Screen Definition Facility II

General Introduction

Release 3

SH19-8165-00

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Release 3

Note!

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

First Edition (March 1992)

This major revision obsoletes SH19-8128 and SH19-8129.

This edition applies to Release 3 Modification Level 0 of Screen Definition Facility II MVS, Program Number 5665-366 and Screen Definition Facility II VM, Program Number 5664-307, 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 introduces Screen Definition Facility II (SDF II). It contains basic information about SDF II and information on how to define a panel using SDF II. After you have worked through this book, you will be ready to use one of the *SDF II Primers* for the system you want to generate panels for. "SDF II publications" on page 95 lists those and other books in the SDF II library.

This book is divided into the following chapters:

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 begin defining your first panel: Specify a target system and, for ISPF/PDF users, 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 and Chapter 14 Show you how to include a panel in a format and how to repeat part of a format several times.

Chapter 15 and Chapter 16 Show you how to change what you see in the windows of some SDF II dialogs and 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.

This book also 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.

A glossary, a list of related publications, and the index follow the appendixes.

Summary of changes

This manual has been updated to reflect the following changes in SDF II Release 3:

- CUA panel element support:

  Panels that conform to the Systems Application Architecture* (SAA*) Common User Access* (CUA*) architecture can be created by using CUA panel element types.

- Improved library support:

  The libraries of SDF II objects can be managed by the ISPF/PDF Software Configuration and Library Manager (SCLM). SDF II objects can be stored in other library management system by means of user exits.

- Field format specification:

  In the panel construction utility, field formats of EBCDIC, mixed, or DBCS can be specified.

In addition, editorial changes have been made throughout the manual.

For changes to individual target systems in SDF II Release 3, see the appropriate *Primer*.

This manual also reflects the following changes in SDF II Release 2:

- Panel construction utility:

  A new utility has been added, the SDF II panel construction utility. This utility constructs a panel from a list of elements.

- Improvements to the List Objects panel:

  The target system can be specified in the search argument and the locate panel command has been added. A confirmation upon deleting an object can be required.

- The following panels can be customized:

  Define Marks, Define Instances, Define Editing Characteristics, and List Objects.

- Help panel name:

  On the Define Panel Characteristics panel, a help panel name can be specified for target systems ISPF and CSP/AD

Chapter 1. Introduction to SDF II

This chapter introduces you to starting an SDF II session and using online help information. It also provides an overview of using the panel editor to define a panel.

Your panels might differ from the ones in this book for the following reasons:

- 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 system programmer has made changes to the SDF II profile.
- The panels in this book are displayed on an IBM 3279 Model 3B terminal. You might be using a different device type.
- Some information depends on whether you are using SDF II under MVS or VM. The panels used here show SDF II running under MVS, unless otherwise noted.
- 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

You can start SDF II by logging on to your system and entering **sdf2** on the command line.

SDF II first displays a copyright panel, followed by the Select an SDF II Function panel, which is the starting point for your work:

```
                        SELECT AN SDF II FUNCTION

   1 PANEL EDITOR           Create or modify a panel
   2 PANEL GROUP EDITOR     Create or modify a panel group
   3 PARTITION SET EDITOR   Create or modify a partition set
   4 AID TABLE EDITOR       Create or modify an AID table
   5 CONTROL TABLE EDITOR   Create or modify an operator 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, migrate, convert, construct objects
  10 PROFILE                Modify editing defaults

   R REFERENCE              Obtain SDF II online reference
   X EXIT                   Terminate SDF II dialog

 Use PFSHOW ON/OFF to show/hide program function key assignment




 ===>
```

This panel is also the ending point for your work. Use the Return key (PF4) to return to this panel. Then enter **x** on the panel command line to leave SDF II.

The panel command line starts with ===>. On this line, you enter menu choices and panel commands. You can enter a question mark (**?**) in the panel command line to redisplay the last command or an equal sign (**=**) to process the last command again.

Note: You can assign panel commands to program function keys by updating your SDF II profile, as described in Chapter 16, "Defining your own SDF II profile" on page 73.

Appendix B, "The program function keys" on page 85 explains the functions of the program function keys as set in the initial profile provided with SDF II.

Two choices on the Select an SDF II Function panel are introduced in this chapter:

- The online reference
- The panel editor, used for creating or modifying a panel.

The other choices are introduced as needed, and are also described in the online reference.

Before you define your first panel

Before you define your first panel, you might need to specify a target system and at least one library. These tasks are described in Chapter 2, "Setting up your SDF II Session" on page 7.

Getting help information

The following online help is available in SDF II:

Panel help
Field help
Messages and message help
Online reference.

Panel help

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

Field help

To get information about an entry field, enter a question mark (**?**) in the field. You then see a help panel that explains the purpose of the field and lists the possible entries. To get more information, you can then press the Enter key to view the online reference for the relevant topic.

Messages and message help

SDF II displays short messages in the upper right corner of the panel. Long messages are displayed on the line above the command line.

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

For more information, from the help panel press the Enter key. SDF II displays the online reference for the relevant topic.

The online reference

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

You can start the online reference in these ways:

- Press Enter from an SDF II help panel.
- Press the Help key (PF1) from an SDF II panel.
- Select the online reference from the Select an SDF II Function panel.

The following procedure shows how to use the online reference.

You can print a copy of all or part of the online reference whenever you want, as shown in "Printing the online reference" on page 4.

Using the online reference

To use the online reference:

1. If you start the online reference by entering **r** on the Select an SDF II Function panel, SDF II displays the first panel of the online reference:

```
                        SDF II Reference Information

    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 OPERATOR CONTROL TABLE EDITOR  Create or Edit an Op Control Table
    6 GENERATE                       Generate Objects
    7 LIST OBJECTS                   List Objects in a Library
    8 SPECIFY LIBRARIES              Access Libraries
    9 UTILITIES                      Print, Migrate, and Convert Objects
   10 PROFILE                        Modify Editing Defaults
   11 SYSTEM                         System Administration
   12 PROTOTYPE                      Define and Run a Prototype
   13 INDEX                          Index to Online Reference

    N NEWS                           Highlights of this SDF II release

      Select a topic, or press ENTER for next topic, or press END

===>
```

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

For example, enter **1** and SDF II displays the selection panel for the Panel Editor topic:

```
                              Panel Editor

    Use the panel editor to design and edit panels with SDF II.

    For more information, see the following topics:

                1  Entry to Panel Editor
                2  Define Panel Text
                3  Define Variable and Constant Fields
                4  Define Areas
                5  Define Action Bars
                6  Define Repeat Formats (Tables)
                7  Include Panels
                8  Define Attributes
                9  Define MFS Constructs
               10  Use CUA Panel Element Types

               11  Dialogs of SDF II



      Select a topic, or press ENTER for next topic, or press END

===>
```

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

   For example, to select the first topic, either type **1** 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 you choose is longer than one panel, the following will be indicated on the panel:

   `Press ENTER to continue`

   You can continue to press the Enter key to browse through the topic.

   You can move back through the online reference by doing either of the following:

   - Enter **b** on the panel command line to return to the panel last viewed.
   - Press the Scroll Up key (PF7). This brings you back to the selection panel for the topic.

3. Press the Scroll Up key (PF7) to go back to the start of the online reference. You can now select another major topic or use the index.
4. 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. You do this with a utility provided by SDF II.

Disk space required

Note that creating the Document Composition Facility (DCF) input for printing the English version of the complete online reference needs approximately 1.2 cylinders of disk space on an IBM 3380 (or equivalent).

1. On the command line of any SDF II dialog panel, enter **=9.4**. This brings you to the Specify Print Online Reference Parameters panel:

Note: **=9.4** is a short way of indicating that you want to choose option **9** from the Select an SDF II Function panel, and option **4** from the Select a Utility panel.

```
          SPECIFY PRINT ONLINE REFERENCE PARAMETERS

Specify online reference topic to be printed
  PRINT TOPIC . . . __
        0 - Complete Online Reference    7 - Generate
        1 - General Information          8 - List Objects
        2 - Panel Editor                 9 - Specify Libraries
        3 - Panel Group Editor          10 - Utilities
        4 - Partition Set Editor        11 - Profile
        5 - Aid Table Editor            12 - System Administration
        6 - Control Table Editor        13 - Prototyping

Format of the listing
  FORMAT  . . . . . 1_          1 - Standard printer
                                2 - Input to DCF
                                3 - DBCS Printer
```

2. Enter a selection number in the PRINT TOPIC field. For example, to print the online reference for the Panel Editor topic, enter **2**.
3. When you see the message Printing completed, press the End key (PF3) to return to the Select a Utility panel.

SDF II prepares the listing for the standard system printer. This is the default. You can, instead, tell SDF II to prepare the information for the Document Composition Facility or for a double-byte character set printer.

Chapter 2. Setting up your SDF II Session

Before you begin defining your first panel, you may need to provide information to be used in all your SDF II sessions:

- Specify a target system.
- For users of ISPF/PDF libraries: Specify at least one library.

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).

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.

To set up the profile for a target system:

1. On any SDF II panel, enter **=10.1** on the panel command line.

   Note: This is a short way of indicating that you want option **10** from the Select an SDF II Function panel, and option **1** from the Select a Profile Editor Dialog panel.

   The Specify System Environment panel is displayed:

```
                        SPECIFY SYSTEM ENVIRONMENT

 Specify target system

   TARGET SYSTEM . . . . 1          0  -  ALL
                                    1  -  CICS/BMS
                                    2  -  MFS
                                    3  -  ISPF
                                    4  -  GDDM
                                    5  -  CSP
```

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.

   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 Return key (PF4) 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 may be an ISPF/PDF library. VM users have the option of using CMS minidisks in addition to, or instead of, ISPF/PDF libraries.

If you are using ISPF/PDF libraries, you must enter at least one library in the Specify Libraries panel before you can define the first panel. Contact your system programmer to get the names of the ISPF/PDF libraries to be used.

Information for the system programmer on defining the ISPF/PDF libraries to be used for SDF II libraries is included in the following:

Screen Definition Facility II Installation and Migration Guide for MVS Systems
Screen Definition Facility II Installation and Migration Guide for VM Systems.

For VM: If you are using only CMS minidisks to store SDF II objects, you do not need to specify a library in the Specify Libraries dialog. For these libraries, the minidisk file mode is used as the SDF II library identifier. The filetype DGIPNL is used for SDF II panels that are stored as flat files.

Associating an IPSF/PDF library with an SDF II library identifier

The following procedure shows you how to associate an ISPF/PDF library with an SDF II library identifier.

1. On the Select an SDF II Function panel, type **8** on the command line and press the Enter key. The Specify Libraries dialog is displayed:

```
                        SPECIFY LIBRARIES

ID  LIBRARY NAME --------------------------------     PASSWORD

1   'SDF2.TESTLIB'
2   'SDF2.BASF'
3   SDF2SCLM
4   _____________________________________________
5   _____________________________________________
6   _____________________________________________
7   _____________________________________________
8   _____________________________________________
9   _____________________________________________

Optionally, specify AUTOSAVE library

     'SDF2.AUTOSAVE'_____________
```

   For VM: The Specify Libraries panel has no entry fields for passwords and no entry field for an autosave library. Autosave files are stored on the A disk. There is an additional entry field for CMS minidisks, as described in "Using ISPF/PDF libraries and CMS minidisks" on page 9.

2. In the field LIBRARY NAME, enter the following:

   For MVS: Enter the second level of the library name without quotes, and the prefix defined in the ISPF profile will be added as the first level. Or you can enter the library name as '*project.group*', using two levels enclosed in quotes.

For VM: Enter the library name as *project.group*. Use two levels, and do not use quotes.

Note: For SCLM or externally controlled libraries, the syntax of the library names can be defined by your system administrator.

3. **For MVS**: If the library you specify is password protected, enter the password.

The order in which you enter the ISPF/PDF libraries is important. Libraries are searched in ascending order by identifier. If you also use CMS minidisks as SDF II libraries, these are searched after the ISPF/PDF libraries.

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

Using ISPF/PDF libraries and CMS minidisks

If you use only CMS minidisks, you do not enter anything in the Specify Libraries panel. But if you want to use both CMS minidisks and ISPF/PDF libraries, you must enter **y** in the field `CMS MINIDISKS?`. This indicates that you want the minidisks searched after the ISPF/PDF libraries have been searched.

You can enter **n** for `CMS MINIDISKS` only if `PDF SERVICES` has a value of **y**.

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 into 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:

```
                          IDENTIFY PANEL

  NAME . . . . . . . . . _______

  LIBRARY . . . . . . . _

When creating a new panel, identify the name of the skeleton panel

  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 library where the panel will be stored. Specify either the identifier of an SDF II library, as described in "Specifying libraries" on page 8, or specify a letter for a CMS minidisk.
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 system programmer.

   You must specify the device type for a new panel.

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

Leave the second NAME and LIBRARY fields blank for now. These fields are used when you use an existing panel as a skeleton panel for a new panel, as described in "Defining a new panel based on a skeleton panel" on page 12.

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

You can also specify a panel name and library identifier in the input line of the List Objects panel, as described in Chapter 10, "Working on stored panels" on page 51.

Defining a new panel based on a skeleton panel

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. The new panel would be, initially, the same as the skeleton from which it is copied. This includes all the text, fields and attributes, the device type, the target system, the marks, and any references to include panels. You can then modify the new panel as needed.

If you have a skeleton panel you want to copy, use both sets of NAME and LIBRARY fields.

1. On the Select an SDF II Function panel, enter **1** on the command line to display the Identify Panel panel.
2. On the Identify Panel panel, type the name of the new panel and library and the name of the skeleton panel. The device type is taken from the skeleton panel.

   For example, to create a new panel VACS2 that is a copy of panel VACS1:

```
                                IDENTIFY PANEL

  NAME  . . . . . . . . vacs2___

  LIBRARY . . . . . . . 1

When creating a new panel, identify the name of the skeleton panel

  NAME  . . . . . . . . vacs1___

  LIBRARY . . . . . . . 1

When creating a new panel from scratch, identify the device type

  DEVICE TYPE . . . . .
```

3. Press the Enter key. The Select a Panel Editor Dialog panel is displayed.

Defining the panel characteristics

Before you begin defining 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, to 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, enter **1** on the command line. The Define Panel Characteristics panel is displayed:

```
                    DEFINE PANEL CHARACTERISTICS              VACS1 3279-2B
                                                                Page 1 of 2


   DESCRIPTION . . . _____________________________

   TARGET SYSTEM . . CICS/BMS



 Format size
   DEPTH . . . . . . 24
   WIDTH . . . . . . 80
   WINDOW WIDTH  . .             (ISPF only)


   HELP PANEL  . . .
```

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

2. 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.

   HELP PANEL
   : For the sample panel, this field remains blank.

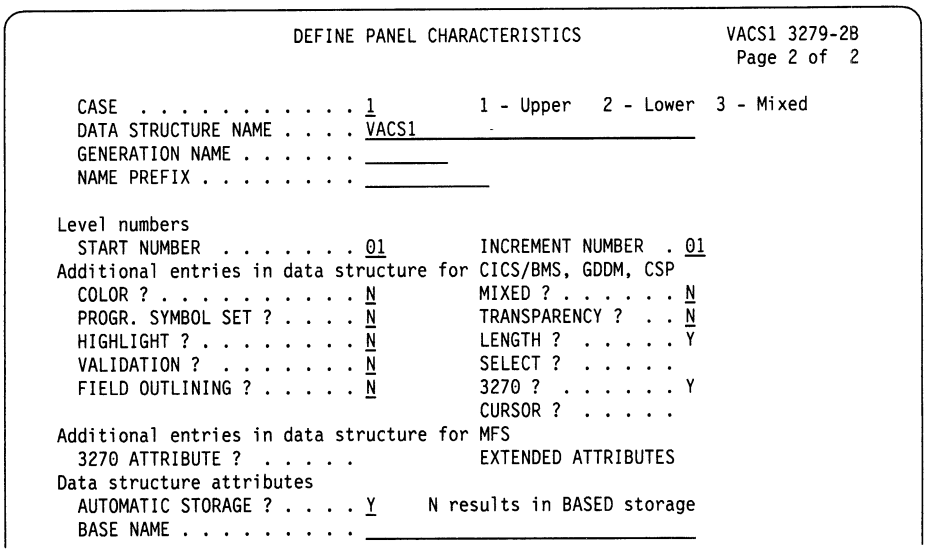
     A help panel can be specified only if you are defining a panel for target system ISPF or CSP/AD.

3. 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.

4. Press the Scroll Down key (PF8). The next page of the Define Panel Characteristics panel is displayed:



```
                    DEFINE PANEL CHARACTERISTICS              VACS1 3279-2B
                                                               Page 2 of  2

  CASE . . . . . . . . . . . . 1          1 - Upper   2 - Lower  3 - Mixed
  DATA STRUCTURE NAME . . . . VACS1
  GENERATION NAME . . . . . . ________
  NAME PREFIX . . . . . . . . ____________

Level numbers
  START NUMBER . . . . . . . . 01         INCREMENT NUMBER  . 01
Additional entries in data structure for CICS/BMS, GDDM, CSP
  COLOR ? . . . . . . . . . . . N         MIXED ? . . . . . . N
  PROGR. SYMBOL SET ? . . . . . N         TRANSPARENCY ?  . . N
  HIGHLIGHT ? . . . . . . . . . N         LENGTH ?  . . . . . Y
  VALIDATION ?  . . . . . . . . N         SELECT ?  . . . . .
  FIELD OUTLINING ? . . . . . . N         3270 ?  . . . . . . Y
                                          CURSOR ?  . . . . .
Additional entries in data structure for MFS
  3270 ATTRIBUTE ?  . . . . .             EXTENDED ATTRIBUTES
Data structure attributes
  AUTOMATIC STORAGE ? . . . . Y     N results in BASED storage
  BASE NAME . . . . . . . . . ____________________________
```

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.

5. 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, in the Identify Panel dialog, 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

You use the dialogs of the SDF II panel editor to create and edit panels. The dialogs of the panel editor are listed on the Select a Panel Editor Dialog panel:

```
                        SELECT A PANEL EDITOR DIALOG              VACS1 3279-2B

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 active 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, where field editing is not an active 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.
- 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.

After a panel is defined, it is saved in an intermediate form used by SDF II. This intermediate object must be generated, using the SDF II generation utility, before it can be used in an application running under CICS/BMS, IMS/MFS, ISPF, GDDM-IMD, or CSP/AD. Information on generating a panel and other information that is target-system specific is included in these books:

- *SDF II Primer for CICS/BMS Programs*
- *SDF II Primer for IMS/MFS Programs*
- *SDF II Primer for ISPF Programs*
- *SDF II Primer for GDDM-IMD and CSP/AD Programs.*

Defining the panel layout

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

At the most basic 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 using indexing

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

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 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 Use this command 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. In case of a pending error message, you can use the **restore** panel command to restore the panel to its last correct state and then use 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 issues a message that the object was saved.

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

quit Use this command when you have not made any changes to the panel, and you want to select another panel editor dialog.

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

You can leave the panel even if input is pending.

cancel Use this command when you have not made any changes to your panel from the current or any other panel editor dialog, and you want to leave the panel editor completely.

ccancel Use this command if you do not want to keep the changes you made since you started the panel editor, and you want to leave the panel editor completely.

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 **return**, **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 panel 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 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 in the Define Panel Characteristics panel.

To make it easier for you to position text and fields, you can control the following parts of the Define Format panel display:

Line numbers
Line command area
Horizontal scale.

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

Controlling the line numbers and line command area

Line numbers are displayed in the line command area so that it is easy to see which line number you are placing text on:

```
                              DEFINE FORMAT                    VACS1 3279-2B

FORMAT  . . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ C . 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.

To set these line numbers on or off, enter **number on** or **number off** on the panel command line.

Note: Use the Cursor Home key (PF12) to move your cursor to the panel command line.

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 you want to place the scale above, and type **col**, which is the column line command.
2. Press the Enter key, which gives you a scale of column numbers above the line where you entered the **col** line command.

If you want 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:

```
                              DEFINE FORMAT                    VACS1 3279-2B

FORMAT  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ C . 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 to set the editing mode.

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

Entering background text

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

It might happen that when you press the Insert key and try to type something on your format, the keyboard locks. This is because the trailing blanks in each line of the Format window are not nulls. You can control this with the **nulls** panel command.

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

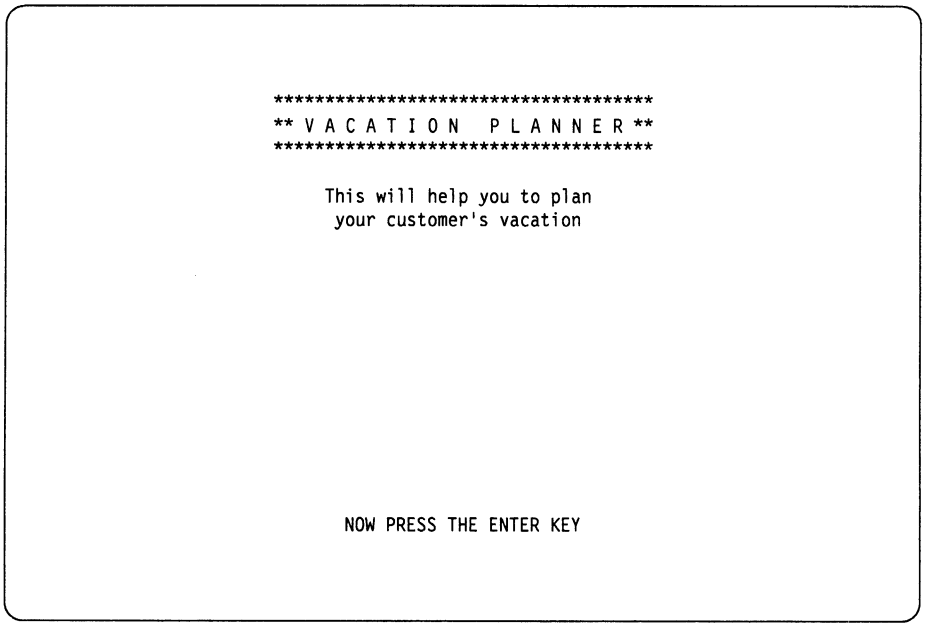
However, **nulls on** might not be convenient in other situations. If you use the terminal keys to place the cursor, the text you then type might be shifted to the left when you press the Enter key, because the format is not filled with blank characters. You can enter the **nulls off** panel command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

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 edit sessions. See Chapter 16, "Defining your own SDF II profile" on page 73.

To create the sample panel, follow the steps shown under the next heading. Techniques for centering text and copying lines are illustrated.

Centering text and copying lines

The illustration below 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, enter the background text.

   For the sample panel, the text begins on line 3. To create the first two lines, enter 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 is a symbol used to indicate that text is to be centered or justified. It is one of the marks shown in the MARKS line displayed at the top of the Format window:

```
MARKS: V _ C . 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** and editing the marks table. See the online reference for more information about the spacer mark.

Note: The spacer mark is a reserved character and cannot be used in the panel format. If you need to use a slash (/) in the panel format, 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.

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.

   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 57 for more examples.

   For example, to copy the line of asterisks enter **c** on line 3 and **a** on line 4:

```
MARKS: V _ C . 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
```

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.

```
                              DEFINE FORMAT                    VACS1 3279-2B

FORMAT  . . . . . . . . . . . . . . . . . . . . POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ C . 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 of the text. These characteristics are called *attributes* in SDF II. 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, you use the panel command **marks**.

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:

```
                              DEFINE MARKS                     VACS1 3279-2B

MARKS TABLE . . . . . . . . . . . . . . . . . . . . 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 a 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, enter a question mark (**?**) in the attributes column for a list of the possible attributes you can enter.

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

```
                              DEFINE MARKS                        VACS1 3279-2B

MARKS TABLE . . . . . . . . . . . . . . . . . . . . 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 ***************************************************
```

   The changes you make are reflected in the RESULTING ATTRIBUTES column when you press the Enter key.

3. Press the End key (PF3) to go back to the Define Format panel. From there, you can enter the panel command **test** to test the changes you have made. Press the End key to end the display of the test panel and return to the Define Format panel.

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 the 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 C in the MARKS line displayed at the top of the Format window:

```
MARKS: V _ C . 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:

```
                              DEFINE FORMAT                    VACS1 3279-2B

FORMAT  . . . . . . . . . . . . . . . . . .  POSITIONS 1-75 OF 80, LINE 1 OF 24
MARKS: V _ C . 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 for defining a constant field:

1. Type 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 dialog lists the attributes and possible values.

  Using the Edit Field Attributes dialog is described below.

These are some of the methods for editing the attributes of a field. You can also use the Define Attributes panel to define attribute descriptors that can be assigned to fields. An *attribute descriptor* is a character that represents a set of attributes. Using the Define Attributes panel is described in Chapter 8, "Defining and using attribute descriptors" on page 43.

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, and 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 Fields Dialog panel is displayed:

```
                        SELECT EDIT FIELDS DIALOG              VACS1 3279-2B

1   CHARACTERISTICS          Edit characteristics

2   ATTRIBUTES               Edit attributes

*   SYSTEM                   Edit target system dependent information
```

You can edit the characteristics of the field or its attributes. 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 Fields 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 Fields Dialog panel.

   The Edit Field Attributes panel is displayed:

```
                        EDIT FIELD ATTRIBUTES                  VACS1 3279-2B
                                                                Page 1  of 3

PROTECTION . . . . . 2          1 - Unprotected      2 - Protected

EMPHASIS CLASS . . . . __

SKIP AFTER FIELD ? . . N

CURSOR POSITION . . . . ___

INTENSITY . . . . . . . 2       1 - Normal           3 - Dark
                                2 - High

HIGHLIGHTING . . . . . __       1 - Blinking         3 - Underscored
                                2 - Reverse video    * - Default

COLOR . . . . . . . . . __      1 - Blue             5 - Turquoise
                                2 - Red              6 - Yellow
                                3 - Pink             7 - White/Neutral
                                4 - Green            * - Default
```

This is the first of three pages of field attributes. Not all attributes apply to constant fields. Enter a question mark (**?**) in a field to get more information.

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    * - Default

COLOR . . . . . . . . . 6_      1 - Blue             5 - Turquoise
                                2 - Red              6 - Yellow
                                3 - Pink             7 - White/Neutral
                                4 - Green            * - Default
```

4. If you would like to look at all the possible field attributes, press the Scroll Down key (PF8) to view the next pages.

All of the attributes are described in the online reference.

5. Press the End key (PF3) to return to the Select Edit Fields Dialog panel.
6. Press the End key again to return to the Define Format panel. If you want 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.

   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** to save your panel in the library at any time without leaving the panel editor dialog.

Leaving the Define Format dialog

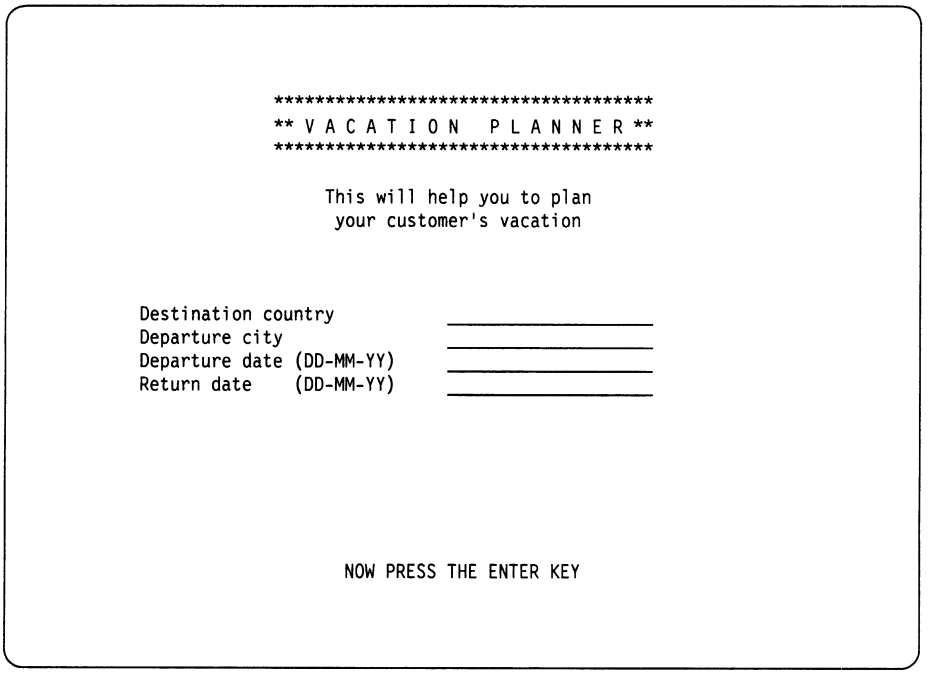
To leave the Define Format dialog, press the End key (PF3).

SDF II then displays the Select a Panel Editor Dialog panel. If you want to stop now, press the Return key (PF4) to leave the panel editor and get back to the Select an SDF II Function panel. When you leave the panel editor, SDF II saves the panel in the library and issues the message `Object saved` in the top right corner of your screen.

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 therefore they are described in less detail here. It is recommended that you read Chapter 5, "Defining text and constant fields" on page 19 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: Pictures of panels you define in this book 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.

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.

For example, to add the text and entry field for Destination country to the sample panel, type the following in line 12:

```
''' <---:----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 with a length of 15 and the name `country1`.

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 using 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. In 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, and press the Enter key.
2. In the Edit Characteristics Panel, enter an initial value as shown in this example:

```
                    EDIT FIELD CHARACTERISTICS              VACS1 3279-2B

  TYPE . . . . . . . . . VARIABLE        OCCURS . . . . . .
  CUA TYPE . . . . . .
  NAME . . . . . . . . . COUNTRY1
  RELATED FIELD . . . . .
  DSECT NAME . . . . . . _____________________________
  COMMENT . . ___________________________________________
  HELP . . . . . .
Position and Size
  LINE . . . . . . . . . 12              COLUMN . . . . . . . . 40
  DEPTH . . . . . . . . . 1              WIDTH . . . . . . . . . 15
                                         DSECT LENGTH . . . . . 15
  INPUT PICTURE . . . . . _____________________________
  OUTPUT PICTURE . . . . . _____________________________
  DECPOS . . . . . _    for RPG II

Initial and Sample Values
  INITIAL . . Egypt_____________________________________
  SAMPLE . . ___________________________________________
  LITERAL . .
  LITERAL LENGTH . . . .
```

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 panel command line of the Define Format panel to transfer to Define Fields.

The Define Fields panel is displayed:

```
                              DEFINE FIELDS                    VACS1 3279-2B

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 _ C . 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
014
015
===>                                                        Scroll ===> PAGE
```

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 and then type the mark, length, and field name as described in "Defining variable fields on the Define Format panel" on page 29.

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. Or you can explicitly specify a mark.

Another way to define a new field is to copy the entry for an existing field in the Fields window, as described below.

When you make a change in one window, SDF II reflects it in the other window. Use the Jump key (PF5) to move the cursor between the two windows.

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:

```
                              DEFINE FIELDS                    VACS1 3279-2B

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:

```
                              DEFINE FIELDS                    VACS1 3279-2B

FIELDS . . . . . . . . . . . . . . . . . . . . COLUMNS 1-10 OF 10, ROW 1 OF 2
    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. You can also specify a different mark and a different length, if needed.
3. Press the Enter key and the field appears at the correct position in the Format window:

```
                          DEFINE FIELDS                    VACS1 3279-2B

FIELDS . . . . . . . . . . . . . . . . . . . . COLUMNS 1-10 OF 10, ROW 1 OF 2
   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 _ C . 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
===>                                                    Scroll ===> PAGE
```

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 needed 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-YY)    _______________
015          Return date    (DD-MM-YY)    _______________
```

   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-YY)    _,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, enter the panel command **marks** and edit the spacer mark in 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 in 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 and one had the name COUNTRY-TO and one COUNTRY-FROM, both would be displayed in the Format window as COUNTRY+. To avoid this situation, you can assign a reference name to each field. 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. In order to change these attributes, you can edit the attributes of a variable mark or define a new mark. Entering the **marks** panel command takes you to the Define Marks panel, where you can define and edit marks.

Editing the field attributes for variable fields is done the same way as for constant fields, as described in "Editing the attributes of a field" on page 26. Editing the field attributes of a variable field is illustrated in the following procedures.

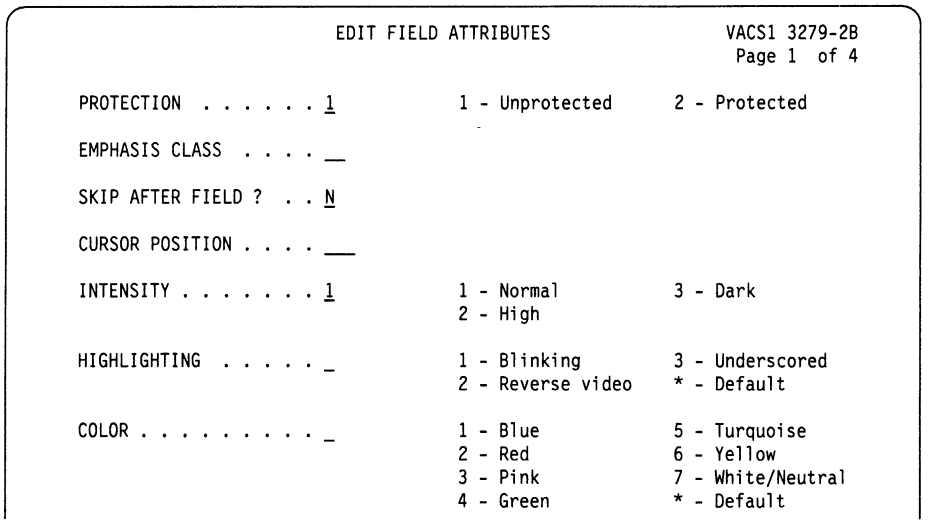
Another technique, using the Define Attributes panel, is described in Chapter 8, "Defining and using attribute descriptors" on page 43.

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, and press the Enter key.

   The first page of the Edit Attributes dialog is displayed:



```
                        EDIT FIELD ATTRIBUTES                VACS1 3279-2B
                                                              Page 1  of 4

PROTECTION . . . . . 1          1 - Unprotected      2 - Protected

EMPHASIS CLASS . . . . __

SKIP AFTER FIELD ? . . N

CURSOR POSITION . . . . ___

INTENSITY . . . . . . . 1       1 - Normal           3 - Dark
                                2 - High

HIGHLIGHTING . . . . . _        1 - Blinking         3 - Underscored
                                2 - Reverse video    * - Default

COLOR . . . . . _               1 - Blue             5 - Turquoise
                                2 - Red              6 - Yellow
                                3 - Pink             7 - White/Neutral
                                4 - Green            * - Default
```

2. Specify **y** after the prompt CURSOR POSITION.

   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, enter a question mark (?) in the field.

   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 SDF II 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 in Define Format panel, place the cursor on the field, and press the Enter key.
2. Press the Scroll Down key (PF8) until you get to page 4.
3. After the MANDATORY ENTER field prompt, type **y**.

   Enter a question mark (**?**) for field help. The online reference describes the restrictions for a particular target system.

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

Defining variable fields in an array or repeat format

An array is a named, ordered collection of variable fields. For information about arrays, see Chapter 12, "Defining an array" on page 61.

A block of variable fields can be repeated using the **repeat** panel commands, as described in Chapter 14, "Repeating a block of the format" on page 67.

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. 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:

```
                              DEFINE FIELDS                    VACS1 3279-2B

FIELDS . . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-10 OF 10, ROW 1 OF 4
    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 _ C . 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-YY)
015          Return date    (DD-MM-YY)
===>                                                   Scroll ===> PAGE
```

3. Enter the **test** panel command on the command line. 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 also use the Edit Characteristics panel. You can do this from the Define Format panel or the Format window of the Define Fields or Define Attributes panels. The following procedure works from any edit mode:

1. Type the panel command **edit 1**.

2. Place the cursor on the variable field and press the Enter key.
3. In the Edit Characteristics Panel, enter a sample value as shown in this example:

```
                    EDIT FIELD CHARACTERISTICS              VACS1 3279-2B

  TYPE . . . . . . . . . VARIABLE        OCCURS . . . . . . . .
  CUA TYPE . . . . . .
  NAME . . . . . . . . . COUNTRY1
  RELATED FIELD . . . . .
  DSECT NAME . . . . . . _____________________________________
  COMMENT . . ___________________________________________________
  HELP . . . . . .
Position and Size
  LINE . . . . . . . . . 12              COLUMN . . . . . . . . 40
  DEPTH . . . . . . . . . 1              WIDTH . . . . . . . . . 15
                                         DSECT LENGTH . . . . . 15
  INPUT PICTURE . . . . . _____________________________________
  OUTPUT PICTURE . . . . _____________________________________
  DECPOS . . . . . . . . _    for RPG II

Initial and Sample 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 Systems Application Architecture (SAA) Common User Access (CUA) basic interface. CUA panel elements are a way to classify the fields in your panels so that they will have a consistent appearance within an application and across applications as well.

You can define panel fields so that they are associated with a CUA panel element type. Fields defined in this way 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:

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
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

CUA panel elements are described in *Systems Application Architecture Common User Access Basic Interface Design Guide (BIDG)*, SC26-4581.

The CUA panel elements action bar, action bar separator, reference phrase, and error emphasis are supported only for target system ISPF. Other panel elements 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 45.

How CUA panel element attributes are used

SDF II provides a table of CUA panel element attributes. This CUA attributes table lists the attributes of each CUA panel element type. The system programmer can use the SDF II customization dialog Edit CUA Attributes to edit the attributes table.

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
- Generation of 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.

In order to change attributes for a particular panel element type, for target systems other than ISPF, the following is done:

1. The system programmer 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 determine that it contains the following:

1. Text
2. Bold text
3. Instruction
4. Field prompt
5. Entry field.

These correspond to the following CUA panel element types:

1. Normal text, NT
2. Emphasized text, ET
3. Panel instruction, PIN
4. Field prompt, FP
5. Normal entry field, NEF.

To define a panel in SDF II using these elements, three new constant field marks could be defined: one for the emphasized text, one for the panel instruction, and one for field prompts. A variable mark could be added for entry fields, or the default variable mark could be edited. In addition, the background text could be assigned a CUA panel element type of normal text.

Giving a field a CUA panel element type

In this example, you define a mark to be used for field prompt text. Field prompt text is the text to the left of a variable field. This mark is given 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 have to enter the field type (constant) because SDF II inserts the field type appropriate for the CUA panel element type you specified.

   When you press the Enter key, the attributes associated with the CUA panel element are shown in the RESULTING ATTRIBUTES column. The resulting attributes are a combination of the CUA attributes and explicit attributes, if any.

   The following example shows a new mark of +:

```
                              DEFINE MARKS                        VACS1 3279-2B

MARKS TABLE . . . . . . . . . . . . . . . . . . . . COLUMNS 1-6 OF 6, ROW 1 OF 6
    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 needed.

7. Use the new mark for the field prompts, which is the text to the left of the four variable fields. This text was entered as background text.

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

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

   You can also 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-YY)    _____________
             ++++++++++++++++++++++++     _____________
015          Return+date++++(DD-MM-YY)    _____________
             ++++++++++++++++++++++++     _____________
```

Giving an existing mark a CUA type

In this example, 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 column for the default variable mark, the underscore (_). Delete any explicit protection, color, highlighting, or intensity attributes. For example:

```
     MAR TYPE ---  CUA  ATTRIBUTES --------- RESULTING ATTRIBUTES
 ''' _   VARIABLE  nef  ____________________
```

   When you press the Enter key, the RESULTING ATTRIBUTES column shows the attributes associated with the mark. For example:

```
     MAR TYPE ---  CUA  ATTRIBUTES --------- RESULTING ATTRIBUTES
 ''' _   VARIABLE  NEF  ____________________ UNP NOR TU
```

   These are the result of combining the CUA attributes from the table provided with SDF II, which is maintained by the system programmer, 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.

   For the background mark, delete any explicit attributes for color, protection, intensity, or highlighting. 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
 '''     BACKGRND  NT_ ____________________  PR NOR GR
```

4. Press the End key (PF3) to go back to the Define Format panel. From there, you can use 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:

```
                          DEFINE ATTRIBUTES                  VACS1 3279-2B

ATTRIBUTE TABLE . . . . . . . . . . . . . . . . . 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 _ C .+ 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


===>                                                      Scroll ===> PAGE
```

The Define Attributes panel has two windows:

- The upper window is the *attribute table.* It is empty in the example above, because no attribute descriptors have been defined yet.
- 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 Format window of the Define Fields panel. These modes are:

Initial
Sample
Name
Format.

You can define many panels completely in the Define Attributes panel. SDF II first displays the Format window in initial mode, which means that initial values are displayed in the variable fields. Only the initial values can be edited.

The Format window uses two display lines for each line of the panel. This double-spacing can be set on or off by using the panel command **fieldattr**. The **fieldattr** panel command can also be used 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 **attributes** panel command.

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

An attribute descriptor can represent:

- One attribute, for example, cursor placement
- Several attributes, for example, 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, type the line command **s** (select) on the line of your new descriptor. When you press the Enter key, the Edit Field Attributes panel is displayed, and 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 get a list of the valid attributes, enter a question mark (**?**) in the attributes column. The online reference describes the attributes you can use.

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:

```
                              DEFINE ATTRIBUTES               VACS1 3279-2B

ATTRIBUTE TABLE . . . . . . . . . . . . . . . . . .   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 then 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. In case of conflicting attributes, 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 our 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 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 needed 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
 ''' i   PIN  ____________________ PR NOR GR
```

3. 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.

4. Look at the RESULTING ATTRIBUTES column to see the attributes associated with the attribute descriptor.
5. Press the Jump key (PF5) to move the cursor to the Format window.

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

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

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

10. Press the Enter key. The field now has the attributes of the CUA panel element type PIN.
11. To view the attributes of the field, type the panel command **attribute**, place the cursor on the field, and press the Enter key. In the line above the Format window, SDF II displays the attributes for the field.

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.

Quickly checking or changing the attributes of a field

To quickly check or edit the attributes of a field, on the Define Attributes panel type the panel command **attribute**, place the cursor on a field in the Format window, and press the Enter key. The CUA type and attributes for this field are displayed in 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:

```
                          DEFINE ATTRIBUTES                 VACS1 3279-2B

ATTRIBUTE TABLE . . . . . . . . . . . . . . . . . .  COLUMNS 1-5 OF 5, ROW 1 OF 3
    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 _ C .+ SE , SP /                                  CONTENTS: FORMAT

017

018

019

020

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

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 edit 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 54. This 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 or, if you have not entered a dialog from the List Objects panel, enter **=9.1** on the command line of any SDF II dialog panel. Either of these commands takes you straight to the Specify Print Utility Parameters panel, which is selection 1 of the Select a Utility panel.

```
                    SPECIFY PRINT UTILITY PARAMETERS

Identification of object to be printed
  NAME  . . . . . _________
  TYPE  . . . . . _          G  -  Panel group
                             P  -  Panel
                             S  -  Partition set
                             A  -  Aid table
                             O  -  Operator control table
  LIBRARY . . . . . _
Format and contents of listing
  FORMAT  . . . . . 1        1  -  Standard printer
                             2  -  GDDM Print Utility
                             3  -  Input to DCF
                             4  -  DBCS Printer
                             5  -  DBCS Printer with field outlining
  CONTENTS  . . . . 1        1  -  Complete listing
                             2  -  Format only
```

For MVS: The Specify Print Utility Parameters panel has two additional fields:

- A field for specifying the data set name for DCF input, used if format option 3 is specified
- A field for a GDDM-IMD printer ID.

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. This is the default supplied with SDF II.

2 Prepare the panel for printing on an IBM 3287 printer. This requires Graphical Data Display Manager (GDDM).

3 Prepare the panel for formatting by the Document Composition Facility.

4 and 5 These options are for double-byte character set output, and are explained in Appendix C, "Notes for DBCS users" on page 87.

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 Specify Search Argument panel of the List Objects dialog is displayed:

```
                        SPECIFY SEARCH ARGUMENT

OBJECT NAME . . . *

OBJECT TYPE . . . *       * - All objects
                          P - PANEL          A - AID TABLE
                          G - PANEL GROUP    O - OPERATOR CONTROL TABLE
                          S - PARTITION SET

LIBRARY . . . . . *       * - All libraries

TARGET SYSTEM . . B       * - All target systems
                          B - CICS/BMS       G - GDDM
                          M - MFS            X - CSP
                          I - ISPF           A - ALL


SORT SEQUENCE . . LN      N - Object name    D - Description
                          L - Library        M - Modification date
                          T - Object type    G - Generation name
```

In this panel, you tell SDF II:

- Which types of objects you want to list—this can be one type of object, such as panels, all types of objects, or any combination of 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, or 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. However, the first time you use the List Objects panel, it shows the values for OBJECT NAME, OBJECT TYPE, LIBRARY and TARGET SYSTEM as asterisks (*). The asterisk (*) stands for all. If this value is

used, SDF II displays a list of all the objects of any type in all libraries, for all target systems.

The default value for 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 Specify Search Argument panel, press the Enter key and the List Objects panel is displayed:

```
                              LIST OBJECTS

SEARCH ARGUMENT: NAME = *        TYPES = *     LIBRARY = *  TARG.SYS.= B
SORT SEQUENCE = LN
OBJECT LIST . . . . . . . . . . . . . . . . . . . . COLUMNS 1-7 OF 7, ROW 19 OF 19
    NAME --- LIB TYP OPERANDS   SYST DESCRIPTION ------------------- LAST MOD
''' VACS1    1   P  _________ CICS VACATION SELECTION PANEL          92/04/04
```

```
''' _______ _   _  _________   <=== WORK HERE ON ANOTHER OBJECT

Line commands: C=Copy      D=Delete  R=Rename  P=Print     CV=Convert
               G=Generate  E=Edit    T=Test    ==Repeat command

===>                                                  Scroll ===> PAGE
```

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 Specify Search Argument 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. Also, when you type in a line command in the prefix column, a confirmation message is displayed in this column after the line command is successfully completed.

<=== WORK HERE ON ANOTHER OBJECT
Here, you can enter a line command and operand to work on any panel. Specify the panel name, 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 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 and SDF II 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 List Objects 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 Specify Search Argument 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
```

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, enter **y** to confirm the request to delete the panel.

```
CONFIRM DELETE . . . . . y
```

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.

Note: It is not possible to use the **d** line command to delete a panel from an SCLM library unless your system programmer has adapted the user exit routine.

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.

Note: It is not possible to use the **r** line command to rename a panel in an SCLM library unless your system programmer has adapted the user exit routine.

Locating a panel

You can bring a particular panel to the top of the display by using 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 that 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 commands 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

For the following commands, first use the Position key (PF6) to mark a block to be acted upon:

1. Move the cursor to one corner and press the Position key (PF6). SDF II issues the message `First corner defined.`
2. Mark the diagonally opposite corner by moving the cursor and pressing the Position key. SDF II issues the message `Block defined.`

Moving a block

The **moveblock** panel command moves the block marked with the **position** panel command to another place on the format. It leaves the original block unchanged.

Copying a block

The **copyblock** panel command copies the block marked with the **position** panel command to another place on the format. It leaves the original block unchanged.

A related command is the **repeat** panel command. It copies a block of the format, but variable fields are treated differently. See Chapter 14, "Repeating a block of the format" on page 67.

Deleting a block

The **delblock** panel command deletes the block marked by the **position** panel command.

DBCS blocks

"Working on DBCS blocks" on page 88 explains two other related commands, **box** and **delbox.**

Aligning the right side of a block

To line up the right 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.

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. An array is defined like a variable field in the Fields window, however an array has a specified occurrence number denoting the number of elements in the array. 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:

```
                              DEFINE FIELDS                    ARR 3279-2B

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 DIR column, type **vertical** for vertical and press the Enter key.

   The field definition line now looks like this:

```
                              DEFINE FIELDS          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 place the cursor for the placement of the second occurrence.

4. Define the second occurrence at column 45. To do this, move the cursor to column 45 on line 4 and press the Enter key.

   The Format window now looks like this:

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

5. In the Format window, repeat the format line you just defined. If you repeat the line containing the 2 new fields 5 times, the result will be 12 occurrences of the field.

   To repeat the format line, type the line command **r5**.

6. Press the Enter key and the OCC (occurs) value in the Fields window changes to 12. The array is now complete:

```
                              DEFINE FIELDS                    ARR 3279-2B

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 _ C . 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) to return to the Select a Panel Editor Dialog panel.

Chapter 13. Including a panel in another

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

These *include panels* are defined separately. You 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 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

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 in 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 Select a Panel Editor Dialog, enter **3** on the command line. The Define Fields panel is displayed.
2. Enter **top** on the command line.

   The **top** panel command displays the TOP OF DATA line as the first line in the fields window.
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 the panel name in the NAME column and 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 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.

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, including text and variable fields has been repeated two times 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 address fields. Both the text and fields are copied in the repeated blocks.

Note: For target system ISPF, there are restrictions and differences that are not described here. For example, the repeated blocks are not displayed in the Format window but are added dynamically by ISPF at run time. 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 column 2 or beyond.

   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 corner and bottom right 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:

```
                        DEFINE FIELDS                    REPEAT 3279-2B

FIELDS . . . . . . . . . . . . . . . . . . . . . COLUMNS 1-10 OF 10, ROW 1 OF 7
   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 _ C . SE , SP /                                  CONTENTS: FORMAT
001
002
003
004
005   Checked    Surname            First name    Address
006
007     _      * ________________ * ________   ________________________
008                                            ________________________
009                                            ________________________
010     _      * ________________ * ________   ________________________
011                                            ________________________
012                                            ________________________
013     _      * ________________ * ________   ________________________
014                                            ________________________
015                                            ________________________
===>                                                   Scroll ===> PAGE
```

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

Use the panel command **name** if needed to change the edit mode for making changes 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 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 cause the fields to extend beyond the repeat format and SDF II would 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 wanted to add a fourth address line, the depth of the block would be 4 instead of 3. Or if you wanted to make the address field 2 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 needed to change the edit 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 fields 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 which columns are displayed and how wide each column is.

For example, if you do not use reference names in your format, you can specify that the REFERENCE NAME column is not displayed in the Define Fields panel. Or, 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 in the Define Fields panel
The Attribute window in the Define Attributes panel
The Define Marks panel
The List Objects window in 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:

```
                              CUSTOMIZE A WINDOW

   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, Y=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               A     35    8     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 only while you are in the panel editor for this session.

You can change only the entries in the column headed VALUE. The other columns are there for your information only. This is what you can enter for VALUE:

n This means do not display this column in the fields window at all. This is how you turn off columns that you do not want to use.

y This means display the column and give it the width shown under DATAL (data length).

a This means display the column and make it as wide as the widest entry. The a 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
This means 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, enter the highlighted text:

```
CUSTOMIZATION . . . . . . . . . . . . . . . . . . .  COLUMNS 1-5 OF 5
COLUMN NAME ----   VALUE DATAL MIN.V HEADER TEXT ------------
NAME               25    33    8     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 73 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 *profile* is a set of default values that SDF II uses.

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 that you use to define the format of a new panel.
   - Confirm any delete requests that you enter on 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 change the profile editor again. 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.
5. Set the defaults for ISPF.

   SDF II uses ISPF to manage its dialogs. The program function keys, for example, are set in the ISPF profile.

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 editing settings for a single editing session by using panel commands, such as:

autosave
number
linecmd
nulls
view

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

```
                    SELECT A PROFILE EDITOR DIALOG

    1 SYSTEM ENVIRONMENT     Specify target system

    2 DEFAULTS               Specify overall editing defaults

    3 DIALOGS                Customize SDF II windows

    4 PRINTER                Specify print page size

    5 ISPF PARMS             Specify terminal and user parameters
```

To change the editing defaults:

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

```
                    SPECIFY OVERALL EDITING DEFAULTS

Default setting for all editors
  AUTOSAVE . . . . . 0
  NUMBERS ? . . . . . N

Default setting for panel editor
  PRESERVE . . . . . 2          1 - On        3 - Permanent
                                2 - Off

  CAPITALS ? . . . . . N        FORMAT window only
  NULLS ? . . . . . N           FORMAT window only
  LINE COMMANDS ? . . . . . Y   FORMAT window only
  MIXED CASE DSECT NAMES ? . N

Default marks when creating a new panel
  VARIABLE MARK: EBCDIC -       DBCS . . . _       MIXED . . . _
  CONSTANT MARK: EBCDIC .       DBCS . . . _       MIXED . . . _
  SPACER . . . . . /            SEPARATOR .

Confirmation of D line command in
  LIST OBJECTS ? . . . Y        DEFINE FIELDS ? . . . . Y
```

2. Type the value you want to change.

   For example, type **y** for NULLS to set nulls on:

```
NULLS ? . . . . . y          FORMAT window only
LINE COMMANDS ? . . . . . Y  FORMAT window only
```

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 discussed using 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 pre-defined elements stored outside of 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 information about fields, arrays, or repeat formats or contains only text. Information that can be stored with an element and brought into SDF II includes the following specifications:

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 and bring the information into SDF II.

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 1 on page 76.

Your system programmer has to set up the environment before you can perform the procedures in this chapter. The steps for doing this are described in *Screen Definition Facility II Installation and Migration Guide for VM Systems* and *Screen Definition Facility II Installation and Migration Guide for MVS Systems*. Your system programmer will decide how this information is to be stored.

Field name	Length	Occ	Prompt	Description	Initial Value
COLLECT	.				
COLLECT.DATE	8	.	"Collect date"	"(dd/mm/yy)"	
COLLECT.CITY	20	.	"City"	""	"Vienna"
COLLECT.COUNTRY	20	.	"Country"	""	"Austria"
RETURN	.				
RETURN.RDATE	8	.	"Return date"	"(dd/mm/yy)"	
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 1. Information stored in the elements for panels CR1 and CR2

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:

```
                    SPECIFY PANEL CONSTRUCTION PARAMETERS

        Identify the panel you want to construct

          NAME  . . . . . _______

          LIBRARY . . . . . _

          DEVICE TYPE . . . . . _______
```

2. Specify the name, library identifier, and device type for the panel 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.)

When you press the Enter key, the Specify Panel Elements panel is displayed.

Constructing a simple panel

The first sample panel is called CR1 and looks like this:

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

  City  . . . . . . . . Vienna_____________

  Country . . . . . . . Austria____________


  Return date . . . . . _______              (dd/mm/yy)

  City  . . . . . . . . ___________________

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

This panel uses the fields grouped under COLLECT and RETURN in Figure 1 on page 76.

The steps in the last procedure led to the Specify Panel Elements panel. The default panel depth and width are displayed:

```
                          SPECIFY PANEL ELEMENTS                CR1 3279-2B

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, for example 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, this invokes user exit routines that retrieve information in these elements and bring it into SDF II. SDF II 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 SDF II 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 needed. For our 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 the text of the text line is too long, no header is displayed on the constructed panel. Your text line is treated as panel text instead.

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

Defining a text line

To define a text line, enter the text **Enter the following -** on the line under the panel header:

```
                        SPECIFY PANEL ELEMENTS                    CR1 3279-2B

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, the NAME column must be left blank.

Getting variable fields

In this procedure, you enter the names of stored elements. SDF II will use this information to construct the first three variable fields on the CR1 panel.

1. Type the names of the stored elements in the column RELATED FIELD:

```
    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 1 on page 76) to construct the first three fields on the CR1 panel.

2. Press the Enter key and the user exit routine DGIUXRET retrieves information from the elements specified in step 1 and brings this information into SDF II. SDF II displays this information in the LENG, PROMPT and DESCRIPTION columns. SDF II provides an SDF II name for each related field name as well.

   If you get an error message, check that you have typed in the element name correctly. If this is not the problem, the element name may have been misspelled when the element was defined initially. Check with your system programmer if you suspect that this is the case.

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

```
                    SPECIFY PANEL ELEMENTS               CR1 3279-2B

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        8              Collec (dd/mm/yy)
''' COLLECT.CITY     CITY        20             City
''' COLLECT.COUNTRY  COUNTRY     20             Countr
'''
''' 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 and brought this information into SDF II. 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 and the user exit routine DGIUXEXP retrieves information from all the stored elements that have the qualifier RETURN and brings this information into SDF II. 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:

```
                        SPECIFY PANEL ELEMENTS                 CR1 3279-2B

  Panel size
   DEPTH . . . . . 24              WIDTH . . . . . 80

  ELEMENTS  . . . . . . . . . . . . . . . . . . . . COLUMNS 1-7 OF 7, ROW 1 OF 9
      RELATED FIELD -- NAME ----- LENG OCC VER PROMPT DESCRIPTION ---------------
  ''' TOP OF DATA ******************************************************************
  '''                                                    Car Rental Period
  '''                                                    Enter the following-
  ''' COLLECT.DATE     DATE       8              Collec (dd/mm/yy)
  ''' COLLECT.CITY     CITY       20             City
  ''' COLLECT.COUNTRY  COUNTRY    20             Countr
  ''' RETURN
  ''' RETURN.RDATE     RDATE      8              Return (dd/mmm/yy)
  ''' RETURN.RCITY     RCITY      20             City
  ''' RETURN.RCOUNTRY  RCOUNTRY   20             Countr
  ''' END OF DATA ******************************************************************
```

Viewing the formatted panel

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

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

   City  . . . . . . . . Vienna__________

   Country . . . . . . . Austria_________


   Return date . . . . . _______                  (dd/mm/yy)

   City  . . . . . . . . ________________

   Country . . . . . . . ________________
```

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

Saving the panel

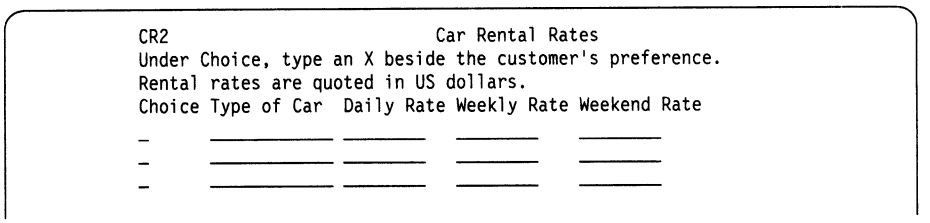
On the Specify Panel Elements panel, press the End key (PF3). SDF II stores your panel in the library you specified on the Specify Panel Construction Parameters panel. Then SDF II returns you to the Specify Panel Construction Parameters panel.

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 panel below named 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 needed. 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 and bring this information into SDF II.

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 and brings this information into SDF II.

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:

```
                      SPECIFY PANEL ELEMENTS                    CR2 3279-2B

Panel size
 DEPTH . . . . . 24_           WIDTH . . . . . 80_

ELEMENTS  . . . . . . . . . . . . . . . . . . . .  COLUMNS 1-7 OF 7, ROW 1 OF 9
    RELATED FIELD -- NAME ----- LENG OCC VER PROMPT DESCRIPTION --------------
''' TOP OF DATA **************************************************************
''' ________________ __________ ____ ___ _  ______ Car Rental Rates__________
''' ________________ __________ ____ ___ _  ______ Under Choice, type an X bes
''' ________________ __________ ____ ___ _  ______ Rental rates are quoted in
''' RATES            RATES_____ ____ 3__ _  ______ ___________________________
''' RATES.CHOICE     CHOICE____ 1___ ___ _  Choice ___________________________
''' RATES.CAR        CAR_______ 12__ ___ _  Type o ___________________________
''' RATES.DAILY      DAILY_____ 8___ ___ _  Daily_ ___________________________
''' RATES.WEEKLY     WEEKLY____ 8___ ___ _  Weekly ___________________________
''' RATES.WEEKEND    WEEKEND___ 8___ ___ _  Weeken ___________________________
''' END OF DATA ***************************************************************
```

Saving the panel

Press the Return key (PF4) and SDF II constructs your panel. SDF II stores your panel in the library specified.

The Select an SDF II Function panel is displayed.

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, look in 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.
SDF II displays the Select an SDF II Function panel when you did not expect it.	Any	You pressed the Return key instead of the End key (PF3).	Enter the panel editor again, and return to where you were. You have not lost any of your work.
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.	Press the Jump key (PF5) to move the cursor to the window you want to scroll, and 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 program function key assignments. Your system programmer may have changed them for use in your company.

You can also assign a panel command to a program function key. To do this, use the SDF II profile editor. Start the profile editor as described in Chapter 16, "Defining your own SDF II profile" on page 73. From the Select a Profile Editor Dialog panel, choose option **5** to edit the ISPF parameters.

Key	Purpose
PF1 HELP	To get help information. See "Getting help information" on page 2.
PF2 SPLIT	To split the screen horizontally into two logical screens.
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.
PF4 RETURN	To return to the Select an SDF II Function panel.
PF5 JUMP	To move the cursor to the SDF II window you want to work in. This key also takes you to the command line in a window.
PF6 POSITION	To mark the current position of the cursor.
PF7 UP	To scroll up towards the start of the information.
PF8 DOWN	To scroll down towards the end of the information.
PF9 SWAP	To move the cursor from one logical screen to the other. **Note:** This works only when you have split the screen into two logical screens.
PF10 LEFT	To scroll towards the left.
PF11 RIGHT	To scroll towards the right.
PF12 CURSOR	To get the cursor back to its starting (home) position on the command line.

Program function keys numbered 13 to 24 have the same functions as those numbered 1 to 12.

Whether SDF II displays the program function keys depends on how your system programmer 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 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 page 2 of the Define Panel Characteristics dialog, specify **y** for the MIXED option 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

Here is 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.

For VM, the output is directed to the file DBCS DGIPRINT.

For MVS, the output is directed to the data set that has the data definition name DGIDBCS.

Note: This function uses Print Services Facility (PSF).

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.

For VM, the output is directed to the file DBCSOUTL DGIPRINT.

For MVS, the output is directed to the data set that has the data definition name DGIDBCSO.

Note: This function uses the KANJI print utility.

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:

3 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.

For VM, the output is directed to the file DBCS DGIPRINT.

For MVS, the output is directed to the data set that has the data definition name DGIDBCS.

Note: This function uses Print Services Facility (PSF).

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

action bar. In SAA 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.

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

area. In SDF II, a rectangular part of a format, the contents of which are provided either at run time by the application program or, for a scrollable area, by a separate format. See dynamic area, graphic area, and scrollable 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 of a format. See also dynamic area, graphic area, scrollable area.

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

array index. The number of an element in an array 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.

attribute. A named property of a format element. 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 the object is saved.

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.

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

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

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

CMS. Conversational monitor system.

Common User Access (CUA) architecture. Guidelines for the dialog between a person and a workstation or terminal. One of the three SAA architectural areas. See also Systems Application Architecture solution.

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

controlled library. In SDF II, a library that is controlled by a library system; for example, ISPF/PDF Software Configuration and Library Manager (SCLM). See externally controlled library.

conversational monitor system (CMS). A virtual machine operating system that provides general interactive time sharing, problem solving, and program development capabilities, and operates only under control of the VM/370 VM control program.

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 con-

sists 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.

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.

D

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.

DCF. Document composition facility.

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. In SDF II, a table containing a list of all device types supported by SDF II together with the features available on these devices. Synonymous with device table.

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.

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

E

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

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

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

externally controlled library. In SDF II, a library that is controlled by a library system other than ISPF/PDF Software Configuration and Library Manager (SCLM). Communication with an externally controlled library system is by means of user exit routines. See controlled library.

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. In SDF II, a part of a panel that 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 in a screen by a user. A format can consist of different definitions for different device types. These definitions are called format instances.

format element. A part of a format. See variable field, constant field, dynamic area, graphic area, scrollable area, repeat format, and include panel.

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 mode, name mode, and sample 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.

graphic area. An area that is reserved for later insertion of graphics by the application program.

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

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

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

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. In SDF II, a value the user assigns to a variable field. This value is displayed when the application first displays the panel.

ISPF. Interactive System Productivity Facility.

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

L

library identifier. In SDF II, a single character that identifies a library that contains SDF II objects.

line command. In SDF II, a command used to request a function. It applies to a specific line or lines. Examples are C for Copy or M for Move.

line command area. An area on the left-hand side of a window where line commands are entered.

M

MACLIB. A library that contains macros, copy files, or source program statements.

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.

Multiple Virtual Storage (MVS). See MVS.

MVS. Multiple virtual storage. Implies MVS/370, 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 translation table. A table containing all the national-language-dependent keywords.

NLS. National language support.

O

object. In SDF II, an item upon which actions are performed, such as a panel, panel group, partition set, AID table, or operator control table. It is stored in an SDF II library. Synonymous with specification object.

occurrence number. A number that indicates how often a repeat format will be repeated or how many elements an array will contain.

P

panel. (1) The information displayed at the same time on the screen of a display device. (2) In SDF II, an object that 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) In SDF II, an item used by the panel construction utility to create one or more fields, panel text, or a repeat format on the panel to be constructed. (2) In SDF II, an element of a panel as displayed in the Define Panel Instances dialog, which denotes one of the following: format, format instance, page, and data structure.

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

prototype. In SDF II, a model or preliminary implementation used to evaluate system design, or better understand or determine requirements. See application prototype, operational prototype, and simulative prototype.

pull-down. In SAA 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.

S

SAA. See Systems Application Architecture solution.

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.

SCLM. Software Configuration and Library Manager.

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. An online application development tool used by application programmers to define or edit maps, map sets, and partitions for CICS/VS Basic Mapping Support.

SDF II. Screen Definition Facility II.

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

SFS. Shared file system.

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.

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.

Systems Application Architecture (SAA) solution. A set of IBM software interfaces, conventions, and protocols that provide a framework for designing and developing applications with cross-system consistency.

T

target system. In SDF II, a system under which the application using an SDF II generated object can be run. For example, CICS/BMS or IMS/MFS.

U

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

V

variable field. A field in which data may be changed by the application program or by the user. 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.

VM. Virtual machine. Implies VM/SP, VM/HPO, VM/XA, or VM/ESA.

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 3 publications are:

Licensed Program Specifications, GH19-6115
Contains the product specifications and warranty information.
Audience: Data processing manager, system programmer.

General Information, GH19-6114
Summarizes the functions, uses, requirements, and advantages of SDF II.
Audience: Data processing manager, system programmer.

Installation and Migration Guide for MVS, SH19-6116
Describes how to install SDF II on an MVS system. It also explains how to migrate objects from the target systems and SDF/CICS into SDF II.
Audience: System programmer, application programmer.

Installation and Migration Guide for VM, SH19-6117
Describes how to install SDF II on a VM system. It also explains how to migrate objects from the target systems and SDF/CICS into SDF II.
Audience: System programmer, application programmer.

General Introduction, SH19-8165
Introduces SDF II to new users and explains how to define simple panels. It also explains the more advanced functions of SDF II to experienced users.
Audience: System programmer, application programmer, end user.

Primer for CICS/BMS Programs, SH19-6118
Explains how to use SDF II to develop objects for applications that run under CICS/BMS.
Audience: System programmer, application programmer, end user.

Primer for IMS/MFS Programs, SH19-6453
Explains how to use SDF II to develop objects for applications that run under IMS/MFS.
Audience: System programmer, application programmer, end user.

Primer for ISPF Programs, SH19-6119
Explains how to use SDF II to develop objects for applications that run under ISPF.
Audience: System programmer, application programmer, end user.

Primer for GDDM-IMD and CSP/AD Programs, SH19-6459
Explains how to use SDF II to develop objects for applications that run under GDDM-IMD or CSP/AD.
Audience: System programmer, application programmer, end user.

Preparing a Prototype, SH19-6458
Explains how to simulate an application using the prototype function of SDF II.
Audience: System programmer, application programmer.

Reference Summary, SX11-6088
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, end user.

Diagnosis Guide, LY19-6251
Explains how to identify and report faults in SDF II to IBM support personnel.
Audience: System programmer.

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Program Number: 5664-307 (VM)
5665-366 (MVS)

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