Screen Definition Facility II for VSE

Primer for CICS/BMS Programs

Release 6

SH12-6313-00

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Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page v.

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About this book

Before starting to read this primer, you should work through the *SDF II General Introduction*. Knowledge and experience of the tasks described there is assumed throughout this book.

When you worked through the *General Introduction*, you defined several simple panels. You used SDF II default values to define panels for any target system. This book shows you how to define panels and other objects specifically for CICS/BMS. It does not attempt to use or describe every available field in every SDF II panel. The online reference provides help information for all fields and panels.

While you work through this book, you will use most of the dialogs you used in the *General Introduction*. In the first few chapters you will use several new dialogs to refine your panel. When your panel is ready, you will use SDF II to generate from it CICS/BMS macros and data structures that are suitable for use with applications designed for CICS/BMS.

In the remaining chapters you will use SDF II for more complex and less common tasks. These tasks include:

- Defining and generating panel groups and partition sets
- Defining more than one type of device for panels, panel groups, and partition sets
- Defining more than one format for panels
- Converting CICS/BMS panels for use in another target system.

What you will find inside

This book contains the following information:

Chapter 1 Defines the VSE user prerequisites and discusses panel definition from the point of view of CICS/BMS programmers.

Chapter 2 Introduces an example application and shows you how to prepare a panel.

Chapter 3 Shows you how to define further the data structure of the example panel.

Chapter 4 Shows you how to generate a panel.

Chapter 5 Defines special SDF II terms for CICS/BMS and relates them to the equivalent BMS terms. It also shows where each CICS/BMS macro operand is specified in SDF II.

Chapter 6 Shows you a more complex application that has separate header, body, and footer panels.

Chapter 7 Shows you how to define the BMS characteristics of your panel.

Chapter 8 Shows you how to define and generate a panel group.

Chapter 9 Shows you how to add new formats for additional device types to panels.

Chapter 10 Shows you how to define and generate a partition set.

Chapter 11 Shows you how to convert a panel defined for CICS/BMS for use in another target system.

Appendix, Notes for DBCS users
Contains notes for double-byte character set (DBCS) users.

Glossary of terms and abbreviations
Contains a list of terms and their definitions used in SDF II.

SDF II publications
Contains a list of related publications.

At the end of the book is an index.

Instructions given in this book

The procedures in this book request that you communicate with SDF II in two different ways, namely:

Enter
Type

When you are requested to *enter* data, type in the highlighted characters, then press the **Enter** key. (A commonly used phrase is “Enter the highlighted data.”)

When you are requested to *type* data, simply type in the highlighted characters. Instructions that follow explain what to do next.

Panel displays

The first time a new panel is referred to in this book, it is shown in full. It may be shown again in its full form if there have been significant changes made to it or if it has not been shown for many pages.

Most of the time, when a small number of fields of a panel are being updated, only a small portion of that panel is shown.

References to CSP/AD and VisualGen

In this book, the online help, and the online reference, references to CSP (or to CSP/AD) apply also to VisualGen.

Chapter 1. Defining a panel for CICS/BMS

Prerequisites

SDF II requires you to specify which VSE sublibraries are to receive the generated output. These sublibraries must be created using VSE/Librarian functions. See *VSE/ESA System Control Statements*, SC33-6613, for information on how to define libraries. Any DLBL or EXTENT JCL statements not available in the standard labels must be added to the SDF II start-up procedure DGIPROC.PROC (see *SDF II Administrator's Guide*).

In this book, the names used for the VSE sublibraries are:

OB.CTL for the generated CICS/VSE objects
OB.DCT for the generated data structure.

Use the names set up by your SDF II administrator.

In the *SDF II General Introduction*, you learned how to define a panel with SDF II in a general way. The panels you defined then used many of the default values that SDF II provides. You learned, in fact, how to define panels for any of SDF II's target systems. This primer shows you how to define and generate panels and other objects for CICS/BMS with SDF II.

In CICS/BMS, you define a panel by coding a CICS/BMS map set, which consists of a series of BMS macro statements. In SDF II, the information contained in a panel, which you define interactively, is equivalent to the coded information in a CICS/BMS map set. When you generate your panel, you get an equivalent CICS/BMS map set.

A *panel* created with SDF II consists of one or more formats and a data structure. A *format* defines the appearance of data on a display. It can consist of a different definition for each of several device types. A format defined for one specific device type is a *format instance*. For CICS/BMS, each format instance contains exactly the same variable fields as the other format instances for the panel, though the placement and attributes of fields may differ to meet the constraints of the device type. The *data structure* defines how data, displayed using a certain format, is structured for use by the application program.

Where there is no ambiguity, the terms *format* and *format instance* are used interchangeably in this book.

SDF II provides many defaults, which you will find sufficient for the simple cases in the first four chapters. The remaining chapters show you how to change these defaults.

Starting with a simple panel

Assume that you want to define a simple panel. When you enter the panel editor, you specify the panel's name, its library, and its device type on the Identify Panel panel.

A device type is the name of the device on which your panel is displayed by an application. SDF II automatically defines the size of the format to suit the device type.

After you press the Enter key, SDF II provides you, by default, with one format and a data structure. The name of the data structure is the same as the panel's name. Both the default format and the default data structure are blank: they contain no fields or text.

Review of steps to define a panel

You used the following steps to define a panel when you worked through the *General Introduction*. In this book, you use these steps again:

1. Identify the panel.
2. Define the panel's characteristics.
3. Define the marks.
4. Define the format.
5. Define the fields.
6. Define the attributes.
7. Test the panel.

Refer to the online help information or to the online reference information if you need to.

Chapter 2. An example application

In this chapter you work through the same steps that you used when you defined a panel in the *General Introduction*.

The example shown below illustrates a panel used in a simple CICS/BMS application.

```
*********************************************************
** U N I V E R S A L   M A I L   O R D E R   H O U S E **
*********************************************************


        This program is designed for entering new
                items into the database.
        Complete each field and then press Enter.


Category:    ____________________            Price

Item number: ________                     US.$: ________
                                          F.Fr: ________
Price valid until: ________
```

The application works as follows.

A mail-order house stocks several thousand items. A record of each item is kept in a database. The record structure for each item is identical.

To enter a new item in the database, the user:

1. Calls the program by entering its name on an unformatted screen
2. Receives the panel that contains the fields to fill in
3. Fills in the fields of the panel
4. Finally, presses the Enter key.

The information in the fields is transmitted to the program by BMS and written to the database by the program. This ends the Enter a New Item application. On the following pages, the panel is referred to as the ENI panel.

To define the panels with which the user interacts with the application, you do the following:

- Define the target system as CICS/BMS
- Identify the panel to SDF II
- Define the panel characteristics
- Define the format of the panel.

Defining the target system as CICS/BMS

When you set the profile for CICS/BMS, you get the appropriate default values for this target system. The SDF II profile may already be set for CICS/BMS. This procedure is described so that you know how to change the profile when necessary.

Start from the Select an SDF II Function panel:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                          SELECT AN SDF II FUNCTION
Option ===> _____________________________________________________________

1   PANEL EDITOR            Create or edit a panel
2   PANEL GROUP EDITOR      Create or edit a panel group
3   PARTITION SET EDITOR    Create or edit a partition set
4   AID TABLE EDITOR        Create or edit an AID table
5   CONTROL TABLE EDITOR    Create or edit a control table

6   GENERATE                Generate control block source and data structure
7   LIST OBJECTS            List objects in the library
8   SPECIFY LIBRARIES       Access libraries
9   UTILITIES               Print, import, convert, construct,
                            extract, and modify objects
10  PROFILE                 Modify editing defaults

11  PROTOTYPE               Create, edit or test a prototype

13  PRINT REFERENCE         Print the online reference
```

1. Enter **10.1** on the command line to display the Specify System Environment panel:

```
 File  View  Options  Help
_____________________________________________________________________________
                          SPECIFY SYSTEM ENVIRONMENT
Command ===> _____________________________________________________________

  Target system
  _  0. ALL
     1. CICS/BMS
     2. MFS
     3. ISPF
     4. GDDM
     5. CSP or VisualGen
```

2. Type a **1** in the **Target system** field to indicate to SDF II that the definition of objects is for CICS/BMS.
3. Press the **End** key (PF3) twice to return to the Select an SDF II Function panel.

Identifying the panel to SDF II

Start this procedure from the Select an SDF II Function panel.

1. Enter **1** on the command line to display the Identify Panel panel. It displays the information you entered the last time you used it.
2. Enter the highlighted text:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                            IDENTIFY PANEL
Option ===> 2_____________________________________________________________

  blank  Edit existing panel
      1  Create new panel from a skeleton panel
      2  Create new panel from scratch for CICS/BMS

Identify the panel
  Name . . . . . . . . . . eni_____
  Library  . . . . . . . . 1

When creating a new panel from a skeleton, identify the skeleton
  Name . . . . . . . . . . ________
  Library  . . . . . . . . _

When creating a new panel from scratch, identify the device type
  Device type  . . . . . . 3279-3b_
```

The Select a Panel Editor Dialog panel is displayed:

```
 File  View  Options  Help
_____________________________________________________________________________
                     SELECT A PANEL EDITOR DIALOG                ENI 3279-3B
Option ===> _____________________________________________________________

1 CHARACTERISTICS         Define panel characteristics

2 FORMAT                  Define the format of the panel

3 FIELDS                  Define the fields for the format

4 ATTRIBUTES              Define the attributes for the format

5 STRUCTURE               Define the data structure of the panel

6 SYSTEM                  Define target system dependent information

7 TEST                    Show panel in execution time format

8 INSTANCES               Define the panel instances

* FIELD EDITING           Define field editing and verification rules
```

Field Editing is marked with an asterisk (*) because this selection is not available for CICS/BMS.

When the ENI object is defined in the Identify Panel panel for the first time, the message `New object created` appears on the top line of the Select a Panel Editor Dialog panel.

Defining the panel characteristics

1. Enter **1** to display the Define Panel Characteristics panel.
2. Type **eni panel** in the **Description** field. This information, which SDF II stores in the object, can help you to identify an object in a large SDF II object list.

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                      DEFINE PANEL CHARACTERISTICS                ENI 3279-3B
Command ===> ____________________________________________________________

  Description  . . . . . . eni panel_____________________
  Target system  . . . . . CICS/BMS
  Generation name  . . . . _______

 ┌ Format size ──────────────────────────────────────────────────────────┐
 │ Depth  . . . . . . . . . 32            Width  . . . . . . . . . 80    │
 └───────────────────────────────────────────────────────────────────────┘

 ┌ Data structure characteristics ──────────────────────────────────────┐
 │ Storage class                                                        │
 │ 1  1. AUTOMATIC                                          Name case   │
 │    2. BASED on . . . . _____________________________     1  1. Upper  │
 │ Structure name   . . . ENI                                  2. Lower  │
 │ Field name prefix  . . eni_____                             3. Mixed  │
 │                                                                      │
 │ Data structure level numbers                                         │
 │ Start number . . . . . . 1        Increment number . . . . 01        │
 └──────────────────────────────────────────────────────────────────────┘

 ┌ Adjuncts for dynamic field attribute modification ────────────────────┐
 │ / Length                                                             │
 │ / 3270                                                               │
 │ _ Color                                                              │
 │ _ Programmed symbol set                                              │
 │ _ Highlight                                                          │
 │ _ Validation                                                         │
 │ _ Field outlining                                                    │
 │ _ Mixed                                                              │
 │ _ Transparency                                                       │
 └──────────────────────────────────────────────────────────────────────┘
```

   If necessary, press the **Scroll down** key (PF8) to display the rest of the panel.

3. Type **eni** in the **Field name prefix** field. The name prefix is used as the first part of all field names of the generated data structure.
4. Type **/** for **Color** and **Highlight** to select those options:

```
 Adjuncts for dynamic field attribute modification
/ Length
/ 3270
/ Color
_ Programmed symbol set
/ Highlight
_ Validation
_ Field outlining
_ Mixed
_ Transparency
```

Here you define the attributes that can be dynamically modified by the application program. For example, because you selected **Color**, the application programmer can design the ENI program to change the color of any field in which the user enters incorrect data. This selection applies to all fields in the data structure.

5. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.

Defining the format of the ENI panel

Refer to the *General Introduction* or to the online reference if you need help completing this task.

1. Enter **2** on the command line to display the Define Format panel.
2. Enter **marks** on the command line to display the Define Marks panel:

```
File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE MARKS                          ENI 3279-3B
Command ===> _____________________________________________ Scroll ==-> PAGE

Marks . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-6 OF 6, ROW 1 TO 5
    Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment ----
'''      BACKGRND  ____ PR NOR               PR NOR               ____________
'''  _   VARIABLE  ____ UNP NOR             UNP NOR              ____________
'''  .   CONSTANT  ____ PR BR               PR BR                ____________
'''  /   SPACER                                                  ____________
'''  ,   SEPARATR                                               ____________
''' *** END OF DATA ************************************************
```

3. Enter the plus character (+) as shown below:

```
'''  _    VARIABLE
'''  +    CONSTANT
'''  /    SPACER
```

This changes the period character (.) to a plus character (+). You can now use the period character (.) when you define your ENI panel.

4. Press the **End** key (PF3) to return to the Define Format panel.
5. Type the line command **col** over the 001 and 017 line numbers, then press the **Enter** key to produce rules.
6. Type the highlighted text to define the format and fields of the ENI panel:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                              DEFINE FORMAT                        ENI 3279-3B
Command ===> ____________________________________________________ Scroll ===> PAGE

Format  . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 32
Marks: V _ CO + SE , SP /                              CONTENTS: FORMAT
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
001
002 /*******************************************************/
003 /** U N I V E R S A L   M A I L   O R D E R   H O U S E **/
004 /*******************************************************/
005
006
007 /This program is designed for entering new/
008 /items into the database./
009 /Complete each field and then press Enter./
010
011
012             Category:    _,20,categ                    Price
013
014             Item number: _,8,item                      US.$: _,8,us
015                                                        F.Fr: _,8,ffr
016             Price valid until: _,8,date
.br
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
```

7. Press the **Enter** key. The text between the slash characters (/) is now centered, and the variable fields are now denoted by underscores.
8. Make any necessary adjustments to the text and fields.
9. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.

The format of your ENI panel is now complete.

If you want to stop now:

1. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.
2. Press the **End** key (PF3) to display the Exit Editor window.
3. In the Exit Editor window, select **Save**. The Identify Panel panel is displayed.
4. Press the **End** key (PF3) to return to the Select an SDF II Function panel.
5. If you want to leave SDF II now, press the **End** key (PF3) on the Select an SDF II Function panel.

Chapter 3. Further definition of the data structure

This chapter shows you how to modify the data structure of your ENI panel. You do this in the Define Structure dialog.

To modify the data structure, you define:

- Subfields
- A minor structure.

A *subfield* is part of a predefined field. For example, the Enter a New Item (ENI) application program has an 8-character field in which the user enters a date. You can redefine this field so that the application program accepts the date in smaller fields: a 2-character field for the day, a 2-character field for the month, and a 4-character field for the year. The original 8-character field is a *group*. The new fields are subfields of that group. You can then address either the group as a whole or the subfields individually. Groups and subfields provide an easy way to move selected data between the panel and the application program.

A *minor structure* is a set of fields that are collected together into a single entity. For example, the Enter a New Item application program has two fields in which the user enters amounts of money in different currencies. The application program currently moves data from these fields one at a time in separate operations. When you redefine these fields as a minor structure, the application now accesses data from both fields in one operation. A minor structure provides an easy way to move separate pieces of data as a single unit in one operation.

Selecting the Define Structure dialog

Start this step from the Select a Panel Editor Dialog panel.

Enter **5** on the command line to display the Define Structure panel:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                            DEFINE STRUCTURE                        ENI 3279-3B
Command ===> _____________________________________________ Scroll ===> PAGE

Structure . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-8 OF 8, ROW 1 OF 5
    Lev Name --- Leng Occ Type --- Input pict Output pic Comment --------------
''' 02  CATEG    20   ___ FIELD   __________ __________ ________________________
''' 02  ITEM     8    ___ FIELD   __________ __________ ________________________
''' 02  US       8    ___ FIELD   __________ __________ ________________________
''' 02  FFR      8    ___ FIELD   __________ __________ ________________________
''' 02  DATE     8    ___ FIELD   __________ __________ ________________________
''' ************ END OF DATA ***************************************************
```

SDF II does not display all the columns belonging to this dialog at the same time. By default, it displays only those columns shown. Use the **view** panel command to see the other columns.

Defining subfields for your ENI panel

In this procedure, you define subfields for the day, month, and year that make up the **Date** field.

1. Enter the **i3** line command to insert three blank lines to define the subfields for the day, month, and year:

```
''' 02  FFR      8
i3' 02  DATE     8
```

2. Enter the highlighted text to make the **Date** field a group field and to create the subfields of the **Date** field:

```
''' 02  FFR      8    ___ FIELD
''' 02  DATE     8    ___ group
''' 05  dd       2    ___
''' 05  mm       2    ___
''' 05  yyyy     4    ___
```

   For each subfield, SDF II needs entries for the level number (**Lev**), name (**Name**), and field length (**Leng**).

3. Press the **Enter** key. SDF II names the level 05 field **Type** as SUBFIELD, because it recognizes they are at a deeper level than the 02 level of the **Date** field:

```
''' 02  FFR      8    ___ FIELD
''' 02  DATE     8    ___ GROUP
''' 05  DD       2    ___ SUBFIELD
''' 05  MM       2    ___ SUBFIELD
''' 05  YYYY     4    ___ SUBFIELD
```

The ENI application program can now transmit data to or receive data from each subfield separately.

Defining a minor structure

In this procedure you combine the **US** and **FFr** fields into a minor structure.

1. Enter the **i** line command to insert a line in which to define a minor structure:

```
''' 02  CATEG    20
i'' 02  ITEM     8
''' 02  US       8
''' 02  FFR      8
```

2. Enter the highlighted text to define the minor structure **Price**:

```
''' 02  CATEG    20
''' 02  ITEM     8
''' 02  price    ____
''' 05  US       8
''' 05  FFR      8
```

   The minor structure has the same level number (**Lev**) as the other fields, and the name **Price**. The **US** and **FFr** fields are redefined at a deeper level than the **Price** minor structure.

When you press the **Enter** key, SDF II displays the type of the field (**Type**) for the **Price** field as a minor structure (MINOR).

Your Define Structure dialog panel now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          DEFINE STRUCTURE                        ENI 3279-3B
Command ===> _____________________________________________ Scroll ===> PAGE

Structure . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-8 OF 8, ROW 1 OF 9
    Lev Name --- Leng Occ Type --- Input pict Output pic Comment --------------
''' 02  CATEG    20   ___ FIELD    _________ _________ ________________________
''' 02  ITEM     8    ___ FIELD    _________ _________ ________________________
''' 02  PRICE    ____ ___ MINOR    _________ _________ ________________________
''' 05  US       8    ___ FIELD    _________ _________ ________________________
''' 05  FFR      8    ___ FIELD    _________ _________ ________________________
''' 02  DATE     8    ___ GROUP    _________ _________ ________________________
''' 05  DD       2    ___ SUBFIELD _________ _________ ________________________
''' 05  MM       2    ___ SUBFIELD _________ _________ ________________________
''' 05  YYYY     4    ___ SUBFIELD _________ _________ ________________________
''' ************ END OF DATA ***************************************************
```

The minor structure consists of both the new **Price** field and the two deeper level fields: **US** and **FFr**. The ENI application program uses the **Price** as a single field to move data to and from the **US** and **FFr** fields in one operation.

Your modifications to the data structure are now complete.

Testing the panel

1. Enter **test** on the command line. SDF II displays your ENI panel as it would appear to a user.
2. Press the **End** key (PF3) three times to display the Exit Editor window.
3. Save your panel.
4. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Chapter 4. Generating your ENI panel

Before you can use your ENI panel with the Enter a New Item application program, you need to generate the panel with SDF II.

The result of generating a panel is either a set of BMS macros or a data structure, or both, depending on what you select. The data structure is coded in the programming language you select.

SDF II generates a panel as a panel group (BMS map set) with only one panel. While it is generating the data structure, it checks the information contained in the object against the programming language you selected.

Produce CICS/BMS control blocks

After SDF II has produced the BMS macros, they need to be processed by the assembler to produce CICS/BMS control blocks. If you want to produce the CICS/BMS control blocks immediately after generation, enter in the **User exit** field of the Specify Generation Parameters panel the name of a REXX EXEC that you use for assembling CICS/BMS control blocks from BMS macros.

You can alternatively run the appropriate REXX EXEC against the BMS macros after leaving SDF II.

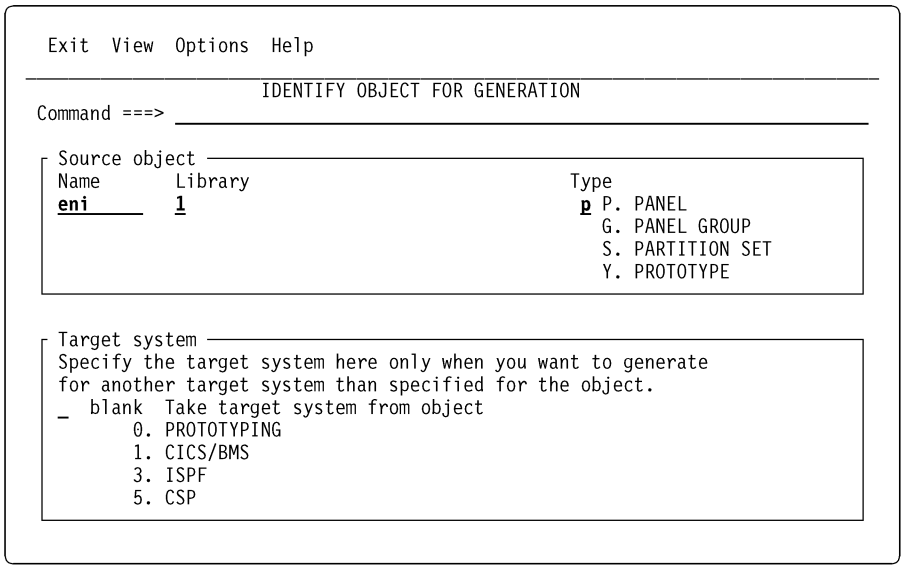
Generation output

The generated output is stored in a VSE library as two members: one for the BMS macros, and one for the data structure. The names of the files (the generation name) can be up to seven characters long. You enter the generation name on the Define Panel Characteristics panel. If you do not enter a generation name, SDF II uses the name of the panel as the default generation name. It truncates the default generation name if necessary.

Identifying the object

Start this procedure from the Select an SDF II Function panel.

1. Enter **6** on the command line to display the Identify Object for Generation panel.
2. Enter the highlighted text to identify to SDF II the name and type of the object to generate:



SDF II will, by default, generate the object for the target system for which the object was defined. You therefore need enter a value in the **Target system** field only if you want to generate the object for a different target system.

When you press the Enter key, SDF II displays the Specify Generation Parameters panel.

Generating your ENI panel

Start this procedure from the Specify Generation Parameters panel.

1. Type the highlighted text to inform SDF II of the generation requirements. (Ensure that your panel has the same field contents as shown in the example.)

```
 Exit  View  Options  Help
_____________________________________________________________________________
                     SPECIFY GENERATION PARAMETERS                       ENI
Command ===> _____________________________________________________________

  Object name  . . . . . : ENI
  Object type  . . . . . : PANEL
  Target system  . . . . : CICS/BMS

  / Generate data structure
  / Generate CICS/BMS macros

 Data structure output
 Sublibrary name  . . . . ob.dct_________
 Member type  . . . . . . a_______
 User exit  . . . . . . . ________

 Options
 Language . . . . . . . . cobol___ ASM, C, COBOL, PLI, RPG
 _ Alignment              Ignored for C language
 _ Graphic                DBCS panels only
 _ Trigraph               C language only
 _ SDF/CICS Compatible    COBOL language only
 _ Length statement       COBOL language only

 CICS/BMS macro output
 Sublibrary name  . . . . ob.ctl_________
 Member type  . . . . . . a_______
 User exit  . . . . . . . ________

 Options
 Device type  . . . . . . *_______ * for all devices
```

The fields into which you enter data in this exercise have the following meanings:

Data structure Generates a data structure if you enter **/**.

BMS macros Generates BMS macros if you enter **/**.

Language Indicates the name of the programming language in which you want the data structure coded. SDF II supports assembler, COBOL, PL/I, and RPG II for CICS/BMS. It checks whether the definition of the data structure conforms to the syntax of the programming language.

Sublibrary name Specifies the name of the sublibrary that is to receive the data structure or control block. For the data structure, the member name is the generation name. For the control block, the member name is the generation name plus the 1-character BMS suffix.

For the meanings of other fields, refer to the online help or the online reference.

2. Press the **Enter** key. SDF II now generates the data structure and BMS macros for your ENI panel.

When SDF II has finished generating an object, it displays a list of generation messages.

Handling generation messages

Here is an example of a generation message list:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                        LIST GENERATION MESSAGES                          ENI
Command ===> _____________________________________________ Scroll ===> PAGE

   0 Errors detected
   _ Print messages               Will be performed on Exit

Messages  . . . . . . . . . . . . . . . . . . .  COLUMNS 1-2 OF 2, ROW 1 OF 9
    Message#   Message ----------------------------------------------------------
'''            Object name: ENI type: PANEL library: 1
'''            Data Structure
'''            Output library OB.DCT member ENI.A
''' DGICM038   Generation of data structure(s) completed
'''            CICS/BMS map set for device type 3279-3B
''' DGICM021   PANEL ENI retrieved from library 1
''' DGICM117   The generated map contains field names that have been generated
'''            Output library OB.CTL member ENI3.A
''' DGICM034   Generation of BMS macros completed
''' END OF DATA ************************************************************
```

This list of messages indicates that the generation was successful, as there are only informational messages. It also identifies the output files.

If your ENI panel does not comply with all the CICS/BMS rules that SDF II checks, you will see some error messages. Error messages are highlighted on monochrome terminals and presented in a contrasting color on color terminals.

For more information about any of the messages, enter **?** in the line command area beside the message.

You can scroll through the list of generation messages and print them.

Printing the messages

1. Type **/** as shown to print the displayed messages on the system printer:

   ```
   / Print messages
   ```

2. Press the **End** key (PF3) to return to the Select an SDF II Function panel. The list of messages is printed when you exit the List Generation Messages panel.

Results of SDF II generation

This is what the BMS macros for your ENI panel look like:

```
         PRINT ON,NOGEN
ENI      DFHMSD TYPE=MAP,LANG=COBOL,MODE=INOUT,STORAGE=AUTO,SUFFIX=3
         TITLE 'eni panel                        '
ENI      DFHMDI SIZE=(32,80),MAPATTS=(COLOR,HILIGHT),DSATTS=(COLOR,HILI*
               GHT),COLUMN=1,LINE=1,PARTN=(P0),DATA=FIELD,TIOAPFX=YES, *
               JUSTIFY=(LEFT),OBFMT=NO
         DFHMDF POS=(1,12),LENGTH=57,                                  *
               INITIAL='*********************************************+
               **********',ATTRB=(PROT,NORM)
         DFHMDF POS=(2,12),LENGTH=57,                                  *
               INITIAL='** U N I V E R S A L   M A I L   O R D E R   H *
               O U S E **',ATTRB=(PROT,NORM)
         DFHMDF POS=(3,12),LENGTH=57,                                  *
               INITIAL='*********************************************+
               **********',ATTRB=(PROT,NORM)
         DFHMDF POS=(7,20),LENGTH=41,                                  *
               INITIAL='This program is designed for entering new',    *
               ATTRB=(PROT,NORM)
         DFHMDF POS=(8,28),LENGTH=24,                                  *
               INITIAL='items into the database.',ATTRB=(PROT,NORM)
         DFHMDF POS=(9,20),LENGTH=41,                                  *
               INITIAL='Complete each field and then press Enter.',    *
               ATTRB=(PROT,NORM)
         DFHMDF POS=(12,12),LENGTH=9,INITIAL='Category:',ATTRB=(PROT,NO*
               RM)
* CATEG                          ENICATEG
ENICATE  DFHMDF POS=(12,25),LENGTH=20,ATTRB=(UNPROT,NORM)
         DFHMDF POS=(12,46),LENGTH=0,ATTRB=(PROT,NORM)
         DFHMDF POS=(12,55),LENGTH=5,INITIAL='Price',ATTRB=(PROT,NORM)
         DFHMDF POS=(14,12),LENGTH=12,INITIAL='Item number:',          *
               ATTRB=(PROT,NORM)
* ITEM                           ENIITEM
ENIITEM  DFHMDF POS=(14,25),LENGTH=8,ATTRB=(UNPROT,NORM)
         DFHMDF POS=(14,34),LENGTH=0,ATTRB=(PROT,NORM)
         DFHMDF POS=(14,55),LENGTH=5,INITIAL='US.$:',ATTRB=(PROT,NORM)
* US                             ENIUS
ENIUS    DFHMDF POS=(14,61),LENGTH=8,ATTRB=(UNPROT,NORM)
         DFHMDF POS=(14,70),LENGTH=0,ATTRB=(PROT,NORM)
         DFHMDF POS=(15,55),LENGTH=5,INITIAL='F.Fr:',ATTRB=(PROT,NORM)
* FFR                            ENIFFR
ENIFFR   DFHMDF POS=(15,61),LENGTH=8,ATTRB=(UNPROT,NORM)
         DFHMDF POS=(15,70),LENGTH=0,ATTRB=(PROT,NORM)
         DFHMDF POS=(16,12),LENGTH=18,INITIAL='Price valid until:',    *
               ATTRB=(PROT,NORM)
* DATE                           ENIDATE
* DATE                           ENIDD
ENIDD    DFHMDF POS=(16,31),LENGTH=2,ATTRB=(UNPROT,NORM),              *
               GRPNAME=ENIDATE
* DATE                           ENIMM
ENIMM    DFHMDF POS=(16,33),LENGTH=2,GRPNAME=ENIDATE
* DATE                           ENIYYYY
ENIYYYY  DFHMDF POS=(16,35),LENGTH=4,GRPNAME=ENIDATE
         DFHMDF POS=(16,40),LENGTH=0,ATTRB=(PROT,NORM)
         DFHMSD TYPE=FINAL
         END
```

This is what the data structure for your ENI panel looks like:

```
*****************************************************************
* eni panel
*****************************************************************
 01   ENII.
     02 FILLER    PIC X(12).
     02 ENICATEGL      COMP PIC S9(4).
     02 ENICATEGF      PIC X.
     02 FILLER    PIC X(2).
     02 ENICATEGI      PIC X(20).
     02 ENIITEML  COMP PIC S9(4).
     02 ENIITEMF  PIC X.
     02 FILLER    PIC X(2).
     02 ENIITEMI  PIC X(8).
     02 ENIPRICEI .
           05 ENIUSL   COMP PIC S9(4).
           05 ENIUSF   PIC X.
           05 FILLER   PIC X(2).
           05 ENIUSI   PIC X(8).
           05 ENIFFRL  COMP PIC S9(4).
           05 ENIFFRF  PIC X.
           05 FILLER   PIC X(2).
           05 ENIFFRI  PIC X(8).
     02 ENIDATEL  COMP PIC S9(4).
     02 ENIDATEF  PIC X.
     02 FILLER    PIC X(2).
     02 ENIDATEI .
           05 ENIDDI   PIC X(2).
           05 ENIMMI   PIC X(2).
           05 ENIYYYYI PIC X(4).
*****************************************************************
* eni panel
*****************************************************************
 01   ENIO REDEFINES ENII.
     02 FILLER    PIC X(12).
     02 FILLER    PIC X(2).
     02 ENICATEGA      PIC X.
     02 ENICATEGC PIC X.
     02 ENICATEGH PIC X.
     02 ENICATEGO      PIC X(20).
     02 FILLER    PIC X(2).
     02 ENIITEMA  PIC X.
     02 ENIITEMC  PIC X.
     02 ENIITEMH  PIC X.
     02 ENIITEMO  PIC X(8).
     02 ENIPRICEO .
           05 FILLER   PIC X(2).
           05 ENIUSA   PIC X.
           05 ENIUSC   PIC X.
           05 ENIUSH   PIC X.
           05 ENIUSO   PIC X(8).
           05 FILLER   PIC X(2).
           05 ENIFFRA  PIC X.
           05 ENIFFRC  PIC X.
           05 ENIFFRH  PIC X.
           05 ENIFFRO  PIC X(8).
     02 FILLER    PIC X(2).
     02 ENIDATEA  PIC X.
     02 ENIDATEC  PIC X.
     02 ENIDATEH  PIC X.
     02 ENIDATEO .
           05 ENIDDO   PIC X(2).
           05 ENIMMO   PIC X(2).
           05 ENIYYYYO PIC X(4).
```

Chapter 5. How SDF II defines CICS/BMS macros

SDF II and CICS/BMS use different terms to describe similar concepts. In this chapter, these terms and concepts are compared.

Following this, a detailed look is taken at how and where the CICS/BMS operands and parameters are defined to SDF II.

SDF II terms and their CICS/BMS equivalents

SDF II term	Concept	CICS/BMS term
Panel	An object that consists of one or more formats and one data structure.	Map
Panel group	An object that consists of a list of related SDF II panels.	Map set
Data structure	The part of a panel that describes how data is provided by or passed to the application program.	Symbolic description map

SDF II editors

Three SDF II editors are used to create CICS/BMS definitions:

- The panel editor
- The panel group editor
- The partition set editor.

You reach these editors from the Select an SDF II Function panel. When you start the relevant editor, you first enter the SDF II object name and its associated device type on the editor's Identify panel. SDF II then displays the relevant editor dialog panel.

In the following descriptions of the editor panels, only those selections that are needed for defining CICS/BMS macro information are mentioned.

DFHMDF macro creation

The parameters for this macro are formed as follows:

Figure 1. Where the DFHMDF parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field
n.a.	not generated in SDF II	
DECPOS	DGIPEC*x* Edit Field Characteristics	Decimal position
ATTRB	DGIPEAVB Edit Field Attributes	Intensity, protection, detectable
CASE		Caps
COLOR		Color
HILIGHT		Highlighting
JUSTIFY		Justification
OUTLINE		Outlining
PS, SOSI		Format
TRANSP		Opaque
VALIDIN		Validation
INITIAL	DGIPE20 Define Format	The text for background or constant fields, or the initial value of variable fields
XINIT		Generated as Initial
LENGTH	DGIPE30 Define Fields	Width
OCCURS		Occurs; the DGIMDF macro is generated the specified number of times
POS		Line, Column
GRPNAME	DGIPE50 Define Structure	Name
PICIN, PICOUT		COBOL and PL/I pictures can be defined

DFHMDI macro creation

The map name generated for a DFHMDI macro is that supplied in the **Generation name** field of the Define Panel Characteristics panel. If this is not specified, the name entered in the **Name** field of the Identify Panel panel is used.

Figure 2 (Page 1 of 2). Where the DFHMDI parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field
COLOR **HILIGHT** **PS, SOSI** **TRANSP** **VALIDN**	n.a.	These parameters are handled by the DFHMDF macro in SDF II
COLUMN	DGIPE66*x* Characteristics	Column. Default=1
CURSLOC		Cursor location
DATA		Field format (DATA)
FLDSEP		Field Separator
HEADER		Header map
JUSTIFY		Line, Column
LINE		Line
OBFMT		Outboard format
PARTN		Partition name
TIOAPFX		I/O area prefix
TRAILER		Trailer map

Figure 2 (Page 2 of 2). Where the DFHMDI parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field	
CTRL	DGIPE66*x* Define BMS Characteristics	**Alarm** **Free keyboard** **Reset MDT** **Start printer** **Print width**	(CTRL=ALARM generated) (CTRL=FREEKB generated) (CTRL=FRSET generated) (CTRL=PRINT generated) (CTRL=L40, L64, L80, or HONEOM)
DSATTS	DGIPE10*x* Define Panel Characteristics	Dynamic field attribute modification	
EXTATT	n.a.	n.a.	
KEXTATT	n.a.	n.a.	
FIELDS	n.a.	n.a.	
MAPATTS	DGIPE10*x* Define Panel Characteristics	Dynamic field attribute modification, or the appropriate attribute is defined for a field	
SIZE	DGIPE10*x* Define Panel Characteristics	Width	

DFHMSD macro creation

The map set name generated for a DFHMSD macro is that supplied in the **Generation name** field on the Define BMS Characteristics panel of the panel group editor. If this is not specified, the name supplied in the **Name** column of the Identify Panel Group panel is used.

Figure 3. Where the DFHMSD parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field
TERM	n.a.	n.a.
COLOR **HILIGHT** **OUTLINE** **PS, SOSI** **TRANSP** **VALIDN**	n.a.	These parameters are handled by the DFHMDF macro in SDF II
CTRL **DATA** **DSATTS** **EXTATT** **FLDSEP** **MAPATTS** **OBFMT** **PARTN** **TIOAPFX**	n.a.	These parameters are handled by the DFHMDI macro in SDF II
BASE **FOLD** **STORAGE**	DGIPE10*x* Define Panel Characteristics	Based on Case Storage class
HTAB **VTAB** **MODE**	DGIPE66*x* Define BMS Characteristics	Horizontal Vertical Mode (input panel, output panel)
LANG	DGICE13 Specify Generation Parameters	Language
LDC	DGIGE11*x* Panel Group BMS Characteristics	LDC
SUFFIX	DGIKE10 Device Table	BMS
TRIGRAPH **TYPE**	DGICE10 Specify Generation Parameters	Trigraph Generate CICS/BMS macros (TYPE=MAP generated in the DFHMSD macro, TYPE=FINAL as the last macro of a map set)

DFHPDI macro creation

The partition name generated for a DFHPDI macro is that supplied in the **Name** column of the Define Partitions panel. The Define BMS Characteristics panel is then used in SDF II to associate the SDF II object name with the assigned partition name.

Figure 4. Where the DFHPDI parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field
ATTRB	DGISE20 Define Partitions	Error
BUFSZE		Buffer
CHARSZE		Cell depth, Cell width
MAPSFX		calculated from other operands
VIEWPOS		Line, Column
VIEWSZE		Depth, Width

DFHPSD macro creation

The partition set name generated for a DFHPSD macro is that supplied in the **Generation name** field on the Define Partition Set Characteristics panel. If this is not specified, the name entered in the **Name** field of the Identify Partition Set panel is used. The other parameters for this macro are defined as follows:

Figure 5. Where the DFHPSD parameters are entered in SDF II

Parameter	SDF II panel ID, Panel name	Field
ALTSCRN	DGISE10 Define Partition Set Characteristics	Specify usable area size
CHARSIZE		Specify character cell size
SUFFIX	DGIKE10 Device Table	BMS

Chapter 6. Example: Stock control application

In the preceding chapters you defined a simple panel for CICS/BMS: it had one format and a data structure. This corresponds to defining a simple BMS map.

Using SDF II, you can define more complex objects. The main tasks include:

- Defining the BMS characteristics of your panels
- Defining panel groups
- Defining panels that have more than one format
- Defining partition sets.

You can also convert panels defined for CICS/BMS for use in any other target system.

In the following chapters a simple stock control application, Stock In Hand (SIH), illustrates these capabilities.

In this chapter, Chapter 7, and Chapter 8, you perform tasks that are related to defining a panel group:

- In this chapter you define the three panels that are used in the panel group.
- In Chapter 7 you define the panels further so that the page build facility of BMS can display the three panels at the same time.
- In Chapter 8 you define, test, and generate the panel group.

The SIH application

Stock controllers use the SIH application to query stock levels kept by a mail-order house. The SIH application displays this page:

```
*******************************************************
** U N I V E R S A L   M A I L   O R D E R   H O U S E **
*******************************************************

Category:                           Date:

-------------------------------------------------------
-------------------------------------------------------
Item number:          Name:         Quantity:
Description:

-------------------------------------------------------
Item number:          Name:         Quantity:
Description:

-------------------------------------------------------
Item number:          Name:         Quantity:
Description:

-------------------------------------------------------
-------------------------------------------------------

Total goods                           Total value
  in stock:                         US.$:
                                    F.Fr:
```

To query an item in the database, the user:

1. Calls the program by entering its name on an unformatted screen.
2. Receives a panel that contains several blank fields.
3. Fills in the **Category** field.
4. Presses the Enter key.
5. Receives the same panel again with information displayed in all fields. For example:
   - For a category such as watches, the SIH application displays:
     - The total number in stock
     - The total value in stock.
   - For individual items, such as a particular watch:
     - Its number
     - Its name
     - Its description
     - The total number of these items.
6. Scrolls the panel, if necessary.

This ends the SIH application.

The SIH output page

The SIH application displays only one page of output. However, this page consists of three separately defined panels:

- A *header* panel, which is displayed at the top of the page, contains the **Category** field and the **Date** field. It is called SIHHEAD.
- A *body* panel, which is displayed three times in the middle part of the page, contains the fields reserved for individual items. It is called SIHBODY.
- A *trailer* panel, which is displayed at the bottom of the page, contains fields that display the total number of items in the selected category and their total value. It is called SIHFOOT.

The user scrolls the body panels down to see the next three items of the selected category.

The SIHHEAD panel looks like this:

```
**********************************************************
** U N I V E R S A L   M A I L   O R D E R   H O U S E **
**********************************************************

Category:                              Date:

----------------------------------------------------------
----------------------------------------------------------
```

The SIHBODY panel looks like this:

```
Item number:          Name:          Quantity:
Description:

----------------------------------------------------------
```

The SIHFOOT panel looks like this:

```
----------------------------------------------------------

Total goods                              Total value
  in stock:                           US.$:
                                      F.Fr:
```

Defining the panels

In this and the following chapters you identify and define three panels, making each a size such that they can all fit on the screen at the same time.

You first define the three panels of the page separately. Later, in Chapter 8, you define them as a panel group, that is, as a list of panels that have common features.

Defining the SIHHEAD panel

Start this procedure from the Select an SDF II Function panel:

1. Enter **1** on the command line to display the Identify Panel panel.
2. Enter the highlighted text:

```
Option ===> 2

  blank  Edit existing panel
      1  Create new panel from a skeleton panel
      2  Create new panel from scratch for CICS/BMS

Identify the panel
  Name . . . . . . . . . . sihhead
  Library  . . . . . . . . 1
```

   When you press the Enter key, the Select a Panel Editor Dialog panel is displayed.

3. Enter **1** on the command line to display the Define Panel Characteristics panel.
4. Enter the highlighted text:

```
  Description  . . . . . . header for sih application
  Target system  . . . . . CICS/BMS
  Generation name  . . . . _______

 Format size
 Depth  . . . . . . . . . . 9           Width  . . . . . . . . . 80
```

   SDF II redefines the size of the format of the SIHHEAD panel so that it occupies only nine rows on the page.

5. Enter **2** on the command line to display the Define Format panel.
6. Enter **col** on line 001 to produce the rule.
7. Enter the highlighted text to define the format and fields of the SIH header:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:--
001
002 /*********************************************************/
003 /** U N I V E R S A L   M A I L   O R D E R   H O U S E **/
004 /*********************************************************/
005
006            Category: _,20,categ                Date: _,8,date
007
008 /-------------------------------------------------------/
009 /-------------------------------------------------------/
''' END OF DATA ***************************************************
```

Note: On lines 8 and 9 use hyphens (not underscores).

8. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.

   The format of the SIHHEAD panel is now complete. If you want to define attributes for the panel and test it, do it now. If you need help to do this, refer to the *General Introduction*.

9. Press the **End** key (PF3) to display the Exit Editor window.
10. Select **Save** to save the object and return to the Identify Panel panel.

Defining the SIHBODY panel

Define the SIHBODY panel in the same way that you defined your SIHHEAD panel.

1. Enter the highlighted text shown below on the Identify Panel panel:

```
Option ===> 2

  blank  Edit existing panel
      1  Create new panel from a skeleton panel
      2  Create new panel from scratch for CICS/BMS

Identify the panel
  Name . . . . . . . . . . sihbody
  Library  . . . . . . . . 1
```

   When you press the Enter key, the Select a Panel Editor Dialog panel is displayed.

2. Enter **1** on the command line to display the Define Panel Characteristics panel.
3. Type the highlighted text:

```
  Description  . . . . . . body for sih application
  Target system  . . . . . CICS/BMS
  Generation name  . . . . _______

 Format size
 Depth  . . . . . . . . . . 4           Width  . . . . . . . . . 80
```

4. Enter **2** on the command line to display the Define Format panel.
5. Enter **col** on line 001 to produce the rule.
6. Type the highlighted text to define the format and fields for the SIH body:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:--
001             Item number: _,8,item Name: _,7,name Quantity: _,4,qnty
002             Description: _,44,descrip1
003                          _,44,descrip2
004 /-----------------------------------------------------/
''' END OF DATA *****************************************************
```

7. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.

   The format of the SIHBODY panel is now complete. If you want to define attributes for the panel and test it, do it now.

8. Press the **End** key (PF3) to display the Exit Editor window.
9. Select **Save** to save the object and return to the Identify Panel panel.

Defining the SIHFOOT panel

Define the SIHFOOT panel in the same way that you defined your SIHBODY panel:

1. Enter the highlighted text:

```
Option ===> 2

  blank  Edit existing panel
      1  Create new panel from a skeleton panel
      2  Create new panel from scratch for CICS/BMS

Identify the panel
  Name . . . . . . . . . . sihfoot
  Library  . . . . . . . . 1
```

   When you press the Enter key, the Select a Panel Editor Dialog panel is displayed.

2. Enter **1** on the command line to display the Define Panel Characteristics panel.
3. Type the highlighted text:

```
  Description  . . . . . . trailer for sih application
  Target system  . . . . . CICS/BMS
  Generation name  . . . . _______

 Format size
 Depth  . . . . . . . . . 11          Width  . . . . . . . . . 80
```

4. Enter **2** on the command line to display the Define Format panel.
5. Enter **col** on line 001 to produce the rule.
6. Because this panel uses the period character (.) as a text character, first change the **Constant** mark to a plus sign (+) in the Define Marks dialog. Then continue with the Define Format dialog.
7. On the Define Format panel, type the highlighted text to define the format and fields for the SIH trailer:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:--
001 /-------------------------------------------------------/
002
003            Total goods                          Total value
004              in stock: _,5,total               US.$: _,8,ustotal
005                                                F.Fr: _,8,ffrtotal
006
007
008
009
010
011
''' END OF DATA ******************************************************
```

8. Press the **End** key (PF3) to return to the Select a Panel Editor Dialog panel.

   The format of the panel is now complete. If you want to define attributes for the panel and test it, do it now.

9. Press the **End** key (PF3) to display the Exit Editor window.
10. Select **Save** to save the object and return to the Identify Panel panel.

Chapter 7. Defining the BMS characteristics

The SIH application displays the SIHHEAD, SIHBODY, and SIHFOOT panels as a single page. To prepare the page, SDF II needs to know the position of each panel on the screen.

On the page, you place your panels one under the other. This is not the only arrangement possible. You could place individual panels side by side, for example. By combining individual panels one under the other, and side by side, you can display almost any arrangement of individual panels.

On the page, the first SIHBODY panel is the next panel after the SIHHEAD panel. Similarly, the SIHFOOT panel is the next panel after the last SIHBODY panel (the body panel occurs three times). You enter the information for positioning the individual panels in the Define BMS Characteristics dialog of the panel editor.

The SIHHEAD panel is already positioned at the top of the page, because that is the default position set by SDF II.

Defining the position of SIHHEAD

Start this procedure from the Identify Panel panel.

1. Enter the highlighted text:

   ```
   NAME . . . . . . . . . . sihhead
   ```

2. Enter **6** on the command line of the Select a Panel Editor Dialog panel to display the Define BMS Characteristics panel:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                    DEFINE BMS CHARACTERISTICS              SIHHEAD 3279-3B
Command ===> ____________________________________________________________

Mode
  / Input map
  _ Output map

  Format positioning ──────────────────────────────────────────────────┐
  Device Size         Depth  . . : 32            Width . . . : 80      │
  Format Size         Depth  . . : 9             Width . . . : 80      │
  Format Position     Line . . . . 1___ 1-24,    Column  . . . 1___ 1-1,
                      _ Header map     NEXT,                    NEXT,
                      _ Trailer map    SAME                     SAME
                      Justify  . . _  F. FIRST   Justify . . . L  L. LEFT
                                      L. LAST                    R. RIGHT
                                      B. BOTTOM                             │
  ──────────────────────────────────────────────────────────────────────────┘
  Default partition ──────────────┐   Write control ──────────────────────┐
  Partition name                  │   Print width                         │
  __              _ Activate      │   ___  EOM      _ Alarm               │
  ────────────────────────────────┘        40       _ Free keyboard       │
                                           64       _ Reset MDT           │
                                           80       _ Start printer       │
                                   ──────────────────────────────────────┘
  Field separator  . . . . _______      / I/O Area prefix
  Field format (DATA)  . . 1  1. FIELD  _ Cursor location
                              2. BLOCK  _ Outboard format
                                        _ Blank initial values
```

This is what the options used in the panel mean:

Panel position Enter a number, **next**, or **same** for the **Line** and **Column** entries.

A numerical entry positions the top left-hand corner of the panel at the line and column number you specify. A word entry places the panel at a position relative to the preceding panel:

next Places the panel on the next free line or column on the screen.

same Places the current panel on the same line or in the same column as the last panel that was positioned with numerical entries.

Panel justification Enter **first**, **last**, or **bottom** for the **Line** entry. Enter **left** or **right** for the **Column** entry.

These entries affect the **Panel position** entries. Refer to the online reference for further details.

3. Type the highlighted text to position the SIHHEAD panel at the first column of the next line on the page:

```
Format Position     Line . . . . 1___ 1-24,     Column  . . . 1___ 1-1,
                    / Header map      NEXT,                       NEXT,
                    _ Trailer map     SAME                        SAME
```

4. Press the **End** key (PF3) twice, to display the Exit Editor window.
5. Select **Save** to save the object and display the Identify Panel panel.

Defining the position of SIHBODY

Start this procedure from the Identify Panel panel.

1. Enter the highlighted text:

```
NAME . . . . . sihbody_
```

2. Enter **6** on the command line of the Select a Panel Editor Dialog panel to display the Define BMS Characteristics panel.
3. Type the highlighted text to position the SIHBODY panel at the first column of the next line within the floating area:

```
Format Position     Line . . . . next 1-29,   Column  . . . 1___ 1-1,
                    _ Header map      NEXT,                       NEXT,
                    _ Trailer map     SAME                        SAME
```

4. Press the **End** key (PF3) twice, to display the Exit Editor window.
5. Select **Save** to save the object and display the Identify Panel panel.

Defining the position of SIHFOOT

1. Enter the highlighted text on the Identify Panel panel:

   ```
   NAME . . . . . . . . . . sihfoot
   ```

   When you press the Enter key, SDF II displays the Select a Panel Editor Dialog panel for your SIHFOOT panel.

2. Enter **6** on the command line to display the Define BMS Characteristics panel.

3. Enter the highlighted text. This is an intermediate step for positioning your SIHFOOT panel at the bottom of the page.

   ```
   Format Position     Line . . . . next 1-22,   Column  . . . 1___ 1-1,
                       _ Header map      NEXT,                     NEXT,
                       / Trailer map     SAME                      SAME
   ```

   This positions the top of your SIHFOOT panel on line 22 of the screen page. It now occupies the bottom of the screen page.

4. Press the **End** key (PF3) twice, to display the Exit Editor window.

5. Select **Save** to save the new characteristics of your SIHFOOT panel and return to the Identify Panel panel.

6. Press the **End** key to return to the Select an SDF II Function panel.

Chapter 8. Defining a panel group

A *panel group* is a list of panels. All panels in this list have common characteristics. When the panel group is generated it forms a CICS/BMS map set containing one CICS/BMS map for each SDF II panel in the list.

Before you define a panel group with the panel group editor, you define individual panels with the panel editor. You did this in the earlier chapters.

This chapter shows you how to:

- Define the characteristics of a panel group, SIHINQ. These characteristics relate to all the panels in the panel group.
- Define your SIHINQ panel group. Your panel group consists of the SIHHEAD, SIHBODY, and SIHFOOT panels.
- Test your panel group.

Identifying the panel group

Start this step from the Select an SDF II Function panel.

1. Enter **2** on the command line to display the Identify Panel Group panel.
2. Enter the highlighted text:

```
 Exit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                          IDENTIFY PANEL GROUP
Option ===> 2

  blank  Edit existing panel group
      1  Create new panel group from a skeleton panel group
      2  Create new panel group from scratch for CICS/BMS

Identify the panel group
  Name . . . . . . . . . . sihinq
  Library  . . . . . . . . 1

When creating a new panel group from a skeleton, identify the skeleton
  Name . . . . . . . . . .
  Library  . . . . . . . . _

When creating a new panel group from scratch, identify the device type
  Device type  . . . . . . 3279-3b
```

If you enter the name of a default panel group, SDF II uses the device type and characteristics of that panel group. If you do not name a default panel group, however, SDF II needs to know the type of device on which the application program will display the panel group.

When you press the Enter key, you see the Select a Panel Group Editor Dialog panel:

```
 File  View  Options  Help
_____________________________________________________________________________
                SELECT A PANEL GROUP EDITOR DIALOG            SIHINQ 3279-3B
Option ===> _____________________________________________________________

1 CHARACTERISTICS          Define target system dependent information

2 LIST                     Define the list of panels in the panel group

* SYMBOL SETS              Define the list of programmed symbol sets

4 LAYOUT TEST              Define the panels to be included in test

5 TEST                     Show panels in execution time format

6 INSTANCES                Define panel group instances
```

When the SIHINQ object is defined on the Identify Panel panel for the first time, the message `New object created` appears on the top line of the Select a Panel Group Editor Dialog panel.

Defining the panel group characteristics

1. Enter **1** on the command line to display the Define BMS Characteristics panel.
2. Type the highlighted text:

   ```
   Description  . . . . . panel group for sih inquiry
   ```

3. Enter **2** on the command line to display the Define Panel List panel.

Defining the list of panels in the panel group

1. Enter **2** on the command line to display the Define Panel List panel.
2. Enter the **i3** line command to insert three blank lines:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          DEFINE PANEL LIST                 SIHINQ 3279-3B
Command ===> _____________________________________________ Scroll ===> PAGE

Panels  . . . . . .  COLUMNS 1 OF 1, ROW 0 OF 0
   Name ---
i3' TOP OF DATA ***************************************************************
''' END OF DATA ***************************************************************
```

On this panel you list the names of all the panels you want included in the panel group. SDF II does not check whether these panels exist. You create this list so that all the panels have the common properties of the panel group.

3. Enter the names of the panels that make up your panel group, as follows:

```
Panels  . . . . . .
    Name ---
''' TOP OF DATA ***
''' sihhead
''' sihbody
''' sihfoot
''' END OF DATA ***
```

You can enter the **e** (edit) line command next to a panel name to look at or modify the panel using the panel editor. When you later press the End key (PF3), the Define Panel List panel will be redisplayed.

When you generate the panel group, SDF II produces CICS/BMS macros and a data structure for each panel in the order in which you listed it.

When you create a panel in the Panel Editor dialog, you specify the type of device on which the panel will be displayed. SDF II can generate the panel group successfully only when the device type of each panel in the panel group is the same as the device type of the panel group.

Your panel group is now complete.

Defining the test layout

Before you can test your panel group, SDF II needs to know the order in which to display the panels. You define this in the Define Test Layout dialog. The procedure is similar in many ways to the procedure you used to define the panel list.

1. Enter **4** on the command line of the Select a Panel Group Editor panel. SDF II now displays the Define Test Layout panel.
2. Enter the **i3** line command as shown to insert three blank lines after the **Top of data** line.

```
 File  Dialogs  Edit  View  Options  Help
________________________________________________________________
                      DEFINE TEST LAYOUT                 SIHINQ 3279-3B
Command ===> ______________________________________ Scroll ===> PAGE

Panel test layout . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 0 OF 0
    Name ---   Row ---- Column   Justlin  Justcol  Actrow Actcol
i3' TOP OF DATA ***************************************************************
''' END OF DATA ***************************************************************
```

On this panel, you define the layout of the panel group for the test.

Specify only those panels that you identified on the Define Panel List panel.

In this dialog, you simulate the appearance of the page as displayed by an application program. When you code such a program, you use the page build facility of BMS to produce the page.

3. Enter the names of the panels in the order in which you want SDF II to display them, from the top left-hand corner towards the bottom right-hand corner of the test screen:

```
Panel test layout .
    Name ---   Row
''' TOP OF DATA ***
''' sihhead
''' sihbody
''' sihfoot
''' END OF DATA ***
```

When you press the Enter key, SDF II displays information under the other column headings of the Define Test Layout panel. It gets this information from the entries you made on the Define BMS Characteristics panel of the panel editor.

The Define Test Layout panel now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                          DEFINE TEST LAYOUT                   SIHINQ 3279-3B
Command ===> ____________________________________________ Scroll ===> PAGE

Panel test layout . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 3
    Name ---   Row ---- Column   Justlin  Justcol  Actrow Actcol
''' SIHHEAD    1        1        N        L        1      1
''' SIHBODY    NEXT     1        N        L        10     1
''' SIHFOOT    NEXT     1        N        L        22     1
''' END OF DATA ***************************************************************
```

Your layout for testing now consists of one occurrence each of the SIHHEAD, SIHBODY, and SIHFOOT panels. The SIH application, however, displays a page with three occurrences of the SIHBODY panel. To display the page as it will appear when the user runs the SIH application, SDF II needs a further two copies of the SIHBODY panel on the test layout. Use the **r** (repeat) line command to do this.

4. Enter the **r2** line command as shown below to create two more copies of your SIHBODY panel:

```
Panel test layout .
    Name ---   Row
''' TOP OF DATA ***
''' SIHHEAD    1
r2' SIHBODY    NEXT
''' SIHFOOT    NEXT
''' END OF DATA ***
```

The other line commands you can use in the Define Test Layout panel are **a** (after), **b** (before), **c** (copy), **d** (delete), **i** (insert), **m** (move), and **/** (set current line).

When you press the Enter key, SDF II displays information for the inserted panel names under the column headings of the Define Test Layout. It gets this information from the entries you made on the Define BMS Characteristics panel of the panel editor.

The test layout is now complete.

Testing the panel group

1. Enter **test** on the command line of the Define Test Layout panel. SDF II displays the panel group as it would appear to a user:

```
**********************************************************
** U N I V E R S A L   M A I L   O R D E R   H O U S E **
**********************************************************

Category:                              Date:

----------------------------------------------------------
----------------------------------------------------------
Item number:          Name:          Quantity:
Description:

----------------------------------------------------------
Item number:          Name:          Quantity:
Description:

----------------------------------------------------------
Item number:          Name:          Quantity:
Description:

----------------------------------------------------------
----------------------------------------------------------

Total goods                            Total value
  in stock:                           US.$:
                                      F.Fr:
```

2. Press the **End** key (PF3) three times, to display the Exit Editor window.
3. Select **Save** to save the definition of your SIHINQ panel group and return to the Identify Panel Group panel.
4. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Generating the panel group

1. Enter **6** on the command line to display the Identify Object for Generation panel.
2. Type the highlighted text:

```
Name       Library                              Type
sihinq     1                                    g  P. PANEL
```

   SDF II searches all libraries until it finds the object you specify in the **Name** field. It also selects the target system for generation from the target system that the panel group is defined for.
3. Press the **Enter** key to display the Specify Generation Parameters panel.

4. Ensure that the generation parameters are the same as those shown on page 14.
5. Press the **Enter** key. SDF II now generates the data structure and BMS macros for your SIHINQ panel group.

Note: An SDF II panel group produces one CICS/BMS map set for each device type. The map set contains one map for each panel of the panel group. It also produces a data structure, if you requested one.

When SDF II finishes generating the panel group, it displays a list of messages. These are not necessarily error messages. (Error messages are highlighted on monochrome terminals, and presented in a contrasting color on color terminals.) You can scroll through the list of messages and print them.

When you have finished with the list of messages, press the **End** key (PF3) three times to return to the Select an SDF II Function panel.

If there are any error messages, correct each error and generate the panel group again.

Chapter 9. Adding devices and formats to a panel

In the earlier chapters you defined a simple panel with a single format for one device type. You can, however, define your panel for more than one device type. The two ways to do this are:

- Define the format for a device list. A *device list* is a list of the device types that you want your panel displayed on. All device types on the device list use the same format.
- Define the format for another device type.

This chapter shows you how to define the format for another device type.

With SDF II, you can define a new format for each device type. A *format* defines the appearance of a panel on the screen. All formats use the same data structure.

You can change the format, provided that the new format has the same variable fields as the original format. When you change the format, your panel can have a different appearance for different types of display devices.

You can add another variable field, but you then need to add this field to the other formats, because all formats use the same data structure. To make sure that you do not add, delete, or rename a field while you are defining a new format, enter the **preserve on** panel command. You can then still change the positions of the fields and add, delete, or alter text.

You add new formats to a panel in the Define Panel Instances dialog. This chapter shows you how to add a device type for your panel and how to modify the format for that device type. It also shows you some of the line commands you can use in the Define Panel Instances dialog.

Identifying the panel

Start this procedure from the Select an SDF II Function panel.

1. Enter **1** on the command line to display the Identify Panel panel. You see the name, library identifier, and device type of the last panel you defined.
2. Enter the highlighted text:

   ```
   NAME . . . . . . . . . . eni
   ```

   SDF II displays the Select a Panel Editor Dialog panel.

The procedures described here apply to panels; however, you use the same general procedures for panel groups and partition sets. There is a similar dialog in both the panel group editor and the partition set editor.

Defining another device

1. Enter **8** on the command line to display the Define Panel Instances panel.
2. Enter the **r** line command as shown below to repeat the 3279-3B line:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________
                        DEFINE PANEL INSTANCES                ENI 3279-3B
Command ===> _____________________________________________ Scroll ===> PAGE

Formats . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-2 OF 2, ROW 1 OF 1
    Sel Device
r'' ==> 3279-3B
''' *** END OF DATA ************************************************************
```

   The **r** (repeat) line command copies the format of the ENI panel. You could alternatively use the **c** (copy) line command to copy the format. The **i** (insert) line command creates only a blank format.

   The other line commands you can use in the Define Panel Instances dialog are **a** (after), **b** (before), **d** (delete), **s** (select), and **/** (set current line).

3. Enter the highlighted text to add a format for the IBM 3278-4:

```
    Sel Device
''' ==> 3279-3B
'''     3278-4
''' *** END OF DATA
```

If the new display device is smaller, SDF II deletes blank lines and columns from the format. If it cannot delete enough lines or columns, it displays an error message.

If the new display device is larger, and if you have used either the **r** (repeat) or **c** (copy) line command, SDF II copies the panel, retaining the same size as the original format. It will display the panel in the top left-hand corner of the screen. You can further adjust the panel's position in the Define Format dialog of the panel editor. You can adjust the size of the format to the full size of the device in the Define Panel Characteristics dialog.

Modifying the format for the 3278-4 device

1. Enter the **s** line command as shown below to select the 3278-4 format for further editing:

```
    Sel Device
''' ==> 3279-3B
s''     3278-4
''' *** END OF DATA
```

   The text in the upper right-hand corner also changes to show the name of the new device type: 3278-4.

   Note: When you work with objects that are defined for more than one device type, check the device type currently displayed in the top right-hand corner.

2. Press the **End** key (PF3) to see the Select a Panel Editor Dialog panel.

3. Enter **2** on the command line to display the Define Format panel for your ENI panel.

   The 3278-4 format for your ENI panel looks like this:

```
 File  Dialogs  Edit  View  Options  Help
────────────────────────────────────────────────────────────────────────────────
                              DEFINE FORMAT                          ENI 3278-4
Command ===> ________________________________________________ Scroll ===> PAGE

Format  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 32
MARKS: V _ CO + SE , SP /                                     CONTENTS: FORMAT
001
002             *********************************************************
003             ** U N I V E R S A L   M A I L   O R D E R   H O U S E **
004             *********************************************************
005
006
007                       This program is designed for entering
008                             items into the database.
009                     Complete each field and then press Enter.
010
011
012             Category:    ____________________            Price
013
014             Item number: ________                     US.$: ________
015                                                       F.Fr: ________
016             Price valid until: ______
017
018
019
020
021
```

4. Enter the highlighted text:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:
018 /If item is priced in another currency/
019 /convert to US dollars or French francs/
020 /using current exchange rates./
021
```

5. Press the **End** key (PF3) twice, to display the Exit Editor window.

6. Select **Save** to save the object and return to the Identify Panel panel.

7. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Your ENI panel now has different formats for the IBM 3278-4 and for the IBM 3279-3B device types.

Before you can use the new format of your ENI panel in the ENI application, you need to generate new BMS macros. You do not need to generate a new data structure, because all formats have the same data structure. Chapter 4, "Generating your ENI panel" on page 12 shows you how to do this.

Chapter 10. Define a partition set

A *partition set* consists of one or more partitions. A *partition* is a rectangular area of the screen. Partition sets are supported by IBM 3180, IBM 3290, and IBM 8775 display devices.

Different partitions can use different character cell sizes if the device for which the partition set is defined supports them.

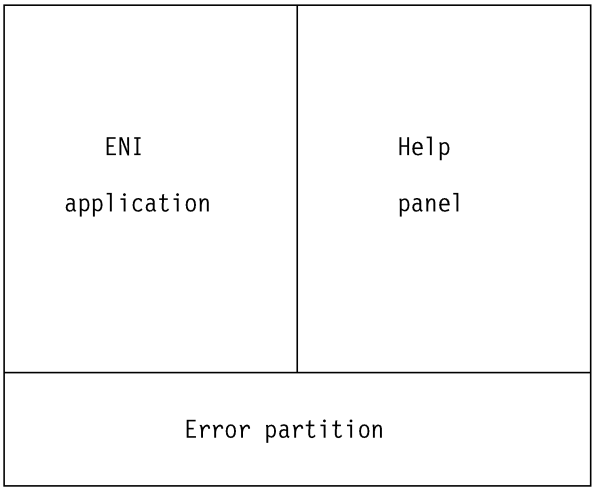
Using the ENI application with a partition set

Earlier, you defined a panel (ENI) for an application that adds new items to a database. You can enhance this application by using a partition set.

To improve the ENI application, you will use three partitions. The partitions display:

- Your ENI application
- A help panel
- Messages.

The display on a partitioned device looks like this:



Only one partition is active at a time. You make a partition active by placing the cursor in it. To operate the ENI application with a partition set, the user places the cursor in the partition displaying the ENI panel and enters data on the ENI panel. If the application program detects an error, it displays a message in the error partition. The user then:

1. Places the cursor in the partition displaying the HELP panel
2. Scrolls through the information in the HELP panel to find an explanation for the message
3. Places the cursor back in the partition displaying the ENI panel, and corrects the error.

To define a partition set for use with the ENI application:

1. Identify the partition set.
2. Define the characteristics of the partition set.
3. Define the layout of the partition set.
4. Test the partition set.
5. Generate the partition set.

Identifying the partition set

Start this procedure from the Select an SDF II Function panel.

1. Enter **3** on the command line. SDF II now displays the Identify Partition Set panel.

   SDF II needs to know the type of device on which the application program will display the partition set. If you enter the name of a skeleton partition set, SDF II uses the device type of that partition set. If you do not name a skeleton partition set, however, you need to tell SDF II the device type.

2. Enter the highlighted text:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                          IDENTIFY PARTITION SET
Option ===> 2_____________________________________________________________

  blank  Edit existing partition set
      1  Create new partition set from a skeleton partition set
      2  Create new partition set from scratch for CICS/BMS

Identify the partition set
  Name . . . . . . . . . . eniprt__
  Library  . . . . . . . . 1

When creating a new partition set from a skeleton, identify the skeleton
  Name . . . . . . . . . . _______
  Library  . . . . . . . . _

When creating a new partition set from scratch, identify the device type
  Device type  . . . . . . 3290___
```

   When you press the Enter key, the Select a Partition Set Editor Dialog panel is displayed:

```
 File  View  Options  Help
_____________________________________________________________________________
              SELECT A PARTITION SET EDITOR DIALOG         New object created
Option ===> _____________________________________________________________

1   CHARACTERISTICS         Define usable area and character cell size

2   PARTITION LAYOUT        Define names and positions of the partitions

3   TEST                    Show partition layout

4   INSTANCES               Define partition set instances
```

The first time you define the ENIPRT object on the Identify Panel panel, the message `New object created` is displayed at the top of the Select a Partition Set Editor Dialog panel.

Defining the partition set's characteristics

1. Enter **1** on the command line, to display the Define Partition Set Characteristics panel.
2. Enter the highlighted text:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
              DEFINE PARTITION SET CHARACTERISTICS              ENIPRT 3290
Command ===> ____________________________________________________________

  Description  . . . . . . partition set for eni
  Target system  . . . . . CICS/BMS
  Generation name  . . . . ______

Usable area size
  Depth  . . . . . . . . . 62  1-62
  Width  . . . . . . . . . 160 1-160

Character cell size
  Depth  . . . . . . . . . 12  12-31
  Width  . . . . . . . . . 6   6-12
```

3. Enter **2** on the command line, and SDF II displays the Define Partitions panel.
4. Enter the highlighted text to define the placement of the partitions and their size:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                            DEFINE PARTITIONS                   ENIPRT 3290
Command ===> ____________________________________________ Scroll ===> PAGE

Partitions  . . . . . . . . . . . . . . . . . . COLUMNS 1-11 OF 11, ROW 1 OF 16
    ID Name     Err Depth Width Line --- Column   Celld Cellw Buff Device
'''   p0        _   32    80    1       1        __    __    32   3279-3b
'''   p1        _   32    80    1       next     __    __    32   3279-3b
'''   p2        y   12    160   next    1        __    __    12   3290
'''
'''   __        _   ___   ___   ________ ________ __    __    ___  ________
'''   __        _   ___   ___   ________ ________ __    __    ___  ________
```

Partitions **p0** and **p1** are defined as having a depth of 32 columns and a width of 80 columns. Partition **p0** will be displayed in the top left-hand corner, because of the entries in the **Line** and **Column** fields. Partition **p1** will be displayed beside partition **p0** because of the **next** entry in the **Column** field.

Partition **p2** will be displayed below the other partitions because of the **next** entry in the **Line** field. It has a depth of 12 lines and a width of 160 columns. Partition **p2** is also defined, by the **y** entry in the **Err** field, as the partition to which messages will be routed.

When you press the Enter key, SDF II numbers the partitions. The Define Partitions panel now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          DEFINE PARTITIONS                      ENIPRT 3290
Command ===> _____________________________________________ Scroll ===> PAGE

Partitions  . . . . . . . . . . . . . . . . . . . COLUMNS 1-11 OF 11, ROW 1 OF 16
    ID Name     Err Depth Width Line --- Column   Celld Cellw Buff Device
''' 1  P0       N   32    80    1       1        12    6     32   3279-3B
''' 2  P1       N   32    80    1       NEXT     12    6     32   3279-3B
''' 0  P2       Y   12    160   NEXT    1        12    6     12   3290
'''
'''    __       _   ___   ___   ________ ________ __    __    ___  ________
'''    __       _   ___   ___   ________ ________ __    __    ___  ________
```

Testing the partition set

1. Enter **3** on the command line to start the Test function of the Select a Partition Set Editor Dialog panel. (You could also test your partition set by entering the **test** panel command.)

   SDF II shows the boundaries of the partitions with cross-hatch (#) characters. For partitions that do not use the default character cell size of your partition set, SDF II shows the boundaries with asterisk (*) characters, instead. You can see only the top left-hand corner of your partition set. Use the scroll keys to see the rest of it. SDF II displays the partition's name in the top left-hand corner of each partition.

   A scaled down version of the partition set looks like this:

```
P0####################################P1####################################
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
#                                    ##                                    #
################################################################################
P2############################################################################
#                                                                            #
#                                                                            #
#                                                                            #
############################################################################
```

2. Press the **End** key (PF3) twice, to display the Exit editor window.
3. Select **Save** to save the object and return to the Identify Partition Set panel.
4. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Defining the ENI panel for the partition set

1. Enter **1** on the command line of the Select an SDF II Function panel to display the Identify Panel panel.
2. Enter the highlighted text:

   ```
   NAME . . . . . . . . . . eni
   ```

   The Define Panel Instances panel is displayed.
3. Select **3279-3B**.
4. Press the **End** key (PF3) to display the Select a Panel Editor Dialog panel.
5. Enter **6** on the command line of the Select a Panel Editor Dialog panel to display the Define BMS Characteristics panel.

   You used this dialog in Chapter 7 when you prepared panels for a panel group.
6. Enter the partition name, **p0**, to associate your ENI panel with the partition P0:

   ```
   Default partition ──────────────────┐
   Partition name
   p0               _ Activate
   ────────────────────────────────────┘
   ```

7. Press the **End** key (PF3) twice, to display the Exit editor window.
8. Select **Save** to save the object and return to the Identify Panel panel.
9. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Generating the partition set

Because you modified your ENI panel in Chapter 9, “Adding devices and formats to a panel” on page 37, you need to generate the panel again to create new BMS macros. If you have not already done this, do it now. (See Chapter 4, “Generating your ENI panel” on page 12 if you need a reminder of how to do this.) Then continue with the following procedure.

1. Enter **6** on the command line of the Select an SDF II Function panel, to display the Identify Object for Generation panel.
2. Enter the highlighted text:

   ```
   Name       Library                          Type
   eniprt     1                                s  P. PANEL
                                                  G. PANEL GROUP
                                                  S. PARTITION SET
                                                  Y. PROTOTYPE
   ```

   When you press the Enter key, you see the Specify Generation Parameters panel.

3. Type the highlighted text:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                        SPECIFY GENERATION PARAMETERS                 ENIPRT
Command ===> _____________________________________________________________

  Object name  . . . . . : ENI
  Object type  . . . . . : PARTITION SET
  Target system  . . . . : CICS/BMS

 ┌ CICS/BMS macro output ──────────────────────────────────────────────────┐
 │ Sublibrary name  . . . . ob.ctl_________                                │
 │ Member type  . . . . . . a_______                                       │
 │ User exit  . . . . . . . ________                                       │
 │                                                                         │
 │ Options                                                                 │
 │ Device type  . . . . . . *_______ * for all devices                     │
 └─────────────────────────────────────────────────────────────────────────┘
```

4. Press the **Enter** key. SDF II now generates the BMS macros for your ENIPRT partition set. When it has finished, it displays the List Generation messages panel:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                        LIST GENERATION MESSAGES                      ENIPRT
Command ===> _____________________________________________ Scroll ===> PAGE

   0 Errors detected
   _ Print messages               Will be performed on Exit

Messages  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-2 OF 2, ROW 1 OF 4
    MESSAGE#   MESSAGE ------------------------------------------------------
'''            Object name: ENIPRT type: PARTITION SET library: 1
'''            CICS/BMS partition set for device 3290
'''            Output library OB.CTL member ENIPRT9.A
''' DGICM034   Generation of BMS macros completed
''' END OF DATA ************************************************************
```

5. Review the generation messages. You can scroll through the list of messages and print them. If necessary, make any appropriate corrections and generate the partition set again.

Chapter 11. Converting your panel for another target system

The objects you have created up to now are for CICS/BMS. Sometimes, however, you may want to use an object you have created for CICS/BMS in a different target system. But, because each target system has specific needs, you need to convert your object to suit the new target system. You can do this with SDF II's conversion utility.

When you convert an object with the conversion utility, SDF II checks that the panel conforms to the rules of the new target system.

In this chapter you convert your ENI panel so that you can use it in an ISPF program.

Converting your ENI panel

ISPF supports only one format for each panel. CICS/BMS however, supports multiple formats. When you convert a CICS/BMS panel to ISPF, select a single CICS/BMS format by specifying the device type of the format.

Start from the Select an SDF II Function panel.

1. Enter **9.3** on the command line, to display the Specify Conversion Utility Parameters panel.
2. Type the highlighted text, which gives SDF II the conversion details:

```
 Exit  View  Options  Help
──────────────────────────────────────────────────────────────────────
              SPECIFY CONVERSION UTILITY PARAMETERS
Command ===> ____________________________________________________________

┌ Source object ──────────────────────────────────────────────────────┐
│ Name       Library                                  Type            │
│ eni        1                                        p  P  PANEL     │
│                                                        G  PANEL GROUP│
│                                                        A  AID TABLE  │
│                                                        S  PARTITION SET
│ For PANEL optionally specify                                        │
│ Format name  . . . . . ____                                         │
│ Device type  . . . . . 3279-3b                                      │
│ Physical page  . . . . . __                                         │
└─────────────────────────────────────────────────────────────────────┘

┌ Object to be created ───────────────────────────────────────────────┐
│ Target system          Name         Library                         │
│ 3  0. ALL              eniispf      1                               │
│    1. CICS/BMS                                                      │
│    2. MFS                                                           │
│    3. ISPF                                                          │
│    4. GDDM                                                          │
│    5. CSP                                                           │
└─────────────────────────────────────────────────────────────────────┘
```

3. Press the **Enter** key. SDF II converts your panel to the appropriate format for ISPF.

The converted panel is stored with the name and library identifier you entered under **Object to be created**. If you do not specify a new name, the converted object replaces the original object.

SDF II includes in the new object only those features of your ENI panel that ISPF will use. It ignores any other features that you defined for the CICS/BMS panel. However, because it adds default values for any features that ISPF needs but that you have not defined for your CICS/BMS panel, you may need to edit the new panel.

When SDF II finishes converting your panel, it displays a list of messages. These are not necessarily error messages. (Error messages are highlighted on monochrome terminals and presented in contrasting colors on color terminals.) You can scroll through the list of messages and print them.

The Conversion Utility Messages panel looks like this:

```
 Exit  View  Options  Help
_______________________________________________________________________________
                        CONVERSION UTILITY MESSAGES                        ENI
Command ===> _____________________________________________ Scroll ===> PAGE

   0 Errors detected
   _ Print messages               Will be performed on Exit
   / Save converted object

Messages  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-2 OF 2, ROW 1 OF 6
    Message#   Message ----------------------------------------------------------
''' DGIUM320   3278-4 - format dropped
''' DGIUM364   3279-3B - panel justification dropped
''' DGIUM367   3279-3B - partition information dropped
''' DGIUM389   ENI - I/O area prefix dropped
''' DGIUM483   ENI - BMS group "DATE" converted (field with subfields)
''' DGIUM496   ENI - adjuncts dropped
''' END OF DATA ************************************************************
```

Review the conversion messages. You can scroll through the list of messages and print them. If you have any error messages, correct each error and convert the panel again.

If you need help, enter **?** in the line command area next to the message.

Saving your converted ENI panel

1. Ensure that the **Save converted object** field is checked with a slash character (/) to save the converted object.
2. Press the **End** key (PF3) three times to save your converted ENI panel and return to the Select an SDF II Function panel.

Appendix. Notes for DBCS users

Entering DBCS text in description fields

All **Description** and **Comments** fields can accept mixed DBCS characters.

When you display the List Objects panel, you see your mixed DBCS description next to the object's name.

Field names, data structure names, and comments in the Define Fields and Define Structure dialog of the panel editor can also be mixed DBCS fields.

Generating a DBCS object

The Specify Generation Parameters panel has a **Graphic** option under **Options**. This option is relevant only when COBOL or PL/I is selected for the **Language** option. If you enter **/** in the **Graphic** option field, SDF II will generate a data structure with GRAPHIC declarations instead of PIC (COBOL) or CHAR (PL/I) for pure DBCS fields.

Glossary of terms and abbreviations

Glossary terms are defined as they are used in this book. Some definitions have been taken from *American National Standard Dictionary for Information Systems*, in which case they are marked with (A); other definitions are from the *Information Technology Vocabulary*, in which case they are marked with an (I). Definitions without source labels are IBM definitions. If you cannot find the term you are looking for, refer to the index, the online reference index, or to the *IBM Dictionary of Computing,* SC20-1699.

A

abend. Abnormal end of task.

action bar. In Common User Access architecture, the area at the top of a window that contains choices that give a user access to actions available in that window.

action bar choice. A textual item on an action bar, which provides access to menus that contain choices that can be applied to an object.

active partition. The partition that contains the cursor. It can be scrolled vertically. While a partition is active, the cursor "wraps around" at the viewport boundaries, and the *ENTER* key (or input key) transmits data from that partition only.

adjunct. An optional field in the data structure that is added to a field in the data structure, which contains data to be displayed. It enables the application program to vary a specific presentation attribute (or set of attributes) at run time.

AID. See attention identifier.

AID table. A table that assigns values to actions performed by the user of the application program. An action may be, for example, the pressing of a program function key. The values are used by the application program.

APAR. Authorized program analysis report.

application. A collection of software components used to perform specific types of user-oriented work on a computer. Typical examples are payroll applications, airline seat-reservation systems, and stock-control systems.

application attribute. A property of a variable field, such as justification of data in the data structure. Contrast with presentation attribute.

application development (AD). The defining, writing, and testing of a program for a specific solution or application problem.

application element. Any single item in the data structure.

application prototype. A simulation of an application by presenting some or all panels used in the application in a predefined order. See operational prototype and simulative prototype.

area. A rectangular part of a format, whose contents (text or graphics) are provided at run time by the application program. See graphic area and dynamic area.

area attribute. An attribute that affects the properties of an area. It can be, for example, extendable or scrollable.

area mark. A mark used to define an area (see area), such as a graphics area or a dynamic area.

array. A named, ordered collection of variable fields, all of which have identical names and attributes. An array has a specified occurrence number denoting the number of elements in the array. See horizontal array and vertical array.

array index. A number in parentheses that appears next to the name of an array. For example, in the name of the element *a(3)* of the array *a*, *3* is the array index.

assembler (ASM). A computer program that converts assembly language instructions into object code.

attention identifier (AID). A character in a data stream indicating that the user has pressed a key, such as the Enter key, that requests an action by the system.

attribute. See presentation attribute and application attribute. See application attribute, area attribute, background attribute, character attribute, field attribute, inherent attribute, and presentation attribute.

attribute descriptor. A symbol that denotes a set of attributes.

attribute line. A line showing the attribute descriptors assigned to the field.

autosave. An automatic save facility in which the user can define a specific number of alterations after which a temporary save occurs automatically.

autosave library. A library in which the saved objects are stored.

B

background attribute. The attributes associated with background text.

background text. All text on a panel that is not within a constant or variable field.

base name. The name that is used in a based data structure as a pointer variable that identifies the location of the data.

block. In SDF II, a rectangular part of a format that is defined by the position command for such commands as moveblock or delblock.

C

C. A high-level programming language.

character attribute. An attribute that applies to a single character.

CICS/BMS. Customer Information Control System/Basic Mapping Support.

COBOL. A high-level programming language, based on English, that is used primarily for business applications.

Common User Access (CUA) architecture. Guidelines for the dialog between a person and a workstation or terminal.

constant field. In SDF II, a field that contains constant text, which has attributes that differ from background attributes. Contrast with variable field.

control table. (1) In IMS/MFS, a user-defined table of operator control functions; a specific control function is invoked when the input device data or data length satisfies a predefined condition. (2) In SDF II, an object that corresponds to an operator control table in IMS/MFS.

conversion. A process by which an object defined for a specific target system is changed so that it becomes an object for another target system. The converted object will retain those properties which are supported by the new target system.

Cross System Product (CSP/AD and CSP/AE). A set of licensed programs designed to permit the user to develop and run applications using independently defined maps (display and printer formats), data items (records, working storage, files, and single items), and processes (logic). The Cross System Product set consists of two parts: Cross System Product/Application Development (CSP/AD) and Cross System Product/Application Execution (CSP/AE).

CSP/AD. Cross System Product/Application Development.

CSP/AE. Cross System Product/Application Execution.

CUA. See Common User Access architecture.

CUA attribute. Synonym for CUA panel element attribute.

CUA panel element. The smallest named part of a panel, such as a title, which is based on CUA architecture.

CUA panel element attribute. In SDF II, any attribute associated with a CUA panel element type. Synonymous with CUA attribute.

CUA panel element type. In SDF II, used as a reference to a class of CUA panel elements. Synonymous with CUA type.

CUA type. Synonym for CUA panel element type.

Customer Information Control System (CICS). An IBM licensed program that enables transactions entered at remote terminals to be processed concurrently by user-written application programs. It includes facilities for building, using, and maintaining databases.

D

DASD. Direct access storage device.

data mark. Synonymous with DATAIN/DATAOUT attribute characters in ISPF.

data structure. In SDF II, a structure that is part of a panel. For output, it describes how data is provided by the application. For input, it describes how data is presented to the application.

DBCS. Double-byte character set.

device list. A list of compatible device types. It is defined by the system programmer.

device table. Synonym for device type table.

device type. In SDF II, the name of a device or of a device list.

device type editor. An editor used for creating and maintaining the device type table.

device type table. A table containing the names of all device types supported by SDF II, together with the features available on the devices. It is maintained by the SDF II administrator.

DFLD. Device field.

dialog. (1) The interaction between a user and a computer. (2) In SDF II, one or more panels and associated logic that establish an interactive session between SDF II and a user. A dialog prompts the user to enter information appropriate to the function requested and displays the results.

direct access storage device (DASD). A device in which access time is effectively independent of the location of the data. (A)

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, the typing, display, and printing of DBCS characters requires hardware and programs that support DBCS.

DSECT. Dummy control section.

dummy control section (DSECT). A control section that an assembler can use to format an area of storage without producing any object code. (A)

dynamic area. In SDF II, an area that is filled with text at run time by the application program.

E

EBCDIC. See extended binary-coded decimal interchange code.

emphasis class. In SDF II, a set of predefined attributes. Emphasis classes can be specified for fields, marks, and attribute descriptors.

EXEC. An executable procedure that contains operating system commands and execution control statements.

extended attribute. Any one of the color, highlight, programmed symbol set, outlining, mixed, or validation attributes.

extended binary-coded decimal interchange code (EBCDIC). A coded character set of 256 8-bit characters.

extended external source format. In SDF II, an extension of CSP/AD's external source format representing certain properties of CICS/BMS and IMS/MFS. See external source format.

external source format. CSP/AD's external source format is a commonly used means of representing applications and panels in an AD/Cycle framework. The format consists of a readable syntax of mark-up tags and attributes.

F

field attribute. A defined characteristic of a field, such as protected or unprotected, alphanumeric or numeric, detectable or nondetectable, displayable or nondisplayable, or intensity. See presentation attribute and inherent attribute.

field format. A field property that determines the character set that can go into a given field.

format. A format is part of a panel. It defines how data appears on a screen. For output, it defines how data is presented on a screen. For input, it defines how data is entered on a screen by a user. A format may consist of different definitions for different device types. These definitions are called format instances.

format element. A part of a format, such as a variable field, a constant field, a dynamic area, a graphic area, a repeat format, or an include panel.

format instance. A part of a format that defines the appearance of data for a particular device type.

format mode. One of the four modes in which SDF II can display the layout of a panel. In this mode, marks show the extent of fields and areas. Contrast with initial value mode, name mode, and sample value mode.

G

GDDM–IMD. Graphical Data Display Manager — Interactive Map Definition.

generation. In SDF II, a process by which objects are created for use in the target systems or for prototyping the application.

graphical data display manager (GDDM). A group of routines that allows pictures to be defined and displayed procedurally through function routines that correspond to graphic primitives.

H

horizontal array. An array that is read from left to right and line by line. For example:

choice (1) choice (2)
choice (3) choice (4)

See array and vertical array.

I

import. In SDF II, a process by which objects are imported into SDF II from one of the supported target systems, from SDF/CICS, or from an external source format structure.

IMS/MFS. Information Management System/Message Format Service.

include panel. A panel that is included in another panel. Examples are headers and trailers.

Information Management System/Virtual Storage (IMS/VS). A database/data communication (DB/DC) system that can manage complex databases and networks. Synonymous with IMS.

inherent attribute. An attribute that can be defined for variable and constant field marks, and data marks. After the field is defined, inherent attributes cannot be changed.

initial mode. In SDF II, one of the four modes in which SDF II can display the layout of a panel. In this mode, the Format window shows each initial value in its variable field. Contrast with format mode, name mode, and sample mode.

initial value. A value the SDF II user assigns to a variable field. The application program displays this value at run time if no value has been provided by the application.

Interactive System Productivity Facility (ISPF). An IBM licensed program that serves as a full-screen editor and dialog manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogs between the application programmer and terminal user. (A)

ISPF. Interactive System Productivity Facility.

ISPF/PDF. Interactive System Productivity Facility/Program Development Facility.

M

mark. In SDF II, a character used to define a format element, such as a field or area, or to provide some editing function. Examples include area marks, character marks, separator marks, and spacer marks.

MRI. Machine-readable information.

machine-readable information (MRI). All textual information contained in a program, such as a system control program, an application program, or microcode. MRI includes all information that is presented to or received from a user interacting with a system. This includes menus, prompts, messages, report headings, commands, and responses. MRI may appear on printers or on display panels. (A)

MVS. Multiple virtual storage. Implies the MVS/XA product and the MVS/ESA product.

N

name mode. One of the four modes in which SDF II can display the layout of a panel. In this mode, the Format window shows the name of the variable field in the field. Contrast with format mode, initial mode, and sample mode.

national language support (NLS). The modification or conversion of a United States English product to conform to the requirements of another language or country. This can include the enabling or retrofitting of a product and the translation of nomenclature, MRI, or documentation of a product. (A)

NLS. National language support.

nonprogrammable terminal (NPT). In Basic Common User Access architecture, a terminal attached to a host processor in which most of the user-interface functions are controlled by the host processor. (A)

NPT. Nonprogrammable terminal.

O

object. In SDF II a panel, panel group, partition set, or AID table stored in an SDF II library.

Figure 6 shows the equivalents for these objects in the target systems.

Figure 6. SDF II objects and target system equivalents

SDF II Object	IMS/MFS	CICS/BMS [1]	GDDM–IMD	CSP/AD or VisualGen	ISPF
Panel	Format set	Map	Map	Map	Panel
Panel group		Map set	Map group	Map group	
Partition set	Partition definition block	Partition set			
AID table	PF key parameter of the DEV statement		AID table		
Control table	Operator control table				

[1] SDF/CICS uses the same terms as CICS/BMS

operational prototype. A simulation of an application program to test or review simple functions, such as simple database access, scrolling, error reporting, and online help panels. For some application programs, an operational prototype may include some characteristics of a database, including some program code or SDF II dialog manager tables. The operational prototype is used to determine the needs of the user of the application program and to ensure that the application program meets those needs. See simulative prototype.

P

page. In SDF II, part of a format instance that corresponds to an IMS/MFS physical page.

panel. (1) The information that is displayed at any one time on the screen. (2) An SDF II object. It consists of formats, data structures, and various tables. Each panel has at least one format.

panel command. A command that affects a part of the panel, the whole panel, or the flow of SDF II. Panel commands are entered on the command line. They can be assigned to program function keys.

panel element. (1) An element of a panel as displayed in the Define Panel Instances dialog, which denotes one of the following:

- Format
- Format instance
- Page
- Data structure

(2) A line in the Specify Panel Elements dialog. It is used by the panel construction utility to create one or more fields, panel text, or a repeat format on the panel to be constructed.

panel group. An object within SDF II that contains a list of panel names and describes the properties of these panels.

panel group instance. A part of a panel group that describes the properties of the panel group for a particular device type.

partition. All or a portion of the screen. Data is presented within the partition through a viewport, which is defined when the partition is created.

partition set. An SDF II object that consists of a group of partitions designed to share the same screen.

partition set instance. A part of a partition set that describes the properties of the partition set for a particular device type.

PL/I. A programming language that is designed for use in a wide range of commercial and scientific computer applications. (A)

presentation attribute. An attribute that defines how information is presented on the screen, such as highlighting and color. Contrast with application attribute.

program temporary fix (PTF). A temporary solution or bypass of a problem diagnosed by IBM as resulting from a defect in a current unaltered release of the program.

prototype. See simulative prototype and operational prototype.

PTF. Program temporary fix.

pull-down. In Common User Access architecture, a list of choices associated with a choice on the action bar. A user selects a choice from the action bar and a pull-down menu appears.

pull-down choice. A textual item on a menu. A user selects a choice to work with an object in some way.

R

reference name. A 1- or 2-character name used by SDF II as a synonym for the name of a variable field.

repeat format. A rectangular part of the format that can be repeated down a panel. All instances of a repeat format must have the same variable fields at the same relative horizontal positions as in the source format.

Report Program Generator II (RPG II). A commercially oriented programming language specifically designed for writing application programs intended for business data processing. (A)

Restructured Extended Executor (REXX). An interpretive language used to write command lists.

REXX. Restructured Extended Executor language.

RPG II. Report Program Generator II.

S

sample mode. One of the four modes in which SDF II can display the layout of a panel. In this mode, the Format window shows each sample value in its variable field. Contrast with format mode, initial mode, and name mode.

sample value. A value the SDF II user assigns to a variable field. SDF II displays this value when the panel is tested or during prototype simulation.

Screen Definition Facility/Customer Information Control System (SDF/CICS). An online application development tool used by application programmers to define or edit maps, map sets, and partition sets for CICS/VS Basic Mapping Support. (A)

Screen Definition Facility II (SDF II). An interactive application development tool that helps application developers to define, maintain, import, and generate screen objects, such as panels, panel groups, partition sets, attention identifier (AID) tables, and control tables, as appropriate, for its target systems.

scrollable area. The window in the main panel behind which a scrollable area format can be scrolled.

scrollable area format. A separate format used with a scrollable area.

SDF/CICS. Screen Definition Facility/Customer Information Control System.

SDF II. Screen Definition Facility II.

SDF II dialog manager. The dialog management component of Screen Definition Facility II.

SDF2/DM. SDF II dialog manager.

separator. In SDF II, a mark used to separate the length of a field, its name, and its mark.

shift-in character (SI). A code extension character used to terminate a sequence that has been introduced by the shift-out character to make effective the graphic characters of the standard character set. (I) Contrast with shift-out character.

shift-out character (SO). In SDF II, a code extension character that substitutes, for the graphic characters of the standard character set, DBCS. Contrast with shift-in character.

SI. Shift-in character.

simulative prototype. A simulation of a series of panels used by an application program to test or review the primary flow of interactions between the application program and its users. The panels may display initial values and may accept data entered by a user. See operational prototype.

skeleton. An object used as a model when creating a new object.

skip after attribute. In SDF II, a presentation attribute that causes the cursor to skip to the next unprotected field when the field in which the cursor is located has been filled.

SO. Shift-out character.

spacer. In SDF II, a mark that positions information on lines during panel definition; it is typically used for centering.

specification object. Synonym for object.

T

target system. A system under which the application using an SDF II panel can be run. For example, CICS/BMS, CSP/AD, VisualGen, ISPF, GDDM–IMD, and IMS/MFS.

U

user exit routine. A user-written routine that receives control at predefined user exit points. In SDF II VSE, for example, it is an EXEC.

V

variable field. A field in which data may be changed by the application program or by the user. It has a character string, which can be empty, defined at run time as its contents. If no contents are provided at run time, the initial value, if defined at specification time, is taken as default instead. Contrast with constant field.

vertical array. An array that is read from top to bottom and column by column. For example:

choice (1) choice (3)
choice (2) choice (4)

See array and horizontal array.

Virtual storage extended (VSE). An IBM licensed program whose full name is the Virtual Storage Extended/Advanced Function. It is a software operating system controlling the execution of programs. (A)

VSE. Virtual storage extended.

W

window. In SDF II, a rectangular part of the screen where scrollable data is displayed and can be manipulated.

SDF II publications

The SDF II Release 6 publications are:

SDF II Licensed Program Specifications, GH12-6318
Contains the product specifications and warranty information.
Audience: Data processing manager, system programmer.

Introducing SDF II Release 6 for VSE, GH12-6314
Summarizes the functions, uses, requirements, and advantages of SDF II.
Audience: Data processing manager, system programmer.

SDF II General Introduction, SH12-6315
Introduces SDF II to new users and explains how to define simple panels. It also explains how to prototype the flow of panels and main functions of an application.
Audience: System programmer, application programmer, application user.

SDF II Primer for CICS/BMS Programs, SH12-6313
Explains how to use SDF II to develop objects for applications that run under CICS/BMS.
Audience: System programmer, application programmer, application user.

SDF II Run-Time Services, SH12-6312
Provides a comprehensive reference to the language and functions of the SDF II dialog manager (SDF2/DM).
Audience: System programmer, application programmer.

SDF II Administrator's Guide, SH12-6311
Describes how to customize SDF II on a VSE system. It also explains how to import objects into SDF II, how to set up and work with libraries, how to run SDF II from batch, and how to identify and report problems in SDF II to IBM support personnel.
Audience: System programmer, application programmer.

SDF II Reference Summary, SX12-5012
Lists and explains SDF II line and panel commands. It also lists the main dialogs and functions of SDF II.
Audience: System programmer, application programmer, application user.

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Your comments, please ...

Screen Definition Facility II for VSE
Primer for CICS/BMS Programs
Release 6

Publication No. SH12-6313-00

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SH12-6313-00

Cut or Fold
Along Line

Fold and Tape **Please do not staple** Fold and Tape

PLACE
POSTAGE
STAMP
HERE

IBM Vienna Software
SDF Development/Service
Department 00/174
Lassallestrasse 1
A–1020 Vienna
Austria
Europe

Fold and Tape **Please do not staple** Fold and Tape

SH12-6313-00

Cut or Fold
Along Line

Program Number: 5746-XXT

SH12-6313-00