTOTAN
50 DD 100 M   'PGUT229924' EM00-EMKEY
50 DD 120 M   'INSUF. TOTAL FOR DISCOUNT REQ.'
50 DD 140     EM00-ERMSG
50 DD 150 M   'E' EM00-ERLVL
50 DD 200 GT  05
-- -- --- --- ------------------------------- ---- ------------------
60      0 N   CLOSE                           05BL
60    100 M   'CL'   G-TD20-TABFO
60    150 P   F90CA
60    200 COB GOBACK.
-- -- --- --- ------------------------------- ---- ------------------
90 CA 000 N   SP  PTA900                      10BL
90 CA 080 CAL 'PTA900'
90 CA 100     USING G-TD20
-- -- --- --- ------------------------------- ---- ------------------
```

9. DIRECT ACCESS FROM END-USER APPLICATION

9.1. INTRODUCTION

INTRODUCTION

An application end-user may directly access Pactables (with the option of calling a given Pactables screen) without having to quit his/her application.

This facility proves particularly useful when the end-user application accesses tables for update validation purposes.

When the update is not valid, the end-user calls the corresponding Pactables screen, consults and/or updates the table's item accordingly and returns to the application screen.

NOTE: This is even more useful for tables with historical accounts as they cannot be updated with the General Access Modules.

This facility is available if the end-user application activates a Navigation Module by sending it a number of parameters via a specific Communication Area.

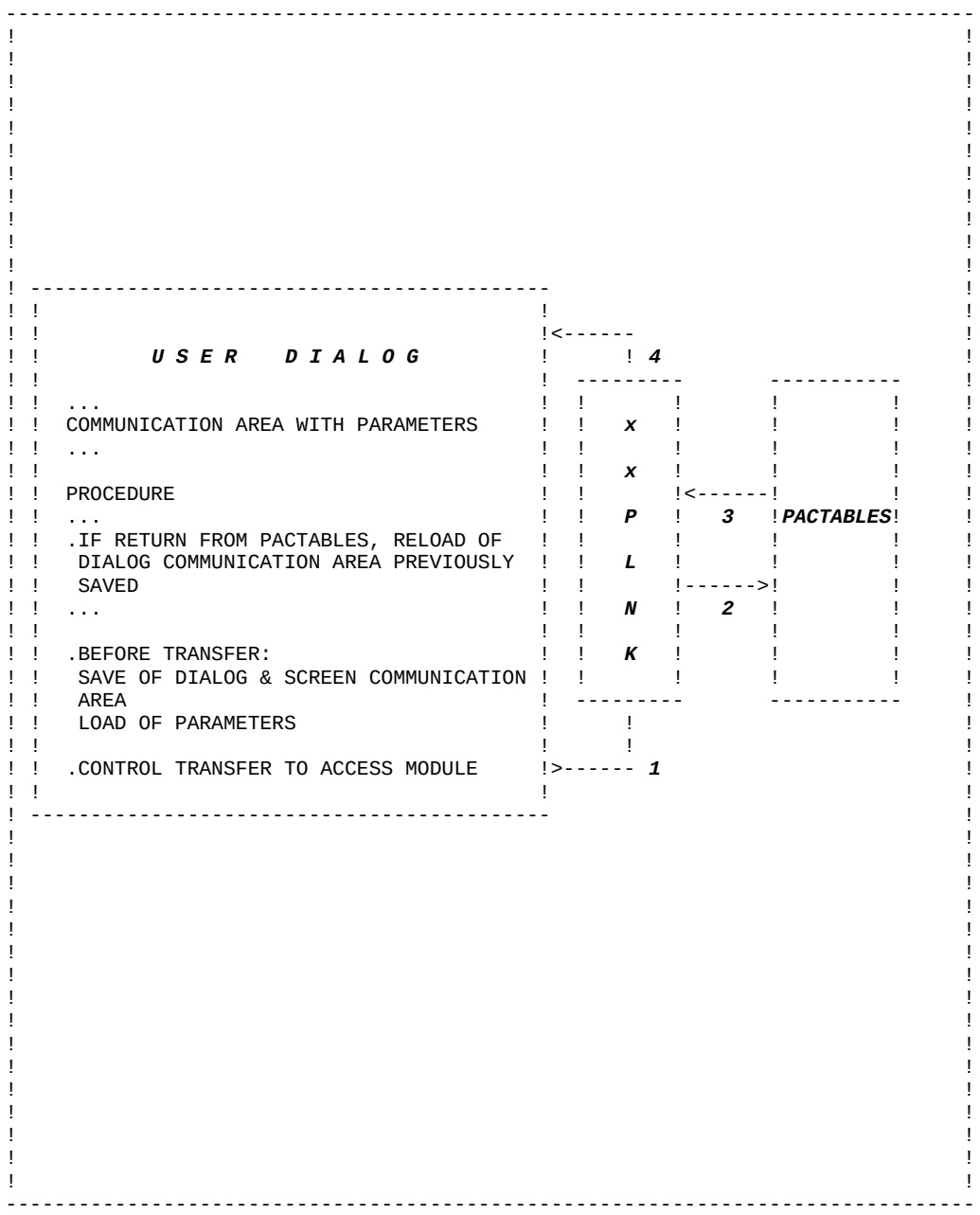
The dialog's Communication Area must be saved as well as, if necessary, the calling end-user screen.

Parameters are validated by the Navigation Module, which sends a return code to the user dialog in case of error, or passes control to the Pactables transaction.

WORKSTATIONS WITH WINDOWS (MS-DOS) or OS/2 and TERMINALS X

The navigation module is not available on these machines.

Multi-windowing allows the user to connect to the Pactables on-line server in a window while keeping its application in another window.


USER DIALOG
...
COMMUNICATION AREA WITH PARAMETERS
...
PROCEDURE
...
.IF RETURN FROM PACTABLES, RELOAD OF DIALOG COMMUNICATION AREA PREVIOUSLY SAVED
...
.BEFORE TRANSFER:
SAVE OF DIALOG & SCREEN COMMUNICATION AREA
LOAD OF PARAMETERS
.CONTROL TRANSFER TO ACCESS MODULE
4
x
x
P
L
N
K
3
2
1
PACTABLES

9.2. CONVERSATION AREA - PROGRAMMING

IMPLEMENTATION

(For more details on entities and dialogues, refer to the SPECIFICATIONS DICTIONARY, STRUCTERED CODE and ON-LINE SYSTEMS DEVELOPMENT Reference Manuals.)

The Communication Area is defined as a Segment entity occurrence in the Specifications Dictionary.

This Segment occurrence is called on an "F"-Type line of the end-user screen's Work Areas (CH: O.....W).

The Communication Area must include the code of the calling end-user screen. With CICS, it must also include the prefix of the Pactables files, and with DPS7 or DPS8, the fourth character of the transaction code, which determines the type of terminal used.

These parameters allow for branching to the Pactables Logon screen.

If a specific Pactables screen has to be accessed instead of the Logon screen, other fields must be entered.

For the complete description of the Communication Area, see the next pages.

The Communication Area must be saved as well as the calling end-user screen, if necessary.

Transferred parameters are validated by the Navigation Module, which either passes control to the Pactables transaction or sends a return code in case of error.

When going from the Pactables transaction to the user dialog, the field which contained the dialog program code is given the value 'xxPLNK', a return code is set and the other parameters are erased.

There are two communication area structures: one which presents the century and one which does not.

IMPLEMENTATION (CONT'D)

Processing before control transfer

The user program must transfer the parameters to the communication area, back up the communication area and, if necessary, save the dialog screen.

Return to the user dialog

The user program must restore the communication area and, if necessary, the dialog screen when the Navigation Module passes control back (this is identified by the value 'xxPLNK' in the Screen Code in the Dialogue field in the Communication area). The processing to be executed may then be executed conditionally by the return code value.

9.3. CONVERSATION AREA WITH CENTURY - PROGRAMMING

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	6		CALLING END-USER SCREEN CODE When the external name exceeds six characters, it must be entered in the 'SCREEN EXTERNAL NAME' field.
2	1		COMMUNICATION AREA INDICATOR This indicator allows the access modules to recognize the communication area structure with dates that include the century. It must have a value equal to High-Value
3	4		PREFIX OF PACTABLES FILES (REQUIRED) With DPS7 and DPS8: this field only includes the fourth character of the transaction code, which determines the type of terminal in use.
4	4		RETURN CODE
		0000	OK
		0101	Unknown user
		0102	Unknown password
		0103	Incorrect Operation Code
		0104	Incorrect date
		0105	Incorrect sub-schema number
		0106	Incorrect sub-system number
		0107	Unknown table
		0108	Unknown sub-schema
		0109	Unknown sub-system
			The Error Code is found in the SYSTEM ERROR CODE field for the following Return Code values:
		TD__ TV__	The third and fourth positions contain the last Operation Code performed.
		P5__	These two characters are followed by the number of the program not found.
5	10		SYSTEM ERROR CODE This field contains a return code specific to the access method in use.
6	8		PACTABLES USER CODE This code allows the user to access tables.
7	8		PACTABLES PASSWORD This is the password associated with the user code (alphanumeric, uppercase).
8	2		OPERATION CODE

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		LD	On-Line Documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification
		DE	Item deletion
		LT	List of tables
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	Table Print JCL lines sorted by user
9	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
10	6		HISTORICAL ACCOUNT DATE Historical date in CCYYMMDD format.
11	1	NUMER.	SUB-SCHEMA NUMBER Number of sub-schema selected for consultation. Sub-schemas are defined and managed by the user when the corresponding tables are defined.
		blank	The whole table.
		1,2..9,0	Sub-schema number (1 to 10, the value 0 corresponds to sub-schema No. 10).
12	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
13	20		ITEM KEY
14	8		SCREEN EXTERNAL NAME (8 CHARACTERS) When the 'CALLING END-USER SCREEN CODE' field (first field of the communication area) is not used, this field is stored for the return from

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			the navigation module. IMS: transaction code of the navigation module.
15	12		TERMINAL IDENTIFIER This field is only used for DPS7 and DPS8.
16	1		NOT USED

9.4. CONVERSATION AREA WITHOUT CENTURY - PROGRAMMING

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	6		CALLING END-USER SCREEN CODE When the external name exceeds six characters, it must be entered in the 'SCREEN EXTERNAL NAME' field.
2	4		PREFIX OF PACTABLES FILES (REQUIRED) With DPS7 and DPS8: this field only includes the fourth character of the transaction code, which determines the type of terminal in use.
3	4		RETURN CODE
		0000	OK
		0101	Unknown user
		0102	Unknown password
		0103	Incorrect Operation Code
		0104	Incorrect date
		0105	Incorrect sub-schema number
		0106	Incorrect sub-system number
		0107	Unknown table
		0108	Unknown sub-schema
		0109	Unknown sub-system
			The Error Code is found in the SYSTEM ERROR CODE field for the following Return Code values:
		TD__ TV__	The third and fourth positions contain the last Operation Code performed.
		P5__	These two characters are followed by the number of the program not found.
4	10		SYSTEM ERROR CODE This field contains a return code specific to the access method in use.
5	8		PACTABLES USER CODE This code allows the user to access tables.
6	8		PACTABLES PASSWORD This is the password associated with the user code (alphanumeric, uppercase).
7	2		OPERATION CODE
		LD	On-Line Documentation
		C1	Single item consultation
		C2	Multi-item consultation
		C3	Consultation of an item's historical accounts
		CR	Item creation
		MO	Item modification

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		DE	Item deletion
		LT	List of tables
		LS	List of sub-schemas and sub-systems sorted by table
		LH	List of table historical accounts
		LE	List of Table Print requests sorted by user
		LJ	Table Print JCL lines sorted by user
8	6		END USER TABLE ID / TABLE CODE This is the code used to access a table via Pactables. Pactables differentiates between lowercase and uppercase input in this field.
9	6		HISTORICAL DATE Historical date in YY/MM/DD format.
10	1	NUMER.	SUB-SCHEMA NUMBER Number of sub-schema selected for consultation. Sub-schemas are defined and managed by the user when the corresponding tables are defined.
		blank	The whole table.
		1,2..9,0	Sub-schema number (1 to 10, the value 0 corresponds to sub-schema No. 10).
11	1		SUB-SYSTEM NUMBER Number of sub-group/sub-system selected for consultation. Sub-systems with their respective items are defined or updated by the user when the corresponding tables are defined or updated.
		BLANK	The whole table.
		1,2..9,0	Sub-group/sub-system number (1 to 10, the value 0 corresponds to sub-system 10).
12	20		ITEM KEY
13	8		SCREEN EXTERNAL NAME (8 CHARACTERS) When the 'CALLING END-USER SCREEN CODE' field (first field of the communication area) is not used, this field is stored for the return from the navigation module. IMS: transaction code of the navigation module.
14	12		TERMINAL IDENTIFIER This field is only used for DPS7 and DPS8.
15	4		NOT USED

10. EXAMPLES OF DIRECT ACCESSES

10.1. INTRODUCTION

EXAMPLE

The example is a Dialogue which allows for data input.

The user may access the Pactables transaction, then return to the dialog.

The screen is divided into two parts :

. The top allows for data input,

. The bottom is used for branching to the Pactables transactions with several parameters.

The following sub-chapters include programs adapted to IBM-CICS, IBM-IMS and BULL GCOS7.

LAYOUT OF SCREEN JMP003 CALL OF PACTABLE WITH DATA TRANSFER

D. ELEM. CODE	T	POSITION T	LN	CL	N	L	ATTR. I-P-C-Z	HR	HV	O	C	T	DISPLAY M	SOURCE	W S T	
PFKEY					V						G			15		
	A	1	12		L											
			1		L											
			5		L											
		1	10		L											
	A	4	5		L											
LIBED	A	4	21		V	F			5				JM00	JM00		
	A	10	5		L											
NUTAB			2		V	U							JM00	JM00		
DAHTA			2		V	U							JM00	JM00		
NUSSC		1	21		V	U				N			JM00	JM00		
NUSSY			7		V	U				N			JM00	JM00		
CODOP		1	21		V	N							JM00	JM00		
CODUTI			10		V	N							JM00	JM00		
PASUTI		1	21		V	N	D						JM00	JM00		
CLETVV		1	21		V	N							JM00	JM00		
	A	16	5		L											
TABCR			2		F	N								JM00		
XOPER			2		F	N								JM00		
FSTAT		1	21		F	N								JM00		
	A	19	21		L		B									
			1		L											
		1	21		L		B									
			1		L											
		1	5		L											
TOPSDA			1		V			Y			G		JMPLNK	D A		
											G		JMP001	D B		
											G		JMP002	D C		
			5		L		B									
			1		L											
			1		L											
LIERR	A	23	2		P	F	B									
			3		L		B									

LAYOUT OF SCREEN JMP003 PACTABLES CALL WITH DATA TRANSFER

```
.........1.........2.........3.........4.........5.........6.........7.
          P A C T A B L E S   C A L L
         ----------------------------

    COMMENTS.....:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

    TABLE INFOS  :  TABLE CODE        : XXXXXX  HIST. DATE   : XX
                    SUB-SCHEMA NUMBER : X       SUB-SYSTEM NUMBER: X
                    OPERATION CODE    : XX      USER CODE    : UTI01
                    USER PASSWORD     : XXXXXXXX
                    KEY OR CODE VALUE : XXXXXXXXXXXXXXXXXXXX

    FROM PACTABLES: RETURN CODE: XX  TYPE OF ACCESS REQ./ FILE:  : XX
                    GENERAL FILE STATUS: XXXXXXXXXX

                    A - ACCESS TO PACTABLES
                    B - BACK TO GENERAL MENU
    CHOICE..: X     C - SCREEN FOR BRANCHING WITHOUT DATA

 *** END ***                                              PF15 = END

.........1.........2.........3.........4.........5.........6.........7.
```

```
--------------------------------------------------------------------------------
!                 CENTRAL DOCUMENTATION                    *DOC.PBDO.DOC.837 !
! ON-LINE SCREEN CALL OF SEGM. AR0010 STOCK MANAGEMENT                          !
! ...TA25...TE72.....................................................................!
! A SEGM      :   USE PREC ACCESS KEY   ACCESS     D EXTERNAL LIB. S    : LIBR.!
! C CODE C LN : G R D SEGM SOURCE       KEY    B O T NAME     SEGM N LV :       !
!   TA25   00 :   L   TE72 0010-TNUFOU  TNUFOU   G 1 VT00     TA25       : 0607 !
!   TE72   00 :   T A                   TNUART   V 1 VT00AD   RE25       : 0607 !
!   TE72   10 :            0010-TNUREF  TNUREF                           : 0607 !
!   TE72   20 :            0010-TNUVER  TNUREV                           : 0607 !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!             :                                                          :      !
!                                                                               !
! O: C1 CH: Oar0010CS                                                           !
--------------------------------------------------------------------------------
```

10.2. CICS EXAMPLE

IBM-CICS EXAMPLE

Branching preparation, access to Pactables and processing upon return from the tables are executed by the program.

Work areas

The NN00 segment, which is called in the Work areas (-W) on an 'F'-type line, describes the area used for communication between the 'JMP0030' screen and the navigation module.

Function F01BB:

The screen receives the communication area, and restores it in a specific work area.

Function F0115:

This function includes the processing required when control is returned, such as restoration of the dialog communication area, which was saved before calling the Navigation Module.

Procssing before transfer of control to the Navigation Module

Function F4035

This function includes:

. Preparing the area used for communication with the Module,

. Backing up the dialog communication area,

. Initializing the area used for communication with the Module.

WORK AREAS

```
LINE  S LEVEL       DESCRIPTION
----- - ------------------------------------------------------------------
NN100 F DP: NN  DL: NN SEL: _________ PICT: I DESC: _ LEV: 1 ORG: _
```

PROCEDURE

```
FU SF LIN OPE OPERAND                        LVTY CONDITION
-- -- --- --- ------------------------------ ---- --------------------
01 AN   0 N   INITIALIZATION                 10BL
01 AN 100 M   SPACE NN00
01 AN 200 M   SPACE JM00                     99IT EIBCALEN = ZERO
-- -- --- --- ------------------------------ ---- --------------------
01 BB   0 N   PACTABLE RETURN                10IT K-SP003-PROGR
01 BB 100 M   DFHCOMMAREA NN00
-- -- --- --- ------------------------------ ---- --------------------
01 15   0 N   TS RESTORATION --> COMMAREA     10IT NN00-PROGR = '
01 15 100 EXC READQ TS QUEUE('JM03')
01 15 120     INTO (COMMON-AREA)
01 15 130     LENGTH (5-P003-LENGTH)
01 15 140     ITEM (1)
01 15 200 *   DELETION OF TS                  99BL
01 15 210 EXC DELETEQ TS QUEUE('JM03')
01 15 300 *   RE-INITILIZE FIELDS
01 15 310 M   NN00 JM00-NN00
-- -- --- --- ------------------------------ ---- --------------------
02 BB 000 N   DISPLAY FIRST TIME             10IT ICF = '0'
02 BB 100 M   'A' OPER
02 BB 120 M   '1' OCF
02 BB 140 GFT
-- -- --- --- ------------------------------ ---- --------------------
20 BB   0 N   ADDITIONAL VALIDA. ON 'TOPSDA' 15*P TOPSDA
20 BB 200 ERR 5  TOPSDA                      99IT PR-03-TOPSDA = '1'
20 BB 210                                      AN OPERD = SPACE
-- -- --- --- ------------------------------ ---- --------------------
30 BB   0 N   SAVE 'PROGE'                   15*P A
30 BB 100 M   PROGE    JM00-PROGE
30 BB 140 M   SPACES   JM00-XUTPR            99IT I-P003-TOPSDA = 'B'
-- -- --- --- ------------------------------ ---- --------------------
40 35   0 N   BRANCHING TO PACTABLE           10IT 5-P003-PROGE ='PACT'
40 35 100 M   SPACE       NN00
40 35 105 M   'JMP003'    NN00-PROGR
40 35 110 M   'DT00'      NN00-TRANID
40 35 120 M   JM00-TABCR  NN00-TABCR
40 35 130 M   JM00-XOPER  NN00-XOPER
40 35 140 M   JM00-CODUTI NN00-CODUTI
40 35 150 M   JM00-PASUTI NN00-PASUTI
40 35 160 M   JM00-CODOP  NN00-CODOP
40 35 170 M   JM00-NUTAB  NN00-NUTAB
40 35 180 M   JM00-DAHTA  NN00-DAHTA
40 35 190 M   JM00-NUSSC  NN00-NUSSC
40 35 200 M   JM00-NUSSY  NN00-NUSSY
40 35 210 M   JM00-CLETVV NN00-CLETVV
40 35 300 *   ****************************** 99BL
40 35 310 *   * SAVE COMMAREA --> TS        *
40 35 320 *   ******************************
40 35 330 EXC WRITEQ TS QUEUE ('JM03')
40 35 340     FROM (COMMON-AREA)
40 35 350     LENGTH (5-P003-LENGTH)
40 35 400 *   ****************************** 99BL
40 35 410 *   * RE-INITIALIZE COMMAREA      *
40 35 420 *   * FOR NAVIGATION MODULE       *
40 35 430 *   ******************************
40 35 440 M   100 5-P003-LENGTH
40 35 450 M   NN00 COMMON-AREA
-- -- --- --- ------------------------------ ---- --------------------
66 BB   0 N   ERROR IN RETURN FROM MODULE     10IT K-SP003-PROGR
```

```
66 BB  10 *   PACTABLE                          AN JM00-XUTPR > SPACES
66 BB 100 M   'A'    O-P003-TOPSDA
66 BB 110 ERR A CODUTI                         99IT JM00-XUTPR = '0101'
66 BB 120 ERR B PASUTI                         99IT JM00-XUTPR = '0102'
66 BB 130 ERR C CODOP                          99IT JM00-XUTPR = '0103'
66 BB 140 ERR D DAHTA                          99IT JM00-XUTPR = '0104'
66 BB 150 ERR E NUSSC                          99IT JM00-XUTPR = '0105'
66 BB 160 ERR F NUSSY                          99IT JM00-XUTPR = '0106'
66 BB 170 ERR G NUTAB                          99IT JM00-XUTPR = '0107'
66 BB 180 ERR H NUSSY                          99IT JM00-XUTPR = '0108'
66 BB 190 ERR I NUSSC                          99IT JM00-XUTPR = '0109'
66 BB 900 ERR ? TOPSDA                         99IT EN-PRR = ZEROS
-- -- --- --- ------------------------------- ---- --------------------
80 LE   0 N   LOADING OF ERROR MESSAGE         10BL
80 LE  10 YR  LE00
80 LE 100 M   'UNKNOWN NAME'     LE00-ERMSG
80 LE 110 M   'INVALID CHOICE'                 99IT LE00-ERTYP = '8'
80 LE 111     LE00-ERMSG
80 LE 112 GT  05
80 LE 210 M   'UNKNOWN USER CODE'              99IT LE00-ERTYP = 'A'
80 LE 211     LE00-ERMSG
80 LE 220 M   'INVALID PASSWORD'               99IT LE00-ERTYP = 'B'
80 LE 221     LE00-ERMSG
80 LE 230 M   'INVALID OPERATION CODE'         99IT LE00-ERTYP = 'C'
80 LE 231     LE00-ERMSG
80 LE 240 M   'INVALID HIST. DATE'             99IT LE00-ERTYP = 'D'
80 LE 241     LE00-ERMSG
80 LE 250 M   'SUB-SCHEMA NOT NUMERIC'         99IT LE00-ERTYP = 'E'
80 LE 251     LE00-ERMSG
80 LE 260 M   'SUB-SYSTEM NOT NUMERIC'         99IT LE00-ERTYP = 'F'
80 LE 261     LE00-ERMSG
80 LE 270 M   'TABLE NOT FOUND'                99IT LE00-ERTYP = 'G'
80 LE 271     LE00-ERMSG
80 LE 280 M   'SUB-SYSTEM NOT FOUND'           99IT LE00-ERTYP = 'H'
80 LE 281     LE00-ERMSG
80 LE 290 M   'SUB-SYSTEM NOT FOUND'           99IT LE00-ERTYP = 'I'
80 LE 291     LE00-ERMSG
80 LE 900 M   'ERROR ON TABLE. NO ERROR MES.' 99IT LE00-ERTYP = '?'
80 LE 901     LE00-ERMSG
```

10.3. IMS EXAMPLE

IBM-IMS EXAMPLE

MONITOR

Function F28BB:

This function transfers the contents of the SPA (received in F0510) into the field which is to be used as the SPA during the Navigation Module call.

Return from the Navigation Module

Function F28EE:

The Navigation Module transfers its code (xxPLNK) in the 'NN00-PROGR' field. The user program retrieves the SPA saved before the transfer of control (see F28MM). The record used to save the SPA is thus deleted.

Function F28FF:

The name of the Navigation Program is set into the 'K-PROGR' field, which involves resetting ICF and OCF to zero in function F0110 of the screen which calls the Navigation Module.

The '7-PROGE' field contains the name of the user program load module, so that it is re-executed before display.

Processing before Transfer of Control

Function F28MM: Call of Pactables via Navigation Module

This function tests the '7-PROGE' field, which was filled in function F0110 of the Monitor by the 'S-WWSS-PROGE' field. This field was given a value by the user program. In our example, it takes the value 'JMPTAB'.

This sub-function deletes the record used to save the SPA if it was not previously deleted (ABEND of the user program on a preceding access to Pactables), then it saves the current SPA.

Function F28PP: Preparation of the SPA for Pactables

This SPA only includes the data structure needed by the Navigation Module (xxCLNK).

Its first field contains the transaction code of the Module, and the 'NN00-COTRAN' field contains the transaction code of the user dialogue. Other fields include parameters entered before branching.

SCREEN PROCESSING

The JMP003 screen is made up of:

. A comment field, which is the dialogue SPA,

. Information for Pactables,

. A review field, which is displayed after access to Pactables,

. A choice field.

The F30BB function fills in the 'JM00-PROGE' field with the code of the program which processes the screen. 'JM00-PROGE' is included in the dialog SPA and is used after access to Pactables for a new screen display (see F28BB in the Monitor).

NOTE: In the example, the 'JMPLNK' screen allows for branching to the Module through the CHOICE field (cf. TOPSA in the screen Layout). The external name of this screen is 'JMPTAB'. The F28MM function tests this value for branching to the Navigation Module.

```
-----------------------------------------------------------------------
! SCREEN ! SCREEN NAME        ! LG  CL P AL DOCU  I I EXTERNAL NAMES!
!        !                    !             EC RU N IPROGR  TRANSAC !
!--------!--------------------!-----------------------------------!
! JM     ! (UTI. <--> TABLES) ! 24  80 F 01 04 08   IJM     JMTR    !
!-----------------------------------------------------------------!
! COMPLEMENT  CNV.A. LGTH ORG.EM EXT.NM.EM. DIA.MON  PSB    OPTIONS !
!               JM          U                 P001  PSBJM  REPET   !
-----------------------------------------------------------------------

            JM SCREEN WORK AREAS

-----------------------------------------------------------------------
! S ! LEVEL       DESCRIPTION                                         !
!---!-------------------------------------------------------------!
!   ! 01          S-PAC7SV-SSA.                                       !
!   !   10        FILLER         PIC X(8) VALUE 'PAC7SV'.             !
!   !   10        FILLER         PIC X    VALUE SPACE.                !
!   ! 01          S-PAC7SV-SSAQ.                                      !
!   !   10        FILLER         PIC X(8) VALUE 'PAC7SV'.             !
!   !   10        FILLER         PIC X(9) VALUE '(CLESV'.             !
!   !   10        S-PAC7SV-OPER  PIC XX   VALUE ' ='.                 !
!   !   10        S-PAC7SV-CLESV PIC X(13).                           !
!   !   10        FILLER         PIC X    VALUE ')'.                  !
!   ! 01          SPA-TABLES.                                         !
!   !   02        SPA-TABLES-LL    PIC S9(4) COMP.                    !
!   !   02        SPA-TABLES-ZZ    PIC XX.                            !
!   !   02        SPA-TABLES-CI    PIC XX.                            !
!   !   02        SPA-TABLES-TRAN  PIC X(8).                          !
! F ! DS: NN LIB: NN SEL: ___ FORM: I DESC: 1 LEV: 3 ORG: _ SS: _     !
-----------------------------------------------------------------------
```

```
MONITOR PROCEDURAL CODE
-----------------------
FU SF LIN OPE OPERANDS                        LVTY CONDITION
-- -- --- --- ------------------------------ ---- -------------
28 BB     N   ACCESS FROM USER TRANSACTION   10BL
28 BB  10 *   TO TABLES
28 BB 100 M   SPA    SPA-TABLES
-- -- --- --- ------------------------------ ---- -------------
28 EE     N   RETURN FROM TABLES             15IT NN00-PROGR =
28 EE 100 M   S-IPCB-XNMTE    SV00-LTERM           'D3PLNK'
28 EE 110 M   'JM'            SV00-RADIC
28 EE 120 M   1               SV00-NPART
28 EE 130 M   '02'            SV00-TRSAC
28 EE 140 M   SV00-CLESV      S-PAC7SV-CLESV
28 EE 150 M   'GHU'           S-WPCB-XFONC
28 EE 200 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 EE 210                     S-PCBSV
28 EE 220                     SV00
28 EE 230                     S-PAC7SV-SSAQ
28 EE 240 M   S-PCBSV         S-SPCB
28 EE 300 MES 'F28EE200'                      99IT S-SPCB-XCORET
28 EE 310 MES 'ERR. SPA BACKUP READING'            NOT = SPACES
28 EE 320 COB GO TO F81ER.
-- -- --- --- ------------------------------ ---- -------------
28 FF     N   RETRIEVAL PREVIOUS SPA         20BL
28 FF 100 M   SV00-3SPA   SPA
28 FF 110 M   NN00        JM00-NN00
28 FF 120 M   NN00-PROGR  K-PROGR
28 FF 130 M   JM00-PROGE  7-PROGE
28 FF 200 M   'DLET'          S-WPCB-XFONC
28 FF 210 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 FF 220                     S-PCBSV
28 FF 230                     SV00
28 FF 240 M   S-PCBSV         S-SPCB
28 FF 300 MES 'F28FF210'                      99IT S-SPCB-XCORET
28 FF 310 MES 'ERR. DELETE SPA SAVED'              NOT = SPACES
28 FF 320 COB GO TO F81ER.
-- -- --- --- ------------------------------ ---- -------------
28 MM     N   ACCESS TO TABLES               15IT 7-PROGE =
28 MM 100 M   S-IPCB-XNMTE    SV00-LTERM           'JMPTAB  '
28 MM 105 M   'JM'            SV00-RADIC
28 MM 110 M   1               SV00-NPART
28 MM 115 M   '02'            SV00-TRSAC
28 MM 120 M   SV00-CLESV      S-PAC7SV-CLESV
28 MM 125 M   'GHU'           S-WPCB-XFONC
28 MM 130 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 MM 135                     S-PCBSV
28 MM 140                     SV00
28 MM 145                     S-PAC7SV-SSAQ
28 MM 150 M   S-PCBSV         S-SPCB
28 MM 155 COB GO TO F28MM-300.                99IT S-SPCB-XCORET
28 MM 156                                          = 'GE'
28 MM 160 MES 'F28MM125'                      99IT S-SPCB-XCORET
28 MM 165 MES 'ERR. SAVED SPA READING'             NOT = SPACES
28 MM 170 COB GO TO F81ER.
28 MM 200 M   'DLET'          S-WPCB-XFONC    99BL
28 MM 205 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 MM 210                     S-PCBSV
28 MM 215                     SV00
28 MM 220 M   S-PCBSV         S-SPCB
28 MM 225 MES 'F28FF210'                      99IT S-SPCB-XCORET
28 MM 230 MES 'ERR. DELETE SPA SAVED'              NOT = SPACES
28 MM 235 COB GO TO F81ER.
28 MM 299 COA F28MM-300.
28 MM 300 M   JM00-PROGE      7-PROGE         99BL
28 MM 310 M   SPA             SV00-3SPA
28 MM 320 M   'ISRT'          S-WPCB-XFONC
28 MM 330 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 MM 340                     S-PCBSV
28 MM 350                     SV00
28 MM 360                     S-PAC7SV-SSA
```

```
28 MM 370 M   S-PCBSV         S-SPCB
28 MM 380 MES 'F28MM320'                      99IT S-SPCB-XCORET
28 MM 390 MES 'ERR. CREATE SPA'                    NOT = SPACES   CES
28 MM 400 COB GO TO F81ER.
-- -- --- --- ------------------------------ ---- -------------
28 PP     N   PREPARE SPA FOR PACTABLE       20BL
28 PP 100 M   SPALG     SPA-TABLES-LL
28 PP 110 M   SPAZZ     SPA-TABLES-ZZ
28 PP 120 M   SPACI     SPA-TABLES-CI
28 PP 130 M   SPACES          NN00
28 PP 140 M   'JMTR    '      NN00-COTRAN
28 PP 150 M   JM00-TABCR      NN00-TABCR
28 PP 160 M   JM00-XOPER      NN00-XOPER
28 PP 170 M   JM00-CODUTI     NN00-CODUTI
28 PP 180 M   JM00-PASUTI     NN00-PASUTI
28 PP 190 M   JM00-CODOP      NN00-CODOP
28 PP 200 M   JM00-NUTAB      NN00-NUTAB
28 PP 210 M   JM00-DAHTA      NN00-DAHTA
28 PP 220 M   JM00-NUSSC      NN00-NUSSC
28 PP 230 M   JM00-NUSSY      NN00-NUSSY
28 PP 240 M   JM00-CLETVV     NN00-CLETVV
28 PP 300 M   'D3CLNK  '    SPA-TABLES-TRAN
28 PP 310 M   SPA-TABLES      SPA
-- -- --- --- ------------------------------ ---- -------------
28 QQ     N   CALL OF PACTABLE              25BL
28 QQ 200 M   'CHNG'          S-WPCB-XFONC
28 QQ 210 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 QQ 220                     S-ALTPCB
28 QQ 230                   SPA-TABLES-TRAN
28 QQ 240 M   S-ALTPCB        S-IPCB         99IT S-ALTPCB-XCOR
28 QQ 250 MES 'F28QQ210'                           NOT = SPACES
28 QQ 260 MES 'ERROR ON LINK CALL'
28 QQ 270 COB GO TO F81IO.
28 QQ 500 M   'ISRT'          S-WPCB-XFONC   99BL
28 QQ 510 CAL 'CBLTDLI' USING S-WPCB-XFONC
28 QQ 520                     S-ALTPCB
28 QQ 530                     SPA
28 QQ 540 M   S-ALTPCB        S-IPCB         99IT S-ALTPCB-XCOR
28 QQ 550 MES 'F28QQ510'                           NOT = SPACES
28 QQ 560 MES 'ERROR ON SPA ISRT'
28 QQ 570 COB GO TO F81IO.
28 QQ 999 COB GO TO F05.                     99BL
```

```
   SCREEN WORK AREA            JMP003 PACTABLE CALL WITH DATA TRANS.

-------------------------------------------------------------------------
! S ! LEVEL           DESCRIPTION                                       !
-------------------------------------------------------------------------
! F ! DS: LE LIB: LF SEL: 00_ FORM: I DESC: _ LEV: 1 ORG: _ SS: _   !
-------------------------------------------------------------------------
```

PROCEDURAL CODE OF SCREEN JMP003 PACTABLE CALL WITH DATA TRANSF

FUSFLIN	OPE	OPERANDS	LEV	TY	CONDITION
02BB	N	DISPLAY FIRST TIME	10	IT	ICF = '0'
02BB100	M	'A' OPER			
02BB120	M	'1' OCF			
02BB140	GFT				
20BB	N	ADDITIONAL VALID. OF TOPSDA	15	*P	TOPSDA
20BB200	ERR	5 TOPSDA	99	IT	PR-03-TOPSDA
20BB201					= '1'
20BB210				AN	OPERD = SPACE
30BB	N	SAVE 'PROGE'	15	*P	A
30BB100	M	PROGE JM00-PROGE			
80LE	N	LOAD ERROR MESSAGE	10	BL	
80LE 10	YR	LE00			

10.4. DPS7-TDS EXAMPLE

DPS7-TDS EXAMPLE

Preparation for branching, access to Pactables and processing on return from tables are handled by the program.

Work areas

The NN00 segment, which is called in the Work areas (-W) on an 'F'-type line, describes the area used for communication between the 'JMP0030' screen and the navigation module.

Function F0101:

The screen receives the communication area, and restores it in a specific work area.

Function F0111:

This function includes the processing required to determine the type of terminal used.

Procssing before transfer of control to the Navigation Module

Function F4035

This function includes:

. Preparing the area used for communication with the Module,

. Backing up the dialog communication area in a sequential UFAS file (Lgth: 5006, key 6 pos.1),

. Initializing the area used for communication with the Module.

SCREEN PROCESSING

The screen is made up of:

. A comment field, which is the dialogue TS,

. Information for Pactables,

. A review field, which is displayed after access to Pactables,

. A choice field.

The F30BB function fills in the 'JM00-PROGE' field with the code of the program which processes the screen. 'JM00-PROGE' is included in the dialog TS and is used after access to Pactables for a new screen display (see F28BB in the Monitor).

WORK AREAS

```
LINE  S LEVEL       DESCRIPTION
----- - ------------------------------------------------------------
JQ130         05    FILLER        PIC XX.
JQ140         05    7-ZONE-AEND.
JQ150           06  7-ZONE-41     PIC X.
JQ130           06  FILLER        PIC X(76).
JQ170    02         7-ZONE-B      REDEFINES 7-ZONE-A.
JQ180         05    7-ZONE-15     PIC X(5).
JQ190         05    FILLER        PIC XXX.
JQ140         05    7-ZONE-BEND   PIC X(72).
JQ210 * CALL OF ZAR985
JQ220   01          7-IDENTIF.
JQ230    02         7-IDMAT       PIC X.
JQ240    02         FILLER        PIC X(5).
NN100 F SD: NN BIB: NN SEL: ________ FORM: I DESC: _ NIV: 1 ORG: _
UU220   01        SV-FSTA         PIC XX.
0Z001   01        TDS-STORAGE.
0Z002    02  SYMBOLIC QUEUE      PIC X(12).
0Z003    02  PRIOR-TPR           PIC X(12).
0Z004    02  CURRENT-TPR         PIC X(12).
0Z005    02  NEXT-TPR            PIC X(12).
0Z006    02  ON-ABORT-TPR        PIC X(12).
0Z007    02  ABORT-CODE          COMP-1.
0Z008    02  USER-ID             PIC X(8).
0Z009    02  TX-MODE             PIC 9.
0Z010    02  RESTART-STATUS      PIC 9.
0Z010    02  RESTART-STATUS      PIC 9.
0Z011    02  TRANSACTION-SERIAL-NUMBER   COMP-2.
0Z012    02  TPR-SERIAL-NUMBER   COMP-1.
0Z013    02  WAIT-TIME           COMP-1.
0Z014    02  ABORT-ICC           PIC X(8).
0Z015   01   CONSTANT STORAGE.
0Z016    02  FILLER              PIC X(8).
```

PROCEDURE

```
FU SF LIN OPE OPERAND                          LVTY CONDITION
-- -- --- --- -------------------------------- ---- --------------------
AA     10 COA DECLARATIVES                     05BL
-- -- --- --- -------------------------------- ---- --------------------
AA SV  10 COA SECSV SECTION                    10BL
AA SV  20 COB USE AFTER ERROR PROCEDURE
AA SV  30     ON SV-FILE
AA SV  40 COA FOASV.
AA SV  80 M   "1" IK
-- -- --- --- -------------------------------- ---- --------------------
AA 99   5 COA END DECLARATIVES
AA 99  10 COA SEC00 SECTION
-- -- --- --- -------------------------------- ---- --------------------
01 01  10 N   T.S. RECOVERY                     10BL
01 01 100 M   TRANSACTION-STORAGE NN00
01 10 110 M   PROGR SV00-KEY                   99IT PRIOR-TPR = "ZTPLNK"
01 10 118 XR  SV00                             99IT
01 10 120 M   SV00-SUITE  TRANSACTION STORAGE
01 10 130 M   NN00 JM00-NN00
01 10 140 M   SPACES K-SP003-PROGR
-- -- --- --- -------------------------------- ---- --------------------
01 11   0 N   SELECTION OF DISPLAY TYPE        15IT PRIOR-TPR = SPACE
01 11 100 M   P003-MPRIOR  7-ZONE-4C
01 11 110 M   7-ZONE-AEND  7-ZONE-4C           99IT 7-ZONE-11 = "'"
01 11 115 M   7-ZONE-BEND  7-ZONE-4C           99IT 7-ZONE-45 = "<>U03"
01 11 120 M   7-ZONE-4     K-SP003-YMAT        99IT 7-ZONE-41 = "1"
01 11 130     CMES-YMAT                        OR   "2" OR "3"
01 11 140 CAL "ZAR985" USING 7-IDENTIF         99EL
01 11 150 M   7-IDMAT K-SP003-YMAT CMES-YMAT
01 11 160 M   7-ZONE-4C    P003-MPRIOR         99BL
-- -- --- --- -------------------------------- ---- --------------------
02 BB 000 N   DISPLAY FIRST TIME               10IT ICF = ZERO
02 BB 100 M   "A" OPER
02 BB 120 M   "1" OCF
02 BB 140 GFT
-- -- --- --- -------------------------------- ---- --------------------
20 BB   0 N   ADDITIONAL VALIDA. ON 'TOPSDA'   15*P TOPSDA
20 BB 200 ERR 5 TOPSDA                         99IT PR-03-TOPSDA = "1"
20 BB 210                                        AN OPERD = SPACE
-- -- --- --- -------------------------------- ---- --------------------
28 BB   0 N   DISPLAY FIELDS                   05BL
28 BB 100 MES "I-P003 = " I-P003
28 BB 200 MES "CAT-ER = " CAT-ER
-- -- --- --- -------------------------------- ---- --------------------
30 BB   0 N   SAVE "PROGE"                     15*P A
30 BB 100 M   PROGE JM00-PROGE
30 BB 140 M   SPACES JM00-XUTPR                99IT I-P003-TOPSTDA"B"
30 BB 160                                        OR  "C"
-- -- --- --- -------------------------------- ---- --------------------
40 35   0 N   T.S. BACKUP                      10IT 5-P003-PROGE =
40 35  10 *                                       "ZTPLNK"
40 35 100 M   SPACE          NN00
40 35 104 M   K-SP003-XTERM  NN00-TERMID
40 35 110 M   K-SP003-YMAT   NN00-TRANID
40 35 120 M   PROGE          NN00-PROGUT
40 35 130 M   JM00-TABCR     NN00-TABCR
40 35 134 M   JM00-XOPER     NN00-XOPER
40 35 140 M   JM00-CODUTI    NN00-CODUTI
40 35 150 M   JM00-PASUTI    NN00-PASUTI
40 35 160 M   JM00-CODOP     NN00-CODOP
40 35 170 M   JM00-NUTAB     NN00-NUTAB
40 35 180 M   JM00-DAHTA     NN00-DAHTA
40 35 190 M   JM00-NUSSC     NN00-NUSSC
40 35 200 M   JM00-NUSSY     NN00-NUSSY
40 35 210 M   JM00-CLETVV    NN00-CLETVV
40 35 300 M   TRANSACTION-STORAGE SV00-SUITE
40 35 310 M   PROGR SV00-KEY
40 35 320 XW  SV00
40 35 330 M   0 IK                             99IT IK = 1
40 35 340 XRW SV00
```

```
40 35 350 M   NN00 TRANSACTION-STORAGE
-- -- --- --- ------------------------------ ---- --------------------
66 BB   0 N   ERRORS IN RETURN FROM           10IT K-SP003-PROGR
66 BB  04 *  PACTABLE                             "ZTPLNK"
66 BB  10 *                                     AN JM00-XERCD > SPACES
66 BB 110 ERR A CODUTI                        99IT JM00-XERCD = "0101"
66 BB 120 ERR B PASUTI                        99IT JM00-XERCD = "0102"
66 BB 130 ERR C CODOP                         99IT JM00-XERCD = "0103"
66 BB 140 ERR D DAHTA                         99IT JM00-XERCD = "0104"
66 BB 150 ERR E NUSSC                         99IT JM00-XERCD = "0105"
66 BB 160 ERR F NUSSY                         99IT JM00-XERCD = "0106"
66 BB 170 ERR G NUTAB                         99IT JM00-XERCD = "0107"
66 BB 180 ERR H NUSSY                         99IT JM00-XERCD = "0108"
66 BB 190 ERR I NUSSC                         99IT JM00-XERCD = "0109"
66 BB 900 ERR ? TOPSDA                        99IT EN-PRR = ZEROS
-- -- --- --- ------------------------------ ---- --------------------
80 LE   0 N   LOADING OF ERROR MESSAGE        10BL
80 LE  10 YR  EM00
80 LE 100 M   "UNKNOWN NAME"    EM00-ERMSG
80 LE 110 M   "INVALID CHOICE"                99IT EM00-ERMSG = "5"
80 LE 111     EM00-ERMSG
80 LE 112 GT  05
80 LE 210 M   "UNKNOWN USER CODE"             99IT EM00-ERMSG = "A"
80 LE 211     EM00-ERMSG
80 LE 220 M   "INVALID PASSWORD"              99IT EM00-ERMSG = "B"
80 LE 221     EM00-ERMSG
80 LE 230 M   "INVALID OPERATION CODE"        99IT EM00-ERMSG = "C"
80 LE 231     EM00-ERMSG
80 LE 240 M   "INVALID HIST. DATE"            99IT EM00-ERMSG = "D"
80 LE 241     EM00-ERMSG
80 LE 250 M   "SUB-SCHEMA NOT NUMERIC"        99IT EM00-ERMSG = "E"
80 LE 251     EM00-ERMSG
80 LE 260 M   "SUB-SYSTEM NOT NUMERIC"        99IT EM00-ERMSG = "F"
80 LE 261     EM00-ERMSG
80 LE 270 M   "TABLE NOT FOUND"               99IT EM00-ERMSG = "G"
80 LE 271     EM00-ERMSG                                      &
80 LE 280 M   "SUB-SYSTEM NOT FOUND"          99IT EM00-ERMSG = "H"
80 LE 281     EM00-ERMSG
80 LE 290 M   "SOUS-SCHEMA INEXISTANT"        99IT EM00-ERMSG = "I"
80 LE 291     EM00-ERMSG
80 LE 900 M   "ERROR ON TABLE. NO ERROR MES." 99IT EM00-ERMSG = "?"
80 LE 901     EM00-ERMSG
-- -- --- --- ------------------------------ ---- --------------------
80 SV  10 N   ACCESS TO SV FILE               10BL
80 SV 100 YR  SV00
80 SV 105 M   0 IK
80 SV 110 COB READ SV-FILE INVALID KEY
80 SV 120 M 1 IK
80 SV 125 COB GO TO F80-KO
80 SV 130 COB GO TO F81ER                     99IT IK = 1
80 SV 140 COB GO TO F80-OK                    99EL
80 SV 200 YW  SV00                            99BL
80 SV 205 M   0 IK
80 SV 210 COB WRITE SV00 INVALID KEY
80 SV 220 M   1 IK
80 SV 225 COB GO TO F80-KO
80 SV 230 COB GO TO F81ER                     99IT IK = 1
80 SV 240 COB GO TO F80-OK                    99EL
80 SV 300 YD  SV00
80 SV 305 M   0 IK
80 SV 310 COB DELETE SV-FILE INVALID KEY
80 SV 320 M   1 IK
80 SV 325 COB GO TO F80-KO
80 SV 330 COB GO TO F81ER                     99IT IK = 1
80 SV 340 COB GO TO F80-OK                    99EL
80 SV 400 YRW SV00
80 SV 405 M   0 IK
80 SV 410 COB REWRITE SV-FILE INVALID KEY
80 SV 420 M   1 IK
80 SV 425 COB GO TO F80-KO
80 SV 430 COB GO TO F81ER                     99IT IK = 1
80 SV 440 COB GO TO F80-OK                    99EL
-- -- --- --- ------------------------------ ---- --------------------
```

11. PACTABLES UPDATE FACILITY : TUF-TP

11.1. INTRODUCTION

INTRODUCTION TO ON-LINE TUF FACILITY

On-line TUF is a tool enabling the customization of programs or the update of tables managed on site and in on-line mode. This may be performed in addition to the standard Pactables facility. The communication of data between on-line TUF facility and the user application is made via a communication area described below.

The two programs of on-line TUF facility are:

. xxFT00: a data server program reaching the Pactables database and displaying the result of a request in a working file;

. xxFT90: an interface access program with the user application. This program receives the user application request, runs it, browses the result supplied by the data server program and sends back the result of the request.

NOTE: xx corresponds to Pactables system radical and is the distributor in on-line TUF application.

11.2. PRINCIPLES IMPLEMENTED

USER APPLICATION

The user application is a Dialogue generated by VisualAge Pacbase.

For more information, refer to the 'On-line System Development' Reference Manual.

ACCESS TO ON-LINE TUF

The access to On-line TUF facility is made via the call of xxFT90 program and providing a communication area.

The following commands are used:

1.INITIALIZATION OF THE SESSION (IN)
This command must be the first of any operation received from the application program, and for a given identifier. The identifier may be the physical number of the station or a logical address in the network. Confusions between requests from several stations are thus avoided.

2.LIST OR TABLE EXTRACTION:
The command may be a simple consultation or a consultation for an update in the event of an extraction in a table.
The commands for the extraction are:

. LT: List of tables

. LH: List of historical accounts of tables

. LC: List of sub-schemas by table

. LS: List of sub-systems by table

. EX: Extraction of a table for a possible update. Data extracted are stored in the working file by on-line TUF data server.

. L1: after 'EX', this command enables the consultation of the table data previously extracted and limited to the number indicated by the user program. The user may update these data by indicating the corresponding action in the table.

These temporary updates are stored in the working file.

. UP: after 'L1', this command enables to pass along updates stored in the working file into Pactables database, once all temporary updates have been performed.

3.CLOSING THE SESSION (FT):

This command must be the last for a given identifier. It enables the resetting of the working file.

DESCRIPTION OF THE GENERATED PROGRAM

Four macros provided at the installation enable the user to describe the communication area to be used with On-line TUF in the application program:

. AATUFL: Describes the working area corresponding to the table list consultation functions ('LT' or 'LH').

. AATUFS : Describes the working area corresponding to the sub-schemas or sub-systems list consultation functions ('LC' or 'LS').

. AATUFX: Describes the working area corresponding to the table consultation functions for an eventual update. It is to be used with 'AATUFA' macro.

. AATUFA: Describes the data element characteristics of the table being consulted. It is to be used with 'AATUFX' macro.

This macro is to be called as many times as there are elementary Data Element describing the table or a sub-schema table being consulted.

These macros are called in ON-LINE SCREEN CALL OF P.M.S. (CH: -CP), detailed in WORK AREAS / ENTITY TYPE (CH: -W).

DESCRIPTION OF AATUFL MACRO: list of tables 'LT' or 'LH' working file

```
01              G-$1-CURSOR.
 02             G-$1-CURID  PICTURE X(4) VALUE '$1'.
 02             G-$1-IDENT  PICTURE X(25).
 02             G-$1-USER   PICTURE X(8).
 02             G-$1-PASSW  PICTURE X(8).
 02             G-$1-CTRAN  PICTURE X(4).
 02             G-$1-CBASE  PICTURE X(4).
 02             G-$1-FUNCT  PICTURE XX   VALUE '$4'.
 02             G-$1-RETCOD PICTURE XX.
 02             G-$1-ERRCOD PICTURE X(5).
 02             G-$1-ERRLAB PICTURE X(66).
 02             G-$1-NUTAB  PICTURE X(6).
 02             G-$1-DATEC.
    03          G-$1-DATECC PICTURE XX.
    03          G-$1-DATECY PICTURE XX.
    03          G-$1-DATECM PICTURE XX.
    03          G-$1-DATECD PICTURE XX.
 02             G-$1-NBOCC  PICTURE 9(4) VALUE $3.
 02             FILLER      PICTURE X(178).
 02             G-$1-DESCR.
   03           G-$1-ELMNT  OCCURS  $3.
     04         G-$1-TABLE  PICTURE X(6).
     04         G-$1-LABTB  PICTURE X(36).
     04         G-$1-DATEH.
       05       G-$1-DATEHC PICTURE XX.
       05       G-$1-DATEHY PICTURE XX.
       05       G-$1-DATEHM PICTURE XX.
       05       G-$1-DATEHD PICTURE XX.
     04         G-$1-DATEM.
       05       G-$1-DATEMC PICTURE XX.
       05       G-$1-DATEMY PICTURE XX.
       05       G-$1-DATEMM PICTURE XX.
       05       G-$1-DATEMD PICTURE XX.
     04         G-$1-DATED.
       05       G-$1-DATEDC PICTURE XX.
       05       G-$1-DATEDY PICTURE XX.
       05       G-$1-DATEDM PICTURE XX.
       05       G-$1-DATEDD PICTURE XX.
     04         G-$1-LIB    PICTURE XXX.
     04         G-$1-SESSI  PICTURE X(5).
     04         G-$1-SEGM   PICTURE X(4).
```

Description of 'AATUFL' fields

- Data to be provided before call:

. CURID: Cursor code (required).

. IDENT: Identifier (required).

This code, different for each item, enables on-line TUF to differenciate the classification of data being processed.

. USER: User code (required).

. PASSW: Password (required)

. CTRAN: Transaction code. Required for some platforms enabling the identification of the database to reach.

. CBASE: Database logical code. Unused for this release.

. FUNCT: On-line TUF command.

. DATEC: Consultation date (optional). It is partitioned in Century, Year, Month and Day. By default, it is the date of the day.

. NBOCC: Number of consultation lines to be received at each call to on-line TUF (required).

. NUTAB: Table number from which the list of Tables or Historical accounts is displayed. If 'blank', the list displayed starts with the first table.

- Data received after the call:

. RETCOD : Global return code.

'00': OK
'04': OK with warning message
'10': Error detected on the command
'12': Input/output error

. ERRCOD: Error number

. ERRLAB: Error label

By list occurrence, the following data are received:

. TABLE: Table number

. LABTB: Table label

. DATEH: Date of history

. DATEM: Date of last update

. DATED: Date of the description

. LIB: VA Pac library code, where the table is described

. SESSI: Session number

. SEGM: Corresponding VA Pac segment code

DESCRIPTION OF AATUFS MACRO: list of description 'LS' or 'LC' working file

```
01              G-$1-CURSOR.
 02             G-$1-CURID  PICTURE X(4) VALUE '$1'.
 02             G-$1-IDENT  PICTURE X(25).
 02             G-$1-USER   PICTURE X(8).
 02             G-$1-PASSW  PICTURE X(8).
 02             G-$1-CTRAN  PICTURE X(4).
 02             G-$1-CBASE  PICTURE X(4).
 02             G-$1-FUNCT  PICTURE XX   VALUE '$4'.
 02             G-$1-RETCOD PICTURE XX.
 02             G-$1-ERRCOD PICTURE X(5).
 02             G-$1-ERRLAB PICTURE X(66).
 02             G-$1-NUTAB  PICTURE X(6).
 02             G-$1-DATEC.
   03           G-$1-DATECC PICTURE XX.
   03           G-$1-DATECY PICTURE XX.
   03           G-$1-DATECM PICTURE XX.
   03           G-$1-DATECD PICTURE XX.
 02             G-$1-NBOCC  PICTURE 9(4) VALUE $3.
 02             FILLER        PICTURE X(178).
 02             G-$1-DESCR.
   03           G-$1-ELMNT  OCCURS  $3.
     04         G-$1-TABLE  PICTURE X(6).
     04         G-$1-LABTB  PICTURE X(36).
     04         G-$1-NUSCY  PICTURE X.
     04         G-$1-LABSCY PICTURE X(36).
```

Description of 'AATUFS' fields

- Data to be provided before call:

. CURID: Cursor code (required)

. IDENT: Identifier (required).

This code, different for each item, enables on-line TUF to differenciate the classification of the data being processed.

. USER: User code (required).

. PASSW: Password (required)

. CTRAN: Transaction code. Required for some platforms enabling the identification of the database to reach.

. CBASE: Database logical code. Unused for this release.

. FUNCT: On-line TUF command.

. DATEC: Consultation date (optional). It is partitioned in Century, Year, Month and Day. By default, it is the date of the day.

. NBOCC: Number of consultation lines to be received at each call to on-line TUF (required).

. NUTAB: Table number from which the list of Sub-Schemas or Sub-Systems is displayed. If 'blank', the list displayed starts with the first table.

- Data received after the call:

. RETCOD: Global return code.

'00': OK
'04': OK with warning message
'10': Error detected on command
'12': Input/output error

. ERRCOD: Error number

. ERRLAB: Error label

By list occurrence, the following data are received:

. TABLE: Table number

. LABTB: Table label

. NUSCY: Number of the sub-schema or the sub-system

. LABSCY: Label of the sub-schema or the sub-system

DESCRIPTION OF AATUFX MACRO: Tables consultation

```
01            G-$1-CURSOR.
 02           G-$1-CURID      PICTURE X(4) VALUE '$1'.
 02           G-$1-IDENT      PICTURE X(25).
 02           G-$1-USER       PICTURE X(8).
 02           G-$1-PASSW      PICTURE X(8).
 02           G-$1-CTRAN      PICTURE X(4).
 02           G-$1-CURID  PICTURE X(4) VALUE '$1'.
 02           G-$1-CBASE      PICTURE X(4).
 02           G-$1-USER   PICTURE X(8).
 02           G-$1-FUNCT      PICTURE XX.
 02           G-$1-CTRAN  PICTURE X(4).
 02           G-$1-RETCOD     PICTURE XX.
 02           G-$1-FUNCT  PICTURE XX   VALUE '$4'.
 02           G-$1-ERRCOD     PICTURE X(5).
 02           G-$1-ERRCOD PICTURE X(5).
 02           G-$1-ERRLAB     PICTURE X(66).
 02           G-$1-NUTAB      PICTURE X(6) VALUE '$5'.
 02           G-$1-DATEC.
    03        G-$1-DATECC PICTURE XX.
    03        G-$1-DATECY PICTURE XX.
    03        G-$1-DATECM PICTURE XX.
    03        G-$1-DATECD PICTURE XX.
 02           G-$1-NBOCC      PICTURE 9(4) VALUE $3.
 02           G-$1-LABTB      PICTURE X(36).
 02           G-$1-NUSSC      PICTURE X.
 02           G-$1-LABSC      PICTURE X(36).
 02           G-$1-NUSSY      PICTURE X.
 02           G-$1-LABSY      PICTURE X(36).
 02           G-$1-KEY        PICTURE X(20).
  02          G-$1-DAHTB.
    03        G-$1-DAHTBC PICTURE XX.
    03        G-$1-DAHTBY PICTURE XX.
    03        G-$1-DAHTBM PICTURE XX.
    03        G-$1-DAHTBD PICTURE XX.
 02           FILLER            PICTURE X(40).
 02           G-$1-DESCR.
   03         G-$1-ELTNB      PICTURE 99 VALUE $4.
 02           G-$1-ELTD.
   03         FILLER            PICTURE X(113)  OCCURS $4.
 02           G-$1-ELTR       REDEFINES G-$1-ELTD.
 02           G-$1            OCCURS $3.
   03         G-$1-CODMV      PICTURE X.
   03         G-$1-ERROR      PICTURE X(66).
```

Description of 'AATUFX' fields

- Data to be provided before call:

. CURID: Cursor code (required).

. IDENT: Identifier (required).

This code, different for each item, enables on-line TUF to differenciate the classification of data being processed.

. USER: User code (required).

. PASSW: Password (required)

. CTRAN: Transaction code. Required for some platforms enabling the identification of the database to reach.

. CBASE: Database logical code. Unused for this release.

. FUNCT: On-line TUF command.

. DATEC: Consultation date (optional). It is partitioned in Century, Year, Month and Day. By default, it is the date of the day.

. NBOCC: Number of items to be received at each call to on-line TUF (required).

. NUSSC: Number of the sub-schemas (optional). It enables the consultation of the table limited to one sub-schema. The update is forbidden.

. NUSSY: Number of the sub-system (optional). It enables the consultation of the table limited to one sub-system.

. KEY: Key of the table item (optional)

- Data received after the call:

. RETCOD: Return code

'00': OK
'04': OK with warning message
'10': Error detected on the command
'12': Input/output error

. ERRCOD: Error number

. ERRLAB: Error label

. LABTB: Label of the table

. LABSC: Label of the sub-schema

. LABSY: Label of the sub-system

. DAHTB: Date of the history account (current)

- By item occurrence, the following data are received:

. CODMV: Transaction code of the item

. ERROR: Error detected on the item

. Table item contents

DESCRIPTION OF AATUFA MACRO: Data Element Description

```
03          G-$1-$4-I   PICTURE X(6).
03          G-$1-$4-L   PICTURE X(18).
03          G-$1-$4-C   PICTURE X(18) OCCURS 3.
03          G-$1-$4-X   PICTURE X.
03          G-$1-$4-T   PICTURE 999.
03          G-$1-$4-D   PICTURE 99.
03          G-$1-$4-B   PICTURE X.
03          G-$1-$4-S   PICTURE X.
03          G-$1-$4-V   OCCURS  2.
  04        G-$1-$4-VL  PICTURE X.
  04        G-$1-$4-VV  PICTURE X.
  04        G-$1-$4-VS  PICTURE X.
  04        G-$1-$4-VN  PICTURE X(10).
03          G-$1-$4-A   PICTURE X.
```

Description of 'AATUFA' fields:

Fields with characteristics or checks of each Data Element describing the table are the following:

. I: VisualAge Pacbase Data Element code

. L: Label of the Data Element

. C: Columns label of the Data Element

. X: Data Element class with value:

'X': Alphanumeric Data Element
'9': Numeric Data Element

. T: Data Element length in bytes

. D: Number of decimals for a numeric Data Element

. B: Class to check with value:

'9': Numeric class
'A': Alphabetical class

. S: Presence of a '+' or '-' sign for a numeric Data Element with value:

' ': No sign
'S': Sign

. A: Check of a date Data Element format with value:

'D': Date with DDMMYY format
'I': Date with YYMMDD format
'K': Date with DDMMCCYY format
'L': Date with CCYYMMDD format

. V: Values to check composed with two bounds detailed below:

- VL: Relation present on the second value bound with value:

'O': 'OR' relation
'E': 'AND' relation

- VS: Direction of the comparison with:

'<': Smaller than
'>': Higher than
'=': Equal to

. VN: Negation in the relation

'N': Negation

. VV: Value to check

11.3. COMMANDS CHAINING

COMMANDS CHAINING

INITIALIZATION OF THE SESSION

'IN': This command must be the first command. It is valid for one given identifier and enables the setting of the working file.

Data to be provided before call:

```
    . Function code 'IN'         (FUNCT)
    . Identifier                 (IDENT)
    . Cursor                     (CURID)
Information of Pactables database
    . Pactables transaction code (COTRAN)
    . User Code                  (CODUTI)
    . Password                   (PASSW)

Data received after the call:
    . Return code                (RETCOD)
    . Error Number               (ERRCOD)
    . Error Label                (ERRLAB)
     (if RETCOD is not zero)
```

NOTE:

The cursors identifier for the other commands must be set by the one used for 'IN', before any process.

CONSULTATION OF A TABLE

1. 'EX': Data extraction.

Data to be provided before call:

- Function code 'EX' (FUNCT)
- Identifier (IDENT)
  (it must be the same as the one defined for 'IN')
- Cursor
  (it must be unique)
- Number of the table Data Elements defined for ELNTB
  (it must be equal to the number of call of 'AATUFA')

Data received in return of the call:

- Description of the table Data Element (ELTR group of 'AATUFX' macro)
- Return code (RETCOD)
- Error number (ERRCOD)
- Error label (ERRLAB)

2. 'L1': consultation request of extracted data with 'EX' command.

Data to be provided before call:

- Function code 'L1' (FUNCT)
- Identifier (IDENT)
  (it must be the same as the one defined for 'IN')
- Cursor (CURID)
  (it must be equal to the one for 'EX' command)
- Number of items to return (NBOCC of 'AATUFX' macro)
  (it corresponds to the number of occurrences of the table to get)
- Source key for the display (KEY)
  (if the key is forced to 'blank', the first item filled in will correspond to the first item of the table)

Data received in return to the call: . Function code 'L1' is switched into 'L2' with the
internal system. The code is to be forced again to 'L1' with the user program only if there is a new consultation with setting.

- Table occurrences (G-$1 occurs $3 of 'AATUFX')
- Return code (RETCOD)
- Error number (ERRCOD)
- Error label (ERRLAB)
  (if RETCOD is not zero)

CONSULTATION FOR AN UPDATE

1. 'EX': Same as 'Consultation of a table'

2. 'L1': Same as 'Consultation of a table'
A modification, deletion or creation of an item is expressed by a transaction code (C, M, D, A) of the CODMV Data Element of the item concerned by AATUFX macro. Updates requests are temporarily stored in the working file.

'UP': updates repercusions of Pactables database from modifications stored in the temporary file, when all temporary updates are performed.

Data to be provided before call:

```
    . Function code 'UP'   (FUNCT)
    . Identifier           (IDENT)
      (it must be the same as the one defined for 'IN')
    . Cursor               (CURID)
      (it must be the same as the one for 'EX' command)

Data provided in return of the call:

    . Return code          (RETCOD)
    . Error number         (ERRCOD)
    . Error label          (ERRLAB)
     (if RETCOD is not zero)
    . Item error code      (CODMV)
```

If an error is detected at the updating, the corresponding item transaction code (CODMV Data Element, 'AATUFX' macro) contains 'E' value.

```
If, at the following call to on-line TUF the transaction code was
not corrected, the whole update previously performed on this item,
is ignored.    . Item error label  (ERROR)
     (for each item where an error was detected)
```

LIST OF TABLE REQUEST

'LT' : extraction of the list
See description of the 'AATUFL' macro

Data to be provided before call:

```
    . Function code 'LT'       (FUNCT)
    . Identifier               (IDENT)
      (it must be the same as the one defined for 'IN')
    . Cursor                   (CURID)
      (it must be unique)
    . Number of items to be received (NBOCC, macro AATUFL)
    . Code of the starting table     (NUTAB, macro AATUFL)
      (it is optional and is used for the edition)

Data received in return of the call:

    . Occurrences extracted    (DESCR, macro AATUFL)
     The number of occurrences supplied is indicated by the
     user program. The continuation sequence of data is sent
     again after a new call to on-line TUF. To set the list
     to a given table, complete the code of the table in
     NUTAB before a new call to the server.
    . Return code         (RETCOD)
    . Error numner        (ERRCOD)
    . Error label         (ERRLAB)
      (if RETCOD is not zero)
```

LIST OF HISTORICAL ACCOUNTS OF TABLES

. 'LH': extraction of list
Same as Chapter 'List of table request'.

See description of the 'AATUFL' macro.

LIST OF SUB-SCHEMAS BY TABLE

. 'LC': extraction of list
Same as Chapter 'List of tables request'.

See description of the 'AATUFS' macro.

LIST OF SUB-SYSTEMS BY TABLE

. 'LS': extraction of list
Same as Chapter 'List of table request'.

See description of 'AATUFS' macro.

CLOSING THE SESSION

. 'FT': This command must be the last of any process. It is valid for one identifier only.

It enables the resetting of the working file.

11.4. EXAMPLE OF A USER APPLICATION

EXAMPLE OF A USER APPLICATION

Following this, you will find the screens for the update of Pactables Tables with T.U.F. application, in the 'Description of French Departments' example.

```
You will find the details of screens:    - Description of French
Departments (sde10 and its -CE)
    - General Menu of Tables Update with T.U.F. (ode0000)
    - List of Tables (ode0010)
    - Departments update (ode0030)
```

For each screen, you will find the DIALOGUE COMPLEMENT (CH: -O), their SCREEN CALL OF ELEMENT (CH: -CE), and the ON-LINE SCREEN CALL OF P.M.S. (CH: -CP) where the macro(s) is(are) called, and also the PROCEDURAL CODE lines (CH: -P).

```
--------------------------------------------------------------------------------
!                    Description of French Departments                         !
!                                                                              !
! S-Sys:                                        S-Sch:    Histo Date: 1998052!
!                                                                              !
!    A  NUM : DEPARTMENT LABEL          COUNTY TOWN         Sub-Sys            !
!       009 : Ariège 'EX'               Foix                3                  !
!           : REGION: Rhône Alpes               POPULATION:         YEAR:      !
!       011 : Aude tatal                Carcassone          3                  !
!           : REGION: Midi-Pyrénées             POPULATION:         YEAR:      !
!       013 : Bouches du Rhône          Marseille           4                  !
!           : REGION: Provence-Côte d'Azur      POPULATION:         YEAR:      !
!       022 : Côte de Nord              St Brieux           1                  !
!           : REGION: Bretagne                  POPULATION:         YEAR:      !
!       029 : Finistère                 Quimper             1                  !
!           : REGION: Bretagne                  POPULATION:         YEAR:      !
!       032 : Gers                      Auch                3                  !
!           : REGION:                           POPULATION:         YEAR:      !
!       033 : Gironde                   Bordeaux            3                  !
!           : REGION: Aquitaine                 POPULATION:         YEAR:      !
!                                                                              !
! ENTER=Next  PF05=Start PF07=Update data  PF10(+Curs)=Error Display  PF12=END !
!                                                                              !
! 009                                                                          !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
! VA Pac  2.5 V02   model entity dictionary              *PT11.V100.CEN.491 !
! SEGMENT CALL OF ELEMENTS DE10 Description of french departments             !
!                                                                            !
! A LIN : ELEM.  INT.FORM.  U OCC GR K CMD456 CONT VALUE/SFC  UPD/TRGE DOC LIBR!
! . 010 : DEPTSY                    S          S OOO                     0450!
! . 100 : DEPTNO                    U O O      S OOO                     0458!
! . 101 :                                      P JMTU01*    XXXXXXXXX    0462!
! . 110 : DEPTLB                      O        S OOO                     0450!
! . 120 : DEPTCL                               S OO                      0462!
! . 130 : DEPTRG                               S OO                      0462!
! . 140 : DEPTPO                            9  S O O                     0450!
! . 141 :                                      > ZEROS                   0450!
! . 150 : DEPTAR                            9  S O O                     0450!
! . 151 :                                    E > 1900                    0405!
! . 152 :                                    EN> 1998                    0414!
!       :                                                                    !
!       :                                                                    !
!       :                                                                    !
!       :                                                                    !
!       :                                                                    !
!       :                                                                    !
!       : NAME    :                                                          !
! *** END ***                                                                !
! O: C1 CH: sde10 ce                                                         !
--------------------------------------------------------------------------------
```

```
!                     General Menu Tables Update with T.U.F                    !
!                                                                              !
!                                                                              !
! Pactables INFORMATION:                                                       !
!                                                                              !
!              Transaction code: XXXX                                          !
!                                                                              !
!              USER CODE: XXXXXXXX     USER PASSWORD:                          !
!                                                                              !
! LIST SELECTION:                                                              !
!                                            Table       Hist. Account       !
!                                                                              !
!              1 - List of Tables            -> XXXXXX   -> XXXXXX           !
!                                                                              !
!              2 - List of Hist. Account     -> ......   -> ......           !
!                                                                              !
!              3 - List of Sub-Systems       -> ......   -> ......           !
!                                                                              !
!              4 - List of Sub-Schemas       -> ......   -> ......           !
!                                                                              !
!        Choice: X                                                             !
!                                                                              !
!     XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    !
!                                                                              !
```

```
! VA Pac  2.5 V02    model entity dictionary                *PT11.V100.CEN.491!
! DIALOGUE COMPLEMENT....:  DE French Departments                              !
!                                                                              !
!                                                                              !
! COMMON AREA-DATA STRUCTURE CODE.......: CU                                   !
!                                                                              !
! ERROR MESSAGE FILE CHARACTERISTICS                                           !
!                       ORGANIZATION....:                                      !
!                       EXTERNAL NAME...:                                      !
!                                                                              !
! FIRST SCREEN CODE OF THE DIALOGUE.....: 0000                                 !
!                                                                              !
! COMPLEMENTARY COMMON AREA LENGTH......:                                      !
!                                                                              !
! CODE OF PSB OR SUB-SCHEMA.............:                                      !
!                                                                              !
!                                                                              !
! OPTIONS : DYNPRT                                                             !
!                                                                              !
!                                                                              !
!                                                                              !
! SESSION NUMBER     : 5038  LIBRARY      : DOR                                !
!                                                 EN    BLOCAGE :              !
! O: C1 CH: ode0000 o                  ACTION:                                 !
```

```
-------------------------------------------------------------------------------
! VA Pac  2.5 V02   ENGLISH DOCUMENTATION                *PT11.V100.CEN.491  !
! SCREEN CALL OF ELEM... DE0000 General Menu Tables Update                    !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY       !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE    LV!
! ..........................................................................  !
!   100 :        . A 01 022 L            .                   .               !
!   110 :        .      001 L            .                   .               !
!   200 :        . A 04 002 L            .                   .               !
! . 210 : COTRAN .   02 015 V U Y        .  R                .               !
! . 220 : CODUTI .   02 015 V U          .  R                .               !
! . 230 : PASUTI .      005 V U          .  R                .               !
!   300 :        .   02 002 L            .                   .               !
!   310 :        .   01 048 L            .                   .               !
!   320 :        .   02 015 L            .                   .               !
!   330 :        .   02 015 L            .                   .               !
!   350 :        .   02 015 L            .                   .               !
!   370 :        .   02 015 L            .                   .               !
! . 390 : CHOIXX .   02 008 V N          .  N   V 1          .               !
! . 391 :        .                       .      V 2          .               !
! . 392 :        .                       .      V 3                          !
! . 393 :        .                       .      V 4                          !
!                                                                             !
! O: C1 CH: ode0000 ce                                                        !
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
! VA Pac  2.5 V02   ENGLISH DOCUMENTATION                *PT11.V100.CEN.491  !
! SCREEN CALL OF ELEM... DE0000 General Menu Tables Update                    !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY       !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE    LV!
! ..........................................................................  !
! . 400 : REPET  . A 12 044 R        04  .                   .               !
! . 405 :        .   01     L            .                   .               !
! . 410 : NUTAB  .      001 V F          .                   .               !
! . 415 :        .      003 L            .                   .               !
! . 420 : DAHTA  .      001 V F          .                   .               !
! . 500 : END    . A 19 002 Z            .                   .               !
! . 600 : LIERR  . A 23 005 P F          .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!       :        .                       .                   .               !
!                                                                             !
! O: C1 CH: ode0000 ce                                                        !
-------------------------------------------------------------------------------
```

```
-------------------------------------------------------------------------------
! VA Pac  2.5 V02   ENGLISH DOCUMENTATION                *PT11.V100.CEN.491  !
! SCREEN CALL OF ELEM... DE0000 General Menu Tables Update                    !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                  !
! ..........................................................................  !
!   100 :        . A 01 022 L                  .   General Menu Tables Update/ !
!   110 :        .      001 L                  .   with T.U.F/               !
!   200 :        . A 04 002 L         B        .   Pactables INFORMATION: /  !
! . 210 : COTRAN .   02 015 V U        B        .                             !
! . 220 : CODUTI .   02 015 V U        B        .                             !
! . 230 : PASUTI .      005 V U        D        .                             !
!   300 :        .   02 002 L         B        .   LIST SELECTION:           !
!   310 :        .   01 048 L                  .   Table      Hist. Account/ !
!   320 :        .   02 015 L                  .   1 - List of Tables  /     !
!   330 :        .   02 015 L                  .   2 - List of Hist. Account/ !
!   350 :        .   02 015 L                  .   3 - List of Sub-Systems   /!
!   370 :        .   02 015 L                  .   4 - List of Sub-Schemes  / !
! . 390 : CHOIXX .   02 008 V N        B        .                             !
! . 391 :        .                             .                             !
! . 392 :        .                                                           !
! . 393 :        .                                                           !
!                                                                            !
! O: C2 CH: ode0000 ce                                                       !
-------------------------------------------------------------------------------

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! VA Pac  2.5 V02   ENGLISH DOCUMENTATION                *PT11.V100.CEN.491  !
! SCREEN CALL OF ELEM... DE0000 General Menu Tables Update                    !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                  !
! ..........................................................................  !
! . 400 : REPET  . A 12 044 R      04          .                             !
! . 405 :        .   01     L                  .   ->/                       !
! . 410 : NUTAB  .      001 V F                .                             !
! . 415 :        .      003 L                  .   ->/                       !
! . 420 : DAHTA  .      001 V F                .                             !
! . 500 : END    . A 19 002 Z                  .                             !
! . 600 : LIERR  . A 23 005 P F                .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!       :        .                             .                             !
!                                                                            !
! O: C2 CH: ode0000 ce                                                       !
-------------------------------------------------------------------------------
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FOSFNLG OPE OPERANDES                       NVTY CONDITION


00BB    N   INITIALIZATIONS                 10BL
00BB100 M   'DDR980'      PRCGI
00BB200 M   SPACES        G-CUR1-CURSOR
00BB220 INS G-CUR1-CURSOR TALLYING TALLI
00BB230                   FOR ALL SPACE
00BB240 M   TALLI         7-WW00-LENGTH

02BB    N   1ST TIME                        10IT ICF = '0'
02BB100 M   'A'    OPER
02BB110 M   '1'    OCF
02BB120 GFT

0515    N   END OF CONVERSATION IF 'CLEAR'  10IT I-PFKEY = '00'
0515100 M   'E'    OPER
0515110 COB GO TO F40.

20BB    N   SESSION AUTHORIZATION CHECK     10*P CHOIXX

20CC    N   IF TRIPLET COTRAN/CODUTI/PASUTI 15IT CATG = SPACE
20CC 10 *   IS OK
20CC100 M   SPACES        G-CUR1-CURSOR
20CC110 M   'IN'          G-CUR1-FUNCT
20CC120 M   'CUR1'        G-CUR1-CURID
20CC130 M   SPACES        7-WW00-IDENT
20CC140 M   'JMC'         7-WW00-TRMID
20CC150 M   PROGE         7-WW00-PROGE
20CC160 M   7-WW00-IDENT  G-CUR1-IDENT
20CC170 M   I-0000-COTRAN G-CUR1-CTRAN
20CC171                   7-WW00-YPREPG
20CC180 M   I-0000-CODUTI G-CUR1-USER
20CC190 M   I-0000-PASUTI G-CUR1-PASSW
20CC200 EXC LINK PROGRAM   (7-WW00-PROGUT)
20CC210          COMMAREA  (G-CUR1-CURSOR)
20CC220          LENGTH    (7-WW00-LENGTH)
20CC300 ERU IN                              99IT G-CUR1-RETCOD NO

30BB    N   TRANSFER IN LINKAGE             10*P
30BB230 M   I-0000-COTRAN  G-CUR1-CTRAN     99IT PR-00-COTRAN = '
30BB235                    CU00-COTRAN
30BB240 M   I-0000-CODUTI  G-CUR1-USER      99IT PR-00-CODUTI = '
30BB245                    CU00-CODUTI
30BB250 M   I-0000-PASUTI  G-CUR1-PASSW     99IT PR-00-PASUTI = '
30BB255                    CU00-PASUTI

30MM    N   CALL OF 'JMTU10' LISTS SCREEN   15IT PR-00-CHOIXX = '
30MM100 M   'LT'             G-CUR1-FUNCT  99IT I-0000-CHOIXX =
30MM110 M   J-0000-REPET (1)  I-0000-REPET
30MM200 M   'LH'             G-CUR1-FUNCT  99IT I-0000-CHOIXX =
30MM210 M   J-0000-REPET (2)  I-0000-REPET
30MM300 M   'LS'             G-CUR1-FUNCT  99IT I-0000-CHOIXX =
30MM310 M   J-0000-REPET (3)  I-0000-REPET
30MM400 M   'LC'             G-CUR1-FUNCT  99IT I-0000-CHOIXX =
30MM410 M   J-0000-REPET (4)  I-0000-REPET
30MM500 M   I-0000-NUTAB      G-CUR1-NUTAB  99BL
30MM510 M   I-0000-DAHTA      G-CUR1-DATEC
30MM520 M   G-CUR1-CURSOR     CU00-CURSOR
30MM600 M   'JMTU10'          5-0000-PROGE
30MM610 M   'O'               OPER

65BB    N   BACK FROM A SCREEN (PF12)       10IT ICF = '0'
65BB100 M   CU00-COTRAN    O-0000-COTRAN      AN EIBCALEN > ZEROS
65BB110 M   CU00-CODUTI    O-0000-CODUTI
65BB120 M   CU00-PASUTI    O-0000-PASUTI
65BB200 *   CURSOR RESET
65BB210 M   SPACE  EN-AT (4, 01)
65BB220 M   'X'    EN-AT (4, 04)

80LE    N   ERROR LABEL                    10BL
80LE100 YR  LE00
```

```
80LE200 M   'TRANSACTION CODE WRONGLY MISSIN99IT LE00-XCLEF = 'DE
80LE201     'G'
80LE202     LE00-LIERR
80LE210 M   'USER CODE WRONGLY MISSING'     99IT LE00-XCLEF = 'DE
80LE211     ' '
80LE212     LE00-LIERR
80LE220 M   'USER PASSWORD WRONGLY MISSING' 99IT LE00-XCLEF = 'DE
80LE221     ' '
80LE222     LE00-LIERR
80LE230 M   'CHOICE CODE WRONGLY MISSING OR 99IT LE00-XCLEF = 'DE
80LE231     'ERRONEOUS        '
80LE232     LE00-LIERR
80LE250 M   G-CUR1-ERRLAB    LE00-LIERR     99IT LE00-XCLEF = 'DE
```

```
--------------------------------------------------------------------------------
!                            List of   XXXXXXXXXXXXXXX                         !
!                                                                              !
!                                                                              !
! Tab. Name            Label   XXXXXX             Histo Date        S-Sys S-Sch!
!                                                                              !
!  XXXXXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX     XXXXXX         X     X    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!  ......   ..................................     ......         .     .    !
!                                                                              !
!  XXXXXX <- Paging                                                            !
!                                                                              !
!                                                                              !
! ENTER=Next   PF05=Start  PF10(+Curs)=UPDT Display data     PF12=General Menu !
!                                                                              !
!                                                                              !
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary               *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0010 List display                                   !
!                                                                              !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY        !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE     LV!
! ..............................................................................!
! . 010 : PFKEY  .          V            .  E O G DE0000     .    12           !
! . 015 :        .                       .        O          .    10           !
! . 020 :        .                       .        A          .    05           !
!   100 :        . A 01 030 L            .                   .                 !
! . 110 : X0015  .      001 P F          .                   .  * ALL '?'      !
!   200 :        . A 04 002 L            .                   .                 !
!   210 :        .      012 L            .                   .                 !
! . 220 : X0006  .      001 P F          .                   .  * ALL '?'      !
!   230 :        .      013 L            .                   .                 !
! . 240 :        .      003 L            .                   .                 !
! . 250 :        .      003 L            .                   .                 !
! . 400 : REPET  .   02 002 R        12  .                   .                 !
! . 410 : NUTAB  .      002 F F          .                   .                 !
! . 420 : LIBSEG .      003 F F          .                   .                 !
! . 430 : DAHTA  .      005 V F          .                   .  * SPACES       !
! . 440 : NUSSY  .      009 F F          .                   .                 !
!                                                                              !
! O: C1 CH: ode0010 ce                                                         !
--------------------------------------------------------------------------------
```

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-------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary               *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0010 List display                                  !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY       !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE   LV !
! ..........................................................................  !
! . 450 : NUSSC  .      007 F F          .                   .                !
! . 500 : END    .   02 002 Z            .                   .                !
! . 510 : NUTABS .      002 V F Y        .                   .                !
!   520 :        .      001 L            .                   .                !
!   600 :        .   02 003 L            .                   .                !
!   610 :        .      002 L            .                   .                !
!   620 :        .      001 L            .                   .                !
!   630 :        .      002 L            .                   .                !
! . 900 : LIERR  . A 23 005 P F          .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!                                                                             !
!                                                                             !
!                                                                             !
! O: C1 CH: ode0010 ce                                                        !
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary               *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0010 List display                                  !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                   !
! ..........................................................................  !
! . 010 : PFKEY  .          V                  .                              !
! . 015 :        .                             .                              !
! . 020 :        .                             .                              !
!   100 :        . A 01 030 L                  .   List of  /                 !
! . 110 : X0015  .      001 P F        B       .                              !
!   200 :        . A 04 002 L         B        .   Tab. Name/                 !
!   210 :        .      012 L         B        .   Label  /                   !
! . 220 : X0006  .      001 P F        B       .                              !
!   230 :        .      013 L         B        .   Historical Date/           !
! . 240 :        .      003 L         B        .   S-Sys/                     !
! . 250 :        .      003 L         B        .   S-Sch/                     !
! . 400 : REPET  .   02 002 R      12          .                              !
! . 410 : NUTAB  .      002 F F               .                              !
! . 420 : LIBSEG .      003 F F               .                              !
! . 430 : DAHTA  .      005 V F               .                              !
! . 440 : NUSSY  .      009 F F               .                              !
!                                                                             !
! O: C2 CH: ode0010 ce                                                        !
-------------------------------------------------------------------------------
```

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--------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary               *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0010 List display                                  !
!                                                                            !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                       !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                  !
! ...........................................................................!
! . 450 : NUSSC  .      007 F F                .                              !
!   500 : END    .   02 002 Z                  .                              !
! . 510 : NUTABS .      002 V F                .                              !
!   520 :        .      001 L         B        .   <- Paging    /             !
!   600 :        .   02 003 L                  .   ENTER=Next   PF05=Start/   !
!   610 :        .      002 L                  .   PF10(+Curs)=UPDT Display/  !
!   620 :        .      001 L                  .   data   /                   !
!   630 :        .      002 L                  .   PF12=General Menu/         !
! . 900 : LIERR  . A 23 005 P F                .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!                                                                            !
! O: C2 CH: ode0010 ce                                                       !
--------------------------------------------------------------------------------

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! VA Pac  2.5 V02    model entity dictionary               *PT11.V100.CEN.491 !
! ON-LINE SCREEN CALL OF P.M.S.......:     DE0010 List display               !
!                                                                            !
! A   MACRO  LN C : COMMENTS OR PARAMETER VALUES                       D V   !
! .   AATUFL 10   : CUR1/C1/12/  /                                           !
! .   AATUFS 10   : CUR2/C2/12/  /                                           !
! .   AATUFX 10   : CUR3/C3/0000//    /                                      !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                 :                                                          !
!                                                                            !
! O: C1 CH: ode0010 cp                                                       !
--------------------------------------------------------------------------------
```

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FOSFNLG OPE OPERANDES                          NVTY CONDITION


00BB    N   INITIALIZATIONS                    10BL
00BB100 M   'DDR980'      PRCGI

02BB    N   IDENTIFICATION OF THE CURSOR      10BL
02BB100 M   SPACES  G-CUR1-CURSOR
02BB101             G-CUR2-CURSOR
02BB200 INS G-CUR1-CURSOR TALLYING TALLI      99IT CU00-FUNCT = 'LT
02BB210                   FOR ALL SPACE
02BB220 M   CU00-CURSOR   G-CUR1-CURSOR
02BB230 M   G-CUR1-CTRAN  7-WW00-YPREPG
02BB240 M   IRR           G-CUR1-NBOCC
02BB300 INS G-CUR2-CURSOR TALLYING TALLI      99IT CU00-FUNCT = 'LS
02BB310                   FOR ALL SPACE
02BB320 M   CU00-CURSOR   G-CUR2-CURSOR
02BB330 M   G-CUR2-CTRAN  7-WW00-YPREPG
02BB340 M   IRR           G-CUR2-NBOCC
02BB400 M   TALLI   7-WW00-LENGTH             99BL

02DD    N   OUTPUT                            10IT ICF = '0'

02EE    N   TABLES / HISTORICAL ACCOUNTS      15IT CU00-FUNCT = 'LT
02EE210 EXC LINK PROGRAM   (7-WW00-PROGUT)    99BL
02EE220          COMMAREA  (G-CUR1-CURSOR)
02EE230          LENGTH    (7-WW00-LENGTH)
02EE500 ERU EX                                99IT G-CUR1-RETCOD NO

02FF    N   SUB-SCHEMES  / SUB-SYSTEMS       15IT CU00-FUNCT = 'LC
02FF210 EXC LINK PROGRAM   (7-WW00-PROGUT)
02FF220          COMMAREA  (G-CUR2-CURSOR)
02FF230          LENGTH    (7-WW00-LENGTH)
02FF500 ERU EY                                99IT G-CUR2-RETCOD NO

02ZZ    N   DISPLAY                           15BL
02ZZ100 M   'A'    OPER
02ZZ110 M   '1'    OCF
02ZZ120 GFT

37BB    N   CALL OF TABLE UPDATE             10IT OCF = '1'
37BB 10                                         AN I-PFKEY = '10'
37BB100 M   'A'    OPER                       99IT CPOSL < 6 OR CPO
37BB110 GT  10
37BB120 M   'JMTU30'        5-0010-PROGE
37BB130 M   SPACES          G-CUR3-CURSOR
37BB210 M   G-CUR1-IDENT    G-CUR3-IDENT     99IT CU00-FUNCT = 'LT
37BB220 M   G-CUR1-USER     G-CUR3-USER
37BB230 M   G-CUR1-PASSW    G-CUR3-PASSW
37BB240 M   G-CUR1-CTRAN    G-CUR3-CTRAN
37BB250 M   G-CUR1-CBASE    G-CUR3-CBASE
37BB310 M   G-CUR2-IDENT    G-CUR3-IDENT     99IT CU00-FUNCT = 'LS
37BB320 M   G-CUR2-USER     G-CUR3-USER
37BB330 M   G-CUR2-PASSW    G-CUR3-PASSW
37BB340 M   G-CUR2-CTRAN    G-CUR3-CTRAN
37BB350 M   G-CUR2-CBASE    G-CUR3-CBASE
37BB360 M   G-CUR2-LABSCY (CPOSL - 5)        99IT CU00-FUNCT = 'LS
37BB365                     G-CUR3-LABSY
37BB370 M   G-CUR2-LABSCY (CPOSL - 5)        99IT CU00-FUNCT = 'LC
37BB375                     G-CUR3-LABSC
37BB400 M   J-0010-REPET  (CPOSL - 5)        99BL
37BB401     I-0010-REPET
37BB410 M   I-0010-NUTAB    G-CUR3-NUTAB
37BB420 M   I-0010-LIBSEG   G-CUR3-LABTB
37BB430 M   I-0010-DAHTA    G-CUR3-DATEC
37BB440 M   I-0010-NUSSY    G-CUR3-NUSSY
37BB450 M   I-0010-NUSSC    G-CUR3-NUSSC
37BB490 M   G-CUR3-CURSOR   CU00-CURSOR
37BB900 GFT

38NN    N   PAGING                            10IT OCF = '1'
38NN 10                                         AN OPER = 'A'
```

```
38PP    N   TABLES / HISTORICAL ACCOUNTS    15IT CU00-FUNCT = 'LT
38PP100 M   I-0010-NUTABS   G-CUR1-NUTAB    99IT I-0010-NUTABS >
38PP120 M   LOW-VALUE       G-CUR1-NUTAB    99IT I-PFKEY = '05'
38PP200 EXC LINK PROGRAM   (7-WW00-PROGUT)  99BL
38PP210          COMMAREA  (G-CUR1-CURSOR)
38PP220          LENGTH    (7-WW00-LENGTH)
38PP500 ERU PX                             99IT G-CUR1-RETCOD NO

38QQ    N   SUB-SCHEMES  / SUB-SYSTEMS      15IT CU00-FUNCT = 'LC
38QQ100 M   I-0010-NUTABS   G-CUR2-NUTAB    99IT I-0010-NUTABS >
38QQ120 M   LOW-VALUE       G-CUR2-NUTAB    99IT I-PFKEY = '05'
38QQ200 EXC LINK PROGRAM   (7-WW00-PROGUT)  99BL
38QQ210          COMMAREA  (G-CUR2-CURSOR)
38QQ220          LENGTH    (7-WW00-LENGTH)
38QQ500 ERU PY                             99IT G-CUR2-RETCOD NO

51BB    N   COMMAREA BEING TRANSFERRED      10BL
51BB100 M   G-CUR1-CURSOR  CU00-CURSOR      99IT CU00-FUNCT = 'LT
51BB200 M   G-CUR2-CURSOR  CU00-CURSOR      99IT CU00-FUNCT = 'LS

65BB    N   TRANSFER IN TITLE OUTPUT        10*P A
65BB120 M   'TABLE'           O-0010-X0006  99IT CU00-FUNCT = 'LT
65BB130 M   'TABLES'          O-0010-X0015
65BB140 M   'TABLE'           O-0010-X0006  99IT CU00-FUNCT = 'LH
65BB150 M   'HISTORIQUES'     O-0010-X0015
65BB160 M   'S-SCH'           O-0010-X0006  99IT CU00-FUNCT = 'LC
65BB170 M   'SOUS-SCHEMAS'    O-0010-X0015
65BB180 M   'S-SYS'           O-0010-X0006  99IT CU00-FUNCT = 'LS
65BB190 M   'SOUS-SYSTEMES'   O-0010-X0015

65JJ    N   TRANSFER IN REPETITIVE OUTPUT   10*P R

65KK    N   LIST OF TABLES OR HISTORICAL    20IT (CU00-FUNCT = 'L
65KK 10 *   ACCOUNTS                          AN G-CUR1-ELMNT (IC
65KK110 M   G-CUR1-TABLE (ICATR)                SPACE
65KK111                  O-0010-NUTAB
65KK120 M   G-CUR1-LABTB (ICATR)
65KK121                  O-0010-LIBSEG
65KK130 M   G-CUR1-DATEH (ICATR)            99IT G-CUR1-DATEH (IC
65KK131                  O-0010-DAHTA            ZEROS
65KK140 M   SPACES        O-0010-NUSSY      99BL
65KK150 M   SPACES        O-0010-NUSSC

65MM    N   LIST OF SS-SYSTEMS / SS-SCHEMES 20IT (CU00-FUNCT = 'L
65MM 10                                       AN G-CUR2-ELMNT (IC
65MM110 M   G-CUR2-TABLE  (ICATR)               SPACE
65MM111                  O-0010-NUTAB
65MM120 M   G-CUR2-LABSCY (ICATR)
65MM121                  O-0010-LIBSEG
65MM130 M   SPACES        O-0010-DAHTA
65MM200 M   G-CUR2-NUSCY  (ICATR)           99IT CU00-FUNCT = 'LS
65MM201                  O-0010-NUSSY
65MM210 M   SPACES        O-0010-NUSSC
65MM300 M   SPACES        O-0010-NUSSY      99IT CU00-FUNCT = 'LC
65MM310 M   G-CUR2-NUSCY (ICATR)
65MM311                  O-0010-NUSSC

65NN    N   LOCK OF HISTORICAL DATES        20IT CU00-FUNCT = 'LC
65NN100 M   'P'    A-0010-DAHTA (5)
65NN110 M   A-0010-REPET (5)
65NN111            B-0010-REPET (5, ICATR)

65PP    N   PREPARATION TO PAGING           20BL
65PP100 M   O-0010-NUTAB  G-CUR1-NUTAB      99IT (CU00-FUNCT = 'L
65PP110                                       AN O-0010-NUTAB > S
65PP200 M   O-0010-NUTAB  G-CUR2-NUTAB      99IT (CU00-FUNCT = 'L
65PP210                                       AN O-0010-NUTAB > S

80LE    N   ERROR LABEL                     10BL
80LE100 YR  LE00
80LE200 M   G-CUR1-ERRLAB    LE00-LIERR     99IT LE00-XCLEF ='DE
80LE210                                       OR LE00-XCLEF ='DE
```

```
80LE300 M   G-CUR2-ERRLAB    LE00-LIERR     99IT LE00-XCLEF ='DE
80LE310                                       OR LE00-XCLEF ='DE
```

```
-------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary              *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0030 Departments update                           !
!                                                                            !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY      !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE  LV !
! ..........................................................................!
! . 010 : PFKEY  .          V            .  E O G DE0000     .    12        !
! . 015 :        .                       .        P          .    10        !
! . 020 :        .                       .        A          .    05        !
! . 025 :        .                       .        A          .    07        !
! . 100 : LIBSEG . A 01 022 P F          .                   .              !
! . 110 :        . A 03 002 L            .                   .              !
! . 120 : NUSSY  .      001 P F          .                   .              !
! . 130 : LIBSY  .      001 P F          .                   .              !
! . 140 :        .      003 L            .                   .              !
! . 150 : NUSSC  .      001 P F          .                   .              !
! . 160 :        .      003 L            .                   .              !
! . 170 : DAHTA  .      001 P F          .                   .              !
! . 200 :        . A 05 005 L            .                   .              !
! . 210 : DE0003 .      002 P F          .                   .    CUR1      !
! . 220 :        .      001 L            .                   .              !
! . 230 : DE0025 .      001 P F          .                   .    CUR1      !
!                                                                            !
! O: C1 CH: ode0030 ce                                                       !
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
! VA Pac  2.5 V02    model entity dictionary              *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0030 Departments update                           !
!                                                                            !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY      !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE   LV!
! ..........................................................................!
! . 240 : DE0020 .      001 P F          .                   .    CUR1      !
! . 250 : DE0015 .      001 P F          .                   .    CUR1      !
! . 300 : REPET  . A 06 001 R        07  .                   .              !
! . 310 : CODMV  .      005 V F Y        .                   .    CUR1      !
! . 320 : DEPTNO .      002 V F          .  N                .    CUR1      !
! . 330 :        .      001 L            .                   .              !
! . 340 : DEPTLB .      001 V F          .  N                .    CUR1      !
! . 350 : DEPTCL .      001 V F          .  N                .    CUR1      !
! . 360 : DEPTSY .      001 V F          .  N                .    CUR1      !
! . 400 :        .   01 012 L            .                   .              !
! . 410 : DE0007 .      001 P F          .                   .    CUR1      !
! . 420 : DEPTRG .      001 V F          .  N                .    CUR1      !
! . 430 : DE0011 .      001 P F          .                   .    CUR1      !
! . 440 : DEPTPO .      001 V F          .  N                .    CUR1      !
! . 450 : DE0006 .      001 P F          .                   .    CUR1      !
! . 460 : DEPTAR .      001 V F          .  N                .              !
!                                                                            !
! O: C1 CH: ode0030 ce                                                       !
-------------------------------------------------------------------------------
```

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-------------------------------------------------------------------------------
! VA Pac  2.5 V02     model entity dictionary              *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0030 Departments update                            !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES   . VALIDATION UPDATE .  DISPLAY       !
!       :        . P LN COL N L C HR VR  .  P V U UPD TARGET .  S SOURCE   LV !
! ..........................................................................  !
!   500 : END    . A 21 001 Z            .                   .                !
! . 510 :        .      003 L            .                   .                !
! . 520 :        .      002 L            .                   .                !
! . 530 :        .      002 L            .                   .                !
! . 540 :        .      001 L            .                   .                !
! . 560 :        .      002 L            .                   .                !
! . 900 : DEPTN1 . A 23 003 P F          .                   .    CUR1        !
! . 910 : ERPOST .      002 P F          .                   .    CUR1        !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!       :        .                       .                   .                !
!                                                                             !
! O: C1 CH: ode0030 ce                                                        !
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! VA Pac  2.5 V02      model entity dictionary              *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0030 Departments update                            !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                   !
! ..........................................................................  !
! . 010 : PFKEY  .          V                  .                              !
! . 015 :        .                             .                              !
! . 020 :        .                             .                              !
! . 025 :        .                             .                              !
! . 100 : LIBSEG . A 01 022 P F        B       .                              !
! . 110 :        . A 03 002 L                  .   S-Sys:/                    !
! . 120 : NUSSY  .      001 P F        B       .                              !
! . 130 : LIBSY  .      001 P F       B        .                              !
! . 140 :        .      003 L                 .   S-Sch:/                    !
! . 150 : NUSSC  .      001 P F        B       .                              !
!   160 :        .      003 L                 .   Histo Date:/               !
! . 170 : DAHTA  .      001 P F        B       .                              !
! . 200 :        . A 05 005 L                 .   A/                         !
! . 210 : DE0003 .      002 P F                .                              !
! . 220 :        .      001 L                 .   :/                         !
! . 230 : DE0025 .      001 P F               .                              !
!                                                                             !
! O: C2 CH: ode0030 ce                                                        !
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! VA Pac  2.5 V02       model entity dictionary            *PT11.V100.CEN.491 !
! SCREEN CALL OF ELEM... DE0030 Departments update                            !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                  !
! ..........................................................................  !
! . 240 : DE0020 .      001 P F                .                              !
! . 250 : DE0015 .      001 P F                .                              !
! . 300 : REPET  . A 06 001 R      07          .                              !
! . 310 : CODMV  .      005 V F                .                              !
! . 320 : DEPTNO .      002 V F                .                              !
! . 330 :        .      001 L                  .   :/                         !
! . 340 : DEPTLB .      001 V F                .                              !
! . 350 : DEPTCL .      001 V F                .                              !
! . 360 : DEPTSY .      001 V F                .                              !
! . 400 :        .   01 012 L                  .   :/                         !
! . 410 : DE0007 .      001 P F                .                              !
! . 420 : DEPTRG .      001 V F                .                              !
! . 430 : DE0011 .      001 P F                .                              !
! . 440 : DEPTPO .      001 V F                .                              !
! . 450 : DE0006 .      001 P F                .                              !
! . 460 : DEPTAR .      001 V F                .                              !
!                                                                             !
! O: C2 CH: ode0030 ce                                                        !
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! VA Pac  2.5 V02      model entity dictionary            *PT11.V1000.CEN.491!
! SCREEN CALL OF ELEM... DE0030 Departments update                            !
!                                                                             !
! A LIN : D.ELEM . PHYSICAL ATTRIBUTES         . LABEL                        !
!       :        . P LN COL N L HR VR IN PR CO . T LITERALS                NV!
! ..........................................................................  !
!   500 : END    . A 21 001 Z                  .                              !
!   510 :        .      003 L                  .   ENTER=Next   PF05=Begin/   !
!   520 :        .      002 L                  .   PF07=UPDT /                !
!   530 :        .      002 L                  .   PF10(+Curs)=Error /        !
!   540 :        .      001 L                  .   Display/                   !
!   560 :        .      002 L                  .   PF12=End/                  !
! . 900 : DEPTN1 . A 23 003 P F                .                              !
! . 910 : ERPOST .      002 P F                .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!       :        .                             .                              !
!                                                                             !
! O: C2 CH: ode0030 ce                                                        !
-------------------------------------------------------------------------------
```

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! VA Pac  2.5 V02     model entity dictionary              *PT11.V100.CEN.491 !
! ON-LINE SCREEN CALL OF P.M.S.......:     DE0030 Departments update           !
!                                                                              !
! A   MACRO  LN C : COMMENTS OR PARAMETER VALUES                               !
! .   AATUFA 10   : CUR1/C1/41/DEPTSY/                                         !
! .   AATUFA 20   : CUR1/C1/42/DEPTNO/                                         !
! .   AATUFA 30   : CUR1/C1/43/DEPTLB/                                         !
! .   AATUFA 40   : CUR1/C1/44/DEPTCL/                                         !
! .   AATUFA 50   : CUR1/C1/45/DEPTRG/                                         !
! .   AATUFA 60   : CUR1/C1/46/DEPTPO/                                         !
! .   AATUFA 70   : CUR1/C1/47/DEPTAR/                                         !
! .   AATUFX 10   : CUR1/C1/0007/07/DEPT/                                      !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                 :                                                            !
!                                                                              !
! O: C1 CH: ode0030 cp                                                         !
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```
FOSFNLG OPE OPERANDES                          NVTY CONDITION


00BB    N   INITIALIZATIONS                    10BL
00BB100 M   'DDR980'   PRCGI
00BB110 M   '1'        7-CURS-OK

02BB    N   SYSTEMATICALLY                     10BL
02BB100 M   SPACES  G-CUR1-CURSOR
02BB110 INS G-CUR1-CURSOR TALLYING TALLI
02BB120                   FOR ALL SPACE
02BB130 M   TALLI         7-WW00-LENGTH
02BB200 M   CU00-CURSOR   G-CUR1-CURSOR
02BB210 M   G-CUR1-CTRAN  7-WW00-YPREPG

02DD    N   1ST TIME                          10IT ICF = '0'

02FF    N   CURSOR OPENING                    15BL
02FF100 M   'CUR3'          G-CUR1-CURID
02FF110 M   'EX'            G-CUR1-FUNCT
02FF120 *   ** SPACES       G-CUR1-CLETVI
02FF130 *   ** SPACES       G-CUR1-CLETVS
02FF140 M   7               G-CUR1-ELTNB
02FF150 M   IRR             G-CUR1-NBOCC
02FF210 EXC LINK PROGRAM   (7-WW00-PROGUT)
02FF220          COMMAREA  (G-CUR1-CURSOR)
02FF230          LENGTH    (7-WW00-LENGTH)
02FF500 M   G-CUR1-ERRLAB   CUR1-ERPOST     99IT G-CUR1-RETCOD NO
02FF510 M   '0'             7-CURS-OK       99IT G-CUR1-RETCOD >

02MM    N   DISPLAY                          15BL
02MM100 M   'L1'   G-CUR1-FUNCT              99IT 7-CURS-OK = '1'
02MM110 M   '001'  G-CUR1-KEY
02MM120 M   'A'    OPER                       99BL
02MM130 M   '1'    OCF
02MM200 GFT

0515    N   END OF CONVERSATION IF 'CLEAR'   10IT I-PFKEY = '00'
0515100 M   'E'    OPER
0515110 COB GO TO F40.

25BB    N   CHECK IN RELATION TO TABLE       10*R ED10

25CC    N   TRANSFERS BEFORE CHECK           15BL
25CC100 M   SPACES   G-CUR1 (ICATR)
25CC110 M   I-0030-CODMV                      99IT PR-30-CODMV  NOT
25CC111     G-CUR1-CODMV  (ICATR)
25CC120 M   I-0030-DEPTSY                     99IT PR-30-DEPTSY NOT
25CC121     DE10-DEPTSY (ICATR)
25CC140 M   I-0030-DEPTNO                     99IT PR-30-DEPTNO NOT
25CC141     DE10-DEPTNO (ICATR)
25CC150 M   I-0030-DEPTLB                     99IT PR-30-DEPTLB NOT
25CC151     DE10-DEPTLB (ICATR)
25CC160 M   I-0030-DEPTCL                     99IT PR-30-DEPTCL NOT
25CC161     DE10-DEPTCL (ICATR)
25CC170 M   I-0030-DEPTRG                     99IT PR-30-DEPTRG NOT
25CC171     DE10-DEPTRG (ICATR)
25CC180 M   I-0030-DEPTPO                     99IT PR-30-DEPTNO NOT
25CC181     DE10-DEPTPO (ICATR)
25CC190 M   I-0030-DEPTAR                     99IT PR-30-DEPTAR NOT
25CC191     DE10-DEPTAR (ICATR)

65BB    N   HEADER DISPLAY                   10*P A
65BB100 M   G-CUR1-LABTB      O-0030-LIBSEG
65BB110 M   G-CUR1-NUSSY      O-0030-NUSSY
65BB120 M   G-CUR1-LABSY      O-0030-LIBSY
65BB130 M   G-CUR1-NUSSC      O-0030-NUSSC
65BB140 M   G-CUR1-DAHTB      O-0030-DAHTA

65SS    N   TABLE ERROR LABEL DISPLAY        10*P Z

65TT    N   BY DEFAULT                       15IT OPER = 'A'
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65TT100 M   G-CUR1-FUNCT       O-0030-DEPTN199IT G-CUR1-RETCOD >
65TT110 M   G-CUR1-ERRLAB      O-0030-ERPOST  OR G-CUR1-ERRLAB NO
65TT200 M   DE10-DEPTNO   (1)  O-0030-DEPTN199EL
65TT210 M   G-CUR1-ERROR  (1)  O-0030-ERPOST

65VV    N   THE ONE CORRESPONDING TO CURSOR 15IT OPER = 'P'
65VV100 M   SPACES             O-0030-DEPTN1
65VV105 M   SPACES             O-0030-ERPOST
65VV110 M   DE10-DEPTNO   (1)  O-0030-DEPTN199IT CPOSL = 6
65VV115 M   G-CUR1-ERROR  (1)  O-0030-ERPOST
65VV120 M   DE10-DEPTNO   (2)  O-0030-DEPTN199IT CPOSL = 8
65VV125 M   G-CUR1-ERROR  (2)  O-0030-ERPOST
65VV130 M   DE10-DEPTNO   (3)  O-0030-DEPTN199IT CPOSL = 10
65VV135 M   G-CUR1-ERROR  (3)  O-0030-ERPOST
65VV140 M   DE10-DEPTNO   (4)  O-0030-DEPTN199IT CPOSL = 12
65VV145 M   G-CUR1-ERROR  (4)  O-0030-ERPOST
65VV150 M   DE10-DEPTNO   (5)  O-0030-DEPTN199IT CPOSL = 14
65VV155 M   G-CUR1-ERROR  (5)  O-0030-ERPOST
65VV160 M   DE10-DEPTNO   (6)  O-0030-DEPTN199IT CPOSL = 16
65VV165 M   G-CUR1-ERROR  (6)  O-0030-ERPOST
65VV170 M   DE10-DEPTNO   (7)  O-0030-DEPTN199IT CPOSL = 18
65VV175 M   G-CUR1-ERROR  (7)  O-0030-ERPOST

8Z15    N   COMMAREA BEING TRANSFERRED      10BL
8Z15100 M   G-CUR1-CURSOR    CU00-CURSOR

80DD    N   ED10 SEGMENT ACCESS             10*R ED10
80DD100 *   ---- CALL TUF900 ----           99BL
80DD200 YR  ED10

80EE    N   BEGINNING OF READ (YR)          15BL

80HH    N   CALL TUF900                     20IT 7-CURS-OK = '1'
80HH 10                                       AN OPER NOT = 'P'
80HH100 M   'L1'             G-CUR1-FUNCT   99IT I-PFKEY = '05'
80HH110 M   J-0030-REPET (1) I-0030-REPET
80HH120 M   I-0030-DEPTNO    G-CUR1-KEY
80HH150 M   'UP'             G-CUR1-FUNCT   99IT I-PFKEY = '07'
80HH210 EXC LINK PROGRAM   (7-WW00-PROGUT)  99BL
80HH220          COMMAREA  (G-CUR1-CURSOR)
80HH230          LENGTH    (7-WW00-LENGTH)
80HH500 M   G-CUR1-ERRLAB  CUR1-ERPOST      99IT G-CUR1-RETCOD NO

80II    N   RECOVERY OF THE TABLE SHORT     20BL
80II 10 *   LABELS FOR DISPLAY
80II 30 *   (1ST STATION FOR EACH -D)
80II100 M   G-CUR1-DEPTSY-C (01) CUR1-DE0015
80II110 M   G-CUR1-DEPTNO-C (01) CUR1-DE0003
80II120 M   G-CUR1-DEPTLB-C (01) CUR1-DE0025
80II130 M   G-CUR1-DEPTCL-C (01) CUR1-DE0020
80II140 M   G-CUR1-DEPTRG-C (01) CUR1-DE0007
80II150 M   G-CUR1-DEPTPO-C (01) CUR1-DE0011
80II160 M   G-CUR1-DEPTAR-C (01) CUR1-DE0006

80JJ    N   END OF READ (YR)               20BL
80JJ100 COB GO TO F80-OK.

80KK    N   ITERATIVE CATEGORY             15BL
80KK 10 YP  ED10
80KK 20 YRN ED10

80MM    N   RECOVERY OF DATA ELEMENTS FOR   20BL
80MM 10 *   DISPLAY
80MM110 M   G-CUR1-CODMV  (ICATR)
80MM111       CUR1-CODMV
80MM120 M   DE10-DEPTSY (ICATR)
80MM121       CUR1-DEPTSY
80MM130 M   DE10-DEPTNO (ICATR)
80MM131       CUR1-DEPTNO
80MM140 M   DE10-DEPTLB (ICATR)
80MM141       CUR1-DEPTLB
80MM150 M   DE10-DEPTCL (ICATR)
80MM151       CUR1-DEPTCL
```

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80MM160 M   DE10-DEPTRG (ICATR)
80MM161       CUR1-DEPTRG
80MM170 M   DE10-DEPTPO (ICATR)
80MM171       CUR1-DEPTPO
80MM180 M   DE10-DEPTAR (ICATR)
80MM181       CUR1-DEPTAR

80NN    N   END START (P) OR READ-NEXT (RN) 20BL
80NN100 COB GO TO F80-OK.
```