

VisualAge Pachbase



# Dictionary Extensibility

*Version 3.0*





VisualAge Pachbase



# Dictionary Extensibility

*Version 3.0*

**Note**

Before using this document, read the general information under "Notices" on page v.

According to your licence agreement, you may consult or download the complete up-to-date collection of the VisualAge Pacbase documentation from the VisualAge Pacbase Support Center at:

<http://www.ibm.com/software/ad/vapacbase/productinfo.htm>

Consult the Catalog section in the Documentation home page to make sure you have the most recent edition of this document.

**First Edition (August 2002)**

This edition applies to the following licensed programs:

- VisualAge Pacbase Version 3.0

Comments on publications (including document reference number) should be sent electronically through the Support Center Web site at: <http://www.ibm.com/software/ad/vapacbase/support.htm> or to the following postal address:

IBM Paris Laboratory  
1, place Jean-Baptiste Clément  
93881 Noisy-le-Grand, France.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 1983,2002. All rights reserved.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

**Notices . . . . . v**

**Trademarks. . . . . vii**

**Chapter 1. Introduction . . . . . 1**

Purpose of the Manual . . . . . 1

Presentation of Customization Entities. . . . . 1

How to Use Customization Entities. . . . . 2

**Chapter 2. How to Use Meta-Entities via  
User Entities. . . . . 3**

Introduction . . . . . 3

Definition . . . . . 3

Description . . . . . 6

User Entities Access Mode. . . . . 8

User Entities Print Commands . . . . . 8

Meta-Entities Access Mode . . . . . 9

Meta-Entities Print Commands . . . . . 9

**Chapter 3. How to Use User Relations 11**

Presentation . . . . . 11

Access Mode . . . . . 14

Print Commands . . . . . 14

**Chapter 4. Appendix: The  
Communication Area . . . . . 15**



---

## Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Subject to IBM's valid intellectual property or other legally protectable rights, any functionally equivalent product, program, or service may be used instead of the IBM product, program, or service. The evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the responsibility of the user.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, North Castle Drive, Armonk NY 10504-1785, U.S.A.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact IBM Paris Laboratory, SMC Department, 1 place J.B.Clément, 93881 Noisy-Le-Grand Cedex. Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

IBM may change this publication, the product described herein, or both.





---

## Trademarks

IBM is a trademark of International Business Machines Corporation, Inc. AIX, AS/400, CICS, CICS/MVS, CICS/VSE, COBOL/2, DB2, IMS, MQSeries, OS/2, PACBASE, RACF, RS/6000, SQL/DS, TeamConnection, and VisualAge are trademarks of International Business Machines Corporation, Inc. in the United States and/or other countries.

Java and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States and/or other countries.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States and/or other countries.

UNIX is a registered trademark in the United States and/or other countries licensed exclusively through X/Open Company Limited.

All other company, product, and service names may be trademarks of their respective owners.



---

# Chapter 1. Introduction

---

## Purpose of the Manual

This Manual describes how to use, in the character-mode interface, the VisualAge Pacbase Metamodel customization entities defined and described in the Administration workbench.

For information about how to define and describe these entities, see the on-line help in the Administration workbench.

---

## Presentation of Customization Entities

VisualAge Pacbase manages standard entities (Data Element, Segment...) which represent concepts used during the normal life cycle of a project. These entities have a standard description.

But you can also adapt the data stored in the Database to the specific needs of your company by creating your own entities.

### HOW TO DEFINE CUSTOMIZATION ENTITIES

Customization entities are defined and described in the Administration workbench only.

These entities are:

- Meta-Entities,
- User Relations.

They are fully documented in the Administration workbench on-line help.

### HOW TO USE CUSTOMIZATION ENTITIES

#### USE OF META-ENTITIES

You use Meta-Entities (ME) via User Entities (UE).

To know how to use them in the Administration workbench, see its on-line help.

In the character-mode interface, you enter User Entities on a screen whose composition depends on the Meta-Entity.

Each UE has Definition and Description screens via which you valorize the Data Elements called in the Meta-Entity.

**Example:** The 'Department' ME includes two Data Elements: 'Number of employees' and 'Location'. You can define a 'Software' UE with '50' employees and located in 'Irvine'.

The User Entity is constituted of a Definition screen and from 0 to 333 Description screens, depending on the Meta-Entity.

User Entities are managed in the same way as standard entities. So you can:

.assign keywords to them,

.assign comments to them,

.obtain lists, cross-references, etc.

#### USE OF USER RELATIONS

You use User Relations defined in the Administration workbench to link two entities. The link will be managed automatically.

**Example:** The Data Element which represents the location can be linked to the 'Location' Meta-Entity defined previously, to check that the location entered by the user is one of the locations of the company. So you will set up a link between departments and locations.

To know how to use User Entities in the Administration workbench, refer to its on-line help.

To know how to use User Relations in the character-mode interface, refer to chapter 'How to Use User Relations' in this Manual.

---

## How to Use Customization Entities

You can use customization entities in on-line or batch mode.

You can extract them with the Pacbase Access Facility module.

You can also extract their contents formatted as a sequential file with the EXUE procedure (included in the PACX procedure). Refer to the Developer's Batch Procedures Manual.

You can call them in a Volume to print them in a user documentation.

You can finally perform a search on them via the Word Search screen (WS).

---

## Chapter 2. How to Use Meta-Entities via User Entities

---

### Introduction

Once a Meta-Entity is defined, described and possibly linked through a User Relation, it is managed like a standard entity.

You can then enter its instances, which are called User Entities (UE).

**NOTE:** You can extract the contents of the UEs in a sequential file with the EXUE procedure (included in PACX). For more details, refer to the Developer's Procedures Manual.

#### GENERAL CHARACTERISTICS

All the screens of a User Entity contain:

- a header (protected field)
- input fields.

Input in the User Entity if it was requested in the Meta-Entity (in the Administrator workbench). Checks can be set on values, on presence, on format or can be customized.

For numeric Elements, a numeric validation is automatically performed if the Element called has a numeric format. The input is based on the integer part only.

The length of input fields corresponds to the extended internal format of Data Elements.

---

### Definition

The Definition of a UE contains a header (protected field) and a number of input fields.

#### Header

The header is made of:

- the Definition label,
- the call type and the Meta-Entity code,

#### Input fields

The first two input fields of the UE Definition are the code and label which identify the UE in the Database.

The label of the input lines is the short name of Elements called in the ME or, if it is not defined, the name truncated to 18 characters.

The Definition of a User Entity may be constituted of more than one screen. To display all the screens in sequence, open the Definition screen and press the ENTER key. You can also display these screens via a specific choice (see the paragraph below 'Corresponding Choice').

If an input field contains more than 56 characters, it is displayed on several lines.

#### USER RELATION

If one of the fields included in the User Entity is linked in a constraint way via a User Relation, this field will have to contain the code of an instance defined in the Database.

#### CORRESPONDING CHOICE

If 'tt' is the ME type, enter the following input in the choice field to access the UE Definition screen:

\$ttx...xx IDii

where xx...xx = UE code (30 characters max.)

ii = storage identifier from which the definition is displayed. To know its value, contact your Administrator.

```

-----
!                               DOCUMENTATION                               *DSDOCMLT.LILI.AN1.881 !
!
! USED PROGRAM                     TYPE : ST                               META-ENTITY : STEP    !
!
! FLOW CODE                       : 1 CPTA03                               !
! FLOW NAME                       : 2 ACCOUNTING UPDATE                       !
!
! JOB NAME                        : ! CPTA01                               !
! PROGRAM CODE                    : 3 CPT100                               !
! PROGRAM SIZE                    : ! 127                                   !
!
!
!
!
!
!
!
!
!
! EXPLICIT KEYWORDS...: 4                                               !
! UPDATED BY.....:                                               ON :           AT:   : :   LIB !
! SESSION NUMBER.....: 0879     LIBRARY.....: AN1     LOCK.....:   !
!
!
! O: C1 CH: $ST CPTA03                               ACTION:                               !
-----

```

NUMLEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	30	USER ENTITY CODE
		It is an alphanumeric code of 1 to 30 characters which is used to reference the User Entity in the database.
		Warning: upper and lowercases are not equivalent.
2	36	UE NAME
		This name should be as explicit as possible because it is used in the automatic constitution of keywords.
3	58	CONTINUATION OF UE DEFINITION
		The rest of the UE Definition is built directly from the Meta-Entity Description.
		Each Data Element is displayed on a line and is preceded by its short name.
4	55	EXPLICIT KEYWORDS
		This field allows you to enter additional (explicit) keywords. By default, keywords are generated from the instance's name (implicit keywords).
		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 ignored in keywords.
		Keywords are not case-sensitive: uppercase 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 optimize the search of instances by keywords.
		You do that in the Administrator workbench, Users browser, Special Characters tab of the Parameters Specific Authorizations.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
			A maximum of ten explicit keywords can be assigned to one entity.
			For more details, refer to the 'Character Mode User Interface' guide, chapter 'Search for Instances', subchapter 'Searching by Keywords'.

---

## Description

Each screen is composed of repetitive lines. Each line contains:

- An Action code field,
- A line identifier,
- An input field.

The input space is constituted of fields identified by underscores. The length of each field is based on the extended internal format of the Element which defines it.

Data can be entered outside the assigned input fields. However this data is truncated to the field length after validation.

Input fields are separated by a space.

The header of each input field is the column labels of the Elements, on one line (see chapter 'Data Elements', subchapter 'Description' in the 'Data Dictionary' Manual).

**NOTE:** If a UE has a Parent Description as well as a Child Description, the Parent Description cannot be erased if the Child Description has been filled in.

If the input field(s) exceed 67 characters, the Description is split up on more than one screen. To visualize the input screens which are too large to be fully displayed in the frame, position your cursor in a column and specify the storage identifier of the corresponding Element in the ME Description (see the paragraph below, 'Corresponding Choice').

### CORRESPONDING CHOICE

The choice corresponding to the Description screen of a UE is the following:

```
$ttxx...xx Dnn11...11 IDii
```

with tt = UE type,  
 xx...xx = UE code (30 characters max.),  
 nn = number of the called Description  
 (optional),  
 11...11 = Line number (optional, 20 characters max.)  
 ii = identifier from which the line is  
 displayed. To know the identifier's value,  
 contact your Administrator.



```

!-----!
!                 DOCUMENTATION                         *DSDOCLT.LILI.AN1.881 !
!                                     1
! FILES                                         ST CPTA03 3 ACCOUNTING UPDATE
! 2 3  <-----> 4 ----->
! A NUMBER : EXEC. COND.  DS  FILE NAME  UTILIZATION  UNIT
! 000100 : NONE         UA  CUSTOMER B  CONSULTATION  CTF010
! E 000110 : NIGHT      PA  INVOICE T2  UPDATE         CFT010
! 000200 : DAY         PA  INVOICE T5  UPDATE         CTF010
!
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
! : _____
!
!          UNKNOWN VALUE FOR  FILE UNIT
! 0: C1 CH: $ET CPTA03 D3
!-----!

```

NUMLEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	30	USER ENTITY CODE
		It is an alphanumeric code of 1 to 30 characters which is used to reference the User Entity in the database.
		Warning: upper and lowercases are not equivalent.
2	1	ACTION CODE
	C	Creation of the line
	M	Modification of the line
	D	Deletion of the line
	A	Deletion of the line
	T	Transfer of the line
	B	Beginning of multiple deletion
	G	Multiple transfer
	?	Request for HELP documentation
	E or -	Inhibit implicit update
	X	Implicit update without upper/lowercase processing
3	20	LINE IDENTIFIER
		It is an alphanumeric code that consists of 1 to 20 characters.
4	71	CONTINUATION OF UE DESCRIPTION
		All the Data Elements are displayed on one line and separated by a space. Each input field is identified by underscores ('_').
		Each Data Element is topped by its column name, on one line.

---

## User Entities Access Mode

LIST OF USER ENTITIES		
CHOICE -----	SCREEN -----	UPDATE -----
LC\$tt000000	List of UEs by code (starting with type 'tt', code '000000')	NO
LN\$tt000000	List of UEs by name (starting with type 'tt', code '000000')	NO
LT\$tt000000	List of UEs by type (starting with type 'tt', code '000000')	NO
DESCRIPTION OF UE OF TYPE 'tt' AND OF CODE '000000'		
CHOICE -----	SCREEN -----	UPDATE -----
\$tt000000 IDii	Definition of UE 'tt000000' (starting with identifier 'ii' (optional))	YES
\$tt000000GCbbb	Comments of UE 'tt000000' (starting with Comments line number 'bbb').	YES
\$tt000000ATbbbbbb	Text Assigned to UE 'tt000000' (starting with text 'bbbbbb')	NO
\$tt000000X	Cross-references of UE 'tt000000'	NO
\$tt000000XVvvvvvv	Cross-references of UE 'tt000000' to Volumes (starting with Volume 'vvvvvv').	NO
\$tt000000XQrrrrrr	List of occurrences linked to UE 'tt000000' through Relationship 'rrrrrr'.	NO
\$tt000000CR	Occurrences linked to UE 'tt000000' through Relations	YES
\$tt000000Dnlll IDii	Description of UE 'tt000000' (starting with Description 'n', line number 'lll').	YES

**NOTE::** After the first choice of type '\$tt000000', '\$tt000000' can be replaced with '-'.  
'-'.

All notations between parentheses are optional.

---

## User Entities Print Commands

LC\$: List of User Entities, sequenced by ME type and UE code.

- C1 option: without keywords.
- C2 option: with keywords.

DC\$: Description of the Meta-Entity whose ME code is indicated in the 'Entity Code' field, and description of the dependent User Entities. Description of all MEs and UEs if the field is left blank.

- C1 option: without assigned texts, page skip generated between each UE.
- C2 option: with assigned text, page skip generated between each UE.
- C3 option: without assigned texts, no page skip generated between each UE.
- C4 option: with assigned texts, no page skip generated between each UE.

LN\$: List of User Entities sequenced by name.

---

## Meta-Entities Access Mode

CHOICE -----	SCREEN -----	UPDATE -----
LCFaaaaaa	List of Meta-Entities by code (starting with Meta-Entity 'aaaaaa').	NO
LNFAaaaaa	List of Meta-Entities by name (starting with Meta-Entity 'aaaaaa').	NO
LTFaaaaaa	List of Meta-Entities by call type (starting with call code 'aaaaaa').	NO

---

## Meta-Entities Print Commands

LCF: List of Meta-Entities sequenced by codes.

- C1 option: without keywords,
- C2 option: with keywords.

LKF: List of Meta-Entities, sequenced by keywords. This command must be followed by a continuation line where keywords must be entered.

DCF: Description of the Meta-Entity whose code is indicated in the 'Entity code' field. Description of all ME if the field is left blank.

- C1 option: without assigned texts,
- C2 option: with assigned texts.

LNFA: List of Meta-Entities sequenced by name.

LTF: List of Meta-Entities sequenced by type.



---

## Chapter 3. How to Use User Relations

---

### Presentation

Once the User Relation has been defined in the Administrator workbench, you can call it from any entity, via the 'Called Instances' screen (-CR).

In this screen, you must indicate:

- the User Relation code,
- the code of the instance to be linked.

The Relation name and the type of the linked entity (indicated on the Relation Definition) as well as the name of the instance (if it exists) will be displayed automatically.



NUMLEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		Once you have validated, the short code of the Relation and the type of the X-referenced entity will be automatically displayed according to the information entered in the Relation Definition.
5	30	CALLED ENTITY CODE
		If the Relation is a Composition-type Relation (indicated on the Relation Definition), you must enter an existing instance code for the called entity type.
		However you can enter a code that does not exist if it is a free-type Relation (indicated on the Relation Definition).
		NOTE: If the called entity is a User entity, you only need to enter its code, without its call type.

### How to see the uses of User Relations

The uses of User Relations can be seen on the 'Entities List Using...' screen.

This list displays all the linked entity occurrences, sequenced according to the X-references indicated on these occurrences's -CR.

This list displays the Relation code, the 'entities call' mention and the occurrence code on whose -CR the Relation is indicated.





## Chapter 4. Appendix: The Communication Area

To describe a user sub-program which controls the input in the User Entity, you need to know the composition of the communication area (with the length of its constituent Data Elements).

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
	6		Meta-Entity code
	2		META-ENTITY CALL TYPE
	2		DESCRIPTION NUMBER
	30		USER ENTITY CODE
	3	NUMER.	NUMBER OF DATA EL. IN DESCRIPTION
	3		Reserved field
	2		PARENT DESCRIPTION
		Blank	No parent description
	6		Reserved field
	1		ERROR GRAVITY
		E	Error (by default)
		W	Warning
	11		Reserved field
	66		ERROR MESSAGE
			ZONE GROUPE DESCRIPTION NUMBER OF REPETITIONS : 80
	6		DATA ELEMENT CODE
	2		RANK OF DATA ELEMENT IDENTIFIER
			This identifier is a reference point which enables you to display the Definition or a Description of a User Entity which exceeds the width of the input screen.
	1		DATA ELEMENT NATURE
		I	Long identifier
		N	Label
		S	Short identifier
		L	Type
	1		FORMAT CHECK
		F	Check against the Data Element format
		9	Numericity check for an alphanumeric Data Element
		Blank	No check
	1		VALUE CHECK
		E	Value check
		blank	No value check
	1		PRESENCE CHECK

POS	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		blank	No presence check
		O	Presence required
	6		Relation code
	10		DATA ELEMENT INTERNAL FORMAT
	3	NUMER.	DATA ELEMENT OUTPUT LENGTH
	1		RELATION TYPE
		blank	User Relation prior to VA Pac 3.0
		C	Composition User Relation (the instance linked by this Relation type must exist)
		L	Free User Relation (no existence constraint)
	3		TYPE OF LINKED ENTITY
	159		DATA ELEMENT VALUE BEFORE UPDATE
	159		DATA ELEMENT VALUE
	1		IDENTIFIER CALLED BY RELATION
		blank	VA Pac code or, for a User Entity, long identifier (I-type line).
		S	Short identifier (S-type line).
	1		Parent ID
		1	None (Default value)
		L	Long ID (Long ID of the parent Description)
		S	Short ID (Short ID of the parent Description)
	3		LIBRARY CODE
	4		SESSION NUMBER
	3		Reserved field
	1		SESSION STATUS
		blank	Initial session
		T	Test session
	4		Physical code of VA Pac Database
	1		LANGUAGE INDICATOR
		F	French.
		E	English.
	79		Reserved field
	1		Type of check to be carried out
			This field enables Exit-Users to:
			. know the origin of the request:
		B	Batch request (UPDT or UPDP procedure)
		P	Character-mode on-line request
		S	PUF request for syntactic checks
			. set a request for consistency check
		C	This value triggers consistency checks in the Termination server.
	132		Reserved field





Part Number: - 6028

Printed in U.S.A.