



VisualAge Pacbase 2.5

**PEI
REFERENCE MANUAL**

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1. GENERAL PRESENTATION OF THE PEI FUNCTION

1.1. INTRODUCTION

PRODUCTION ENVIRONMENT INTERFACE

Complementing the functionality of the Dictionary, the Production Environment Interface (PEI) function is a tool which links the VisualAge Pacbase development platform to the generated applications. It allows to identify the exact location of the generated source (library, session, etc.) of any part of a production application.

DESCRIPTION

With the PEI function, the status of generated source is closely monitored.

PEI users are able to:

- . Keep track of all versions of generated applications.
- . Identify versions that should be frozen or purged.
- . Automatically freeze current sessions of the Dictionary under specific conditions, which will eliminate unnecessary frozen versions,
- . Identify obsolete frozen versions that should be purged.
- . Track which generated applications are used in which on-site environments (test, system acceptance, maintenance, etc.).

FUNCTIONALITY

To implement PEI, the on-site generation environments (production, test, etc.) must be created. This is done in the the List of Generation Environments (EE) screen.

Three other screens are used for tracking purposes:

- . The List of Generated Entities (EG) screen is used to track and update generated entities.
- . The List of Production Sessions (ES) screen is used to track production (frozen) sessions.
- . The List of Entities in Production (LSEP) screen is used to track information related to entities in production sessions.

There are also PEI batch management procedures through which:

- . The current session is frozen for entity production turnover (HIPE),
- . PEI data can be printed (PRPE),
- . Deletion transactions can be generated for obsolete frozen sessions (GRPE),
- . PEI can be manually updated (SIPE).

EXAMPLE

SESSION 100 : Session freeze because two applications (PGM001 and PGM002) were put into production.

SESSION 200 : Session freeze because PGM001 was regenerated and put into production again.

SESSION 300 : Session freeze because PGM002 was regenerated and put into production again.

There are now three frozen sessions containing PGM001 and PGM002. Without PEI, the user can view a list of frozen sessions, but has no other related information.

Using PEI, the user would be able to find out that Session 100 was frozen because PGM001 and PGM002 were put into production. He/she would also note that since both of these applications were regenerated and put into production again in sessions 200 and 300, session 100 is no longer a needed frozen session.

1.2. GOALS OF THE PEI FUNCTION

GOALS OF THE PEI FUNCTION

The purpose of the Production Environment Interface function is to provide:

- . Management of all GENERATION ENVIRONMENTS defined on-site (production, system acceptance, test, etc.);
- . Follow-up of entities generated from the Database and managed in any one on-site environment;
- . Automatic session freeze when needed (for example, when generating into a production environment);
- . The possibility to manually request a session freeze;
- . Generation of purge requests for superfluous frozen sessions;
- . A list of frozen sessions for which there were entities put into production;
- . Information related to these entities such as, the library code, the code of the user, and the session number of the last generation and of the most recent database freeze;
- . Project(s) follow-up by development team(s) in relation to generated entities.

1.3. PEI TERMINOLOGY

Below is a list of terms specific to the PEI function which are in use in this reference manual.

Generation Environment:

Refers to the on-site environments (production, system acceptance, test, etc.) created in PEI by the Database Administrator.

Production Environment:

Refers to any generation environment where an automatic session freeze is triggered when an entity is generated in that environment.

Production Turnover:

Occurs when entities are put into production and their corresponding sessions frozen.

Production Turnover Mode (displayed in the 'EG' screen):

'G': Automatic production turnover request through generation (GPRT procedure);

'M': Manual production turnover, as requested by the Database Administrator in the 'EG' Screen.

'U': Production turnover via the PEI SIPE procedure.

Freeze Request Code:

Determines whether or not an automatic session freeze will be triggered when an entity is generated in a given generation environment.

NOTE: Actual production turnover is performed by the HIPE batch procedure.

1.4. IMPLEMENTATION

ENTITIES MANAGED IN PEI

Entities managed through the PEI function are the: Program (P); On-line Screen (O), including Mapsets or Formats (M); Database Block (B), Data Structure (D); and COBOL Source code from Reverse Engineered Programs (S). These entities are generated with the 'GCP', 'GCO', 'GCD' and 'GSP' Generation and Print Commands respectively.

Other entities may be manually managed through the PEI function: the User Manual and Volume entities and the Error Message File (U).

IMPLEMENTATION

In order to implement the PEI function, the Administrator must create in PEI (for the various libraries) the different environments needed on site (for example, production, system acceptance, test, etc.).

The Generation and Print Procedure (GPRT) establishes the link between the entity being generated and the target environment in PEI.

1.5. MANAGEMENT OF PEI FILES

PHYSICAL INSTALLATION / PEI FILES

When PEI is installed for the first time an Initialization procedure must be executed to initialize the PEI files. (Refer to Chapter "INPE: INITIALIZATION" for further details).

The PEI function requires the use of two files: AB and AC. The AC file is used for on-line update and the AB file for batch update. These two files are used simultaneously whether on-line or in batch mode for consulting or updating purposes. They are "mirror" images of each other.

For complete information on the PEI files' characteristics, please refer to the Operations Manual, Part I: Environment & Installation.

For technical information regarding PEI batch procedures, please refer to the Operations Manual, Part II Batch Procedures: Administrator's Guide.

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2. PEI ACCESS: CONNECTION AND GENERAL MENU

ACCESS TO PEI SCREENS

In order to access the PEI menu, the user must first sign-on to the "PARM/PEI" transaction by entering the following information:

- . User code,
- . User password,
- . Transaction code of the Database whose PEI information you need to access.
(In IMS, this line does not appear).

When this information is entered, the General Menu screen is displayed, from which the PEI menu is accessed by positioning the cursor on the PEI line and pressing PF10, or by entering the following in the CHOICE field:

CH: HE

Access to this menu is governed by the user's authorization to consult or update PEI screens. For further details, refer to Chapter "USER PARAMETER MANAGEMENT" in the USER INTERFACE GUIDE.

When the PEI menu is displayed, the user can then access the different PEI screens by entering the appropriate value in the CHOICE field or by positioning the cursor on the corresponding line and pressing PF10.

CHOICES ON THE PEI MENU SCREEN

```

+-----+-----+
! CHOICE !          SCREEN / TYPE OF ACCESS          !
+-----+-----+
! EE      ! READ-WRITE ACCESS TO GENERATION ENVIRONMENTS  !
! ED      ! READ-WRITE ACCESS TO DEFAULT ENVIRONMENTS    !
! EG      ! READ-WRITE ACCESS TO GENERATED ENTITIES     !
! ES      ! READ-ONLY ACCESS TO PRODUCTION SESSIONS      !
!         ! (READ-WRITE ACCESS TO ASSOCIATED COMMENTS)   !
! LSEP    ! READ-ONLY ACCESS TO ENTITIES USED IN PRODUCTION !
!         ! FOR THE SESSION                              !
! HE      ! RETURN TO PEI MENU                            !
! H       ! RETURN TO UTILITIES MENU                      !
! FT      ! RETURN TO INITIAL SCREEN                      !
+-----+-----+
    
```

Clearing a screen terminates the transaction.

SPECIFYING SCREEN CHOICES

With the 'EE' CHOICE the user may also specify:

- . the LIBRARY CODE,
- . the ENVIRONMENT TYPE code,
- . the ENTITY TYPE code.

With the 'ED' CHOICE the user may also specify:

- . a session number,
- . the LIBRARY CODE.

With the 'EG' CHOICE the user may also specify:

- . the LIBRARY CODE,
- . the ENVIRONMENT TYPE code,
- . the ENTITY TYPE code,
- . the ENTITY CODE.

With the 'ES' CHOICE the user may also specify:

- . the number of a production session (all 4 characters).

With the 'LSEP' CHOICE the user may also specify:

- . the number of a production session (all 4 characters),
- . the LIBRARY CODE,
- . the ENVIRONMENT TYPE code,
- . the ENTITY TYPE code,
- . the ENTITY CODE (the first 2 characters only).

```
-----  
!          PRODUCTION ENVIRONMENT INTERFACE          *AG.LILI !  
!                                                    !  
!          *** MENU ***          ASSOCIATED CHOICE          !  
!                                                    !  
! GENERATION ENVIRONMENTS.....:          EE.....          LIBR+ENV          !  
! DEFAULT ENVIRONMENTS.....:          ED.....          SESS+LIBR          !  
! ENTITIES GENERATED.....:          EG.....          LIBR+ENV+ENT          !  
! PRODUCTION SESSIONS.....:          ES....          SESS          !  
! ENTITIES IN PRODUCTION / SESS:          LSEP.....          SESS+LIBR+ENV+ENT          !  
! MENU OF PRODUCTION INTERFACE.:          HE          !  
! BACK TO GENERAL MENU.....:          H          !  
! SIGNOFF.....:          FT          !  
!                                                    !  
!                                                    !  
! CH: HE          !  
-----
```

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ENVIRONMENT MANAGEMENT

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3. ENVIRONMENT MANAGEMENT

To create environments, the Database Administrator has two options:

- (1) Create environments in each of the libraries in PEI as illustrated in the examples given below:

```
Library 'AAA'  
'T O' Test environment for On-line screens  
'P O' Production environment for On-line  
       screens  
'T P' Test environment for Programs  
'P P' Production environment for Programs
```

```
Library 'CCC'  
'T P' Test environment for Programs  
'P P' Production environment for Programs  
       Etc.
```

The LIBRARY CODE displayed at the top of this screen may be overtyped in order to create the same environments in one or more library in PEI.

For example, to copy the GENERATION ENVIRONMENTs from the 'AAA' library into the 'CCC' library, overtype 'AAA' with 'CCC', and ENTER.

- (2) To avoid duplicating the same GENERATION ENVIRONMENTs in the various libraries in PEI, create ALL the environments once in the Inter-library (***) space, as illustrated in the example given below:

```
Library '***'  
'T O' Test environment for On-line screens  
'T P' Test environment for Programs  
'P O' Production environment for On-line  
       screens  
'P P' Production environment for Programs
```

Note that since the Inter-library (***) space is used by the system, it is not possible to delete the environments created here.

A GENERATION ENVIRONMENT cannot be deleted if it still contains generated entities.

Once entered, the value in the FREEZE REQUEST field cannot be modified.

The date of the last update and the code of the user who performed it are also displayed on this screen and cannot be updated.

When PEI is initialized, six "Unknown" GENERATION ENVIRONMENTs are automatically created by the system in the Inter-library (***) space with the 'U' ENVIRONMENT TYPE for the following ENTITY TYPES: Database Block (B), Data Structure (D), Mapset or Format (M), Screen (O), Program (P), and Reversed COBOL Source (S). These cannot be modified.

Also, when PEI is re-initialized, a special GENERATION ENVIRONMENT (whose code is "U") is automatically created by the system in the Inter-Library (***) space with the 'U' ENVIRONMENT TYPE, it contains all those entities already generated under PEI control before the re-initialization.

```
-----  
!                               PRODUCTION ENVIRONMENT INTERFACE                *AG.LILI !  
!                               1                                              !  
! LIST OF GENERATION ENVIRONMENTS FOR THE LIBRARY ***                       !  
! 2 3 4 5                               6                                      !  
! A ENV COMMENTS                       FREEZE      LAST UPDATE                !  
!                                       REQUEST     DATE          USER          !  
!   U B UNKNOWN ENV. W/ DBD GENERATION      Y      01/22/1998 ***** !  
!   U D UNKNOWN ENV. W/ DATA STRUCTURE GENERAT. Y      01/22/1998 ***** !  
!   U M UNKNOWN ENV. W/ MAPSET OR FORMAT GENER. Y      01/22/1998 ***** !  
!   U O UNKNOWN ENV. W/ SCREEN GENERATION    Y      01/22/1998 ***** !  
!   U P UNKNOWN ENV. W/ PROGRAM GENERATION   Y      01/22/1998 ***** !  
!   U S UNKNOWN ENV. W/ COBOL SOURCE GENERATION Y      01/22/1998 ***** !  
!   U U RECOVERY OF FROZEN SESSIONS         Y      01/22/1998 ***** !  
!                                           !  
!                                           !  
!                                           !  
!                                           !  
!                                           !  
!                                           !  
!                                           !  
!                                           !  
! *** END OF THE LIBRARY ***                                               !  
! CH: EE                                                                    !  
-----
```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1			LIBRARY CODE (REQUIRED) This code identifies the library to which are related the environment generations defined in this screen. One or several environments may be copied from one library to another by overriding this code by another. NOTE: There is no validation regarding the library's existence since generation environments may be defined before the library is created. *** Inter-Library: This is where six specific environments - one per entity type - are automatically created when PEI is initialized. They will take in entities generated in an environment not declared in the 'EE' Screen. Another special environment is also created in the Inter-Library; it is dedicated to those entities generated before the re-installation of the PEI Function.
2	1	C M D blank	ACTION CODE Create Modify Delete Implicit create or modify
			GENERATION ENVIRONMENT
3	1	U	GENERATION ENVIRONMENT IDENTIFIER (REQUIRED) Any character can be entered in this field; it will be used as the environment's identifier. U Value reserved for the Inter-Library (***): This environment type is created when the PEI Function is installed. It identifies the six environments - one per entity type - which take in occurrences generated in an environment not declared in the 'EE' Screen (provided that no Override Environment is declared in the 'ED' Screen). In addition, the 'U'-type environment also defines an environment associated with a 'U' again generic entity type as it collects occurrences of any entity type generated before the PEI re-installation. NOTE: 'U'-type environments cannot be modified. As a general rule, environments defined in the Inter-Library cannot be deleted.
4	1	B D M O P	ENTITY TYPE (REQUIRED) Database Block Data Structure Mapset or Format Screen Program

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
		S	COBOL Source code from Reverse Engineered Program
		U	User Manual, Volume, Error Message File NOTE: This entity type is not automatically managed by the PEI Function, save when it is used in the Inter-Library (***) and with a 'U'-type environment; this value becomes generic as it defines a U.U environment dedicated to the collection of occurrences of all entity types generated before the re-installation of the PEI Function.
5	40		NAME OF GENERATION ENVIRONMENT (REQUIRED)
6	1		FREEZE REQUEST (REQUIRED)
		Y	Session freeze of the Database will be triggered when generating an entity in this environment.
		N	No session freeze when generating an entity in this environment.

3.2. DEFAULT OR OVERRRIDE ENVIRONMENT (CH: ED)

DEFAULT ENVIRONMENT - OVERRRIDE ENVIRONMENT

The PEI Administrator can define -- for each PEI-managed entity type -- and for a given session and library, either a default or override environment that will collect all occurrences of that entity type, generated from that session and library.

These environment types are specified in a screen called by entering the following input in the CHOICE field:

CH: ED

A default environment -- specified in the 'D' column -- is taken into account if no environment is specified in the generation request.

An override environment -- specified in the 'O' column -- is always taken into account even if another environment is specified in the generation request.

Such environments can only be defined for the current session, or for a frozen or test session corresponding to a production session.

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1	C M D blank	ACTION CODE Create Modify Delete Implicit create or modify
2	5	nnnnH nnnnT 9999	PRODUCTION SESSION (REQUIRED) This field contains the number of the session for which is defined the default or override production environment. Frozen session corresponding to a production session. Test session corresponding to a production session. Current session.
3			LIBRARY CODE (REQUIRED) This field contains the code of the library for which is defined the default or override production environment.
4	1		DEFAULT PRODUCTION ENVIRONMENT The value entered in this field identifies the production environment used by default when generating an entity in the corresponding session, library, and for the specified entity type. NOTE: This environment must be declared in the "EE" Screen.
5	1		OVERRIDE PRODUCTION ENVIRONMENT The value entered in this field identifies the production environment used systematically when generating an entity in the corresponding session, library, and for the specified entity type. NOTE: This environment must be declared in the "EE" Screen.
6	1	B D M O P S	ENTITY TYPE (REQUIRED) Database Block Data Structure Mapset or Format Screen Program COBOL Source code from Reverse Engineered Program
7	52		NAME OF DEFAULT/OVERRIDE ENVIRONMENT

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4. MANAGEMENT OF ENTITIES

4.1. GPRT : GENERATION OF ENTITIES

OVERVIEW

Keeping track of On-Line Screens, Mapsets, Programs, Database Blocks, Data Structures, and COBOL Source code from Reverse Engineered Programs is accomplished automatically via the Generation and Print Procedure (GPRT).

Through this procedure a relationship is established between the generated entity and the target environment in PEI because for each ENTITY TYPE ('O', 'M', 'P', 'B', 'D', 'S') the user must indicate in which GENERATION ENVIRONMENT it will be managed.

On the *-type line preceding one or several GPRT command lines, the user may enter just after the Library code a blank session number (4-characters) followed by the letter "H". As a result, the entity(ies) will be generated from the last HIPE-frozen session.

Printing a User Manual or Volume or generating an Error Message File with the GPRT procedure does not affect PEI. These entities must be manually managed in the List of Generated Entities (EG) screen and in GENERATION ENVIRONMENTS created for that purpose, that is for the "U" entity type.

GENERATION AND PEI

In order for the Generation and Print procedure (GPRT) to establish a relationship between the target environment in PEI and the entity being generated, the GPRT procedure must "know" which environment is targeted.

If no default or override environment exists (See "ED" Screen), each entity to be generated must be preceded by an 'FLx' job stream command : 'x' = 'O', 'P', 'B', 'D' for Screen (and Mapset), Program, Database Block, or Data Structure respectively. For Reverse Engineered Programs the command is 'FSP'.

In the job stream command, the ENVIRONMENT must be specified in the appropriate field:

- . On the Generation and Print Commands (GP) screen, in the 'ENV:' field (on 'FLx' or 'FSP' commands);
- . In batch mode, in column 17 on Batch Form 'Z'.

If a non-existing ENVIRONMENT TYPE is entered, the system will take the 'U' ENVIRONMENT TYPE as a default value and place the generated entity in PEI in the Inter-library (***) space. The generated entity can then be manually transferred into the appropriate GENERATION ENVIRONMENT and subsequently deleted from the Inter-library (***) space.

If the ENVIRONMENT TYPE entered is not defined in PEI in the library indicated in the GRPT Procedure, but is defined in PEI in the Inter-library (***) space, the system will accept the requested environment in PEI in the library indicated in the GPRT Procedure (the entity will appear in the requested environment on the List of Generated Entities (EG) screen).

NOTE: When the ENVIRONMENT TYPE is not indicated in the job stream command, and there is no default or override environment, the entity generated cannot be managed by PEI.

GENERATION AND PRINT PROCEDURE

The Screen (including the Mapset), Program, Database Block and Data Structure entities and COBOL Source code from Reverse Engineered Programs are automatically managed in PEI files via the Generation and Print Procedure (GPRT). To illustrate, consider the following example:

Suppose a GENERATION ENVIRONMENT has been created in PEI as follows:

```
Library 'AAA'  
      'T P Test Environment for Programs'
```

If a program in library 'AAA' is generated, the user must specify the 'T' ENVIRONMENT TYPE code on the 'FLP' job card in the GPRT procedure. Then the following internal processes are involved:

- . A record is created for each generated entity (or modified if the entity is already generated). The production turnover mode is automatically set to 'G' (generation). (This mode appears on the List of Generated Entities for the Library (EG) screen).
- . If the GENERATION ENVIRONMENT is a production environment, the following applies to the generated entity:
 - The entity has been generated in a given session, and depending on whether this session is the current one or a previous frozen one, different situations may occur:
 - (1) If the generation applies to a previous frozen session, then the entity is recorded with the number and date of the frozen session, including the user code.
 - (2) If the generation applies to the current session, the number and date of the frozen session will be recorded for this entity with the subsequent execution of the Automatic Database Freeze Procedure (HIPE).

- . If at least one entity has been generated in a production environment, when the Automatic Database Freeze Procedure is executed, a production turnover occurs.
- . If the last entity in a production session is being regenerated, the record of that production session is deleted because it no longer contains entities.

The PEI batch file (AB) is updated during the GPRT processing before the generation phase, thus before compilation and link-edit.

Therefore, the update of the AB file will take place even if the compilation is unsuccessful (however, when regeneration is requested, the AB file will again be updated).

Since the AB file is updated before the generation phase, data such as the number of generated lines, the exact time of generation and the date of compilation, etc. cannot be provided on this file.

4.2. MANAGEMENT OF GENERATED ENTITIES (CH: EG)

LIST OF GENERATED ENTITIES

The List of Generated Entities for the Library (EG) screen is used to consult and update generated entities per library and is accessed by entering the following in the CHOICE field:

CH: EG

The EG value may be followed by a Library code, an environment code, an entity type, and the entity code.

NOTE: When a U-type entity is to be created in an empty environment, input of the above-mentioned elements is required, save for the entity code which can be entered directly in the screen.

For each entity generated in the selected environment, the "EG" Screen displays:

- . Its external name (modifiable only when the entity is being transferred),
- . The code of the user who requested its generation,
- . The number of the generation session,
- . The date of the generation session.

In addition, if the entity is already in production, the following related information is displayed:

- . The code of the user who requested its production turnover,
- . The number of the production session,
- . The date of the production session.
- . The production turnover mode:
 - G : The GPRT generation has directed the entity in a production environment
 - M : The generated entity has been transferred to a production environment via a request entered in the "EG" Screen
 - U : The generated entity has been transferred to a production environment via a request entered in input to the SIPE batch procedure.

NOTE: Actual production turnover is effective once the HIPE batch procedure is executed.

UPDATING POSSIBILITIES IN THE 'EG' SCREEN

. DECLARATION OF USER MANUAL, VOLUME, ERROR MESSAGES:

These entities are declared in environments whose associated entity type is "U".

. ENTITY TRANSFER TO ANOTHER ENVIRONMENT:

A transfer requires that the target environment be associated with the same entity type as the entity to transfer.

To transfer or rather copy one or several entities from a given environment into another, enter the Explicit ACTION CODE 'C' on the corresponding lines, overwrite the environment and/or library and press PF7.

If ALL entities in one environment are to be copied into another, just overwrite the environment and/or library and press the ENTER key.

Once an entity is copied to another environment, it can be deleted from its original environment.

NOTE: External names can be changed over such transfers.

When copying an entity, data related to generation is not modified.

Production turnover information is dealt with according to the following situations:

* The target environment is a production environment:

a) The source entity is already in production:

Information on the entity's production turnover is forwarded (number and date of the session when the production turnover took place);

b) The source entity is not in production and its generation session is the last production session:

Generation information becomes the production turnover information;

c) The source entity is not in production and its generation session is not the last production session:

Production turnover information will be filled in automatically only when the entity is actually put in production (HIPE execution).

* The target environment is not a production environment:

Information on the entity's production turnover is not forwarded.

. ENTITY DELETION:

To delete an entity from an environment, the explicit ACTION CODE 'D' must be used. Caution is advised with deletions.

. MODIFICATION:

If it is known that an entity has not been modified since the last production turnover session, it is possible to modify that production session number. To do this, use the explicit ACTION CODE 'M' and press the ENTER key. The production session number is deleted, and the entity will be put

ON-LINE VALIDATIONS

When copying an entity from one environment to another in a particular library, the user must be authorized to update in that library in order for the transaction to be accepted.

In addition, if the GENERATION ENVIRONMENT is not defined in the library the entity is being copied to, but is defined in the Inter-library (***) space, the system will accept the environment in the library the entity is copied to. (the entity will appear in the requested environment of the library on the List of Generated Entities (EG) screen).

NOTES: Updated entities are identified in PEI by the date of the last update and the code of the user who performed it.

In addition, the value of the production turnover mode is automatically set to 'M' (manual) for the updated entity.

If an entity used in production is deleted, and if it is the only one in its production session, the record of this session is also deleted.

MANAGEMENT OF ENTITIES

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MANAGEMENT OF GENERATED ENTITIES (CH: EG)

2

```

-----
!                               PRODUCTION ENVIRONMENT INTERFACE                *AG.LILI !
!                               1                                               !
! LIST OF GENERATED ENTITIES FOR THE LIBRARY ***                               !
!                               2 3                                             !
! GENERATION ENVIRONMENT          U B DBD GENERATION                          !
! 4 5          6                                                           !
! A ENTITY    EXTERNAL          GENERATION          PRODUCTION                !
!              NAME      USER      SESS.   DATE      USER      SESS.   DATE      M !
! DBDCDE     JMDBYCM     MB         0823   12/12/1997          G         !
! DBDCLI     JMDBYCL     MB         0823   12/12/1997          G         !
! DBDFOU     JMDBYFO     MB         0827   12/18/1997          G         !
! DBDHEL     JMDBYAR     MB         0823   12/12/1997          G         !
! DBDLER     JMDBYER     MB         0823   12/12/1997          G         !
! DBDMES     JMDBXCM     MB         0823   12/12/1997          G         !
! DB2DOC     DOCUMENT    LP         0837   12/30/1997          G         !
! DB2010     BD2010LP    LP         0828   12/19/1997          G         !
! INDSEC     INDSEC      MB         0860   01/22/1998          G         !
! PLDLER     PSLDLER     MB         0847   01/10/1998          G         !
! PSBDOC     JIPSMA      JFL        0877   02/11/1997          G         !
! PSBDO1     JIPSMB      MB         0827   12/18/1997          G         !
! PSBDO2     JIPSMC      MB         0827   12/18/1997          G         !
! PSBDR0     DR00FPS     MB         0823   12/12/1997          G         !
! PSBDR1     DR10FPS     MB         0823   12/12/1997          G         !
!
! CH: EG
-----

```

NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	3		LIBRARY CODE (REQUIRED) This field contains the code of the library in which the user wants to consult or update the list of entities generated under PEI control. Its value may be overtyped by another library code so as to transfer an entity onto another library.
GENERATION ENVIRONMENT			
2	1		GENERATION ENVIRONMENT IDENTIFIER (REQUIRED) This field contains the type of environment in which the user wants to consult or update the list of entities generated under PEI control. Its value may be overtyped by another environment so as to transfer an entity.
3	1		PEI-MANAGED ENTITY TYPE (REQUIRED) This field indicates to which entity type belong the occurrences generated in the displayed library and environment. NOTE: This field's contents cannot be modified since transfers are allowed between environments associated with the same entity type.
		B	Database Block
		D	Data structure
		M	Mapset or Format
		O	Screen
		p	Program
		S	Source COBOL code from reverse engineered program
		U	User Manual, Volume, or Error Messages
4	1		ACTION CODE
		C	Creation or Transfer
		M	Modification: entity put again in production
		D	Deletion
		BLANK	Implicit creation or transfer
5	6		ENTITY CODE (REQUIRED)
6	8		EXTERNAL NAME (REQUIRED) Can only be modified when the entity is being transferred.

4.3. SIPE : PRODUCTION TURNOVER SIMULATION

PRODUCTION TURNOVER SIMULATION

The Production Turnover Simulation Procedure (SIPE) is used to perform preparatory operations prior to actual production turnovers. This procedure updates the PEI batch file (AB).

EXECUTION CONDITION

The AB file must be closed, but the AC file can remain open.

SIPE PROCESSING OPTIONS

1. Production turnover

In this case, the SIPE Procedure produces the same results in PEI as the GPRT Procedure, the AB file (batch) is updated as a result of input entered by the user.

This is useful if the ENVIRONMENT TYPE code was not entered in the GPRT Procedure when an entity was generated, because the AB (batch) file can be updated to include any such entity.

2. Copy of generated entities from one environment into another

Through the input entered in the SIPE Procedure, generated entities can be copied from one environment into another. There is also the possibility at the same time to change the EXTERNAL NAME of an entity for renaming or duplicating purposes.

Note that this facility is also available on-line via the List of Generated Entities for the Library (EG) screen.

3. Recovery of sessions frozen prior to the installation of the PEI function

If the information regarding the "REPRISE" entities listed in the printed report of the INPE Procedure is available, it can be used as input in the SIPE Procedure to manage these entities in the appropriate environments in PEI.

In this case, the SIPE Procedure should be executed once immediately after the INPE Procedure.

PREREQUISITE

The GENERATION ENVIRONMENTS and production sessions must exist.

NOTES

The SIPE Procedure sets the production turnover mode to 'U' (this field is displayed on the 'EG' and 'LSEP' screens).

The SIPE Procedure must be executed before the HIPE Procedure.

For more details, please refer to the Operations Manual.

4.4. SIPE : USER INPUT

USER INPUT

A required '*'-type line.

! POSITION	! VALUE	! MEANING	!
! 2	! '*'	! LINE CODE	!
! 3-10	!uuuuuu..!	! USER CODE	!
! 11-18	!mmmmmm..!	! USER PASSWORD	!
! 19-21	! bbb	! LIBRARY CODE (REQUIRED)	!
! 22-25	! ssss	! SESSION NUMBER (blank if current)	!
! 26	!	! SESSION STATUS (' ' or 'T')	!
! 61-68	!ccyymmdd!	! GENERATION DATE, IF SESSION IS NOT	!
!	!	! CURRENT	!

A required 'EE'-line identifying the environment.

! POSITION	! VALUE	! MEANING	!
! 2-3	! 'EE'	! LINE CODE	!
! 4	!	! ENTITY TYPE (O, P, M, B, U, D, S)	!
! 5	!	! TARGET ENVIRONMENT TYPE	!
! 6	!	! SOURCE ENVIRONMENT TYPE	!

An 'EU'-line for each entity to update.

! POSITION	! VALUE	! MEANING	!
! 2-3	! 'EU'	! LINE CODE	!
! 4-11	!cccccccc!	! ENTITY TYPE	!
! 12-19	!eeeeeeee!	! EXTERNAL NAME OF ENTITY IN TARGET	!
!	!	! ENVIRONMENT IF DIFFERENT FROM	!
!	!	! ENTITY CODE	!
! 20-27	!nnnnnnnn!	! EXTERNAL NAME OF ENTITY IN SOURCE	!
!	!	! ENVIRONMENT IF COPY WITH RENAME	!

There can be groups of these input lines if more than one library or environment is involved. In this case the following order must be respected: *, EE, n x EU; *, EE, n x EU, etc. If one line is erroneous, the remaining lines will be ignored up to the next correct sequence.

4.5. LIST OF PRODUCTION SESSIONS (CH: ES)

LIST OF PRODUCTION SESSIONS

The List of Production Sessions (ES) screen is used to view production sessions (frozen sessions of the database), and is accessed by entering the following in the CHOICE field:

CH: ES

Information related to all the production sessions in PEI is displayed on this screen: the production session number, the date, code of the user, and COMMENTS.

The production session number is the number of the session frozen immediately after a production turnover.

Consequently, the List of Production Sessions displays frozen sessions for which there was at least one production turnover.

The List of Production Sessions may be different from the List of Frozen Sessions (LH) since the List of Production Sessions is a list of those frozen sessions which are production sessions. In addition, if a frozen session is deleted, it is not deleted from the PEI file, and vice-versa.

UPDATING

The COMMENTS field is the only field which can be modified on this screen.

NOTE: PEI production sessions should not be purged from the Database.

MANAGEMENT OF ENTITIES
LIST OF PRODUCTION SESSIONS (CH: ES)

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NUM	LEN	CLASS VALUE	DESCRIPTION OF FIELDS AND FILLING MODE
1	1	blank M E or -	ACTION CODE Implicit modification Explicit modification Inhibition of modification
2	54		COMMENTS : PRODUCTION SESSION LABEL

4.6. LIST OF PRODUCTION ENTITIES/SESSION (CH: LSEP)

LIST OF ENTITIES IN PRODUCTION

The List of Entities in Production for the Session (LSEP) screen is used to view all information related to entities in production sessions, and is accessed by entering the following in the CHOICE field:

CH: LSEP

From this screen it is possible to check which entities were put into production in a previous production session. It is then possible to decide whether or not a production session is superfluous and whether or not it should be deleted.

The production session number is the number of the session frozen immediately after a production turnover.

The date of a manual production turnover and the code of the user who performed it are also displayed on this screen in the field "Manual Mode".

UPDATING

There is no updating possibility on this screen.

MANAGEMENT OF ENTITIES

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LIST OF PRODUCTION ENTITIES/SESSION (CH: LSEP)

6

```
-----
!                               PRODUCTION ENVIRONMENT INTERFACE                *AG.LILI !
! LIST OF ENTITIES IN PRODUCTION FOR THE SESSION      0299                    !
!                                                                                   !
! LIB PE ENTITY  EXTERNAL . GENERATION  .PROD.  .  MANUAL MODE                !
!                NAME    SESS  DATE    MODE    USER    DATE                    !
! *** UU REPRISE 0299                M          *****  04/04/1998            !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
!                                                                                   !
! *** END OF THE SESSION ***                                                    !
! CH: LSEP                                                                    !
-----
```

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AUTOMATIC DATABASE FREEZE - OBSOLETE SESSION PURGE

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5. AUTOMATIC DATABASE FREEZE - OBSOLETE SESSION PURGE

5.1. HIPE : AUTOMATIC DATABASE FREEZE

INTRODUCTION

The purpose of the Automatic Database Freeze Procedure/HIPE is to freeze the current session of the database when there are entities ready for actual production turnover.

EXECUTION CONDITION

The database files and the PEI files must be closed to on-line processing.

PROCESSING

HIPE operates in two steps:

1. Automatic Database Freeze triggered if at least one entity has been generated in a production environment since the last freeze of the Database.

NOTE: HIPE may also freeze the Database even if there is no entity awaiting production turnover. See User Input for complete details on this possibility.

2. Assigning a frozen session number and date to the entities generated. This frozen session number equals the production session.

REPORT RESULTS

If the Database has been frozen, a report is printed which lists entities in production for the session, sorted by session number, library, GENERATION ENVIRONMENT and ENTITY CODE. A report on transaction validations is also printed.

If the freeze is not executed, the report will include a message to that effect. The information contained in this report can also be viewed on-line via the List of Entities in Production for the Session (LSEP) screen.

For more details, please refer to the Operations Manual.

5.2. HIPE : USER INPUT

USER INPUT

. A required '*'-type line

! POSITION	! VALUE	! MEANING	!
! 02	! '*'	! LINE CODE	!
! 03	! uuuuuuuu	! USER CODE	!
! 11-18	! pppppppp	! USER PASSWORD	!
! 19-21	! ****	! INTER-LIBRARY (REQUIRED)	!

. An optional session freeze request line

An 'X1HIST' line is automatically generated if entities are ready for production turnover.

An 'X4HIST' line may be entered by the user in place of the 'X1HIST' line to request a Database freeze even if there is no entity ready for production turnover.

The Freeze Request line is used to:

- * Give a label to the frozen session (different than the default one automatically assigned by the procedure),

and/or

- * Set a number for the frozen session (different than the default one automatically assigned by the procedure).

! POSITION	! VALUE	! MEANING	!
! 02-07	!	! FREEZE REQUEST LINE CODE:	!
!	!'X1HIST'	! If at least one entity is ready for	!
!	!	! Production Turnover	!
!	!'X4HIST'	! In all cases	!
!	!	!	!
! 08-67	!	! LABEL OF THE FROZEN SESSION (1)	!
!	!	!	!
! 68-71	! ssss	! FORCING THE SESSION NUMBER (GREATER	!
!	!	! THAN THE CURRENT SESSION NUMBER BUT	!
!	!	! BY NO MORE THAN 100)	!

(1) This label may be modified later on in the "ES" Screen where its maximum length is 54 characters only. HIPE allows for a 60-character label, truncated when displayed in this screen.

5.3. GRPE : OBSOLETE SESSION PURGE

GRPE: GENERATION OF SESSION PURGE TRANSACTIONS

The purpose of the Transaction Generation for Reorganization Procedure (GRPE) is to determine which frozen sessions can be eliminated (because the entities they contain have been regenerated and thus the session is no longer a needed production session) and to generate the deletion transaction(s) to be used in the Database Reorganization Procedure.

It is possible to have a session freeze without a corresponding production turnover session :

- . Because the Automatic Database Freeze Procedure can be executed daily, even though there may not have been any entities generated in a production environment; or
- . Because all entities put into production with a given session freeze have since been regenerated and thus put into production with a subsequent session freeze.

In either case the result is superfluous frozen sessions.

EXECUTION CONDITION

None, the files can stay open to on-line processing.

PROCESSING

Comparison between the frozen sessions and the production sessions, and generation of the deletion transaction(s) to be used in the REOR procedure.

The GRPE procedure will not generate a deletion transaction for a session frozen before the PEI Files Initialization Procedure (INPE) is executed. (For further details, please refer to the Chapter "PEI FILES INITIALIZATION" in this manual).

If a frozen session is not a production turnover session, the system will generate a deletion transaction for this session. There is one deletion transaction per session.

A report listing the frozen sessions to be purged, as well as the corresponding deletion transactions, is printed.

The results of the GRPE Procedure, namely, the printed report, can be used to sort out the following:

- . Frozen sessions, which are not production turnover sessions, or frozen sessions which contain entities that have been regenerated and put into production with a subsequent session freeze.
- . Production sessions without corresponding frozen sessions of the database. If this occurs, it is an error due to the manual execution of the REOR Procedure without taking the production sessions into account.

For further details, please refer to the Operations Manual, Part II, Chapter "PRODUCTION ENVIRONMENT INTERFACE", Subchapter "REOR TRANSACTIONS GENERATION".

The generated deletion transactions and the printed reports from the GRPE Procedure guide the user through the REOR Procedure.

For more details on the REOR procedure, refer to the Operations Manual Part II, Batch Procedures: Administrator's Guide.

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INPE : INITIALIZATION & RSPE : RESTORATION

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6. INPE : INITIALIZATION & RSPE : RESTORATION

INPE: INITIALIZATION

The INPE initialization batch procedure must be run when PEI is being intalled or re-installed.

INPE prepares PEI files and retrieves the existing frozen sessions.

It must be followed by the PEI file restoration procedure: RSPE.

EXECUTION CONDITION

The PEI AB and AC files must be closed to on-line use. The Database files

PROCESSING

A sequential file is initialized and the following steps are executed:

1. Initialization of the 'U' ENVIRONMENT TYPE in the Inter-Library (***), dedicated to entities generated by error in unknown environments (save if an override environment has been declared in the "ED" screen).

```
. LIBRARY CODE: ***  
. ENVIRONMENT TYPE code: 'U'  
. ENTITY TYPE code: 'B' (Database Block)  
                    'M' (Mapset or format)  
                    'D' (Data Structure)  
                    'O' (On-line Screen)  
                    'P' (Program)  
                    'S' (COBOL Source code - Reverse Eng.)  
. FREEZE REQUEST: 'Y'  
. COMMENTS: "UNKNOWN ENV. ...."
```

2. If at least one session was frozen before the initialization of the PEI function, the following information is also provided:

```
. LIBRARY CODE: ***  
. ENVIRONMENT TYPE code: 'U'  
. ENTITY TYPE code: 'U'  
. ENTITY CODE: 'REPRISE'  
. FREEZE REQUEST: 'Y'  
. COMMENTS: "REPRISE OF FROZEN SESSIONS"
```

The following data per frozen session is provided as well:

- . A record for the List of Production Sessions (session number, date, user code and comments);
- . A record for the List of Generated Entities (ENTITY CODE is "REPRISE", the session number appears in the EXTERNAL NAME to avoid duplicate frozen sessions, and only data related to production turnover is recorded);
- . A record for the List of Entities in Production for the Session (in order to check that a given frozen session still contains generated entities; if it does not, it can be deleted).

An initialization report is printed.

NOTE: The INPE Procedure must be followed by the RSPE Procedure.

For further details, please refer to the Operations Manual, Part II Batch Procedures: Administrator's Guide.

PEI FILES RESTORATION

The purpose of the PEI Files Restoration Procedure (RSPE) is to recreate the PEI AB and AC files from the sequential backup file (PP) obtained with the SVPE Procedure, or from the sequential file obtained with the INPE Procedure.

EXECUTION CONDITION

The PEI AB and AC files must be closed to on-line use.

It is also advised to readjust the size of the AB and AC files to allow for an increase in their size. This readjustment must be made in the System Parameters Library (SY) (refer to the Operations Manual).

PROCESSING

During the execution of the RSPE Procedure, the sequential backup file (PP) is reformatted into two indexed files (AB and AC).

A report on the contents of the backup file is printed.

NOTE: It is important that the RSPE Procedure be executed as soon after the SVPE Procedure as possible, in order to avoid the possibility of generation requests not being taken into account.

For more details, please refer to the Operations Manual Part II, Batch Procedures: Administrator's Guide.

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PRPE : BATCH PRINTING

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7. PRPE : BATCH PRINTING

7.1. PRPE : INTRODUCTION

PEI PRINTING

Through the PEI Printing Procedure (PRPE), the following lists may be printed:

- . List of Environments sorted by Library
- . List of Libraries sorted by Environment
- . List of Entities in Production sorted by Environment,
- . List of Entities in Production sorted by Session
- . List of Entities sorted by code - with their environment(s)
- . List of Entities sorted by external name - with their environment(s)

EXECUTION CONDITION

None, the files can stay open to on-line processing.

For technical details, please refer to the Operations Manual Part II, Batch Procedures: Administrator's Guide.

PRPE : BATCH PRINTING
PRPE : USER INPUT

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7.2. PRPE : USER INPUT

PRPE: USER INPUT

Batch-procedure access authorization:
One '*' line with user code and password.

Specific input:

```
-----  
!POS.!LEN.! VALUE ! MEANING !  
!-----!  
! 2 ! 2 ! 'PL' ! Line code !  
! 4 ! 1 ! '1' ! List of environments by library !  
! 5 ! 1 ! '1' ! List of libraries by environment !  
! 6 ! 1 ! '1' ! List of entities in production, by !  
! ! ! ! ! environment !  
! 7 ! 1 ! '1' ! List of entities in production, by !  
! ! ! ! ! session !  
! 8 ! 1 ! '1' ! List of environments by entity !  
! ! ! ! ! (entities sorted by VA Pac codes) !  
! 9 ! 1 ! '1' ! List of environments by entity !  
! ! ! ! ! (entities sorted by external names) !  
-----
```

In order to exclude one or more of these lists, leave the corresponding position to blank.

Only the first parameter line is taken into account; any other input is ignored by the system.

PRPE : BATCH PRINTING
PRPE : LIST DESCRIPTIONS

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7.3. *PRPE : LIST DESCRIPTIONS*

LIST DESCRIPTIONS

. LIST OF LIBRARIES SORTED BY ENVIRONMENT

This list gives -- for each environment -- the libraries to which it is associated with. Library names are printed.

If the library is not defined in the Database, the following message is printed:

"**** UNDEFINED LIBRARY ****"

In addition, environment names are printed.

. LIST OF ENVIRONMENTS SORTED BY LIBRARY

This list gives the same information as found in the "EE" Screen.

In addition, library names are printed.

LIST DESCRIPTIONS (Cont'd)

A. LISTS OF ENTITIES IN PRODUCTION

Information on each entity's production turnover is printed: session, date, user, production turnover mode.

Entities ready for production turnover do not belong to these lists.

1) LIST OF ENTITIES SORTED BY ENVIRONMENT:

Entities are sorted by environment, library, and external name.

2) LIST OF ENTITIES SORTED BY SESSION:

Entities are sorted by production session number, library, environment, and entity code.

This report is useful in deciding which generated entities in a particular production session are superfluous and whether or not a particular production (frozen) session can be deleted, in order to control the number of frozen sessions and make decisions with regard to regeneration of entities.

B. LISTS OF ENTITIES (ALL)

1) LIST OF ENTITIES SORTED BY CODE:

This list gives for each entity its generation library(ies), environment(s), entity type(s), external name, generation session, date, and user who requested the generation.

If the entity is in production, the list will also include the session and date of the actual production turnover (HIPE execution) and the code of the user who requested the production turnover.

In addition, in cases when SIPE has been used (U) or when transfers are requested in the "EG" Screen (M), the corresponding date and user code get printed.

2) LIST OF ENTITIES SORTED BY EXTERNAL NAME:

This list is identical to the previous one, but entities are sorted by external name.