Screen Definition Facility II for VSE

General Introduction

Release 6

SH12-6315-00

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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 vii.

First Edition (December 1997)

This edition applies to Release 6 Modification Level 0 of Screen Definition Facility II for VSE, Program Number 5746-XXT, and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

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About this book

This book provides an overview of Screen Definition Facility II for VSE (SDF II) for new users and contains step-by-step instructions for defining panels using SDF II. After you have worked through this book, you will be ready to use the *Primer for CICS/BMS Programs*. "SDF II publications" on page 119 lists the books in the SDF II library.

What you will find inside

This book provides the following information:

Part 1 Introduces you to the common panel definition tasks:

Chapter 1 Explains how to start and end SDF II and gives you an overview of defining a panel with the panel editor. It also explains how to get online help, including using the online reference.

Chapter 2 Shows two things you need to do before you start to define your first panel: specify a target system and specify a library.

Chapter 3 through Chapter 8 Show you how to:

- Identify a panel to be edited.
- Add a panel description, and view or change the panel default characteristics.
- Define text and constant fields.
- Define variable fields.
- Use CUA panel elements.
- Define attributes for your text and fields.
- Test your panel.

Chapter 9 Shows you how to print a panel.

Chapter 10 Shows you how to work on objects stored in an SDF II library, including how to change, test, print, copy, delete, rename, and find a panel.

Chapter 11 Summarizes the ways to move, copy, delete, and shift lines and blocks in a panel format.

Chapter 12 Shows you how to define arrays.

Chapter 13 Shows you how to include a panel in a format.

Chapter 14 Shows you how to repeat part of a format several times.

Chapter 15 Shows you how to change what you see in the windows of some SDF II dialogs.

Chapter 16 Shows you how to define an SDF II profile.

Chapter 17 Shows you how to construct a panel from a list of elements, using the panel construction utility.

Part 2 Explains how to define and run prototypes:

Chapter 16 Summarizes the two different approaches to prototyping.

Chapter 19 Introduces the prototyping examples that are used in this part to demonstrate how to build prototypes.

Chapter 20 Shows you how to prototype the flow of control between panels, first without, then with sample values.

Chapter 21 Shows you how to prototype an application program, calling user exit routines to simulate or use actual function in the application program.

Part 3 Contains the following appendixes:

Appendix A Lists suggestions for correcting problems you may come across.

Appendix B Explains what the program function keys do.

Appendix C Contains information for people who define objects on or for double-byte character set (DBCS) devices.

Part 4 Contains the following extra information:

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.

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 the manual, 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 displayed.

References to CSP/AD and VisualGen

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

Part 1. Defining panels

Chapter 1. Introduction to SDF II

This chapter explains how to start an SDF II session and how to use the online help information.

Your panels might differ from those in this book for the various reasons, including:

- The example of SDF II panels used in this book use the profile provided with SDF II, including the initial PF key settings. It is possible that your SDF II administrator has made changes to the SDF II profile.
- The panels in this book might look different on your display device, and you might need to scroll the image to see the whole panel.
- Some information depends on the target system for which you are defining your panels. The examples in this book are for the target system CICS/BMS.

Starting an SDF II session

SDF II runs as a CICS/VSE transaction. How you start it, and which panel you see first, depends on how your SDF II system has been set up. For example, one way to start might be to enter **sdf2** as a CICS/VSE transaction ID. However, SDF II may be included as an option on a selection panel.

Throughout this book, the initial SDF II panel is assumed to be the Select an SDF II Function panel. Ask your SDF II administrator how to display this panel. It is the starting point for your work.

```
 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
```

This panel is also the ending point for your work. Use the **End** key (PF3) to return to this panel. Then, to leave SDF II, press the **End** key again.

The panel command line is indicated by ===>. On this line, you enter menu choices and panel commands. To retrieve the last command you entered:

1. Move the cursor to the command line if it is not already there. You can do this by pressing the **Cretriev** key (PF12).
2. Press the **Cretriev** key (PF12) to display the last command you entered.

If you prefer to have the command line near the top of panels, you may find it easier to work with the autoskip function turned off. To set this, enter **autoskip off** on the command line.

You can assign panel commands to program function keys by updating your SDF II profile, as described in Appendix B, “The program function keys” on page 107.

The online reference is introduced in this chapter (see “Using the online reference” on page 4). Other choices are introduced as needed in other chapters. Choices specific to CICS/BMS applications are discussed in the *SDF II Primer for CICS/BMS Programs*. These topics are also discussed in the online reference.

Using the action bar

Each SDF II panel has an action bar, which provides easy access to relevant commands and dialogs.

How you access the action bar and its menus depends on how your terminal or workstation is set up. For example, you might be able to access the menus by using a mouse or other pointing device. Alternatively, you might have to rely on the cursor, number, and Enter keys on the keyboard. When a menu is displayed, you can either enter the number of option you want, or move the cursor to the option and press the **Enter** key.

The choices on the action bar are grouped logically. Thus, for example, all the main dialogs are listed on the Dialogs menu, editing actions are on the Edit menu, and options that control the display of information are on the View menu.

Some menu options represent SDF II commands, which are processed immediately, while others lead to windows in which you make further selections or enter information.

More experienced users will often find it faster and more convenient to issue commands from the command line and to navigate SDF II by means of its panel commands.

Displaying online information

The following information is available online in SDF II:

Panel help
Field help
Messages and message help
Online reference.

Displaying panel help

To display information about the SDF II panel you are using, press the **Help** key (PF1). SDF II displays the relevant online reference topic.

Displaying field help

To display information about an entry field, move the cursor to the field, then press the **Help** key (PF1). You then see a help window that explains the purpose of the field and lists the possible entries. For more information, enter the **exhelp** command. SDF II then displays the relevant online reference topic.

Displaying message help

SDF II displays short messages in the upper right corner of the panel.

When you need more information, press the **Help** key (PF1) to display a longer message. To get more information, press the **Help** key again. SDF II displays help information that explains the message more fully and describes the required user action and, if relevant, the system action.

You can also enter **?** on the Message List panel for an explanation of a message.

For more information, from the help window press the **Enter** key. SDF II then displays the relevant online reference topic.

Using the online reference

The online reference contains how-to information and explains SDF II panels and commands.

1. Start the online reference in one of these ways:
   - Press the **Help** key (PF1) from an SDF II panel.
   - From within a Help window, press the **Extended help** key (PF4) or enter the **exhelp** command.
   - Select **Online Reference** from the **Help** action-bar pull-down.

     If you start the online reference from the **Help** action-bar pull-down, SDF II displays the table of contents of the online reference. You can also display this panel by entering the **toc** command from within the online reference.

```
                        SDF II Reference Information
Command ===>


   Enter the number of a topic listed below, or press ENTER to
   browse through the topics in order. For assistance, enter HELP.

0   GENERAL                 SDF II General Information
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  SDF II PROTOTYPE        Define and run a prototype
12  SYSTEM                  System Administration
13  INDEX                   Index to Online Reference

N   NEWS                    Highlights of this SDF II release
```

From here, you can select a major topic or enter the panel command **index** to look for something more specific.

For example:

a. Enter **1** to display the selection panel for the Panel Editor topic:

```
                                  Panel Editor
Command ===>


   Use the panel editor to design and edit panels.


For more information, see the following topics:

    0. Entry to the Panel Editor
    1. Define Panel Characteristics
    2. Define Format
    3. Define Fields
    4. Define Attributes
    5. Define Structure
    6. Define System Dependent Information
    7. Test a Panel
    8. Define Panel Instances
    9. Define CSP Field Editing
   10. Define Marks
   11. Edit Field
   12. List Emphasis Classes
   13. List CUA Attributes
```

b. Select a topic or press the **Enter** key to continue to the first topic.

   For example, to select the first topic, either type **0** on the command line and press the **Enter** key or just press the **Enter** key. This brings you to the start of the topic Entry to Panel Editor.

If the topic is too long for the screen, the word More appears at the top right of the panel. To browse through the topic, press the **Scroll down** key (PF8).

Some words and phrases in the online reference are highlighted and linked to associated information. These are *reference phrases*. To display more information about a reference phrase topic, press the tab key to get to the highlighted text, then press the Enter key.

You can move back through the online reference, as follows:

- Enter **b** on the panel command line to return to the panel last viewed.
- Press the **Up** key (PF4). This brings you back to the selection panel for the topic.

2. Press the **Up** key (PF4) to go back to the start of the online reference. You can now select another major topic or use the index.

   Note: You can access the index at any point in the online reference by entering the command **index**.

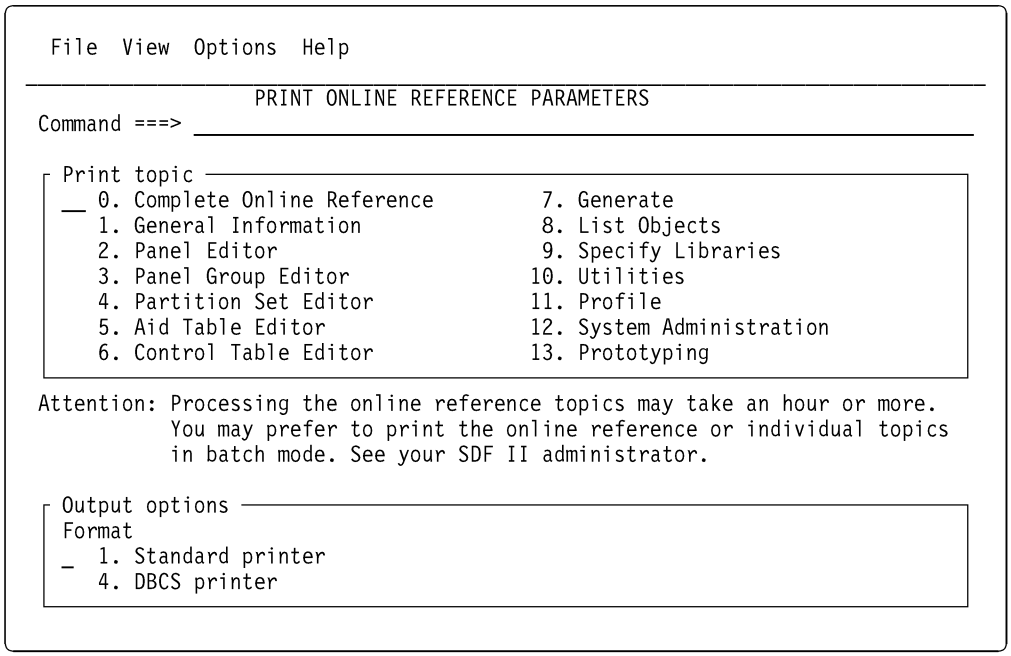
3. To leave the online reference, press the **End** key (PF3). This brings you back to the Select an SDF II Function panel.

Printing the online reference

You can print all or part of the online reference. Each part explains one of the main dialogs of SDF II.

Attention: Depending on the system load and the speed of your computer, processing the online reference topics may take an hour or longer. The better way to get a printout of the online reference or of particular topics is to ask your SDF II administrator to prepare and run an appropriate batch job.

1. On the command line of the Select an SDF II Function panel, enter **13** to display the Print Online Reference Parameters panel.



2. Type a selection number in the **Print topic** field. For example, to print the online reference for the Panel Editor topic, type **2**.
3. In the **Output options** field, identify the printer for which the listing is to be prepared:

   1 For the standard system printer (SYSLST)
   4 For a DBCS printer
4. Press the **Enter** key.
5. When you see the message `Printing completed`, press the **End** key (PF3) to return to the Select an SDF II Function panel.

SDF II prepares the listing for the specified printer.

Chapter 2. Setting up your SDF II session

Before you start to define your first panel, you may need to specify:

- A target system
- At least one library

This information is then used for all your SDF II sessions.

Specifying a target system

You can define panels for applications that will run under any of the following target systems:

- Customer Information Control System/Basic Mapping Support (CICS/BMS)
- Information Management System/Message Format Service (IMS/MFS)
- Interactive System Productivity Facility (ISPF)
- Graphical Data Display Manager/Interactive Map Definition (GDDM–IMD)
- Cross System Product/Application Development (CSP/AD)
- VisualGen

Note: To generate IMS/MFS, GDDM–IMD, or CSP/AD export data set objects, first migrate the SDF II source objects to SDF II for MVS Release 4 or later.

When you set up your SDF II profile for a target system, you get the appropriate default values for that system. For the procedures in this book, you can set up the profile for any target system. Before you start, though, enter the **pfshow** panel command to display the program function key settings.

To set up the profile for a target system:

1. On the Select an SDF II Function panel, enter **10.1** on the panel 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
```

   Note: Although the command line is shown near the top of the panels in this book, you will probably find it more convenient to move it to the bottom. To do this, enter the command **cmdline**.

2. In the field **Target system**, specify the option number that matches your target system or accept the default value.

   The initial setting provided by SDF II is CICS/BMS. Leave this setting unchanged for working through this book.

If you specify **0** to indicate a target system of **All**, no checks that are dependent upon a target system are made during editing of an object. A target system is then specified when the object is generated. The object will be converted to that target system and generated.

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

Specifying libraries

SDF II objects such as panels, panel groups, and partition sets are stored in and retrieved from an SDF II library. You can specify as many as nine SDF II libraries to group SDF II objects logically. For example, one SDF II library might be used to store test objects and one to store production objects.

An SDF II library refers to a VSE library.

You must identify at least one library on the Specify Libraries panel before you can define the first panel. Contact your SDF II administrator to get the names of the libraries to be used.

The following procedure shows you how to associate a library with an SDF II library identifier.

1. On the command line of the Select an SDF II Function panel, enter **8** to display the Specify Libraries panel.
2. Enter the library name in the form:

   library.sublibrary

   For example:

```
 Exit  View  Options  Help
_____________________________________________________________________________
                          SPECIFY LIBRARIES
Command ===> _____________________________________________________________

ID Library name ---  Description ----------------------
1  sdfobj.ianw       _____________________________________
2  _________________ _____________________________________
3  _________________ _____________________________________
4  _________________ _____________________________________
5  _________________ _____________________________________
6  _________________ _____________________________________
7  _________________ _____________________________________
8  _________________ _____________________________________
9  _________________ _____________________________________

Optionally, specify an AUTOSAVE library
   Library name ---
   _________________

Search for related objects. . _  1. Search all libraries
                                2. Start with library of primary object
                                3. Same library as primary object
```

3. In the **Description** field, type a description of the library contents. This will help you and others later to correctly identify the library.

The order in which you enter the libraries is important. You can, however, affect the search order by selecting an option in the **Search for related objects** field, as follows:

Search all libraries
Searches all the libraries in the specified order, starting with library 1.

Start with library of primary object
Starts searching with the ID of the library from which the primary object was taken. If necessary, the search continues sequentially through to the last library in the specified search order.

Same library as primary object
Searches only the library that contains the primary object.

4. On the line at the bottom of the panel, you can optionally enter the name of an autosave library.
5. Press the **End** key (PF3) to return to the Select an SDF II Function panel.

Chapter 3. Identifying a panel and defining its characteristics

This chapter shows you how to identify the panel you want to create or edit, how to create a new panel using a skeleton panel, and how to view or change the general characteristics of the panel.

Identifying a panel

When you start the panel editor, you need to specify the name of the panel you are defining or updating. You indicate the SDF II library in which the new panel is to be stored or from which an existing panel is to be retrieved.

For a new panel, you must specify the type of device for which the panel is to be defined.

To name a panel and specify a device type:

1. On the Select an SDF II Function panel, enter **1** on the command line. The Identify Panel panel is displayed:

```
 Exit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                              IDENTIFY PANEL
Option ===> ____________________________________________________________

  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 . . . . . . . . . . ________
  Library  . . . . . . . . _

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  . . . . . . ________
```

2. Type the name of the panel. To skip from one field to the next, press the **Tab** key.
3. Specify the identifier (ID) of the SDF II library in which the panel will be stored. (Use the ID of the SDF II library you specified in “Specifying libraries” on page 9.)
4. Enter a device type.

   This identifies the device that will be used to display the panel when it is used in an application program. If you are not sure what the valid device types are for your target system, check with your SDF II administrator.

   You must specify the device type for a new panel.

If you want to create the sample panel described in this book, specify option **2**, a panel name of **vacs1**, and a device type of **3279-2B.**

Leave the second **Name** and **Library** fields blank for now. You fill in these fields when you use an existing panel as a skeleton for a new panel, as described in the online help. For example, to make panel definitions efficient and consistent, you might define a set of skeleton panels to be used as a starting point when you create new panels. A new panel would then be, initially, the same as the skeleton from which it was copied, including all the text, fields, and associated information. You can then modify the new panel as needed.

When you press the Enter key, SDF II displays the Select a Panel Editor Dialog panel and, if a new object has been created, issues a message.

You can also specify the panel name and library identifier of an existing panel in the input line of the List Objects panel, as described in Chapter 10, “Working on stored panels” on page 52.

Defining the panel characteristics

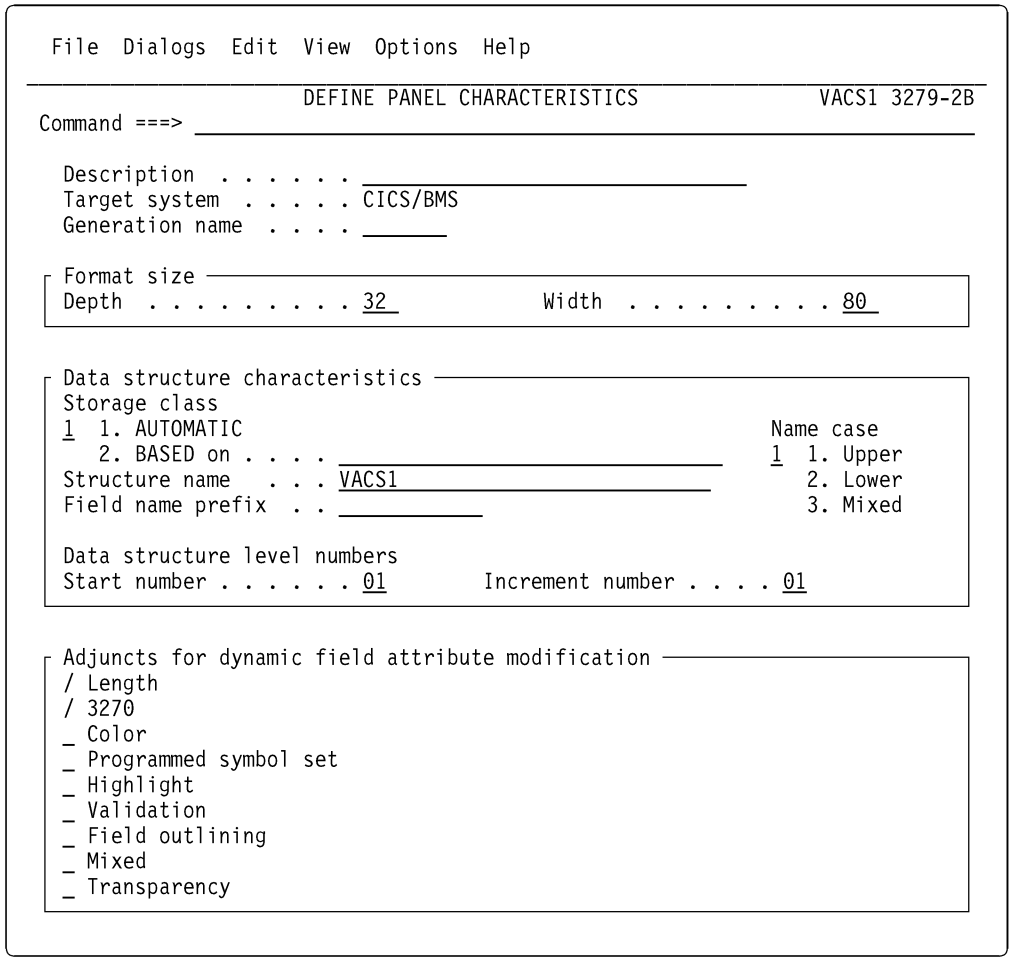
Before you start to define the layout of your panel, you might want to use the Define Panel Characteristics panel to do the following:

- Provide a brief description of the panel. This description will be used in the List Objects display.
- Specify the name of the help panel associated with the panel.
- View or change the size of the panel.
- View or change other parameters that affect the data structure associated with the panel.

If you do not define the panel characteristics, the default characteristics are used and no description or help panel is used.

To define the panel characteristics:

1. On the Select a Panel Editor Dialog panel, enter **1** on the command line. The Define Panel Characteristics panel is displayed:



The online reference describes in detail each item on the panel.

Look at the values provided in the following fields:

Target system
: This is the name of the system you are defining the panel for. For example, in this panel it is CICS/BMS. It comes from the SDF II profile or from the skeleton panel. SDF II uses this information to build the correct internal structure for your panels and to provide initial settings for the characteristics that are target-system dependent.

Format size
: This is the size of the panel you are defining. The depth is the number of lines. The width is the number of columns. Defaults are taken from the information SDF II has about the device.

2. Add a description of the panel, for example:

   ```
   Description  . . . . . vacation selection panel
   ```

   This will help you later when you look through the list of objects in a library. There, you will see the description beside the name of the panel.

   Note: Depending on the number of lines your terminal can display, you may need to scroll the panel to see all the fields.

   Press the **Help** key (PF1) if you would like an explanation of the fields.

   In this example, default values for the CICS/BMS target system are shown. The default values are suitable for the sample panel, so you can leave the panel without changing anything else.

3. Press the **End** key (PF3). The Select a Panel Editor Dialog panel is displayed.

The next time you start the panel editor, SDF II displays, on the Identify Panel panel, the name of the panel you last worked on.

The next main step is to lay out the text and fields of your panel.

Chapter 4. Introduction to using the panel editor

To create and edit panels, you use the dialogs of the SDF II panel editor. These dialogs are listed on the Select a Panel Editor Dialog panel:

```
 File  View  Options  Help
_____________________________________________________________________________
                        SELECT A PANEL EDITOR DIALOG                VACS1 3279-2B
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
```

Selections that are not available for your target system have an asterisk (*) instead of a number. This example shows the Select a Panel Editor Dialog panel for the target system CICS/BMS, for which field editing is not an available selection.

You use these panel editor dialogs to do the following:

- Specify the characteristics that apply to the entire panel, such as its size if the default size is not used (see Chapter 3, “Identifying a panel and defining its characteristics” on page 11).
- Define the layout of the panel.
- Test the appearance of the panel.

The panel editor also has other dialogs that are used for specific target systems.

Before the panel can be used in an application program, it must be generated. You can generate objects for CICS/BMS, for ISPF, and for CSP/AD and VisualGen external source format, using SDF II VSE Release 6 or later.

Notes:

1. To generate IMS/MFS, GDDM–IMD, or CSP/AD (export data set) objects, migrate them to SDF II MVS Release 4 or later.
2. Information on generating a panel, and other information that is specific to the CICS/BMS target system, is included in *SDF II Primer for CICS/BMS Programs* and the online reference. For information that is specific to other target systems, see the online reference.

Defining the panel layout

In SDF II, the layout of your panel is the panel *format*.

At the simplest level, you define a panel format by typing the text that will be displayed. But most panels do more than display constant text. You can specify all of the following in an SDF II panel format:

Background text Text that is not part of any field and that takes the default set of attributes.

Constant fields Fields that contain constant text and that have attributes differing from the background attributes.

Variable fields Input and output fields in which data can be changed by the application program or the application user.

Arrays A named, ordered collection of variable fields that are accessed by the application program by means of indexing.

Include panels An SDF II panel, such as a standard header or trailer, that is included in one or more other panels.

Repeat formats A block of a format that is repeated down the panel.

Areas Rectangular windows of a format. The contents displayed in the window are either supplied at run time or defined in a scrollable area format.

You use the following dialogs of the panel editor to define the layout:

Define Format
Define Fields
Define Attributes.

Transferring between panel editor dialogs

You can switch immediately from one panel editor dialog to another. To do this, enter the panel command *n*, where *n* is the number of the panel editor dialog as listed on the Select a Panel Editor Dialog panel. For example, enter **4** to transfer to the Define Attributes dialog, where you can continue to edit the same panel.

Leaving a panel editor dialog

When you are using the panel editor, use one of these panel commands to leave a dialog:

end To leave the dialog and return to the Select an SDF II Panel Editor Dialog panel.

If you use the **end** command, you cannot leave the panel if input is pending, for example, if SDF II has prompted you for a field entry. If an error message is pending, you can issue the **restore** panel command to restore the panel to its last correct state, and then issue the **end** command. Your changes are kept, but your panel is not written to the library until you leave the panel editor. When you leave the panel editor, SDF II displays the Exit Editor panel, in which you are asked whether you want to cancel the request, or whether you want to save or discard your changes before leaving the editor.

The **end** panel command is usually assigned to PF3.

quit To select another panel editor dialog, when you have not made any changes to the panel.

qquit To select another panel editor dialog, if you do not want to keep the changes you made using the current panel editor dialog.

You can leave the panel even if input is pending.

cancel To leave the panel editor completely, when you have not made any changes to your panel from the current or any other panel editor dialog.

ccancel To leave the panel editor completely, if you do not want to keep the changes you made since you started the panel editor.

If you use **ccancel**, any changes you made to your panel in any panel editor dialog are lost.

You can leave the panel even if input is pending.

If you use the **end**, **quit**, or **qquit** command in a panel editor dialog, SDF II displays the Select a Panel Editor Dialog panel. If you use the **cancel** or **ccancel** command, SDF II displays the panel you started the panel editor from, either the Select an SDF II Function panel or the List Objects panel.

Chapter 5. Defining text and constant fields

This chapter presents instructions for using the Define Format panel to specify text and constant fields, and for testing the resulting panel. Many of the techniques described here will also be useful when you define variable fields and other parts of the panel format.

Starting the Define Format dialog and controlling the display

The starting point for editing a new panel as described in this chapter is the Define Format panel. To display this panel:

1. On the Select an SDF II Function panel, select the panel editor and name the panel you want to work on, as described in “Identifying a panel” on page 11.
2. On the Select a Panel Editor Dialog panel, enter **2** to select the Define Format panel.

The resulting panel format has as many lines as were indicated by the panel depth. The panel depth is either the default value from the device table or the value specified on the Define Panel Characteristics panel.

To more easily position text and fields, you can control the display of the following parts of the Define Format panel:

Line numbers
Line command area
Horizontal scale.

The procedures described affect only the Format window, not the contents of the panel.

Controlling the display of line numbers and the line command area

Line numbers are displayed in the line command area:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                              DEFINE FORMAT                     VACS1 3279-2B
Command ===>                                                  Scroll ===> PAGE

Format  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 32
MARKS: V _ CO . SE , SP /                                     CONTENTS: FORMAT
001
002
003
```

You can enter line commands to perform operations on the lines of the window. For line commands that take a number parameter, you can specify the number either before or after the command. (For information about line commands, see Chapter 11, “Editing lines and blocks of the format” on page 58.)

To set these line numbers on or off, enter **number on** or **number off** on the panel command line. (Use the Cretriev key, PF12, to move the cursor to the panel command line.) These commands are available on the **View** menu.

If you do not need line numbers and would prefer a wider space on the screen in which to type your format, you can remove the line command area from the Format window. To do this, enter **linecmd off** on the panel command line. You can enter **linecmd on** on the panel command line to set the line command area on again.

Displaying the scale of column numbers

You can display a horizontal scale to help you place text and fields in a specific column. To do this:

1. Move the cursor to the line command area of the line above which you want to place the scale, then type **col**, which is the column line command.
2. Press the **Enter** key. A scale of column numbers is displayed above the line in which you entered the **col** line command.

To delete the scale, enter the **d** (delete) line command in the line command area of the scale line.

If you have added a scale and set the line numbers on, your Define Format panel now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE FORMAT                      VACS1 3279-2B
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
```

Setting the editing mode

Check the **Contents** field in the upper right corner of the Format window. The value should be as follows:

```
CONTENTS: FORMAT
```

This indicates the setting of the editing mode. The default setting is **Format**. This editing mode is used for the examples in this chapter.

If **Format** is not displayed, enter the panel command **format** on the panel command line, or select it from the **View** menu, to set the editing mode.

The other editing modes are name, sample, and initial, which are described later in this book and in the online reference.

Entering background text

To define background text, type it at the panel position in which you want it to appear.

When you press the Insert key and try to type something on your format, the keyboard might lock. This happens when the trailing blanks in each line of the Format window are not nulls. You can control this with the **nulls** panel command, which is available on the **Options** menu.

The **nulls on** panel command changes the trailing blank characters to nulls. With this setting, you can use the Insert key, but you must use the space bar to enter leading blanks.

However, **nulls on** might not be convenient in other situations. If you use the arrow keys to place the cursor, the text you then type might be shifted to the left when you press the Enter key, because the format is not filled with blank characters. Enter the **nulls off** panel command when you want to use blank characters instead of nulls for the trailing blanks.

The **nulls** command setting remains in effect until you leave the panel editor. You can edit your SDF II profile to set nulls on as the default for your editing sessions. See Chapter 16, “Defining your own SDF II profile” on page 74.

To create the sample panel, follow the steps shown under “Centering text and copying lines” on page 21. Techniques for centering text and copying lines are illustrated.

Centering text and copying lines

The following illustration shows a sample panel that belongs to an application program that handles vacation bookings. When the application program starts, it displays this panel, which is the sample panel used to illustrate the procedures in this chapter:

1. On the Define Format panel, type the background text.

   For the sample panel, the text begins on line 3. To create the first two lines, type the following:

```
''' <---:----1----:----2----:----3----:----4----:----5
001
002
003 /**********************************/
004 /** V A C A T I O N  P L A N N E R **/
005
```

   Notice the use of a slash (/) before and after the text on each line. The slash indicates that text is to be centered or justified. It is one of the marks shown in the **Marks** line at the top of the Format window:

```
MARKS: V _ CO . SE , SP /
```

   The spacer mark is the mark that follows SP. The default spacer mark is a slash (/), but this can be changed by entering the panel command **marks**, or by selecting **Marks** from the **Dialogs** menu, and editing the marks table.

   Note: Marks are reserved characters; they cannot be used as text characters in the panel format. If you need to use a slash (/), for example, in the panel format text, change the mark symbol for the spacer mark.

To place text so that it ends on the right side of the panel, put the spacer before the text and do not put the spacer after it. When you press the Enter key, SDF II moves the text so that the last character is in the last column of the line. See the online reference for more information about the spacer mark.

2. Press the **Enter** key. SDF II moves the lines to the center of the panel.
3. Complete the header by copying the line of asterisks. **c** is the copy line command. Type **c** on the line you want to copy, and type either **a** (after) or **b** (before) to indicate the target line. For example, to copy the line of asterisks enter **c** on line 3 and **a** on line 4:

```
MARKS: V _ CO . SE , SP /
''' <---:----1----:----2----:----3----:----4----:----5----:----6
001
002
c03                      ************************************
a04                      ** V A C A T I O N   P L A N N E R **
005
```

Then press the **Enter** key.

These are some of the line commands used to move text around the panel. Line commands are also used to delete, copy, and insert lines in the format. See Chapter 11, “Editing lines and blocks of the format” on page 58 for more examples.

4. Type the rest of the background text so that your completed format looks like the following panel. On line 21, you can type the text in lowercase and then enter the **u** (uppercase) line command to convert it to uppercase.

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________
                            DEFINE FORMAT                  VACS1 3279-2B
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                      ************************************
004                      ** V A C A T I O N   P L A N N E R **
005                      ************************************
006
007                           This will help you to plan
008                            your customer's vacation
009
010
011
012
013
014
015
016
017
018
019
020
u21 /now press the enter key/
```

Changing the appearance of the background text

When you type background text in the panel format, you do not explicitly specify the color, highlighting, intensity, or protection-level attributes. Background text gets its attributes from the attributes listed in the Define Marks panel for the BACKGRND mark.

To edit the attributes in the marks table, use the panel command **marks** or select **Marks** from the **Dialogs** action-bar pull-down.

Background text initially has two attributes: normal highlighting and protection. If you want to change the attributes for the background text in the panel format, do the following:

1. On the Define Format panel, enter **marks** on the command line. The Define Marks panel is displayed:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE MARKS                        VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE
Marks . . . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-6 OF 6, ROW 1 OF 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 ************************************************************
```

   The marks table lists all the defined marks. A *mark* is used in SDF II to define fields and areas. The **Mar** column shows the character used for the mark. The background mark is a special case, because it is a blank and cannot be changed to a character.

   Note: Background text is entered in the format without using an explicit mark. A spacer mark might be used to center background text. This mark, however, is not part of the field definition.

2. In the **Attributes** column, add an attribute. If you do not know how to specify an attribute, move the cursor to a field in the **Attributes** column and press the **Help** key (PF1) for a list of the attributes you can enter.

   You could, for example, type a color specification such as **blue**:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE MARKS                        VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE
Marks . . . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-6 OF 6, ROW 1 OF 5
    Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment ----
'''      BACKGRND  ____ PR NOR blue________ PR NOR               _____________
''' _    VARIABLE  ____ UNP NOR _____________ UNP NOR             _____________
''' .    CONSTANT  ____ PR BR _____________ PR BR                 _____________
''' /    SPACER
''' ,    SEPARATR
''' *** END OF DATA ************************************************************
```

3. Press the **Enter** key. The changes you make are reflected in the **Resulting attributes** column.

   Note: You could alternatively enter the line command **s** (select) on the line containing the mark to be changed in the marks table. SDF II then displays the Edit Field Attributes panel, on which you can choose the attributes for the mark. Press the **End** key (PF3) to return to the Define Marks panel.

4. Press the **End** key (PF3) to go back to the Define Format panel.
5. Enter the panel command **test** to test the changes you have made.
6. To end the display of the test panel and return to the Define Format panel, press the **End** key (PF3).

Defining a constant field

You might want to distinguish different types of information on your panel by using different colors and emphasis. If a variety of text is needed, you can define constant fields.

The initial attributes of a field are those attributes associated with the mark you use to define the field. Constant fields have the attributes of the constant mark used to define them.

Constant field marks are listed after CO in the **Marks** line, which is displayed at the top of the Format window:

```
MARKS: V _ CO . SE , SP /
```

The default constant mark is a period (.), but this can be changed in the Define Marks panel. You can define additional constant field marks as needed.

To change the constant mark character, add new constant field marks, or edit the attributes associated with a constant field mark, use the panel command **marks** and edit the marks table.

To define a constant field using a constant mark:

- If the field does not contain blanks, enter the mark either before or after the text.
- If the field contains blanks, enter the mark in each blank position.

These are examples of constant fields that could be entered in the Define Format window using the period (.) constant mark:

```
Enter.text.here
V.A.C.A.T.I.O.N...P.L.A.N.N.E.R
*****************************.
.*****************************
NOW.PRESS.THE.ENTER.KEY
```

Each of the above examples is a separate constant field. Each field has the attributes associated with the period (.) constant field mark.

For example, to give some text on the sample panel the attributes of constant fields, edit the format so that it looks like this:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE FORMAT                      VACS1 3279-2B
Command ===>                                                   Scroll ===> PAGE

Format  . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 32
Marks: V _ CO . SE , SP /                                      CONTENTS: FORMAT
001
002
003                      .************************************
004                       **.V.A.C.A.T.I.O.N...P.L.A.N.N.E.R.**
005                      .************************************
006
007                            This will help you to plan
008                             your customer's vacation
009
010
011
012
013
014
015
016
017
018
019
020
021                               NOW.PRESS.THE.ENTER.KEY
```

In this example, lines 7 and 8 remain background text. Lines 3, 4, 5, and 21 take on the attributes associated with the constant field mark.

You can also use these techniques to define a constant field:

1. Enter the constant text on a line of the panel format. In the following example, **-- Help panel -,60** is entered in column 2 of line 2 to create a line that ends with the dash repeated 60 times:

   ```
   ''' <---:----1----:----2----:----3----:----4----:----5----:----6
   001
   002  -- Help panel -,60
   003
   ```

   The character before the separating comma is repeated the number of times specified after the comma.

2. In the line command area, enter the line command **sf** to display a *field attribute line.* This attribute line is an extra line added below the format line and has no line command area. For example, the line command **sf** entered on line 2 would produce this result:

   ```
   ''' <---:----1----:----2----:----3----:----4----:----5----:----6
   001
   002  -- Help panel ---------------------------------------------

   003
   ```

3. Enter constant marks on the field attribute line under the text you want to define as a constant field. In the following example, constant marks are entered to define the words `Help panel` as one constant field and leave the rest of the line as background text:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6
001
002  -- Help panel ---------------------------------------------
        ..........
003
```

   To set the field attribute line off, enter the line command **hf**.

Editing the attributes of a field

A field gets its attributes from the mark used to define it. You can change the attributes of the field by:

- Editing the attributes for the mark in the Define Marks panel. Use the **marks** panel command to go to the Define Marks panel.
- Changing the mark used.
- Specifying explicit attributes for a field. One way to do this is to use the Edit Field Attributes dialog. This is a good place to start if you are not sure what the possible attributes are, because the Edit Field Attributes panel lists the attributes and possible values.

  The Edit Field Attributes dialog is described in this section.

These are some of the methods for editing the attributes of a field. Use of the Define Attributes panel is described in Chapter 8, “Defining and using attribute descriptors” on page 44.

To edit the attributes of a field, using the Edit Field Attributes panel:

1. On the Define Format panel, type **edit** on the command line, move the cursor to the constant field, then press the **Enter** key.

   If you are working with the sample panel, place the cursor on the panel instruction line:

   `NOW.PRESS.THE.ENTER.KEY`

   The Select Edit Field Dialog panel is displayed:

```
 File  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                        SELECT EDIT FIELD DIALOG                 VACS1 3279-2B
Option ===> ____________________________________________________________________

1   CHARACTERISTICS         Edit characteristics

2   ATTRIBUTES              Edit attributes

*   SYSTEM                  Edit target system dependent information
```

You can edit the characteristics or attributes of the field. The third option, **System**, is for editing the field characteristics that are specific to a target system. If the third option has an asterisk (*) instead of a selection number, this option is not supported for your target system.

2. On the Select Edit Field Dialog panel, enter **2** to edit the field attributes.

   Note: You can combine steps 1 and 2 by typing **edit 2** on the panel command line in Define Format panel, placing the cursor on the field, and pressing the Enter key. This indicates that you want selection 2 of the Select Edit Field Dialog panel.

   The Edit Field Attributes panel is displayed:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          EDIT FIELD ATTRIBUTES                  VACS1 3279-2B
Command ===> _____________________________________________________________

  Emphasis class . . . . . __

Field Presentation Attributes

  Protection . . . . . . . 2        1. Unprotected      2. Protected

  Intensity  . . . . . . . 2        1. Normal           3. Dark
                                    2. High

  Highlighting . . . . . . _        1. Blinking         3. Underscored
                                    2. Reverse video

  Color  . . . . . . . . . _        1. Blue             5. Turquoise
                                    2. Red              6. Yellow
                                    3. Pink             7. White/Neutral
                                    4. Green

  Format . . . . . . . . . _        1. EBCDIC           *. Mixed
                                    *. DBCS

  Programmed symbol set  . _        1. Blank
                                    2. Symbol set  . . . . . __
  _ Cursor
  _ Skip after field
  _ Detectable
  _ MDT
  _ Opaque

  Enter '/' to select Outlining (Field Ruling)
  _ Over                            _ Left
  _ Under                           _ Right
```

Not all attributes apply to constant fields. For more information about the attributes, move the cursor to a field, then press the **Help** key (PF1). All the attributes are described in the online reference.

3. Enter the values of the attributes you want to specify. Default values are already supplied.

   If you are working with the sample panel, change the constant field `NOW.PRESS.THE.ENTER.KEY` to yellow and blinking:

```
Highlighting . . . . . . 1        1. Blinking          3. Underscored
                                  2. Reverse video

Color  . . . . . . . . . 6        1. Blue              5. Turquoise
                                  2. Red               6. Yellow
                                  3. Pink              7. White/Neutral
                                  4. Green
```

4. Press the **End** key (PF3) to return to the Select Edit Field Dialog panel.
5. Press the **End** key again to return to the Define Format panel.

   To check the appearance of the panel after the highlighting and color changes you have made, enter the **test** panel command on the command line.

6. Press the **End** key (PF3) to return from the displayed test panel to the Define Format panel.

Saving your work without leaving the Define Format dialog

Enter the panel command **save**, or select **Save object** from the **File** action-bar pull-down, to save your panel in the library at any time without leaving the panel editor dialog.

Leaving the Define Format dialog

To leave the Define Format dialog, press the **End** key (PF3). SDF II then displays the Select a Panel Editor Dialog panel.

If you want to stop now:

1. Press the **End** key (PF3) to display the Exit Editor window.
2. Select **Save** to save the panel in the library. SDF II displays the Identify Panel panel and issues the message `Object saved` in the top right corner of the panel.
3. Press the **End** key again to display the Select an SDF II Function panel.

Chapter 6. Defining variable fields

This chapter describes techniques for defining variable fields. Some of the techniques are the same as those for defining constant fields, and are therefore described in less detail here. It is recommended that you read Chapter 5, “Defining text and constant fields” on page 18 before you start this chapter.

This chapter uses the sample panel defined in Chapter 5. Field prompts and entry fields are added to the panel to illustrate how to use SDF II to define variable fields:

Note: In this book, pictures of panels you define show variable fields marked with underscores. This is to make these fields visible in the examples. When you test your panels, you will not see these underscores.

Two special types of variable fields—arrays and repeat formats—are discussed elsewhere in this book:

- An *array*, which is a named, ordered collection of variable fields that have identical names and attributes. For more information, see Chapter 12, “Defining an array” on page 63.
- A *repeat format*, which is essentially a block of variable fields that can be repeated down a panel. For more information, see Chapter 14, “Repeating a block of the format” on page 68.

Defining variable fields on the Define Format panel

To add a variable field on the Define Format panel, type a variable field mark followed by the separator mark and a length specification. Variable marks are shown in the marks line after V. The separator mark is shown in the marks line after SE.

After the length specification, you can type the separator mark and a field name. The field name is the name used by the application program.

To see how this works, add the text **Destination country** and an entry field to line 12 of the sample panel, as follows:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6
012          Destination country           _,15,country1
```

The result of this entry is to add the field prompt, **Destination country**, as background text. The text is followed by a variable field, named **country1**, whose length is 15 characters.

If the field length is 1, you can omit the length specification.

You can repeat the variable field mark instead of specifying a field length. This is convenient if the field is short, for example:

```
Continue?. ___   (Enter.Yes.or.No)
```

In this example, the field name is not specified. A field name can be specified later on the Define Fields panel, as described in “Defining a variable field on the Define Fields panel” on page 31.

Defining initial values for a variable field

You can specify an initial value for a variable field. This initial value is the field contents when the panel is initially displayed.

Note: Initial values are not supported by target system IMS/MFS.

If the field is already placed in the format, to add an initial value do the following:

1. On the Define Format panel, enter the panel command **initial**. This changes the editing mode so that you can enter initial values.
2. On the format, enter an initial value directly in the field. You can enter values for all the variable fields.
3. Enter the **format** panel command so you can continue adding fields to the format, using marks.

Another way to add or change an initial value for a single field is the following:

1. On the Define Format panel, type the panel command **edit 1**, place the cursor on the variable field, then press the **Enter** key.
2. On the Edit Field Characteristics panel, enter an initial value, as shown in the following example:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                        EDIT FIELD CHARACTERISTICS              VACS1 3279-2B
Command ===> _____________________________________________________________

  Type . . . . . : VARIABLE       Occurs . . . . . : ___
  CUA type . . . . . : ________

  Name . . . . . . . . . . COUNTRY1_____________________
  Dsect name . . . . . . . ______________________________
  Related field
  ____________________________________________

  Comment
  ____________________________________________________________________

Position                                Size
  Line . . . . . : 12
  Column . . . . . : 40                   Field width  . . . . . : 15
                                          Data width . . . . . : 15

Picture
  Input PICTURE  . . . . . ______________________________
  Output PICTURE . . . . . ______________________________
  DECPOS . . . . . _    for RPG II

Values
  Initial
  Egypt_____________________________________________________________
  Sample
  ____________________________________________________________________
```

3. Press the **End** key (PF3) to return to the Define Format panel.

Defining a variable field on the Define Fields panel

You can also use the Define Fields panel to define a field.

The Define Fields panel is option 3 on the Select a Panel Editor Dialog panel. Enter **3** on the command line of the Define Format panel to transfer to Define Fields.

The Define Fields panel is displayed:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                            DEFINE FIELDS                       VACS1 3279-2B
Command ===> ____________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' COUNTRY1 __  _   12   40     ___   15    ___   ________  ________
''' ******** END OF DATA ***************************************************




Format  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO . SE , SP /                                  CONTENTS: NAME
001
002
003                       ************************************
004                       ** V A C A T I O N   P L A N N E R **
005                       ************************************
006
007                            This will help you to plan
008                             your customer's vacation
009
010
011
012          Destination country           COUNTRY1______
```

The Define Fields panel has two windows:

- The upper window contains the list of all variable fields of the panel. It is the *Fields window*.
- The lower window shows the format. It is the *Format window*.

You can define variable fields in either the Fields window or the Format window.

To add a field in the Format window, enter the panel command **format**, if necessary, to set the editing mode. Then type the mark, length, and field name as described in “Defining variable fields on the Define Format panel” on page 30.

To add a field in the Fields window, use the **i** (insert) line command to add a new line. Then enter the following:

Field name
Position, defined in the line and column fields
Field width.

The first mark character shown after the V in the header line of the Format window is used to define the new field. You can alternatively specify a mark explicitly.

Another way to define a new field is to copy then modify the entry for an existing field in the Fields window, as described under “Adding a field by copying another field entry” on page 33.

Any change you make in one window to a variable field is reflected in the other window.

Adding a field by copying another field entry

You can add a field by copying another field entry in the Fields window. To do this:

1. In the Fields window of the Define Fields panel, enter the line command **r** on the line you want to copy. This is the repeat line command. For example:

```
 File  Dialogs  Edit  View  Options  Help
________________________________________________________________________________
                              DEFINE FIELDS                          VACS1 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
r'' COUNTRY1 __  _   12   40     ___   15    ___    ________  ________
''' ******** END OF DATA ******************************************************
```

   When you press the Enter key, SDF II copies the line but does not add the new field to the format yet. If it were to do so, you would have two fields in the same place.

   The Fields window now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
________________________________________________________________________________
                              DEFINE FIELDS                          VACS1 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
  Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' COUNTRY1 __  _   12   40     ___   15    ___    ________  ________
''' COUNTRY1 __  _   12   40     ___   15    ___    ________  ________
''' ******** END OF DATA ******************************************************
```

2. On the new line, provide a new name and a position, typing over the old information:

```
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' COUNTRY1 __  _   12   40     ___   15    ___    ________  ________
''' city____ __  _   13   40     ___   15    ___    ________  ________
''' ******** END OF DATA *********************************************
```

   You can also specify a different mark and a different length, if necessary.

3. Press the **Enter** key. The field appears at the correct position in the Format window:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                            DEFINE FIELDS                        VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Fields  . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' COUNTRY1 __  _   12   40     ___   15    ___    ________  ________
''' CITY    __  _   13   40     ___   15    ___    ________  ________
''' ******** END OF DATA ***************************************************



Format  . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO . SE , SP /                              CONTENTS: NAME
001
002
003                      ************************************
004                      ** V A C A T I O N   P L A N N E R **
005                      ************************************
006
007                           This will help you to plan
008                            your customer's vacation
009
010
011
012          Destination country          COUNTRY1_____
013                                       CITY1________
014
015
```

4. The text to the left of the variable field is a field prompt. To add the field prompt text, first enter the **format** panel command, if necessary, to change the editing mode. Then enter the text.

   Note: If you want your field prompts to be followed by leading dots, you must first change the default constant mark (.) so that you can use the period as panel text.

   For the sample, type the field prompt as background text. That is, type the text with no mark. For example:

```
012          Destination country          _______________
013          Departure city               _______________
```

   Add the remaining text and variable fields:

```
014          Departure date (DD-MM-YYYY)  _______________
015          Return date    (DD-MM-YYYY)  _______________
```

   Name the **Departure date** field **date1** and the **Return date** field **date2**.

   You can define the variable fields, including the field name, in either the Format window or the Fields window. An entry in the Format window would look like this:

```
014          Departure date (DD-MM-YYYY)   _,15,date1
```

The background text must be added in the Format window, using the format editing mode.

An entry for the variable field in the Fields window would look like this:

```
    NAME --- REF MAR LINE COLUMN DEPTH WIDTH OCCURS ARRAY DIR TYPE ---
''' DATE2___ __  _   15_  40     ___   15    ___   ________ ________
```

Note: If you want to use a slash character (/) in the text of your date prompt, you need to specify another character for the spacer mark. To do this, either enter the panel command **marks** or select **Marks** from the **View** menu, then edit the spacer mark on the Define Marks panel.

Adding a reference name for a variable field

You can use the editing mode “name” to display the names of the fields at the beginning of the corresponding fields in the Format window. To switch to this editing mode, enter the **name** panel command on the command line of the Define Fields panel.

If the names of your fields are longer than their corresponding fields, SDF II truncates the field name and displays a plus sign (+) as the last character of the name in the Format window.

If you had two fields of length 8, one named COUNTRY-TO, the other COUNTRY-FROM, both would be displayed in the Format window as COUNTRY+. To clearly identify each field, you can assign to each a reference name. The reference name is displayed in the Format window when the editing mode is name.

The application program, however, uses the full name of the field.

To add a reference name for a variable field, in the Fields window of the Define Fields panel, enter a reference name in the column **Ref**.

Editing the attributes of a variable field

A field gets its attributes from the mark used to define it. To change these attributes, enter the **marks** panel command to display the Define Marks panel, then edit the attributes of a variable mark or define a new mark.

Editing the field attributes for variable fields is done the same way as for constant fields (see “Editing the attributes of a field” on page 26). It is illustrated in the following procedures.

Another technique, that of using the Define Attributes panel, is described in Chapter 8, “Defining and using attribute descriptors” on page 44.

Specifying initial cursor placement on the panel

To specify that the cursor be placed on a variable field when the application user accesses the panel, do the following:

1. Type **edit 2** on the panel command line in the Define Format panel, place the cursor on the field, then press the **Enter** key.

   The first page of the Edit Field Attributes panel is displayed:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          EDIT FIELD ATTRIBUTES                VACS1 3279-2B
Command ===> _____________________________________________________________
                                                                       More   +
  Emphasis class . . . . . __

Field Presentation Attributes

  Protection . . . . . . . 1         1. Unprotected      2. Protected

  Intensity  . . . . . . . 1         1. Normal           3. Dark
                                     2. High

  Highlighting . . . . . . _         1. Blinking         3. Underscored
                                     2. Reverse video

  Color  . . . . . . . . . _         1. Blue             5. Turquoise
                                     2. Red              6. Yellow
                                     3. Pink             7. White/Neutral
                                     4. Green

  Format . . . . . . . . . _         1. EBCDIC           *. Mixed
                                     *. DBCS

  Programmed symbol set  . _         1. Blank
                                     2. Symbol set  . . . . . . __
  _ Cursor
  _ Skip after field
  _ Detectable
  _ MDT
  _ Numeric
  _ Opaque

  Enter '/' to select Outlining (Field Ruling)
  _ Over                             _ Left
  _ Under                            _ Right

  Enter '/' to select Validation
  _ Mandatory enter
  _ Mandatory fill
  _ Trigger

Field application attributes
  Justification  . . . . . _         1. Left             2. Right

  _ Folding

  Fill . . . . . . . . . . _         1. Blank            2. Zero
```

2. Enter **/** by the prompt **Cursor**.

   Note: If you are defining a panel for a target system other than CICS/BMS or CSP/AD, specify a number that indicates the cursor position within the field, for example, **1**.

   If you need more information about this or any other entry field on the panel, move the cursor to the field, then press the **Help** key (PF1).

   If you get an error message and want to restore the previous value of a field, use the panel command **restore**.

3. Press the **End** key (PF3) to leave the Edit Field Attributes panel.

Specifying that an entry field is mandatory

To indicate that an entry field is mandatory:

1. Type **edit 2** on the panel command line of the Define Format panel, place the cursor on the field, then press the **Enter** key.
2. In the **Mandatory enter** field, type **/**

   You may need to scroll down the panel to display this field.

   For field help, move the cursor to a field, then press the **Help** key (PF1). The online reference describes the restrictions that apply to each target system.

3. Press the **End** key (PF3) to leave the SDF II panel.

Testing the variable fields with sample values

With SDF II, you can provide sample values for variable fields. SDF II uses these sample values when you test the panel. These sample values are saved with the panel definition.

Sample values are used only by SDF II. They are not available to the application program.

You can begin this procedure from any of these panels:

Define Format
Define Fields
Define Attributes.

1. Enter the **sample** panel command on the command line or select **Sample values** from the **View** menu. This changes the edit mode of your Format window so that you can enter sample values.

2. In the Format window, type sample values directly in the variable fields. The following example shows sample values for the fields after the text `Destination country` and `Departure city` in the Format window of the Define Fields panel:

```
  File  Dialogs  Edit  View  Options  Help
 ________________________________________________________________________________
                              DEFINE FIELDS                       VACS1 3279-2B
 Command ===> ________________________________________________ Scroll ===> PAGE

 Fields  . . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
     Name --- Ref Mar Line Column Depth Width Occurs Array dir Type --        -
 ''' COUNTRY1 ___ _   12   40     ___   15    ______ _________ ________
 ''' CITY1    ___ _   13   40     ___   15    ______ _________ ________
 ''' DATE1    ___ _   14   40     ___   15    ______ _________ ________
 ''' DATE2    ___ _   15   40     ___   15    ______ _________ ________
 ''' ******** END OF DATA ******************************************************


 Format  . . . . . . . . . . . . . . . . . . . POSITIONS 1-75 OF 80, LINE 1 OF 24
 MARKS: V _ CO . SE , SP /                                   CONTENTS: SAMPLE
 001
 002
 003                       *************************************
 004                       ** V A C A T I O N   P L A N N E R **
 005                       *************************************
 006
 007                            This will help you to plan
 008                             your customer's vacation
 009
 010
 011
 012          Destination country          Egypt_________
 013          Departure city               Vienna________
 014          Departure date (DD-MM-YYYY)  _______________
 015          Return date    (DD-MM-YYYY)  _______________
```

3. Enter the **test** panel command on the command line, or select **Test** from the **Dialogs** menu. SDF II displays the panel with the sample values.
4. Press the **End** key (PF3) to leave the test panel.

To add a sample value for a single variable field, you can alternatively use the Edit Field Characteristics panel. You can do this from the Define Format panel or from the Format window of the Define Fields or Define Attributes panels. The following procedure works in any edit mode:

1. Type the panel command **edit 1**.
2. Place the cursor on the variable field, then press the **Enter** key.

3. On the Edit Field Characteristics panel, enter a sample value, as shown in this example:

```
 File  Dialogs  Edit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                        EDIT FIELD CHARACTERISTICS              VACS1 3279-2B
Command ===> ____________________________________________________________

  Type . . . . . . . . . : VARIABLE       Occurs . . . . . . . . :
  CUA type . . . . . . . :

  Name . . . . . . . . . . COUNTRY1_____________________________
  Dsect name . . . . . . . ______________________________________
  Related field
  ________________________________________________

  Comment
  ____________________________________________________________________

Position                                Size
  Line . . . . . . . . . : 12
  Column . . . . . . . . : 40             Field width  . . . . . . : 15
                                          Data width . . . . . . . : 15

Picture
  Input PICTURE  . . . . . ______________________________________
  Output PICTURE . . . . . ______________________________________
  DECPOS . . . . . . . . . _    for RPG II

Values
  Initial
  Egypt_____________________________________________________________
  Sample
  Egypt_____________________________________________________________
```

Initial values can also be entered this way.

Chapter 7. Using CUA panel element types

You can use SDF II to create panels that conform to the Common User Access (CUA) architecture guidelines. CUA panel elements provide a way to classify the fields in your panels so that they will have a consistent appearance within and across applications.

You can associate panel fields with a CUA panel element type. Such fields are not given explicit color, highlighting, and intensity attributes, but instead take on the attributes of the CUA panel element type.

The following CUA panel element types are supported in SDF II VSE:

For constant fields and background text:

DT Descriptive text
FP Field prompt
NT Normal text
PIN Panel instruction

For constant fields:

AB Action bar choice (target system ISPF only)
ABSL Action bar separator line (target system ISPF only)
CH Column heading
CT Caution text
ET Emphasized text
PS Point-and-shoot
PT Panel title
RP Reference phrase (target system ISPF only)
SAC Selected available choice
SI Scroll information
SUC Selected unavailable choice
WASL Work area separator line
WT Warning text

For variable fields:

CEF Choice entry field
EE Error emphasis (target system ISPF only)
LEF List entry field
LI List item
LID List item descriptor
NEF Normal entry field
VOI Variable output information

The CUA panel elements action bar, action bar separator, error emphasis, point-and-shoot, and reference phrase are supported only for target system ISPF. Other CUA panel element types are supported for all target systems to help you classify panel fields.

A mark or an attribute descriptor is used to associate a field with a CUA panel element type. Defining and using marks that have CUA panel element types is described in this chapter. Defining and using attribute descriptors that have CUA panel element types is described in “Assigning a CUA type to an attribute descriptor” on page 47.

Using CUA panel element attributes

To display a complete table of CUA panel element types and their associated attributes defined for your installation, enter the panel command **cualist** or select **CUA types** from the **Dialogs** menu. The List CUA Types panel is then displayed. In this table, the SDF II administrator can add attributes to, or change attributes of, CUA panel element types. This provides a simple way to change the attributes of fields consistently throughout an application.

New CUA panel element types, however, cannot be defined.

The set of attributes defined in SDF II for each CUA panel element type is used for:

- Testing panels under SDF II for all target systems
- Generating panels for target systems other than ISPF.

For the target system ISPF, the CUA panel element types are coded in the generated panel. In this case, the actual attributes used are determined when the panel is displayed by the application.

To change attributes for a particular panel element type, for target systems other than ISPF:

1. The SDF II administrator changes the attribute table entry for the corresponding CUA panel element type.
2. The panels are generated again.

Defining a panel using CUA panel elements

The fields in the sample panel illustrated in the previous chapters could be defined as CUA panel elements. For example, you could analyze the panel and relate its panel element types to CUA panel element types, as follows:

Panel element type	CUA panel element type	Name
Text	Normal text	NT
Bold text	Emphasized text	ET
Instruction	Panel instruction	PIN
Field prompt	Field prompt	FP
Entry field	Normal entry field	NEF

Using these elements, you could define three new constant field marks: one for the emphasized text, one for the panel instruction, and one for field prompts. You could add a variable mark for entry fields, or edit the default variable mark. You could also assign a CUA panel element type of normal text to the background text.

Giving a field a CUA panel element type

In this procedure, you define a mark to be used for field prompt text. Field prompt text is the text to the left of a variable field. You give this mark the CUA panel element type of FP for field prompt.

1. On the Define Format panel, enter **marks** on the command line.
2. On the Define Marks panel, enter **i** (the insert command) in the line command area on the constant mark line.
3. On the new line, type a mark character in the **Mar** column. Specify a character you do not use in the panel format. Field marks are reserved characters.

   For the sample panel, use the plus character (+).
4. Enter **fp** in the **CUA** column.

   Note: If the **CUA** column does not appear in your marks table, enter the panel command **view** and specify **y** next to the entry for **CUA**.

   You do not need to enter the field type (constant), because SDF II inserts the field type appropriate for the CUA panel element type you specified.

   The attributes associated with the CUA panel element are now shown in the **Resulting attributes** column. The resulting attributes are a combination of the CUA attributes and any explicit attributes.

   The following example shows a new mark of +:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                              DEFINE MARKS                        VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE
Marks . . . . . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-6 OF 6, ROW 1 OF 5
    Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment ----
'''      BACKGRND  ___  PR NOR BLU_________ PR NOR BLU           _____________
''' _    VARIABLE  ___  UNP NOR____________ UNP NOR             _____________
''' .    CONSTANT  ___  PR BR_____________ PR BR                _____________
''' +    CONSTANT  FP   ___________________ PR NOR GR           _____________
''' /    SPACER
''' ,    SEPARATR
''' *** END OF DATA ************************************************************
```

5. Press the **End** key (PF3) to return to the Define Format panel. The new mark appears in the marks line.
6. Enter the panel command **format** to change the editing mode, if necessary.
7. Use the new mark for the field prompts to the left of the four variable fields. This text was entered as background text.

   Enter the mark in the blank spaces within the field prompt text, for example:

```
012          Destination+country          _________________
013          Departure+city               _________________
014          Departure+date+(DD-MM-YYYY)  _________________
015          Return+date++++(DD-MM-YYYY)  _________________
```

You could alternatively use the field attribute line to add the mark. To do this, enter the panel command **fieldattr on** to display the field attribute lines. Then enter the new constant mark under the text, for example:

```
012          Destination+country          _________________
             ++++++++++++++++++           ;________________
013          Departure+city               _________________
             +++++++++++++++              _________________
014          Departure+date+(DD-MM-YYYY)   _________________
             ++++++++++++++++++++++++++   _________________
015          Return+date++++(DD-MM-YYYY)   _________________
             ++++++++++++++++++++++++++   _________________
```

Giving an existing mark a CUA type

In this procedure, you give the default variable mark a CUA type. This mark will have the CUA element type normal entry field (NEF).

1. On the Define Fields or Define Format panel, enter **marks** on the command line.
2. On the Define Marks panel, type **nef** in the CUA field for the default variable mark, the underscore (_). Delete any explicit protection, color, highlighting, or intensity attributes. For example:

   ```
      Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment -
   ''' _    VARIABLE  nef  ____________________
   ```

   Press the **Enter** key. The **Resulting attributes** column now shows the attributes associated with the mark. For example:

   ```
      Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment -
   ''' _    VARIABLE  NEF  ____________________ UNP NOR TU
   ```

   These attributes are the result of combining the CUA attributes from the table provided with SDF II, which is maintained by the SDF II administrator, with any explicitly specified attributes.
3. Press the **End** key (PF3) to return to the Define Fields or Define Format panel.

Giving background text a CUA type

You can specify that all background text be given the attributes for, for example, CUA normal text. To do this:

1. On the Define Format panel, enter **marks** on the command line. The Define Marks panel is displayed.
2. In the **CUA** column next to the background mark, enter **nt** for the CUA panel element normal text.

   Delete any attributes for color, protection, intensity, or highlighting explicitly specified for the background mark. If you specify a CUA element type, you cannot specify these attributes.
3. Press the **Enter** key. The **Resulting attributes** column now shows the attributes associated with background text:

   ```
      Mar  Type ---  CUA  Attributes --------- Resulting attributes Comment
   '''      BACKGRND  NT_ ____________________  PR NOR GR
   ```
4. Press the **End** key (PF3) to go back to the Define Format panel. From there, you can issue the panel command **test** to test the changes you have made.

Chapter 8. Defining and using attribute descriptors

In the previous chapters, a field got its attributes from the mark used to define it. Additional attributes were specified in the Edit Field Attributes dialog. In this chapter, additional techniques are presented.

You can tell SDF II which attributes to give to which field in the Define Attributes dialog. You can also use this dialog to define a symbol that represents a group of attributes and use this symbol in a field definition. This symbol is an *attribute descriptor*.

The following can be specified for an attribute descriptor:

- Explicit attributes, including emphasis classes
- A CUA panel element type
- A comment.

Note: Emphasis classes are described in the online reference and are included in SDF II for compatibility with previous releases. For classifying panel elements, it is recommended that CUA panel element types be used instead of emphasis classes.

On the Select a Panel Editor Dialog panel, or on the Define Format or Define Fields panel, enter **4** on the command line. The Define Attributes panel is displayed:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          DEFINE ATTRIBUTES                    VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Attributes  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-5 OF 5, ROW 0 OF 0
    Des CUA  Attributes --------- Resulting attributes Comment ----------------
''' *** TOP OF DATA ************************************************************
''' *** END OF DATA ************************************************************




Format  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO .+ SE , SP /                                 CONTENTS: INITIAL
001

002

003                     ************************************
                       ....................................
004                     ** V A C A T I O N   P L A N N E R **
                        ....................................
005                     ************************************
                       ....................................
006

007                          This will help you to plan

008                           your customer's vacation
```

The Define Attributes panel has two windows:

- The upper window is the *attribute table*. It is empty in the preceding example, because no attribute descriptors have yet been defined.
- The lower window contains the panel format. It is the Format window.

In the Format window, SDF II can display information in the same modes that are possible in the Format window of the Define Fields panel. These modes are:

Initial Initial values for variable fields are displayed and can be edited.
Sample Sample values for variable fields are displayed and can be edited.
Name Field names for variable fields are displayed and can be edited.
Format The format is displayed and can be edited.

You can define many panels completely in the Define Attributes panel. SDF II first displays the Format window in initial mode, in which only the initial values can be edited.

The Format window uses two display lines for each line of the panel. To set this double-spacing on or off, enter the panel command **fieldattr**. You can also issue the **fieldattr** panel command in the Define Format and Define Fields panels.

SDF II uses the second line, the field attribute line, to display the following attribute information:

- The mark used to define the field
- The attribute descriptors associated with the field
- A semicolon (;) if attributes were specified for the field directly in the Edit Field panels or with the **attribute** panel command.

You can also enter or change attribute descriptors and marks on the field attribute line.

An attribute descriptor can represent:

- One attribute, such as cursor placement
- Several attributes, such as color and highlighting attributes
- A CUA panel element type and the associated protection, color, highlighting, and intensity attributes.

To define an attribute descriptor, add a character and attributes to the table. Then place the attribute descriptor in the attribute line under the field.

Defining an attribute descriptor

To add an attribute descriptor, do the following in the Define Attributes panel:

1. In the line command area of the attributes table, enter the line command **i** (insert) to create a new line.
2. On the new line, type a one-letter attribute descriptor in the **Des** column.

   SDF II interprets uppercase and lowercase letters as different characters. You could, for example, have attribute descriptors of c and C.

3. Specify the attributes for the attribute descriptor. You can do this in either of the following ways:
   - In the attributes table, enter the line command **s** (select) on the line of your new descriptor. The Edit Field Attributes panel is then displayed; from it you can choose the attributes for your descriptor. Press the **End** key (PF3) to return to the Define Attributes panel.
   - In the attributes table, enter the attributes you want in the **Attributes** column beside your descriptor.

     To display a list of attributes, move the cursor to a field in the **Attributes** column, then press the **Help** key (PF1).

   In the following example, two attribute descriptors are defined. The attribute descriptor **n** is used to indicate that the field must contain numeric data. The attribute descriptor **b** is used to indicate that the field has dark (bold) highlighting:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                          DEFINE ATTRIBUTES                    VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Attributes  . . . . . . . . . . . . . . . . . .  COLUMNS 1-5 OF 5, ROW 1 OF 2
    Des CUA  Attributes --------- Resulting attributes Comment ---------------
''' *** TOP OF DATA ************************************************************
''' b    ___  DA________________  DA                  ____________________
''' n    ___  NUM_______________  NUM                 ____________________
''' *** END OF DATA ************************************************************
```

You can copy and change any attribute descriptor that you define in the attributes table. Once you have defined an attribute descriptor, you use the attribute line in the Format window to assign the attribute descriptor to a field.

Assigning an attribute descriptor to a field

To assign an attribute descriptor to a field, use the format editing mode in the Format window. Type the attribute descriptor in the attribute line immediately below the field. Align the attribute descriptor character with the first column of the field, overtyping any mark symbol, for example:

```
Daily rate                _____
                          n____
Total number of days      _____
                          n____
```

If attribute lines are not displayed, do one of the following:

- To turn attribute lines on for the entire panel format, enter the panel command **fieldattr on**.
- To turn the attribute line on for a single format line, enter the line command **sf**.

The field then gets the attributes associated with the attribute descriptor, which are combined with the attributes associated with the mark used to define the field. If attributes conflict, the attributes associated with the attribute descriptor take precedence over the attributes associated with the mark. However, if the mark has a CUA type specified, the attributes of the CUA type always take precedence.

In this example, the variable mark has a CUA type of NEF, which does not conflict with the numeric attribute. Any attributes that would conflict with the CUA type would be ignored.

When you assign an attribute descriptor to background text, you first delimit the text with constant field marks and then use the attribute descriptor.

Assigning a CUA type to an attribute descriptor

Just as you can define a mark that gets its attributes from a CUA panel element, so you can define an attribute descriptor that gets its attributes from a CUA panel element. To use the sample panel as an example, you could define attribute descriptors for the CUA types used: emphasized text, normal text, normal entry field, field prompt, and panel instruction. You cannot, however, use a CUA type for an attribute descriptor if that CUA type is already being used for a mark.

You first define the attribute descriptor with a CUA panel element type, and then use the attribute descriptor in a field. This example shows you how to define and use an attribute descriptor for a panel instruction field:

1. In the attributes table, enter the insert line command **i** or **i***n* to insert as many new lines as necessary for attribute descriptors.
2. In the new lines, enter a character in the **Des** column, and enter a CUA panel element type in the **CUA** column.

   For the sample panel, you could add this attribute descriptor:

```
    Des CUA  Attributes --------- Resulting attributes Comment --------
''' i   PIN  ____________________ PR NOR GR
```

   In the **Attributes** column, you can also specify explicit attributes, except those for protection, color, intensity, or highlighting.

   No explicit attributes are needed for the sample panel.

   The attributes associated with the attribute descriptor are displayed in the **Resulting attributes** column.
3. Move the cursor to the Format window.

The following steps illustrate using the newly defined attribute descriptor in the format of the sample panel.

4. Enter the panel command **format** to change the editing mode.
5. Enter the panel command **fieldattr on**, if necessary, to display the field attributes line.
6. Delimit the text with constant field marks, if necessary.
7. Type the **i** attribute descriptor in the attribute line beneath the first character in the constant field. For example, in line 21 of the sample panel type the attribute descriptor for the constant field:

```
021                              NOW.PRESS.THE.ENTER.KEY
                                 i.....................
022
```

8. Press the **Enter** key. The field now has the attributes of the CUA panel element type PIN.

9. To view the attributes of the field, type the panel command **attribute**, place the cursor on the field, then and press the **Enter** key. In the line above the Format window, SDF II displays the attributes for the field. The CUA type and attributes for this field are displayed at the top of the Format window, along with an entry field in which you can change the attributes. For example, for the field on line 21:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                            DEFINE ATTRIBUTES                  VACS1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Attributes  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-5 OF 5, ROW 0 OF 0
    Des CUA  Attributes --------- Resulting attributes Comment ----------------
''' b   ___  DA_________________ DA                   ____________________
''' n   ___  NUM________________ NUM                  ____________________
''' i   PIN  ___________________ PR NOR GR            ____________________
''' *** END OF DATA ************************************************************


       PIN  ___________________ PR NOR GR
FORMAT  . . . . . . . . . . . . . . . . . . . . POSITIONS 1-75 OF 80, LINE 16 OF 24
MARKS: V _ CO .+ SE , SP /                                 CONTENTS: FORMAT

017

018

019

020

021                              NOW.PRESS.THE.ENTER.KEY
                                 i.....................
```

Assigning more than one attribute descriptor to a field

You can assign more than one attribute descriptor to a field, as long as only one attribute descriptor has a CUA type. Type the attribute descriptors under the field, in the attribute line, as in this example:

```
Daily rate                  _____
                            bn___
Total number of days        _____
                            bn___
```

SDF II reads first the attributes of the mark for the field, then the attribute descriptors and their attributes from left to right. When it finds an attribute that conflicts with another attribute, such as two different colors, it uses the rightmost attribute.

For example, you could define these attribute descriptors:

a unprotected skip blue
b protected yellow
c cursor
n numeric

If you assign to a field all these attribute descriptors in the order abcn, SDF II reads them from left to right, like this:

unprotected skip blue protected yellow cursor numeric

It then ignores the leftmost of any pair of conflicting or duplicate attributes, giving the field the attributes:

skip protected yellow cursor numeric

If, however, the mark or one of the attribute descriptors has a CUA type, the attributes of the CUA type take precedence over all other attributes.

If you specify a CUA type for an attribute descriptor, you cannot use it in combination with another attribute descriptor that also has a CUA type.

If a field is defined with a mark that has a CUA type, you cannot also use an attribute descriptor with a CUA type for this field.

Chapter 9. Printing a panel

This chapter shows you how to print the contents of a panel. The contents of a printed panel include the format, the fields, and the attributes. Other information is included in the listing that SDF II produces, depending on the target system. For example:

- Panel data structure information
- Scrollable area format for target system ISPF
- Panel editing characteristics for target system CSP/AD.

Start the procedure for printing a panel in one of these ways:

- Enter the **p** (print) line command next to the name of the panel on the List Objects panel. This is shown in “Printing a panel” on page 55. It starts the print utility at once. SDF II uses the last values you entered for format and contents. If you did not enter any values, SDF II uses the default values.
- Enter **9.1** on the command line of the Select an SDF II Function panel to display the Specify Print Utility Parameters panel, which is selection 1 of the Select a Utility panel.

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

┌ Source object ──────────────────────────────────────────────────────────┐
 Name       Library                                  Type
 _________ _                                      _  P. PANEL
                                                     G. PANEL GROUP
                                                     A. AID TABLE
                                                     O. CONTROL TABLE
                                                     S. PARTITION SET
                                                     Y. PROTOTYPE
└─────────────────────────────────────────────────────────────────────────┘

┌ Output options ─────────────────────────────────────────────────────────┐
 Format
 1  1. Standard printer
    4. DBCS printer
    5. DBCS printer with outlining

 PANEL Contents
 1  1. Complete listing
    2. Format only
└─────────────────────────────────────────────────────────────────────────┘
```

To specify the kind of listing you want, enter a number for the **Format** option on this panel.

These are the selections:

1 Prepare the panel for printing on the standard system printer (SYSLST). This is the default supplied with SDF II.

4 and 5 These options are for double-byte character set output. They are explained in Appendix C, “Notes for DBCS users” on page 108.

When the print utility finishes its task, it displays the message `Printed` in the top right-hand corner of the panel. Press the **End** key (PF3) to end the procedure for printing a panel.

The resulting listing contains the following pages:

1 Shows the panel characteristics.
2 Shows the format of the panel.
3 Contains the description of the fields. The information is in a format similar to that shown in the fields window of the Define Fields dialog.
4 Shows the attributes of each field. The attributes for background text are at the top of the list.

The complete listing includes additional pages, the contents of which depend on the target system.

Chapter 10. Working on stored panels

You can choose a panel and start the panel editor from the List Objects panel, which displays all objects available to you or those that match the search criteria you specify. This chapter shows you how to do these things in the List Objects panel:

Edit a panel.
Test a panel.
Print a panel.
Copy a panel.
Locate a panel.
Delete a panel.
Rename a panel.

You can also use the techniques described here for working on other SDF II objects displayed in the List Objects panel.

Choosing panels to list

Start from the Select an SDF II Function panel.

Enter **7** on the command line. The Define Object List panel of the List Objects dialog is displayed:

```
 Exit  View  Options  Help
──────────────────────────────────────────────────────────────────────────────
                            DEFINE OBJECT LIST
Command ===> ____________________________________________________________

┌ Objects ──────────────────────────────────────────────────────────────────┐
│ Name         Library                                    Type              │
│ *_______     *                                          / PANEL           │
│                                                         _ PANEL GROUP     │
│                                                         _ AID TABLE       │
│                                                         _ CONTROL TABLE   │
│                                                         _ PARTITION SET   │
│                                                         _ PROTOTYPE       │
└───────────────────────────────────────────────────────────────────────────┘

┌ Sort sequence ──────────────────────┐
│ Enter one or more sort criteria     │
│ N_____   N - Name                   │
│          L - Library                │
│          T - Type                   │
│          D - Description            │
│          G - Generation date        │
│          M - Modification name      │
└─────────────────────────────────────┘
```

On this panel, you tell SDF II:

- Which types of objects you want to list—this can be one type of object, such as panels, any combination of types of objects, or all types of objects
- Which libraries to look in—this can be one library or all libraries

- Which target systems you want to search—this can be one target system, such as ISPF, any combination of target systems, or all target systems
- How to sort the objects before displaying the list.

The panel shows the last values that you entered. If you use an asterisk (*) for the name or the library, SDF II displays a list of all the objects of any type in all libraries for all target systems.

You can also use the percent sign (%) in the name field to represent any single character. For example, you might specify a name as:

DGI%6*

SDF II would then search for appropriate objects whose name started with DGI, whose fourth character might be anything, whose fifth character was 6, and whose remaining characters, if any, might be anything.

The default value for the sort sequence is LN. This means that SDF II sorts the objects so that the library identifier is the major sequence and the object name is the minor sequence. You can enter any combination of sort values. For example, you might enter **tm**. This would give you a list of the objects sorted so that the type of object is the major sequence and the date on which you last worked on them is the minor sequence.

Starting from the Define Object List panel, press the **Enter** key. The List Objects panel is displayed:

```
 Exit  Edit  View  Options  Help
_______________________________________________________________________________
                              LIST OBJECTS
Command ===> _____________________________________________ Scroll ===> PAGE

Objects . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 1
    Name --- Li Ty Operands   Syst Description -------------------- Last modifi
''' VACS1    1  P  _________ CICS vacation selection panel         1997/09/03
```

```
''' _______ _  _  ____________________   <=== Work here on another object

Search argument: Name=*  Type=G  Library=*  System=ABMIGX
Sort sequence  : N
F1=Help F3=End F7=Bwd F8=Fwd F10=Left F11=Right F12=Cretriev
```

You can scroll the panel up or down using the **Scroll** keys (PF7 and PF8). You can use the panel command **number** to turn line numbers on or off.

Line commands that you can use in this panel are displayed at the bottom of the panel.

The top of the panel displays information about the search argument (name, types, library, target systems, sort sequence) that you used on the Define Object List panel. The table itself lists the panel name, library, type, target system, and description. The **Last modified** column displays the date and time that you last changed the panel.

The entry fields in the table are:

Operands
: An operand is an extra piece of information that a command may need. When a line command you enter in the prefix column completes successfully, a confirmation message is displayed in this column.

<=== Work here on another object
: Here, you can enter a line command and operand to work on any panel. Specify the panel name and library identifier, and enter **p** for type. You can also use this field to create a new panel by specifying an edit command and a new panel name and library identifier.

The following sections show examples of using the List Objects panel.

Editing a panel

To edit a panel, use the line command **e** (edit). The Select a Panel Editor Dialog panel is displayed. From here you can start any of the dialogs shown. The name of the panel you are working on, and its device type, are in the top right-hand corner of the panel.

You can use the **e***n* line command to start any panel editor dialog, where *n* is the number as listed on the Select a Panel Editor Dialog panel.

For example, you may want to change an attribute descriptor for a panel. To start the Define Attributes dialog, enter the line command **e4**:

```
e4' VACS1    1   P   __________
```

The Define Attributes panel for your VACS1 panel is displayed.

Whenever you enter the line command **e** plus a number to get to a dialog, the first time you press the End key (PF3) you return to the Select a Panel Editor Dialog panel. From there you can choose any of the other dialogs. The second time you press the End key, you return to the List Objects panel.

Testing a panel

To test a panel, use the line command **t** (test). For example:

```
t'' VACS1    1   P   __________
```

You now see your VACS1 panel as the application program would display it. Any sample values you entered appear in the fields.

Press the **End** key (PF3) to return to the List Objects panel.

To test a sequence of panels, type a **t** by each one, like this:

```
t'' VACS1    1   P
t'' VACS2    1   P
```

Press the **Enter** key.

When you have finished checking the first panel, press the **End** key. SDF II then displays the next panel in the sequence. When SDF II displays the last panel, press the **End** key to return to the List Objects panel.

The sort sequence requested in the Define Object List panel can be helpful in ordering the panels in sequence for testing, depending on the naming conventions you have used.

Printing a panel

To get a panel listing, including information on the panel format, fields, and data structures, use the line command **p** (print).

You can enter an operand with this command. The operand tells SDF II how to prepare the listing and which output device to prepare it for.

If you want to know about the operands you can enter, see the online reference.

To print a sequence of panels, enter a **p** by each one, like this:

```
p'' VACS1    1   P
p'' VACS2    1   P
```

When you are ready to print the first panel, press the **Enter** key.

Copying a panel

To copy a panel, enter the **c** (copy) line command next to the panel you want to copy and the name of the new panel in the **Operands** field. For example:

```
c'' VACS1    1   P   planner   CICS
```

You can copy several panels at the same time. For example, type the needed information on several lines and then press the **Enter** key:

```
c'' VACS1    1   P   planner2  CICS
c'' VACS2    1   P   hotels1   CICS
```

To see the new panels on the list of objects, do one of the following:

- Enter the **refresh** panel command.
- Go back to the Define Object List panel and display the list again.

You can then edit your new panels.

You can copy any panel or other object to another library. Enter the library identifier in the **Operands** column after the new panel name. For example:

```
c'' VACS1    1   P   vplan1 2   CICS VACATION SELECTION
```

You can also copy any object to another library without changing the object's name. For example:

```
c'' VACS1    1   P   = 2        CICS VACATION SELECTION
```

When you copy a composite screen object, such as a panel group or a panel that contains include panels, you can also copy any related objects. First, though, you need to issue the **view** command and increase the width of the **Operands** column to hold the file name and the command parameters. For example, with the **Operands** column set to 20 characters:

```
c'' VACS1    1   P   = 2 (replace related CICS VACATION SELECTION
```

For information about panel groups, refer to the online reference. For information about include panels, see Chapter 13, "Including a panel in another" on page 66.

If you copy a source panel that contains a format or data structure whose name is the same as that of the source panel, the new format or data structure name is changed to the panel name of the target panel.

Deleting a panel

To delete a panel, do the following:

1. Enter the **d** (delete) line command next to the panel you want to delete. For example:

   ```
   d'' PLANNER  1   P   _________
   ```

2. On the Confirm Delete panel, select **Delete**, to confirm the request to delete the panel.

   ```
   ──────────────────────── List Objects ──────────────────────────┐
                          Confirm delete

     Object name  . . . . . : PLANNER
     Library  . . . . . . . : 1
     Object type  . . . . . : PANEL

   Choose an action
    Cancel     Do not delete the object
    Delete     Delete the object

   F1=Help F3=Cancel F5=Delete
   ──────────────────────────────────────────────────────────────────┘
   ```

3. Press the **End** key (PF3), which deletes your PLANNER panel.

You can delete several panels at the same time by entering the **d** line command by each panel you no longer need.

When you delete a composite screen object, you can also delete any related objects.

Renaming a panel

To rename a panel, enter the **r** (rename) line command next to the panel you want to rename, and the new name in the **Operands** field. For example:

```
r'' PLANNER2 1   P   choice
```

This changes the name of PLANNER2 to CHOICE.

You can rename several panels at the same time by typing the **r** line command and new names for several panels and then pressing the **Enter** key.

If you rename a source panel that contains a format or data structure whose name is the same as that of the source panel, the new format or data structure name is changed to the panel name of the target panel.

Locating a panel

To bring a particular panel to the top of the display, enter the **locate** panel command. This is especially useful when the search argument has resulted in a long list of objects. To locate a particular panel, enter **locate** *name* on the panel command line, where *name* is the name of the panel.

For example:

```
 ===> locate vacs1
```

The panel VACS1 is displayed as the first object on your screen.

Chapter 11. Editing lines and blocks of the format

This chapter explains the different ways in which you can work on lines or blocks of your format, including:

- Moving and copying lines
- Repeating lines
- Deleting lines
- Shifting contents of a line to the right or left
- Working on blocks.

Note: If you are using the Delete and Insert keys to move the position of variable fields, press the Enter key after you delete a field or shift a field to a new position before you edit another field on the same line.

Moving and copying lines

The letter **m** is the move line command. It is always paired with either the **a** (after) or **b** (before) line command. These two commands together mean move the line marked with the **m** line command to the line after the line marked with the **a**, or to the line before the line marked with the **b** line command.

This example moves line 1 to a new position after line 3:

```
m01
002             ************************************
a03             ** V A C A T I O N   P L A N N E R **
```

The **c** (copy) line command works in a similar way.

This example copies line 1 to a new position after line 3:

```
c01
002             ************************************
a03             ** V A C A T I O N   P L A N N E R **
```

To move or copy more than one line:

1. Type the **m** (move) or **c** (copy) line command together with the number of lines you want to move. For example, to move four lines type **m4**.
2. Type either of these line commands to show where you want to move the lines:

   a (after)
   b (before).
3. Press the **Enter** key.

To move or copy a block of lines:

1. Type the **mm** (move block) command or the **cc** (copy block) command in the line command area of both the first line and the last line of the block you want to move or copy.

2. Type either of these line commands to show where you want to move or copy the lines:

   a (after)
   b (before).

3. Press the **Enter** key.

This example moves lines 2 through 4 after line 5:

```
mm2             ************************************
003             ** V A C A T I O N   P L A N N E R **
mm4             ************************************
a05
```

Repeating lines

The letter **r** is the repeat line command. It repeats the line in which you enter it to the line immediately following it. SDF II gives you a new line, which is a copy of the repeated line, and renumbers the lines that follow the new line.

To repeat a line more than once, enter the **r** line command together with a number indicating how many times you want it repeated. For example, to repeat a line twice, enter **r2** in the line command area of the line you want to repeat.

This example repeats line 2 twice:

```
001
r22             ************************************
003             ** V A C A T I O N   P L A N N E R **
```

To repeat a block of lines:

1. Type the **rr** block command in the line command area of the first line of the block you want to repeat.
2. Type the **rr** block command in the line command area of the last line of the block you want to repeat.
3. Press the **Enter** key.

You can also tell SDF II how many times to repeat a block of lines. For example, to repeat a block of lines three times:

1. Type the **rr3** in the line command area of the first line of the block you want to repeat.
2. Type the **rr** line command in the line command area of the last line of the block you want to repeat.
3. Press the **Enter** key.

Deleting lines

The letter **d** is the delete line command. SDF II deletes the line and renumbers the lines in the panel format.

To delete two or more consecutive lines, enter the **d** line command together with a number indicating how many lines you want to delete. For example, to delete two consecutive lines, enter **d2** in the line command area of the first line you want to delete.

This example deletes lines 2 and 3:

```
001
d22             ************************************
003             ** V A C A T I O N   P L A N N E R **
```

To delete a block of lines:

1. Type the **dd** block command in the line command area of the first line of the block you want to delete.
2. Type the **dd** block command in the line command area of the last line of the block you want to delete.
3. Press the **Enter** key.

This example deletes lines 2 through 4:

```
001
dd2             ************************************
003             ** V A C A T I O N   P L A N N E R **
dd4             ************************************
```

Shifting lines to the right or left

Use the shift right **)** and shift left **(** line commands to shift the contents of a line to the right or left. You can also type in the number of columns you want SDF II to shift the contents of the line.

This example moves the text on line 3 four columns to the right:

```
002             ************************************
)43             ** V A C A T I O N   P L A N N E R **
004             ************************************
```

Use the shift right **))** and shift left **((** block commands to shift the contents of a block of two or more lines at the same time. Type the command in the line command area of the first and last lines that you want to shift. On the first line, you can also type the number of columns you want SDF II to shift the contents of the line.

This example moves the text on lines 2, 3, and 4 three columns to the right:

```
001
3))             ************************************
003             ** V A C A T I O N   P L A N N E R **
))4             ************************************
```

You can type the number either before or after the pair of parentheses, for example, **))3**.

Working on blocks

To work on a block of the format:

1. Move the cursor to one corner and press the **Position** key (PF6). Depending on the attributes associated with the format at the cursor position, SDF II displays either the message `First corner defined` or the message `Element selected`.
2. Mark the diagonally opposite corner by moving the cursor and pressing the **Position** key again. SDF II displays the message `Block defined`.
3. Press the **Position** key a third time, to display the Select Operation window:

```
Select Operation:
 6   1. Move Block
     2. Copy Block
     3. Delete Block
     4. Box
     5. Repeat
     6. Deselect
     7. New Block
```

4. Select the operation to be performed on the block. The block operations are described in Figure 1.

Figure 1. Panel editor block operations

Operation	Panel command	Purpose
Move Block	**moveblock**	To move the block marked with the **position** panel command to another place on the format.
Copy Block	**copyblock**	To copy the block marked with the **position** panel command to another place on the format. It leaves the original block unchanged.
Delete Block	**delblock**	To delete the block marked by the **position** panel command.
Box	**box**	To draw a box around the block marked by the **position** panel command. "Working on DBCS blocks" on page 109 explains the **box** command and its related **delbox** command.
Repeat	**repeat**	To define a repeat format based on the block marked by the **position** panel command. For more information about the **repeat** command, see Chapter 14, "Repeating a block of the format" on page 68.

Aligning the right side of a block:

To line up the right-hand side of a block at a particular position, follow these steps:

1. Define the bottom right corner with the **Position** key (PF6).
2. Define the top left corner with the **Position** key (PF6).
3. Type the panel command **moveblock** or **copyblock** on the command line.
4. Move the cursor to where you want the bottom right corner of the block.
5. Press the **Enter** key.

Note: Instead of typing the command, then positioning the cursor, you could have first positioned the cursor, then pressed the **Position** key a third time and selected **Move Block** or **Copy Block** from the **Select Operation** pop-up window.

SDF II moves or copies the bottom right corner (the first corner) to where the cursor is.

When you do this, make sure that the left side of the block will not go beyond the left edge of the panel. If it does, you will get the message `Block exceeds format`.

Chapter 12. Defining an array

This chapter shows how to define an array on an SDF II panel.

Note: Arrays are not supported for target system ISPF.

An *array* is a named, ordered collection of variable fields that are accessed by an application program using indexing. It is defined like a variable field in the Fields window; however, it has a specified occurrence number denoting the number of elements it contains. In SDF II, an array can be vertical or horizontal.

This is a *vertical array:*

```
choice(1)   choice(4)   choice(7)
choice(2)   choice(5)   choice(8)
choice(3)   choice(6)   choice(9)
```

This is a *horizontal array:*

```
choice(1)   choice(2)   choice(3)
choice(4)   choice(5)   choice(6)
choice(7)   choice(8)   choice(9)
```

Each number in parentheses is the *index* of the array element.

All the fields of an array have the same name. The application program refers to a particular field in an array by the array's name and the field's index number. This makes it easier for the application program to handle lists or tables, where the information is in columns and rows.

For example, to get the following result you could define 12 individual variable fields, or you could define an array of a single variable field with 12 occurrences:

```
Enter your selection ===> __


 1 _____________________   2 _____________________
 3 _____________________   4 _____________________
 5 _____________________   6 _____________________
 7 _____________________   8 _____________________
 9 _____________________  10 _____________________
11 _____________________  12 _____________________
```

To define an array, use the Define Fields dialog as illustrated in this procedure:

1. In the Fields window of the Define Fields panel, enter the **i** (insert) line command to add a new line.

2. On the new line, type the field name, line, column, and width.

   To create the array pictured above, you would enter the following:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                            DEFINE FIELDS                          ARR 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' ******** TOP OF DATA ********************************************************
''' choice__ ___ _   4__  5__    _____ 30__  ______ ________ ________
''' ******** END OF DATA ********************************************************
```

3. In the **Occurs** column, type **2**. This number will be adjusted later.

   In the **Array direction** column, type **vertical**, then press the **Enter** key.

   The field definition line now looks like this:

```
 File  Dialogs  Edit  View  Options  Help
_____________________________________________________________________________
                            DEFINE FIELDS                          ARR 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE
                                                        Move cursor into format
Fields  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' ******** TOP OF DATA ********************************************************
''' CHOICE__ ___ _   4__  5__    _____ 30__  2___    VERTICAL  ________
''' ******** END OF DATA ********************************************************
```

   SDF II places the first occurrence of the field where you specified and prompts you to move the cursor to where you want the second occurrence.

4. Define the second occurrence at column 45. (Move the cursor to column 45 on line 4, then press the **Enter** key.)

   The Format window now looks like this:

```
Format  . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO . SE , SP /                                 CONTENTS: NAME
001
002
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
003
004     CHOICE_____________________          CHOICE_____________________
005
```

5. In the Format window, repeat five times the format line you just defined (enter the line command **r5**). This gives you 12 occurrences of the field. The **Occurs** value in the Fields window changes to 12. The array is now complete:

```
 File  Dialogs  Edit  View  Options  Help
______________________________________________________________________________
                             DEFINE FIELDS                          ARR 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . . COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' ******** TOP OF DATA ******************************************************
''' CHOICE__ ___ _   4_   5__   _____ 30_   12_    VERTICAL  ________
 ''' ******** END OF DATA ******************************************************



Format  . . . . . . . . . . . . . . . . . . POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO . SE , SP /                                       CONTENTS: NAME
001
002
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
003
004     CHOICE________________________          CHOICE________________________
005     CHOICE________________________          CHOICE________________________
006     CHOICE________________________          CHOICE________________________
007     CHOICE________________________          CHOICE________________________
008     CHOICE________________________          CHOICE________________________
009     CHOICE________________________          CHOICE________________________
010
```

If you want to add constant text next to each choice, do the following:

1. Enter **format** on the command line.

   The **format** panel command changes the editing mode to format mode. You can now enter text in the Format window.

2. Type the numbers as background text, for example:

```
004     1  __________________________    7  __________________________
005     2  __________________________    8  __________________________
006     3  __________________________    9  __________________________
007     4  __________________________   10  __________________________
008     5  __________________________   11  __________________________
009     6  __________________________   12  __________________________
```

3. Press the **End** key (PF3) twice, to display the Exit Editor window.
4. Select **Save** to save the panel and display the Identify Panel panel.
5. Press the **End** key again to display the Select an SDF II Function panel.

Chapter 13. Including a panel in another

Some text or fields, such as a standard header, may be common to all the panels in an application. You can save time if you define common information in separate panels, then include these panels in each panel that needs them.

You define these *include panels* separately. You then edit the main panel to specify where the include panel is to be placed.

You can edit an include panel just as you would any other panel: get it from its library and use the panel editor. Any change you make to an include panel is reflected in every panel that includes it. However, if you increase the size of the smaller panel, remember to allow for the extra space it needs in each panel that includes it.

In this chapter, you define a panel that will be used as a standard header for a set of panels, and then include it in a panel.

Defining the sample panel to be included

The sample panel to be included contains a panel header to be used by all panels in an application.

Define a panel with the following specifications:

- A panel name of **header**.
- For the panel width, take the device default, which is 80 for the sample panel.
- For the panel depth, specify **1**.
- Enter the following text on line 1:

  Vacation Planner and Booking Program

When you have done this, save the panel and return to the Select an SDF II Function panel.

Specifying an include panel in a panel format

Before you include a panel in a format, make sure that there is enough space for it. You might need to add blank lines to the format of the panel that will contain the include panel.

You then need to specify in the panel format the position of the include panel. To do this:

1. On the Identify Panel panel, enter **vacs1**, to work on the VACS1 panel.
2. On the Select a Panel Editor Dialog panel, enter **3** on the command line. The Define Fields panel is displayed.
3. Enter the **i** line command to insert a new line as the first line in the fields window.
4. Define the include panel in the new line. Specify in the **Name** column the panel name, and in the **Line** and **Column** columns the position where the include panel is to be placed. In the **Type** column, type **include**.

For the example, the panel name is **header**, and the position is line 1, column 1:

```
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' ******** TOP OF DATA ******************************************
''' header   __  _   1    1      ___   ____  ___    ________  include
```

5. Press the **Enter** key. The header line appears in the format window in the correct position.
6. Save your VACS1 panel, and return to the Select an SDF II Function panel.

Chapter 14. Repeating a block of the format

This chapter shows you how to repeat vertically a rectangular block of a format that contains variable fields.

You may sometimes want to show on a panel two or more blocks that contain the same information, like this:

```
''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
005   Checked    Surname               First name   Address
006
007      __      * ___________________ * _________   _________________________
008                                                  _________________________
009                                                  _________________________
010      __      * ___________________ * _________   _________________________
011                                                  _________________________
012                                                  _________________________
013      __      * ___________________ * _________   _________________________
014                                                  _________________________
015                                                  _________________________
```

A block of the format, columns 4–75 on lines 7–9, which includes text and variable fields, has been repeated twice after line 9. The block contains text (the asterisks) and six variable fields: a field for the check, two fields for the name, and three for the address. Both the text and the fields are copied in the repeated blocks.

Note: For target system ISPF, the repeated blocks are not displayed in the Format window but are added dynamically by ISPF at run time. For details of this and other differences and restrictions, see the online reference.

The variable fields of a repeat format are presented to the application program as an array. If there are no variable fields in the block you want to repeat, use the **copyblock** panel command instead.

To define a repeat format:

1. On the Define Fields or Define Format panel, enter the text and fields of the first block. Specify the names of the variable fields.

   Any text or field in the first line of the repeat format must begin in or after column 2.

   For the sample array above, these three lines are added to the format:

   ```
   ''' <---:----1----:----2----:----3----:----4----:----5----:----6----:----7----:
   007      __      * ___________________ * _________   _________________________
   008                                                  _________________________
   009                                                  _________________________
   ```

2. Mark the top left-hand corner and bottom right-hand corner of the block with the **Position** key (PF6).

   The block can include partial lines, but cannot include partial fields. The attribute position is part of the field and must therefore be part of the defined block.

3. Enter the **repeat** *n* panel command, where *n* is the total number of times you want the block to appear on your format.

Because you already have the block once on your format, the **repeat 3** panel command, for example, would give you two more copies of it.

The fields and text of the block you have marked are repeated in the Format window.

Each occurrence of a variable field has the same name as the field in the original block.

4. Name the repeat format in the Fields window of the Define Fields panel.

   For example:

```
 File  Dialogs  Edit  View  Options  Help
________________________________________________________________________________
                              DEFINE FIELDS                         REPEAT 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Fields  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-10 OF 10, ROW 1 OF 1
    Name --- Ref Mar Line Column Depth Width Occurs Array dir Type ---
''' CONFIRM  ___ _   7_   4_     3__   71_   3__    _________ REPEAT
'''  CHECKED ___ _   7_   5_     ___   2_    ___    _________ ______
'''  SUR2___ ___ _   7_   14     ___   19    ___    _________ ______
'''  FIRSTNA ___ _   7_   36     ___   10    ___    _________ ______
'''  ADDR1__ ___ _   7_   49     ___   25    ___    _________ ______
'''  ADDR2__ ___ _   8_   49     ___   25    ___    _________ ______
'''  ADDR3__ ___ _   9_   49     ___   25    ___    _________ ______
''' ******** END OF DATA ******************************************************

Format  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ CO . SE , SP /                                   CONTENTS: FORMAT
001
002
003
004
005   Checked    Surname             First name   Address
006
007     __     * ___________________ * __________   _________________________
008                                                 _________________________
009                                                 _________________________
010     __     * ___________________ * __________   _________________________
011                                                 _________________________
012                                                 _________________________
013     __     * ___________________ * __________   _________________________
014                                                 _________________________
015                                                 _________________________
```

You can change the original block of your repeat format in the Format window or the Fields window. Any changes you make to the fields in the original block are reflected in the repeated blocks.

You can change the field name in any block of your repeat format, either in the original block or in a repeated block in the Format window or the Fields window. (You cannot make any other changes to a repeated block in the Format window.) When you change a field name, SDF II makes the same change for each occurrence of the field in your repeat format.

Use the panel command **name**, if necessary, to change the editing mode so that you can edit field names in the Format window.

You can also make changes to the repeat format in the Fields window. For example, you can change the occurrence number. SDF II issues a message if there is not enough room for the number of occurrences you specify.

You can change the width of a field in the original block, as long as the width does not conflict with other fields and does not exceed the width of the repeat format. For example, you could change the width of the field CHECKED in the Fields window from 2 to 3. However, changing the address fields from 25 to 27 would then cause the fields to extend beyond the repeat format; SDF II would then issue an error message.

The scope of the original block is indicated in the line, column, depth, and width information for the repeat format in the Fields window. You might want to make changes that would change the scope of the original block. For example, if you were to add a fourth address line, the depth of the block would be four lines instead of three lines. Similarly, if you were to make the address field two characters longer, the width of the block would be 73 instead of 71. To make these types of changes, do the following:

1. In the Fields window, delete the line that contains the name of the repeat format. This line has REPEAT in the **Type** column. The names of the fields of the repeat format then shift to the left, so they start in the first position of the **Name** column. SDF II deletes the repeated variable fields from the Format window.

   You can then work on each line and field of the original format separately. They are now ordinary fields, no longer bound by the restrictions of a repeat format.

2. Enter the panel command **format**, if necessary, to change the editing mode so that you can edit the fields in the Format window.

3. Mark the updated block with the **Position** key (PF6), and enter the **repeat** *n* panel command.

   SDF II then repeats your corrected block in the Format window and indents the field names of the repeat block in the Fields window.

4. Name the repeat format in the Fields window.

Chapter 15. Changing your view of an SDF II window

A window is an area of an SDF II panel in which you can enter information and SDF II can display information. For some SDF II windows, you can customize the columns, specifying which columns are to be displayed and how wide each column is to be.

For example, if you do not use reference names in your format, you can specify that the **Reference name** column is not to be displayed in the Define Fields panel. Alternatively, if you want to give a field a name that is more than eight characters long, you can tell SDF II how long to make the fields of the **Name** column. You do this in the Customize a Window panel.

In the panels you have already used, you can customize these windows:

The Fields window of the Define Fields panel
The Attribute window of the Define Attributes panel
The Define Marks panel
The List Objects window of the List Objects panel.

Starting the Customize a Window panel

To change your view of an SDF II window, use the Customize a Window panel. This panel is displayed when you enter the **view** panel command. For example:

1. Get your panel from its library. You can do this from the Identify Panel panel or from the List Objects panel.
2. On the Select a Panel Editor Dialog panel, enter **3** on the command line. The Define Fields panel is displayed.
3. Enter **view** on the command line. The Customize a Window panel for the Fields window is displayed:

```
 File  View  Options  Help
_____________________________________________________________________________
                          CUSTOMIZE A WINDOW
Command ===> _____________________________________________ Scroll ===> PAGE

  Window name  . . . . . : Fields
  Type of change . . . . : TEMPORARY
  Target system  . . . . : CICS/BMS

For each column of the window specify the display length as indicated
N=do not display, D=data length, A=ACTUAL data length

Customization . . . . . . . . . . . . . . . . . . . COLUMNS 1-5 OF 5, ROW 1 OF 11
Column name ----   Value Datal Min.v Header text ------------
NAME               8     35    1     Name
REFNAME            3     2     2     Ref name
MARK               3     1     1     Mark
RFIELD             N     65    8     Related field
LINE               4     3     3     Line
COLUMN             6     3     3     Column
DEPTH              5     3     3     Depth
WIDTH              5     4     4     Width
OCCURS             6     3     3     Occurs
ARRAYDIRECTION     9     8     8     Array direction
TYPE               Y     8     8     Type
```

At the top left of the Customize a Window panel are the words `Type of change: TEMPORARY`. This means that any change you make to the Fields window will last for only the current panel editor session.

You can change the entries in only the **Value** column. The other columns are there for your information only. In the **Value** column, you can enter:

n To hide this column in the Fields window.

y To display the column and give it the width shown under **Datal** (data length).

a To display the column and make it as wide as the widest entry. It stands for actual data length.

For example, if you enter several fields in the Format window and the longest field name is **destination-country**, the width of the **Name** column in the Fields window would be 19 characters.

number To set the width to this number of characters. The number cannot be less than the number shown under **Min.v** (minimum value).

Setting the width of a column

To set the width of a column, on the Customize a Window panel type the width of the column in the **Value** column. For example, to set the display length of the name column to 25 characters, enter **25** in the **Value** column:

```
Customization . . . . . . . . . . . . . . . . . . . . COLUMNS 1-5 OF 5
Column name ----   Value Datal Min.v Header text ------------
NAME               25    33    1     Name
REFNAME            3     2     2     Ref name
```

To return to the panel editor dialog, press the **End** key (PF3).

Another way to change the setting of one or more columns is to use the **view** panel command together with its operands. The operands are the column names paired with values, as described in the online reference.

For example, to set the width of the **Name** column and turn off the **Array direction** column at the same time, you could enter this on the command line of the Define Fields panel: **view name 25 array n**

To change any window permanently, make your changes in the profile editor. Chapter 16, “Defining your own SDF II profile” on page 74 shows you how to do this.

Chapter 16. Defining your own SDF II profile

This chapter shows you how to change the values in the SDF II profile with the profile editor.

The following list shows the ways that you can change the standard defaults of SDF II with the profile editor. The numbers are the choices on the Select a Profile Editor Dialog panel:

1. Tell SDF II which target system you are using.
2. Set the overall editing defaults, such as:
   - Save the panel automatically after the number of changes that you specify.
   - Start with line numbers turned on in all dialogs.
   - Allow no changes to the data structure during the editing session.
   - Translate any text you enter on the format into uppercase letters.
   - Set nulls on in the Format window.
   - Set the line command area on or off in the Format window.
   - Specify the characters that represent the marks you use to define the format of a new panel.
   - Confirm any delete requests that you enter in the Fields or List Objects window.
3. Customize a window.

   The changes that you make to a window through the profile editor are in effect for all your editing sessions, until you again change them in the profile editor. You can reset the values for a single editing session by using the **view** panel command, as described in Chapter 15, “Changing your view of an SDF II window” on page 71.
4. Set the page size for printers.

Use the profile editor to make permanent changes to your SDF II editing values. When you do this, you can still override some of these values for a single editing session by using such panel commands as:

autosave
number
linecmd
nulls
view

To start the profile editor, enter **10** on the command line of the Select an SDF II Function panel. The Select a Profile Editor Dialog panel is displayed:

```
 Exit  View  Options  Help
──────────────────────────────────────────────────────────────────────
                    SELECT A PROFILE EDITOR DIALOG
Option ===> ____________________________________________________________

1   SYSTEM ENVIRONMENT      Specify target system

2   DEFAULTS                Specify overall editing defaults

3   DIALOGS                 Customize SDF II windows

4   PRINTER                 Specify print page size
```

To change the editing defaults:

1. On the command line of the Select a Profile Editor Dialog panel, enter **2**. The Specify Overall Editing Defaults panel is displayed:

```
 File  View  Options  Help
──────────────────────────────────────────────────────────────────────
                  SPECIFY OVERALL EDITING DEFAULTS
Command ===> ___________________________________________________________

  _ Line numbers                          ┌ Confirmation of delete command ──┐
                                          │ / List objects                   │
Default setting for all editors           │ / Define fields                  │
  Autosave . . . . . . . . 0              └──────────────────────────────────┘
  _ Confirm save on exit

┌ Default setting for panel editor ──────────────────────────────────────────┐
│ Preserve                                                                   │
│  2  1. On                 _ Capitals              FORMAT window only       │
│     2. Off                _ Nulls                 FORMAT window only       │
│     3. Permanent          / Line commands                                  │
│                           _ Mixed case names                               │
└────────────────────────────────────────────────────────────────────────────┘

┌ Default marks when creating a new panel ──────────────────────────────────┐
│ Variable marks:         Constant marks:          Spacer . . . . . /       │
│   EBCDIC . . . . _        EBCDIC . . . . .       Separator  . . . .       │
│   DBCS . . . . . _        DBCS . . . . . _                                 │
│   MIXED  . . . . _        MIXED  . . . . _                                 │
└────────────────────────────────────────────────────────────────────────────┘
```

2. Type the value you want to change.

   For example, enter **/** for **Nulls** to set nulls on:

   ```
   / Nulls
   ```

3. Press the **End** key (PF3). The Select a Profile Editor Dialog panel is displayed.

Chapter 17. Constructing a panel from a list of elements

The previous chapters have shown how to use the panel editor to define a panel. This chapter shows you how to use the panel construction utility to define a panel. This utility builds a panel from elements you specify. You can either specify elements that are already stored or define new elements. You may find this a useful way to define panels when, for example, you have common information that you want to use in a number of panels, or you want your panels to have a standard format.

The general steps for constructing a panel are:

1. Specify a new panel name and the device type.
2. Define the size of the panel, or accept the default for the device.
3. List the elements from which the panel is to be built, including:

   Header
   Field elements
   Text elements
   Repeat format elements.

   This list can include newly specified elements and predefined elements stored outside SDF II. If you specify a related field name, stored information is retrieved.
4. SDF II constructs the panel from the information in the predefined elements and from any new elements that you have defined.
5. Display and save the constructed panel.

An element contains either text or information about fields, arrays, or repeat formats. Information that can be stored with an element and brought into SDF II includes the following:

Width
Number of occurrences
Initial values
Constant text to appear to the right of a field
Field prompt to appear to the left of a field
Field format.

SDF II does not directly access the information in these stored elements. Instead, it invokes user exit routines, which retrieve the information from the stored elements.

The sample panels and sample data

In the procedures that follow, you construct two sample panels. The first panel is an entry panel for car rental information. The second panel is a display panel for car rental rates.

SDF II constructs the fields on this panel from information stored in the elements described in Figure 2 on page 77.

The environment must be set up before you can perform the procedures in this chapter. Check with your SDF II administrator that this has been done. The steps for setting up the environment are given in *SDF II Administrator's Guide*.

Field name	Len	Occ	Prompt	Description	Initial Value
COLLECT	.				
COLLECT.DATE	10	.	"Collect date"	"(dd/mm/yyyy)"	
COLLECT.CITY	20	.	"City"	""	"Vienna"
COLLECT.COUNTRY	20	.	"Country"	""	"Austria"
RETURN	.				
RETURN.RDATE	10	.	"Return date"	"(dd/mm/yyyy)"	
RETURN.RCITY	20	.	"City"	""	
RETURN.RCOUNTRY	20	.	"Country"	""	
RATES	.	3			
RATES.CHOICE	1	.	"Choice"	""	
RATES.CAR	12	.	"Type of Car "	""	
RATES.DAILY	8	.	"Daily Rate "	""	
RATES.WEEKLY	8	.	"Weekly Rate "	""	
RATES.WEEKEND	8	.	"Weekend Rate "	""	

Figure 2. Information stored in the elements for panels CR1 and CR2

Constructing a simple panel

The first sample panel, CR1, looks like this:

```
CR1                          Car Rental Period
Enter the following-
  Collect date  . . . . _________            (dd/mm/yyyy)

  City  . . . . . . . . Vienna_____________

  Country . . . . . . . Austria____________


  Return date . . . . . _________            (dd/mm/yyyy)

  City  . . . . . . . . ___________________

  Country . . . . . . . ___________________
```

This panel uses the fields grouped under COLLECT and RETURN in Figure 2.

Naming the panel

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

1. Enter **9.5** on the command line. The Specify Panel Construction Parameters panel is displayed:

```
 Exit  View  Options  Help
_____________________________________________________________________________
              SPECIFY PANEL CONSTRUCTION PARAMETERS
Command ===> _____________________________________________________________

Identify the panel
  Name . . . . . . . . . _______
  Library  . . . . . . . _
  Device type  . . . . . _______
```

2. Specify the name (**cr1**), library identifier (**1**), and device type of the panel (**3279-2b**) that you want to construct.

   The next time you enter this dialog, you will see the information last entered. However, you must enter a new panel identifier each time SDF II displays this panel. (To make changes to an existing panel, use a panel editor dialog.)

3. Press the **Enter** key. The Specify Panel Elements panel is displayed, showing the default panel depth and width:

```
 File  Dialogs  View  Options  Help
_____________________________________________________________________________
                        SPECIFY PANEL ELEMENTS                  CR1 3279-2B
Command ===> _____________________________________________ Scroll ===> PAGE

Panel size
  Depth  . . . . . . . . . 24          Width  . . . . . . . . . 80
Elements  . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-7 OF 7, ROW 0 OF 0
    Related field -- Name ----- Leng Occ Ver Prompt Description ---------------
''' TOP OF DATA ********************************************************************
''' END OF DATA ********************************************************************
```

The fields and columns on the Specify Panel Elements panels have the same meanings as those in the Fields window, with the following additions:

Related field Enter here the name of a stored element (related field). The stored element contains information that SDF II uses to construct the panel.

You can enter a simple name or a qualified name. In a qualified name, such as COLLECT.DATE, the rightmost name is the simple name. In this example, DATE is the simple name and COLLECT is the qualifier. Each part of the name can be up to 32 characters long.

If you enter the names of stored elements in the **Related field** column, SDF II invokes user exit routines that retrieve information in these elements. It displays this information in the **Leng**, **Occ**, **Ver**, **Prompt**, and **Description** columns.

Name This is the name SDF II uses as a field name.

If you do not enter a name, SDF II tries to use the name you entered in the **Related field** column as the default. If this name is qualified, SDF II tries to use the rightmost name (simple name).

Before using this name, SDF II checks that the name is unique within the panel being constructed. It also checks that the name corresponds to the syntax of the programming languages that it supports. If the name does not meet these criteria, SDF II leaves this column blank.

Format This is the field format, which can be EBCDIC, DBCS, or mixed.

Prompt This is the message that will be displayed in front of a variable field or an array. The maximum length is 20 characters.

Description This is the description of a variable field, panel text, or panel header.

You can adjust the width of columns on the panel using the **view** panel command.

Defining the panel header

To define the panel header:

1. Insert new lines as necessary. For the current example, insert six new lines. This is the number of lines you need to define new panel elements and list the names of the stored elements that contain the information SDF II will use to construct the panel.
2. If you enter text as the first item, it is used as the panel header.

   For the sample panel, enter this panel header on the first line:

   ```
   Description -------
   ******************
   Car Rental Period
   ```

   If the first item in your list is not a text line, or if the text is too long, no header is displayed on the constructed panel. Your text line is treated instead as panel text.

   The maximum length allowed for a panel header depends on the width of your panel and the operating system you are using. Refer to the online reference for more details.

Defining a text line

To define a text line, enter on the line under the panel header the text:

Enter the following-

```
 File  Dialogs  View  Options  Help
______________________________________________________________________________
                         SPECIFY PANEL ELEMENTS                     CR1 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Panel size
  Depth  . . . . . . . . . 24            Width  . . . . . . . . . 80
Elements  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 6
    Related field -- Name ----- Leng Occ Ver Prompt ----- Description ---------
''' TOP OF DATA ***************************************************************
''' ________________ __________ ____ ___ _   ____________ Car Rental Period
''' ________________ __________ ____ ___ _   ____________ Enter the following-
''' ________________ __________ ____ ___ _   ____________ _____________________
''' ________________ __________ ____ ___ _   ____________ _____________________
''' ________________ __________ ____ ___ _   ____________ _____________________
''' ________________ __________ ____ ___ _   ____________ _____________________
''' END OF DATA ***************************************************************
```

For constant text, leave the **Name** column blank.

Getting variable fields

In this procedure, you enter the names of stored elements.

1. Type the names of the stored elements in the **Related field** column:

   ```
       Related field -- Na
   ''' TOP OF DATA *******
   ''' ________________ __
   ''' ________________ __
   ''' collect.date     __
   ''' collect.city     __
   ''' collect.country  __
   ```

   SDF II will use the information in these elements (as described in Figure 2 on page 77) to construct the first three fields of the CR1 panel.

2. Press the **Enter** key.

   The user exit routine DGIUXRET retrieves information from the elements specified in step 1. SDF II displays this information in the **Leng**, **Prompt**, and **Description** columns. It also provides a name for each related field name.

   If you get an error message, check that you have typed the element name correctly. If this is not the cause of the error, the element name may have been misspelled when the element was defined initially. Check with your SDF II administrator if you suspect that this is the case.

The Specify Panel Elements panel for the example now looks like this:

```
 File  Dialogs  View  Options  Help
________________________________________________________________________________
                         SPECIFY PANEL ELEMENTS                     CR1 3279-2B
Command ===> ________________________________________________ Scroll ===> PAGE

Panel size
  Depth  . . . . . . . . . 24           Width  . . . . . . . . . 80
Elements  . . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 6
    Related field -- Name ----- Leng Occ Ver Prompt ----- Description ---------
''' TOP OF DATA ****************************************************************
''' ________________ __________ ____ ___ _   ____________ Car Rental Period
''' ________________ __________ ____ ___ _   ____________ Enter the following-
''' COLLECT.DATE     DATE       10   ___ _   Collect date (dd/mm/yyyy)
''' COLLECT.CITY     CITY       20   ___ _   City         ____________________
''' COLLECT.COUNTRY  COUNTRY    20   ___ _   Country      ____________________
''' ________________ __________ ____ ___ _   ____________ ____________________
''' END OF DATA ****************************************************************
```

Getting related elements using a qualifier

So far, you have entered element names individually, for example, COLLECT.DATE, COLLECT.CITY, and COLLECT.COUNTRY. These three elements have the common qualifier COLLECT. On the Specify Panel Elements panel, you could have retrieved all this information by entering the qualifier COLLECT together with the **ex** (expand) line command. The user exit routine DGIUXEXP would have retrieved information from all the elements with the qualifier COLLECT—COLLECT.DATE, COLLECT.CITY, COLLECT.COUNTRY. These are called *related elements*.

You will use this method in the following procedure to retrieve information stored in elements with the qualifier RETURN. SDF II will use the information in these elements to construct the last three variable fields on the CR1 panel.

Start this procedure from the Specify Panel Elements panel.

1. Type the qualifier of the related elements in the **Related field** column. In the line command area, type the **ex** (expand) line command beside the qualifier.

   ```
   ''' COLLECT.COUNTRY
   ex' return
   ```

2. Press the **Enter** key.

   The user exit routine DGIUXEXP retrieves information from all the stored elements that have the qualifier RETURN. SDF II displays the name of each stored element in the **Related field** column and the information retrieved in the **Leng**, **Prompt**, and **Description** columns.

The Specify Panel Elements panel now looks like this:

```
  File  Dialogs  View  Options  Help
 ________________________________________________________________________________
                          SPECIFY PANEL ELEMENTS                        CR1 3279-2B
 Command ===> ________________________________________________ Scroll ===> PAGE

 Panel size
   Depth  . . . . . . . . . 24            Width  . . . . . . . . . 80
 Elements  . . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 6
     Related field -- Name ----- Leng Occ Ver Prompt ----- Description ---------
 ''' TOP OF DATA ***************************************************************
 ''' _______________ __________ ____ ___ _   ____________ Car Rental Period
 ''' _______________ __________ ____ ___ _   ____________ Enter the following-
 ''' COLLECT.DATE     DATE       10   ___ _   Collect date (dd/mm/yyyy)
 ''' COLLECT.CITY     CITY       20   ___ _   City         _____________________
 ''' COLLECT.COUNTRY  COUNTRY    20   ___ _   Country      _____________________
 ''' RETURN           __________ ____ ___ _   ____________ _____________________
 ''' RETURN.RDATE     RDATE      10   ___ _   Return date  (dd/mm/yyyy)
 ''' RETURN.RCITY     RCITY      20   ___ _   City         _____________________
 ''' RETURN.RCOUNTRY  RCOUNTRY   20   ___ _   Country      _____________________
 ''' END OF DATA ***************************************************************
```

Viewing the formatted panel

To view the formatted panel, enter **test** on the command line of the Specify Panel Elements panel. SDF II constructs and displays the panel. The sample panel you created is displayed with its initial values:

```
  CR1                          Car Rental Period
  Enter the following-
    Collect date  . . . . __________              (dd/mm/yyyy)

    City  . . . . . . . . Vienna____________

    Country . . . . . . . Austria___________


    Return date . . . . . __________              (dd/mm/yyyy)

    City  . . . . . . . . ____________________

    Country . . . . . . . ____________________
```

Press the **End** key (PF3) to return to the Specify Panel Elements panel.

Now save your CR1 panel and return to the Specify Panel Construction Parameters panel.

If you want to make changes to your panel now, you must do so in the panel editor dialog.

Constructing a panel with a repeat format

The second sample panel, CR2, displays car rental rates in a table format. You can easily construct a table by defining a repeat format. SDF II uses information contained in stored elements to construct this table.

This is the next panel that you will define:

```
CR2                          Car Rental Rates
Under Choice, type an X beside the customer's preference.
Rental rates are quoted in US dollars.
Choice Type of Car  Daily Rate Weekly Rate Weekend Rate
_      __________ _______   _______     _______
_      __________ _______   _______     _______
_      __________ _______   _______     _______
```

Defining the panel header and text lines

To define the panel header and the text lines:

1. Identify the panel. On the Specify Panel Construction Parameters panel, enter the panel name, which in this example is **CR2.**
2. Insert new lines, as necessary. For the sample panel, insert four new lines.

   This is the number of lines you need to define new panel elements and list the names of the stored elements that contain the information SDF II will use to construct the panel.
3. Press the **Scroll right** key (PF11) so that the entire **Description** column is displayed.
4. Type the descriptions:

```
    Description ---------------------------------------------
''' TOP OF DATA *********************************************
''' Car Rental Rates
''' Under Choice, type an X beside the customer's preference.
''' Rental rates are quoted in US dollars.
```

5. Press the **Scroll left** key (PF10) to scroll the screen left to its original position.

The elements that contain the information SDF II needs to construct the repeat format have the qualifier RATES. In the next procedure, you will enter this qualifier together with the **ex** (expand) line command.

The user exit routine DGIUXEXP will retrieve the information in all stored elements with the qualifier RATES.

Getting the elements for the repeat format

Enter the qualifier **rates** together with the **ex** (expand) line command:

```
    Related field -- Name -
''' TOP OF DATA ***********
''' ________________ ______
''' ________________ ______
''' ________________ ______
ex' rates___________ ______
```

The user exit routine DGUIXEXP retrieves information from all stored elements with the qualifier RATES.

The **Leng** column displays the length of each field in the repeat format. The **Occ** column displays the occurrence number (3) of the repeat format. The **Prompt** column displays the text for the column headings on the CR2 panel.

The Specify Panel Elements panel looks like this:

```
  File  Dialogs  View  Options  Help
 ________________________________________________________________________________
                          SPECIFY PANEL ELEMENTS                     CR2 3279-2B
 Command ===> ________________________________________________ Scroll ===> PAGE

 Panel size
   Depth  . . . . . . . . . 24           Width  . . . . . . . . . 80
 Elements  . . . . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 6
     Related field -- Name ----- Leng Occ Ver Prompt ----- Description ---------
 ''' TOP OF DATA ***************************************************************
 ''' ________________ __________ ____ ___ _   ____________ Car Rental Rates_____
 ''' ________________ __________ ____ ___ _   ____________ Under Choice, type an
 ''' ________________ __________ ____ ___ _   ____________ Rental rates are quot
 ''' RATES            RATES_____ ____ 3__ _   ____________ _____________________
 ''' RATES.CHOICE     CHOICE____ 1___ ___ _   Choice______ _____________________
 ''' RATES.CAR        CAR_______ 12__ ___ _   Type of Car_ _____________________
 ''' RATES.DAILY      DAILY_____ 8___ ___ _   Daily Rate__ _____________________
 ''' RATES.WEEKLY     WEEKLY____ 8___ ___ _   Weekly Rate_ _____________________
 ''' RATES.WEEKEND    WEEKEND___ 8___ ___ _   Weekend Rate _____________________
 ''' END OF DATA ****************************************************************
```

Now save your CR2 panel and return to the Select an SDF II Function panel.

Part 2. Prototyping applications

Chapter 18. Prototype approaches

A prototype is an early model of an application, with limited function, which is used to test the application before the detailed design is started. Using a prototype approach can thus provide early feedback to application designers. This feedback may result in changes to the design before any application code has been written.

In application development there are two levels of prototypes:

- A simulative prototype
- An operational prototype.

The simulative prototype

The main purpose of a simulative prototype is to determine the initial requirements of application users before work begins on designing the application.

A simulative prototype shows the flow and layout of the panels used in an application. These prototypes are therefore sometimes referred to as “screen prototypes.” Simulative prototypes may also provide limited functions, such as accepting data entries and displaying sample values.

Simulative prototypes require no coding.

The operational prototype

The purpose of an operational prototype is to validate the requirements of application users beyond the initial impression provided by a simulative prototype. Operational prototypes model the main functions of an application, such as database access and limited error handling.

Operational prototypes require some coding.

The SDF II prototype approach

SDF II provides all the functions required to define and run simulative and operational prototypes. Once you have created a simulative prototype, it can be expanded into an operational prototype by adding any functions expected in the application.

The SDF II prototyping facility, which runs under the SDF II dialog manager, uses REXX EXECs to perform logical functions. For information about the SDF II dialog manager services, refer to *SDF II Run-Time Services*.

Defining a prototype

You define a prototype as follows:

1. Define the panels for the target system under which your application will run. These panels will be used in your prototype.
2. Generate the panels using **Prototype** as the target system.

   Note: The output library that you specify on the Specify Generation Parameters panel must be defined as a panel library when invoking the SDF II prototype function.
3. Define the prototype rules in the Specify Prototype dialog. In their simplest form, these rules produce a simulative prototype for which no program code is required. Add your own REXX routines to expand a simulative prototype into an operational prototype.

   The panel flow can be controlled by function keys or by data input. If you wish, you can add initial values, sample values, or both. These values are defined when you create panel formats. Initial values, if defined, are shown when a panel is first displayed only if the variable has not been used before. If the variable has been used, its current value will be displayed. Sample values are shown only if you requested them in the rules you define for the prototype.

You are then ready to demonstrate the prototype to the application user.

Printing prototypes and listing library contents

To print the contents of a prototype, use the SDF II print utility. (See Chapter 9, “Printing a panel” on page 50.)

To list the contents of libraries, use the List Objects dialog. (See Chapter 10, “Working on stored panels” on page 52.) You can also edit, test, generate, print, and run prototypes from this dialog.

Chapter 19. Prototype examples

This chapter describes three prototype examples. Each prototype represents a step in the design of an application. The example application, which uses four panels, is a system for entering customer orders. The same four panels are used in each of the three prototypes outlined below.

With **simulative prototype 1**, you display one panel after another in any order by entering the number of the panel on the command line. Any data you enter on a panel is not stored.

One of the panels is a selection panel. To return to the selection panel, press the **End** key (PF3). If you press the **End** key (PF3) again, you leave the prototype. SDF II then displays the Identify Prototype panel.

Simulative prototype 2 is similar to simulative prototype 1, but includes sample data. You can type over the sample data, but your changes are not stored.

Operational prototype 1 is the final version of the prototype. You enter data, which is stored in a database. You can also update the data. The order list shows the contents of the database. The ability to store and retrieve data makes this an operational prototype.

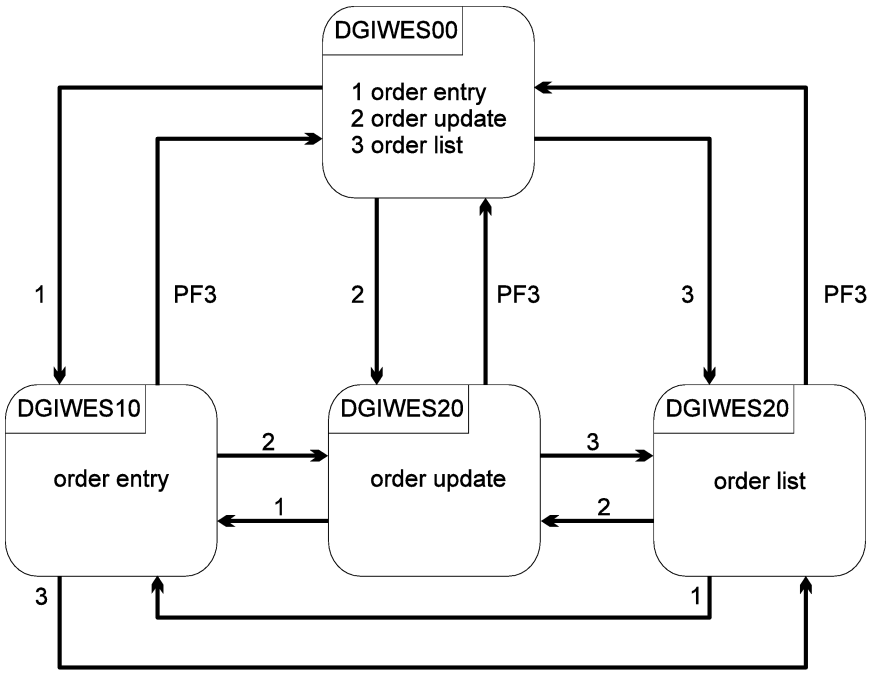
A system for entering customer orders

The panels used in the prototypes are as follows:

Selection Panel	DGIWES00	From this panel you select any one of the following three panels or leave the prototype.
Order Entry	DGIWES10	Enter an order on this panel.
Order Update	DGIWES20	Make changes to the details of orders on this panel.
Order List	DGIWES30	This panel displays a list of orders that you have entered. You can scroll forward or backward in this panel.

These panels are available as generated screen objects in the SDF II installation library.

The flow of panels in the prototypes looks like this:



Define the panels

Pages 90 through 93 show the layout of the four panels. Either access the generated panels in the library in which your SDF II administrator stored them, or define each panel as follows:

1. Select the target system for which you normally define panels.
2. Define the panel format to resemble the layout shown on each page.
3. Define the fields for each panel exactly as described.

If you have any problems, see Part 1, Defining panels.

In the sample panels on the following pages, variable fields are shown by underscores. Fields are listed in the tables in the order in which they appear on the panel. Enter the panel text as it is shown in the sample panels.

In the sample panels, define the system message field as the last line of the panel.

Note: Do not start a variable field in column 1 of any row.

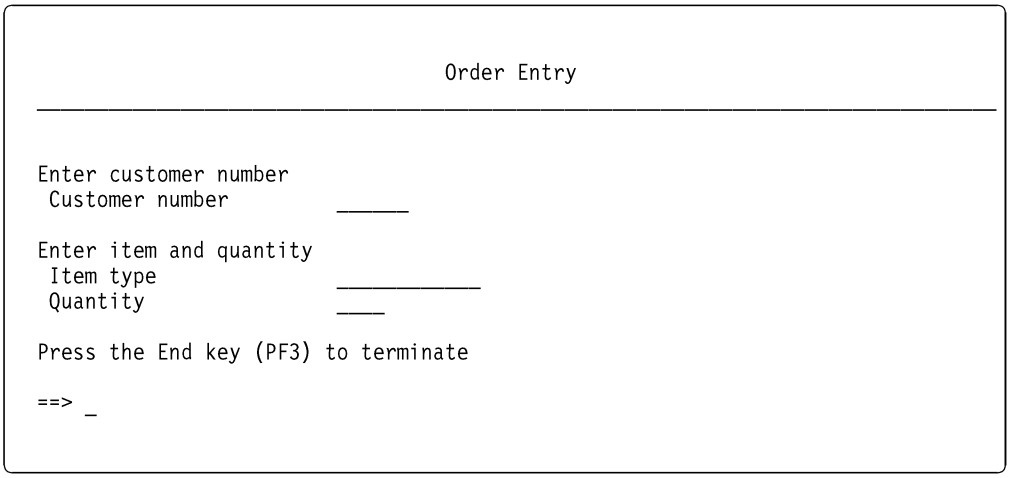
Selection panel (DGIWES00) layout

```
                          Order Entry and Query System
_____________________________________________________________________________

Select one of the following functions

                        1  -  Order entry

                        2  -  Order update

                        3  -  List orders

Press the End key (PF3) to terminate

==> _
```

For panel DGIWES00, define the following:

Field	Name	Protection	Length (chars)	Sample value
Command line	CMD	Unprotected	1	None
System message	MSG	Protected	79	None

Order entry panel (DGIWES10) layout



For panel DGIWES10, define the following:

Field	Name	Protection	Length (chars)	Sample value
Customer number	CUSTNO	Unprotected	6	MON12X
Item type	ITEM	Unprotected	12	WATCH
Quantity	QUAN	Unprotected	4	16
Command line	CMD	Unprotected	1	None
System message	MSG	Protected	79	None

Order update panel (DGIWES20) layout

```
                                  Order Update
_______________________________________________________________________________


Order to be modified
 Customer number         ______
 Item type               ___________
 Quantity                ____

Modified content of order
 Item type               ___________
 Quantity                ____

Press the End key (PF3) to terminate

==> _
```

For panel DGIWES20, define the following:

Field	Name	Protection	Length (chars)	Sample value
Customer number	CUSTNO	Protected	6	MON12X
Item type	ITEM	Protected	12	WATCH
Quantity	QUAN	Protected	4	16
Modified item type	MITEM	Unprotected	12	PEN
Modified quantity	MQUAN	Unprotected	4	25
Command line	CMD	Unprotected	1	None
System message	MSG	Protected	79	None

Order list panel (DGIWES30) layout

```
                                  Order List
_______________________________________________________________________________


The following orders have been registered

Currently displayed: Order ___ of ___

Customer number    Item type       Quantity
______             __________      ____
______             __________      ____
______             __________      ____
______             __________      ____

Press the End key (PF3) to terminate
Scroll keys PF7 (backward), PF8 (forward)

==> _
```

For panel DGIWES30, define the following:

Field	Name	Protection	Length (chars)	Sample value
Currently displayed order	RTP	Protected	3	3
Total number of orders stored	RTO	Protected	3	17
Customer number (n)*	CUSTNOn*	Protected	6	MON12X POW02A AVE12B ELD02X
Item type (n)*	ITEMn*	Protected	12	PEN WATCH SHOE BELT
Quantity (n)*	QUANn*	Protected	4	25 16 20 37
Command line	CMD	Unprotected	1	None
System message	MSG	Protected	79	None

Note: * CUSTNO, ITEM, and QUAN are fields in a repeat format named **update**.

Generate the panels

Generated objects for the example prototypes described in this book are provided with SDF II. To generate your own panels for prototyping, select the **Prototype** option in the **Type** field on the Identify Object for Generation panel. Ignore the **Target system** field.

Note: The output library that you specify on the Specify Generation Parameters panel must be defined in the search order when invoking the SDF II prototype function.

Chapter 20. Building a simulative prototype

After defining the panels, establish the rules for the prototype. The rules determine the flow of control among the panels, according to entries made on the command line. In this chapter you define the rules for the two simulative prototypes DGIWES1 and DGIWES2.

Check with your SDF II administrator that the prototype invocation defines the prototype library.

Identifying the prototype

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

1. Enter **11** on the command line, to display the Identify Prototype panel.
2. Enter the highlighted text to identify the prototype you are about to create:

```
 Exit  View  Options  Help
_______________________________________________________________________________
                            IDENTIFY PROTOTYPE
Option ===> 2_____________________________________________________________________

  blank  Edit existing prototype
      1  Create new prototype from skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . dgiwes1
  Library .  . . . . . . . 1

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

The first time you use this panel, the **Name** field is blank. The next time you use it, the **Name** field will contain the name you last entered.

The **Library** field must contain the identifier of the library in which the prototype is to reside.

When you press the **Enter** key, SDF II displays the Specify Prototype panel.

When you have defined a prototype with SDF II, you can base a new prototype on it. You enter the name and library of the existing prototype in the appropriate fields in the bottom half of the panel. Ignore the second **Name** and **Library** fields for now.

Specify prototyping rules

On the Specify Prototype panel, enter the rules that apply to your prototype.

```
 File  Edit  View  Options  Help
_____________________________________________________________________________
                          SPECIFY PROTOTYPE                          DGIWES1
Command ===> _____________________________________________ Scroll ===> PAGE

Prototype . . . . . .  COLUMNS 1-4 OF 4, ROW 0 OF 0
    Current  Condition ---------------- Action -------------------- Next pan
''' TOP OF DATA ********************************************************************
''' END OF DATA ********************************************************************
```

The entries under each column are used as follows:

Current Specify the name of the current panel. When SDF II interprets a prototype, it searches the prototype definition for definitions with matching panel names. If the **Current** column is blank, SDF II uses the previous nonblank entry in the **Current** column. For example, DGIWES00

Condition Define here the condition to be checked. You can check whether the user has entered data into input fields or pressed a program function key, or both. For example, **cmd='1'**.

Action Specify the actions that SDF II is to perform before it displays the next panel. It performs these actions if the condition specified under **Condition** is true. A blank **Condition** value is always considered to be true.

Next pan Specify the action to be performed next.

Each line of the Specify Prototype panel normally constitutes one rule. You can, however, specify a rule over several physical lines by entering **continue** in the **Next pan** column.

To define a prototype, enter the rules, as follows:

- To perform a particular action before displaying the first panel, leave the **Current** and **Condition** columns of the first line blank. The specified action is then performed, and the panel named in the **Next pan** column is displayed.
- In the **Current** column, enter the name of the first panel to be displayed. If you leave this field blank, SDF II uses the previous nonblank entry.
- To test several conditions and execute their associated actions in a single pass, before displaying a panel, enter **skip** in the **Next pan** column of each but the last line of the rule.
- To unconditionally perform a certain action after a panel has been displayed, complete the **Action** field but leave the **Condition** column blank.
- To unconditionally perform a particular action before checking further for conditions, leave the **Condition** and **Next pan** columns blank. Just enter the name of the current panel and the action to be performed.

- To test whether a function key or the Enter key has been pressed, use the special variable **dgipfkey** in a REXX EXEC. For example:
  - To test whether PF3 has been pressed, use **dgipfkey='PF03'**
  - To test whether the Enter key has been pressed, use **dgipfkey=''** (a null string).
- To show sample values on the next panel, specify **dgisampl='ON'** in the **Action** column. The variable **dgisampl** is reset to **OFF** after the next panel has been displayed. If **dgisampl** is set to **OFF**, the current value of a field is displayed. The current value is either the initial value of the field or the value that was in a field of the same name in a previous panel. (This is shown in "Building the second simulative prototype" on page 100.)
- To call your own REXX EXEC, specify **call** *myprog*, where *myprog* is the name of your REXX EXEC.
- To identify the next panel to be displayed, specify in the **Next pan** column either of the following:
  - The name of the panel
  - The name of an SDF2/DM dialog management services variable that contains the name of the panel. Prefix the name of the variable with an ampersand.

    Note: When you run the prototype, this variable must exist in the shared pool and must contain the name of a panel. (For information about the shared pool, refer to *SDF II Run-Time Services*.)
- To finish running the prototype when a certain condition is met, specify **end** in the **Next pan** column.

You can use the following line commands on this panel:

a	After	**b**	Before
c	Copy	**cc**	Copy block
d	Delete	**dd**	Delete block
i	Insert	**m**	Move
mm	Move block	**r**	Repeat
rr	Repeat block	**/**	Make this the current line

To customize the Specify Prototype panel, enter the **view** panel command. This takes you to the Customize a Window panel, on which you can specify the columns to be displayed and their width (see Chapter 15, "Changing your view of an SDF II window" on page 71 for details).

Defining conditions and actions

You can specify any valid REXX expression in the **Condition** column and any valid REXX statement in the **Action** column.

Conditions can consist of several expressions, any of which may be included in parentheses. To test for a certain value, place that value within quotes.

To perform more than one action, separate the actions by semicolons; for example:

ZCMD=' '; MSG=' '

To call your own REXX EXEC, specify **call** followed by the REXX EXEC name. To assign values to variables, place the values within quotes. Do not use a semicolon in any character string assigned to variables.

Values assigned to variables can be up to 256 characters long. Because dynamic areas are represented by variables, no dynamic area can be longer than 256 characters.

Building the first simulative prototype

1. Create 18 new lines in which to build the prototype:

```
i18 TOP OF DATA ***
''' END OF DATA ***
```

2. Enter the highlighted text to build the prototype:

```
   Current  Condition ---------------- Action ---------------------- Next pan
''' TOP OF DATA ***************************************************************
''' dgiwes00 ____________________ msg='' ____________________ ________
''' ________ cmd='1' ____________ cmd='' ____________ dgiwes10
''' ________ cmd='2' ____________ cmd='' ____________ dgiwes20
''' ________ cmd='3' ____________ cmd='' ____________ dgiwes30
''' ________ dgipfkey='PF03' ____ ____________ end
''' ________ ____________ msg='Wrong input' ____ dgiwes00
''' dgiwes10 ____________ msg='' ____________ ________
''' ________ cmd='2' ____________ cmd='' ____________ dgiwes20
''' ________ cmd='3' ____________ cmd='' ____________ dgiwes30
''' ________ dgipfkey='PF03' ____ ____________ dgiwes00
''' dgiwes20 ____________ msg='' ____________ ________
''' ________ cmd='1' ____________ cmd='' ____________ dgiwes10
''' ________ cmd='3' ____________ cmd='' ____________ dgiwes30
''' ________ dgipfkey='PF03' ____ ____________ dgiwes00
''' dgiwes30 ____________ msg='' ____________ ________
''' ________ cmd='1' ____________ cmd='' ____________ dgiwes10
''' ________ cmd='2' ____________ cmd='' ____________ dgiwes20
''' ________ dgipfkey='PF03' ____ ____________ dgiwes00
''' END OF DATA ***************************************************************
```

Note: You can save your work at any stage by typing **save** on the command line and pressing the **Enter** key. SDF II stores your work and allows you to continue working in the current dialog.

For each panel name listed in the **Current** column, similar conditions and actions apply. For example, for panel DGIWES00:

Line 1 Specifies that DGIWES00 is to be displayed, the message field is then to be cleared, after which the next rule is to be processed.

Line 2 Specifies that a **1** entered in the **cmd** field of the panel is to cause SDF II to display panel DGIWES10 with a blank entry in the **cmd** field.

Line 3 Specifies that a **2** entered in the **cmd** field of the panel is to cause SDF II to display panel DGIWES20 with a blank entry in the **cmd** field.

Line 4 Specifies that a **3** entered in the **cmd** field of the panel is to cause SDF II to display panel DGIWES30 with a blank entry in the **cmd** field.

Line 5 Specifies that, when the End key (PF3) is pressed, the prototype session is finished.

Line 6 Specifies that any other entry is not valid. If SDF II receives an incorrect entry, it is to display the message `Wrong input` in the **msg** field.

Press the **End** key (PF3) before continuing. SDF II saves your work and displays the Identify Prototype panel.

Running the first simulative prototype

Make sure you first generate each of your panels for the target system Prototyping, as described under “Generate the panels” on page 94.

Start this procedure from the Identify Prototype panel.

1. Enter the highlighted text to identify the prototype you want to run:

```
Option ===> 3

  blank  Edit existing prototype
      1  Create new prototype from a skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . dgiwes1
  Library .  . . . . . . . 1
```

   SDF II displays a message that asks you to press the PF key you want to use as the emergency break key for the prototype.

2. Press the program function key you want to use for this purpose.

   SDF II displays the first panel of your simulative prototype.

3. Enter the appropriate option on the command line of this and the other panels of your prototype. SDF II displays the panels you request. Data that you enter into the fields is not stored. You can also display your first panel at any time by pressing the **End** key (PF3).

4. After testing your first simulative prototype, return to the first panel of the prototype by pressing the **End** key.

5. Press the **End** key to return to the Identify Prototype panel.

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

Building the second simulative prototype

In this procedure, you build the second prototype, which displays sample values. You use the first prototype as the skeleton for the second prototype. Sample values displayed in the fields of a panel help a prototype to look more like a final application. In the second simulative prototype, you define sample values in addition to the rules you defined for the first simulative prototype.

1. Enter **11** on the command line of the Select an SDF II Function panel, to display the Identify Prototype panel.

2. Enter the highlighted text to base your second simulative prototype on the previously created DGIWES1 prototype.

```
Option ===> 1

  blank  Edit existing prototype
      1  Create new prototype from a skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . . dgiwes2
  Library .  . . . . . . . . 1

When creating a new prototype from a skeleton, identify the skeleton
  Name . . . . . . . . . . . dgiwes1
  Library  . . . . . . . . . 1
```

3. Enter the highlighted text to build the second simulative prototype. (Use the **i** line command to insert lines where needed.)

```
    Current  Condition ----------------- Action --------------------- Next pan
''' TOP OF DATA ***************************************************************
''' DGIWES00                             msg=''
'''          cmd='1'                     cmd='';                      continue
'''                                      dgisampl='ON'                dgiwes10
'''          cmd='2'                     cmd='';dgisampl='ON'         DGIWES20
'''          cmd='3'                     cmd='';dgisampl='ON'         DGIWES30
'''          dgipfkey='PF03'                                          END
'''                                      msg='Wrong input'            DGIWES00
''' DGIWES10                             msg=''
'''          cmd='2'                     cmd='';dgisampl='ON'         DGIWES20
'''          cmd='3'                     cmd='';dgisampl='ON'         DGIWES30
'''          dgipfkey='PF03'                                          DGIWES00
''' DGIWES20                             msg=''
'''          cmd='1'                     cmd='';dgisampl='ON'         DGIWES10
'''          cmd='3'                     cmd='';dgisampl='ON'         DGIWES20
'''          dgipfkey='PF03'                                          DGIWES00
''' DGIWES30                             msg=''
'''          cmd='1'                     cmd='';dgisampl='ON'         DGIWES10
'''          cmd='2'                     cmd='';dgisampl='ON'         DGIWES20
'''          cmd¬=''&                                                 continue
'''          cmd>'2'                     msg='Wrong command'          dgiwes30
'''          dgipfkey='PF03'                                          DGIWES00
''' END OF DATA ***************************************************************
```

Note: The ON setting for **dgisampl** must be in uppercase within quotation marks.

The second prototype includes the statement **dgisampl='ON'**. This statement instructs SDF II to display sample values in fields.

The **continue** keyword is used on lines 2 and 19 to mean the following:

Line 2 The action resulting from entering **1** in the **cmd** field (display a blank in the **cmd** field of panel DGIWES10) is continued on the next line (display sample values).

Line 19 The condition defined on this line (if the value in the **cmd** field is not blank) is continued on the next line (if the value in the **cmd** field is greater than **2**).

4. Press the **End** key (PF3) to save the prototype and return to the Identify Prototype panel.

Running the second simulative prototype

Make sure you first generate each of your panels for the target system Prototyping, as described under “Generate the panels” on page 94.

Start this procedure from the Identify Prototype panel.

1. Enter the highlighted text to identify the prototype you want to run:

```
Option ===> 3

  blank  Edit existing prototype
      1  Create new prototype from a skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . dgiwes2
  Library .  . . . . . . . 1
```

   SDF II displays a message that asks you to press the PF key you want to use as the emergency break key for the prototype.

2. Press the program function key you want to use for this purpose.

   SDF II displays the first panel of your prototype.

3. Enter the appropriate option on the command line of this and the other panels of your prototype. SDF II displays the panels you request.

   Sample data is displayed in the fields of the Order Entry, Order Update, and Order List panels. You can enter data in these fields. However, data that you enter into the fields is not stored. You can use the **End** key (PF3) at any time to display your first panel.

   After testing your prototype, return to its first panel by pressing the **End** key.

4. Press the **End** key to return to the Identify Prototype panel.

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

Chapter 21. Building an operational prototype

An operational prototype looks and works more like the application program is expected to look and work than do simulative prototypes. Values that you enter into fields on the panels are stored in a database.

The operational prototype described in this chapter uses an SDF2/DM table as a database, but you could use any suitable alternative.

Adding logic to the prototype

An operational prototype also contains a limited amount of program logic. This logic controls the flow of panels in the prototype, depending on the entries made in the fields on the panels and on the information stored in the database.

Define, in REXX EXECs, your routines for the logic used by the operational prototype. Then call your routine from the **Action** field, specifying:

CALL *myprog*

where *myprog* is the name of your routine.

In your routine, you can access the panel's variables by means of the shared pool. Use the VGET service to retrieve the variables from the shared pool, and the VPUT service to return them to the shared pool. (For details of the VGET, VPUT, and other SDF2/DM dialog management services, refer to *SDF II Run-Time Services*.)

If your routine initializes variables that are contained in the next panel, you must tell SDF II to retrieve these variables from the shared pool. To do this, store a list of these variables in the variable DGINL1 in the shared pool as shown below:

DGINL1='(*var1 var2* **...)'**
'DGIEXEC VPUT DGINL1 SHARED'
'DGIEXEC VPUT' DGINL1 'SHARED'

where *var1 var2* ... are the names of the variables.

An example of this processing can be seen in the supplied REXX procedure DGIWXRTR.

The routines for the operational prototype

The following routines are used in the operational prototype. They are supplied as REXX EXECs in the installation library.

DGIWXSTR To store data
DGIWXRTR To retrieve the stored data
DGIWXUPD To update the data.

Check with your SDF II administrator that you can access these routines.

Building the operational prototype

Start this procedure from the Identify Prototype panel.

1. Enter the following highlighted text to base your operational prototype on DGIWES1:

```
Option ===> 1

  blank  Edit existing prototype
      1  Create new prototype from a skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . dgiwes3
  Library .  . . . . . . . 1

When creating a new prototype from a skeleton, identify the skeleton
  Name . . . . . . . . . . dgiwes1
  Library  . . . . . . . . 1
```

   SDF II displays the Specify Prototype panel.

   In addition to including the rules of the first simulative prototype, the operational prototype includes statements that call the routines that provide its programming logic.

2. Make the changes shown in highlighted form. Use the **i** command to insert lines where necessary.

```
    Current  Condition ----------------- Action ---------------------- Next pan
''' DGIWES00 _____________________________ msg=''                       _______
''' _______  cmd='1'                      cmd=''                       DGIWES10
''' _______  cmd='2'                      cmd=''                       DGIWES20
''' _______  cmd='3'                      call dgiwxrtr                DGIWES30
''' _______  dgipfkey='PF03'              _____________________________ END
''' _______  _____________________________ msg='Wrong input'           DGIWES00
''' DGIWES10 _____________________________ msg=''                       _______
''' _______  cmd='2'                      cmd=''                       DGIWES20
''' _______  cmd='3'                      call dgiwxrtr                DGIWES30
''' _______  dgipfkey='PF03'              _____________________________ DGIWES00
''' _______  custno¬=''                   call dgiwxstr                dgiwes10
''' DGIWES20 _____________________________ msg=''                       _______
''' _______  cmd='1'                      cmd=''                       DGIWES10
''' _______  cmd='3'                      call dgiwxrtr                DGIWES30
''' _______  dgipfkey='PF03'              _____________________________ DGIWES00
''' _______  custno¬=''                   call dgiwxupd                dgiwes20
''' DGIWES30 _____________________________ msg=''                       _______
''' _______  cmd='1'                      cmd=''                       DGIWES10
''' _______  cmd='2'                      cmd=''                       DGIWES20
''' _______  dgipfkey='PF03'              _____________________________ DGIWES00
''' _______  dgipfkey='PF07'              call dgiwxrtr                dgiwes30
''' _______  dgipfkey='PF08'              call dgiwxrtr                dgiwes30
```

3. Press the **End** key (PF3) to save the prototype and return to the Identify Panel panel.

Running the operational prototype

Make sure you first generate each of your panels for the target system Prototyping, as described under “Generate the panels” on page 94.

Start this procedure from the Identify Prototype panel.

1. Enter the highlighted text to identify the prototype you want to run:

```
Option ===> 3

  blank  Edit existing prototype
      1  Create new prototype from a skeleton prototype
      2  Create new prototype from scratch
      3  Run prototype

Identify the prototype
  Name . . . . . . . . . . dgiwes3
  Library .  . . . . . . . 1
```

   SDF II displays a message that asks you to press the PF key you want to use as the emergency break key for the prototype.

2. Press the program function key you want to use for this purpose.

   SDF II now displays the first panel of your operational prototype.

3. Enter the appropriate option on the command line of this and the other panels of your prototype. SDF II displays the panels you request.

   You can now enter data in the fields of the Order Entry panel. The data is stored in the database. You can also change the details of orders on the Order Update panel and list orders on the Order List panel, scrolling blocks of four orders forward (PF8) and backward (PF7).

   You can also use the End key (PF3) to display your first panel at any time.

4. After testing your prototype, return to the first panel of the prototype by pressing the **End** key (PF3).

5. Press the **End** key (PF3) to return to the Identify Prototype panel.

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

Part 3. Appendixes

Appendix A. Some common errors

This table may help you while you are learning to use SDF II. It explains the symptoms of some common errors and suggests how to correct them. If you want to know more about the possible causes of error messages, refer to the online reference.

Symptom	Window	Probable cause	Suggested remedy
You cannot see the cursor.	Any	The cursor is in the first position of an input or variable field, but is invisible because it is an underscore.	Change the cursor to a rectangle with the Alt Cursor key if your terminal has one.
The keyboard locks.	Format	You are trying to insert characters without giving the **nulls on** command first. Or you are typing over the **Top of data** or **End of data** line or before the first character entry position.	Press the Reset key, then the Enter key. To insert characters, enter **nulls on** on the panel command line.
The text jumps to the left.	Format	You have used a cursor move (arrow) key instead of the space bar to move the cursor to the starting position of text when the Format window is set to nulls on.	Insert the missing spaces: press the insert mode key and the space bar.
The text jumps to the right.	Format	You have typed a spacer mark in front of the text.	Either delete the spacer mark or, to center the text, add another spacer after the text.
You cannot leave the dialog when you press the End key (PF3).	Any	There is an error. SDF II does not let you leave a dialog if there is an error condition.	If you cannot correct the error, or if you want to leave the dialog anyway, enter the **quit** or **qquit** panel command on the command line. To return to the last correct state of the object, enter the **restore** panel command on the command line.
A window does not scroll.	Fields, Attributes	The other window is active.	Move the cursor to the window you want to scroll; then press the appropriate scroll key.
Single characters disappear.	Format	You may have used a mark as a text character on your format.	Use a different character or change the mark.

Appendix B. The program function keys

Shown below are the standard SDF II program function key assignments. Your SDF II administrator may have changed them for use in your company.

Key	Purpose
PF1 Help	To get help information. See “Displaying online information” on page 3.
PF3 End	To go back to the previous panel. In some dialogs, the End key also saves your work in the library. **Note:** If this key does not take you back to the previous panel, you have an error on your panel. Correct the error and press the **End** key again. If you cannot correct the error, enter the **restore** panel command to restore the previous valid value.
PF6 Position	To mark the current position of the cursor.
PF7 Scroll up	To scroll up toward the start of the information.
PF8 Scroll down	To scroll down toward the end of the information.
PF10 Scroll left	To scroll toward the left.
PF11 Scroll right	To scroll toward the right.
PF12 Cretriev	To get the cursor back to its starting (home) position on the command line. When the cursor is on the command line, the Cretriev key retrieves the last command entered.

Program function keys numbered 13 to 24 initially have the same functions as those numbered 1 to 12. You can assign different panel commands to them. To do this, either use the **keys** command or select the **Set function keys** choice on the **Options** menu.

Whether SDF II displays the program function keys depends on how your SDF II administrator installed SDF II. You can enter **pfshow on** or **pfshow off** on the panel command line to control the display of these lines.

Appendix C. Notes for DBCS users

The Format window is formatted with the mixed DBCS attribute. When you define DBCS or mixed DBCS panels, you can directly enter background text that has the mixed DBCS attribute. You cannot, however, give the DBCS attribute to the background.

When you test your DBCS panel, you see the DBCS fields, mixed DBCS fields, and outlining attributes.

Defining DBCS or mixed DBCS fields

Before you start to define the contents of a format, define the marks appropriate to the character set. This is necessary because you cannot change the character set (field format) after you have defined the field. (See “Defining different marks for different character sets” on page 109.)

Defining the contents of DBCS or mixed DBCS fields

To define the contents of DBCS or mixed DBCS constant or variable fields, enter the **initial** panel command to change the mode of the Format window. Then enter your text.

If you want pure DBCS constant texts, define a constant field that has the DBCS attribute.

Defining DBCS characteristics

On the Define Panel Characteristics panel, select the **Mixed** option by typing **/** in its field if you want to modify this attribute dynamically.

Defining field names in DBCS

You can specify the field name in mixed DBCS on the Define Fields panel of the panel editor and the Specify Panel Elements panel of the panel construction utility. In this case, the field name starts with an SO and ends with an SI. You cannot have SO/SI anywhere else in the name.

Entering DBCS text in description and comment fields

All description and comment fields are mixed DBCS fields. This means that you can directly enter a description or comment in mixed DBCS.

Panel construction utility

On the Specify Panel Elements panel, you can specify the field name in mixed DBCS. In this case, the field name starts with an SO and ends with an SI. You cannot have SO/SI anywhere else in the name.

The **Prompt** and **Description** fields are also mixed DBCS fields.

You can specify a field format of mixed, DBCS, or EBCDIC.

Defining different marks for different character sets

You can specify a different field format for different input fields on the same panel. The field format can be one of the following, depending on the character set of the information that can go into that field:

- EBCDIC (extended binary-coded decimal interchange code). This is the default.
- DBCS.
- Mixed (both EBCDIC and DBCS characters in the same field).

Note: The only way to define DBCS fields or mixed DBCS and EBCDIC fields is to add a new mark for the type of field. Do this in the Define Marks dialog.

You cannot use the attributes **dbcs**, **ebcdic**, or **mixed** in an attribute descriptor.

Here is how to specify other marks for variable fields of DBCS and mixed format:

```
''' &    variable  ____ db unp sk
''' !    variable  ____ mi unp sk
```

You can then use the ampersand mark (&) for DBCS fields and the exclamation mark (!) for mixed format fields.

Working on DBCS blocks

The **box** panel command draws a box around the rectangular block marked with the **position** panel command. The box is drawn using field outlining attributes, if they are available on the device for which you are defining your panel. Otherwise, the borders of the box are text characters.

The **delbox** panel command deletes the box drawn by the **box** panel command and indicated by the **position** panel command.

Printing DBCS and MIXED output

This section explains how to print double-byte character set output or mixed double-byte character set and EBCDIC output:

Print a DBCS panel

To print a panel on a double-byte character set printer, enter one of these options on the List Objects panel or on the Specify Print Utility Parameters panel of the print utility:

4 Prepare the panel for printing on a double-byte character set printer. SDF II prints the double-byte fields with the correct character set. The print utility ignores any outlining attributes.

5 Prepare the panel for printing on a double-byte character set printer. SDF II prints the double-byte fields with the correct character set. The print utility processes any outlining attributes.

Print online reference information on a DBCS printer

To print online reference information on a double-byte character set printer, enter this option on the Specify Print Online Reference Parameters panel:

4 Print the output on a double-byte character set printer. SDF II prints the double-byte fields with the correct character set.

The print utility ignores any outlining attributes.

Part 4. Glossary, Bibliography, and Index

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 fea-

tures 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 3 shows the equivalents for these objects in the target systems.

Figure 3. 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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Special Characters

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Screen Definition Facility II for VSE
General Introduction
Release 6

Publication No. SH12-6315-00

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