

# CA Ideal™ for CA Datacom®

## Creating Panel Definitions Guide

Version 14.02



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## CA Technologies Product References

This document references the following CA products:

- CA Datacom® CICS Services
- CA Datacom®/DB
- CA Ideal™ for Datacom® (CA Ideal)
- CA Ideal™ for DB2
- CA Ideal™ for VSAM

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# Contents

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Chapter 1: What Is a Panel Definition?	7
How Is a Panel Defined?	8
Accessing Panel Definition Functions	10
Making a Panel Definition Current	12
PF Key Assignments	12
Horizontal Scrolling Commands for Panel Layout	15
Setting Panel Options for the Session	16
Field Level Options	17
Panel Parameter Options	17
Edit Session Options	20
 Chapter 2: Creating a Panel Definition	 23
Identifying the Panel	23
CREATE PANEL Command	24
Panel Identification Fillin	25
Changing Panel Parameters	27
Where to Go from Here	35
Designing the Panel Layout	35
Positioning the Cursor	36
Setting the Fill Mode	37
Creating Fields	37
Field Symbols	38
Rules for Panel Layout	39
Panel Size	39
Wide Panel Considerations	40
Defining Field Attributes	42
Where to Go from Here	42
Defining and Changing Field Attributes	43
Defining Field Attributes Using Attribute Definition Tables	45
Defining Attributes One Field at a Time	50
Attributes Used to Define Fields	54
Changing the Panel Layout	71
Fill Mode	72
Modifying Existing Fields on the Panel Layout	72
Adding Fields to an Existing Panel Layout	77
Deleting Lines and Fields from the Panel Layout	78

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Relocating Fields .....	79
Defining Repeating Fields and Groups .....	87
Rules for Repeating Groups .....	88
Copying Fields from a Dataview .....	94
Using the Panel Copy Prompter .....	94
Placement of the Dataview Field in the Panel Definition .....	97
Rules for Copied Dataview Fields .....	100

## Chapter 3: Handling Errors 103

Error Handling During Panel Definition .....	103
Restoring Prior Edits: CHECKPOINT and ROLLBACK .....	103
Error Handling at Runtime .....	105
Using CA Ideal to Validate Entries .....	105
Handling Errors in the Application Program .....	106

## Chapter 4: Working with Panels 109

Displaying a List of Panels .....	109
Displaying a Panel Definition .....	110
Displaying Wide Panels .....	111
Displaying a Panel Facsimile .....	112
Testing a Facsimile .....	112
Editing a Panel Definition .....	113
Printing a Panel Definition .....	115
Deleting a Panel Definition .....	116
Duplicating a Panel Definition .....	117
Changing the Status of a Panel Definition .....	118

## Appendix A: Field Attributes by Panel 121

## Appendix B: Check-Digit Tests 123

CheckDigit Calculation .....	123
Modulo10 CheckDigit Calculation .....	123
Modulo11 CheckDigit Calculation .....	124
Using the Modulo10 and Modulo11 Checkdigit Tests .....	125

# Chapter 1: What Is a Panel Definition?

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The *Creating Panel Definitions Guide* describes what a panel definition is and how to create and modify a panel definition. You should read the chapters in sequence. When you complete this guide, you should be able to create, modify, delete, display, or print a panel definition, and display a list of panel definitions.

In CA Ideal, panels obtain and transmit data from the screen to a program. A CA Ideal program uses the panel definition to map data onto the panel to display information on the screen or to map data from the panel to obtain information from the screen. You can use panel definitions to display only (for browsing) or for data entry. When you use the panel definition for data entry, you must first display the fields either blank or with default values where appropriate. Sometimes you can use the same panel to select and view a record, and then to change the record.

To display information on the screen, use the TRANSMIT statement in the application program (see the *Programming Reference Guide* for details on the TRANSMIT statement). The panel displays and you can enter information on the screen. Meanwhile, the program does not perform any processing until you press the Enter key or a function key. Then the program receives the data entered on the screen, processes the data according to the defined panel layout, and proceeds to the next instruction in the program.

The panel definition defines the layout of the fields on the displayed screen. A CA Ideal panel definition contains both general characteristics (and parameters) and field-specific characteristics (or attributes). There are default values for both panel parameters and for field attributes. To define a panel, simply lay out the fields where you want them, name the fields, and accept the available defaults. If you need to change some of the defaults, you can change the values displayed on the definition fill-ins or, if you need to make the same changes for more than one field, you can change the values on an input rules, an output rules, or a summary table for any or all of the fields.

All items defined on the panel layout are considered fields, whether they contain text, titles, or data values. The field attributes determine whether the value entered on the panel layout is considered text or data. A text field is a protected field with an initial value in it, often a heading or caption. A data field is an unprotected field that expects to receive data when a program is executed.

CA Ideal panels, created and used on the mainframe, are subject to the rules and limitations of the IBM 3270 Information Display System Data Stream. CA Ideal panel attributes correspond to CICS attributes based on the 3270 data stream.

## How Is a Panel Defined?

Panel definitions are created in CA Ideal using a layout screen and a series of fill-in panels. Each definition is compiled into a panel object, which is stored in a VLS member. The existence of each panel is recorded in the dictionary, where any CA Ideal program can access it as a resource. You can define a panel layout once, and then use it in many different programs. The relationship of each panel with each program is also recorded in the dictionary.

Panel definitions are created and maintained using the following screens and fill-ins:

- The panel *Identification* fill-in identifies the panel definition and contains information that describes the panel, who created and last changed it, and when it was created and last changed. You must enter the panel name in this fill-in. The information in this fill-in is stored in the dictionary to identify the panel.

This fill-in displays automatically when you enter the CREATE PANEL command. When you display or edit an existing panel definition, you can display this fill-in by entering the command IDE.

- The panel *Parameter* fill-in specifies general attributes (parameters) for the panel. The attributes assigned in the Panel Parameter fill-in when a panel is created act as defaults for all fields in that panel definition. There are default values for the parameters in this fill-in. You do not need to edit this fill-in if the default values are acceptable.

To display this fill-in when creating, editing, or displaying the panel definition, enter the command PARM on the command line.

- The *Layout* screen paints the fields on the screen. The layout screen shows the fields as they are positioned on the panel, with the addition of field start and end symbols that reposition fields on the panel. You can display a panel facsimile to show the panel exactly as it appears when the application displays it. You can test input fields on the panel facsimile.

The Layout screen displays automatically when you enter the DISPLAY PANEL or EDIT PANEL command. To display the Layout screen at any time during panel definition or maintenance, enter the command LAY on the command line or press the PF6 key.

- The *Field Copy* fill-in copies one or more dataview field definitions into the panel definition.

To display the Field Copy fill-in, type the command COPY on the command line.

- The *Input Rules Table* defines the rules for validating input for each field on the panel.

To display the Input Rules Table, type the command IRULES on the command line and press the Enter key.



- The *Output Rules Table* defines the editing rules used for the display of each field on the panel.

To display the Output Rules Table, type the command ORULES on the command line and press the Enter key.

- The *Extended Field Definition* fill-in further defines a field. This fill-in is slightly different for alphanumeric, numeric, and group fields.

To display the Extended Field Definition fill-in for the first field on the layout, press the PF5 key or enter the command NEXT on the command line. To display the Extended Field Definition fill-in for any other field, enter the command FIELD *id*, where *id* is either the field name or number.

- The *Field Summary Table* shows the attributes of all the fields on the panel, rather than just one field. The fields are listed down the fill-in. The attributes are listed across the fill-in. (The attribute names are abbreviated to fit across the fill-in.) You can change the attributes shown on this fill-in either on this fill-in or on the appropriate field definition fill-in (Input Rules, Output Rules, or Extended Field Definition fill-in).

To display the Field Summary Table, type the command SUM on the command line or press the PF9 key. The cursor can be anywhere on the panel.

To return to the Layout screen from any of the preceding fill-ins, you can either press the PF6 (LAYOUT) key or enter the command LAY on the command line.

## Accessing Panel Definition Functions

You can access panel maintenance functions directly by entering a command from the command line, such as `EDIT PANEL panelname`. However, you can also use CA Ideal menus to access panel definition and maintenance functions. The Panel Maintenance menu lists all of the panel definition and maintenance functions.

To display the Panel Maintenance menu, select option 3, `PANEL`, from the CA Ideal Main Menu or enter the `PANEL` command. The following screen shows the Panel Maintenance Menu.

```
=>
-----
IDEAL: PANEL MAINTENANCE      PNL                      SYS: DOC      MENU

Enter desired option number=>>>      There are 7 options in this menu:

1. EDIT/DISPLAY                - Edit or display a panel
2. CREATE                      - Create a panel
3. PRINT                      - Print a panel
4. DELETE                     - Delete a panel
5. MARK STATUS                 - Mark panel status to production or history
6. DUPLICATE                   - Duplicate a panel to next version or new name
7. DISPLAY INDEX               - Display index of panel names in system
```

When you select an option from the Panel Maintenance menu, a prompter panel displays. Enter the information required to complete the command, such as the panel name. The prompter panel is different for each option because it shows the complete syntax for the command and each command is different. If, instead of selecting an option from the Panel Maintenance Menu, you enter the corresponding command from the command line without providing all the required information, the same prompter panel displays.

The following options (and corresponding commands) from the Panel Maintenance menu are described in this guide:

**DISPLAY/EDIT**

Select this option to display or edit an existing panel definition. On the displayed prompter, you must specify whether you want to display or edit the panel definition. When you display or edit a panel definition, the Layout screen displays. To see other fill-ins, press the appropriate PF key or enter the appropriate command on the command line.

Displaying a panel definition is explained in the section, *Displaying a Panel Definition*. Editing a panel definition is just like creating the panel definition, except that the Layout screen displays first, not the Identification fill-in. For more information about creating or editing a panel definition, see the section, *Creating a Panel Definition*, in the “Handling Errors” chapter.

**CREATE**

Select this option to create a new panel definition. On the displayed prompter, enter the entity type (PNL) and the name of the panel. For more information, see the section, *Creating a Panel Definition* in the “Handling Errors” chapter.

**PRINT**

Select this option to print an existing panel definition. You are prompted for the name of the panel definition and other print options. For more information, see the section, *Printing a Panel Definition* in the “Working with Panels” chapter.

**DELETE**

Select this option to delete an existing panel definition. You are prompted for the name and version of the panel definition to delete. For more information, see the section, *Deleting a Panel Definition*, in the “Working with Panels” chapter.

**MARK STATUS**

Select this option to change the status of a panel definition from test to production or production to history. For more information, see the section, *Changing the Status of a Panel Definition*, in the “Working with Panels” chapter.

**DUPLICATE**

Select this option to duplicate an existing panel definition to a new version or a new name. You are prompted for the version number and name of the existing panel definition and the name of the new panel. For more information, see the section, *Duplicating a Panel Definition*, in the “Working with Panels” chapter.

**DISPLAY INDEX**

Select this option to display a list of all the existing panels in your system. No prompter displays for this option since no further information is required. For more information, see the section, *Displaying a List of Panels*, in the “Working with Panels” chapter.

## Making a Panel Definition Current

Once a panel definition is current, you can omit the panel name from subsequent commands that deal with that panel definition. A panel definition becomes current when it is named in any command or in a Panel Identification fill-in. For example, when you create a new panel definition with either a CREATE or DUPLICATE command, that panel definition becomes the current panel definition.

A panel definition remains current until the session ends, a facility of CA Ideal other than panel definition is used, or a different panel definition is accessed or created. For example, if, after entering the CREATE command and filling out the Panel Identification fill-in, you then enter the DISPLAY command for another panel definition, the displayed panel definition becomes the current definition.

**Note:** The current panel definition is identified in the status line of the screen.

## PF Key Assignments

When creating or editing a panel, you can use the following PF keys to move through the definition fill-ins:

PF Keys	Assignments
PF1/PF13	Help
PF2/PF14	Return
PF3/PF15	Print Screen
PF4/PF16	Previous*
PF5/PF17	Next*
PF6	Layout
PF18	Toggle
PF7/PF19	Scroll Back
PF8/PF20	Scroll Forward
PF9/PF21	Summary*
PF10/PF22	Scroll Top
PF11/PF23	Scroll Bottom
PF12/PF24	Input

**Note:** \* The PF4/16, PF5/17, and PF9/21 keys are not assigned when you are in the Identification fill-in for a new panel.

When you are displaying a panel facsimile, the keys shown in the following table have a different effect:

<b>PF Keys</b>	<b>Assignments for Facsimile Display</b>
PF1/PF13	Help
PF2/PF14	Return
PF3/PF15	Clarify
PF4/PF16	Scroll Left
PF5/PF17	Scroll Right
PF18	Layout
PF7/PF16	Scroll Back
PF8/PF17	Scroll Forward
PF10/PF22	Scroll Top
PF11/PF23	Scroll Bottom
PF12/PF24	Set Command Line 1
PF11/PF23	Scroll Bottom
PF12/PF24	Input

Pressing a PF key or entering the equivalent command has the following effect:

**PF1/PF13-HELP**

Displays a panel or series of panels that contain information to explain how to complete the current function. In facsimile, a help panel displays only if one is defined and exists for the panel or a field on the panel.

**PF2/PF14-RETURN**

Returns from a help panel to the panel definition display or from the panel maintenance function to the menu that selects the function.

**PF3/PF15-PRINT SCREEN (creating and editing)**

Places a copy of the current screen in the output library where you can view and send it to the printer.

**CLARIFY (facsimile display)**

Displays a clarification screen that explains the validation rule that was violated by a sample input value.

**PF4/PF16-PREVIOUS (creating and editing)**

Displays the extended field definition for the field that precedes the position of the currently displayed extended field definition.

**SCROLL LEFT (facsimile display)**

Positions the display window to the left of the previously displayed portion of the panel. How far the panel is scrolled depends on the setting of the SET SCROLL option.

**PF5/PF17-NEXT (creating and editing)**

Displays the extended field definition for the field that follows the position of the currently displayed extended field definition.

**SCROLL RIGHT (facsimile display)**

Positions the display window to the right of the previously displayed portion of the panel. How far the panel is scrolled depends on the setting of the SET SCROLL option.

**PF6-LAYOUT**

Displays the panel layout for editing. When displaying a facsimile, PF 18 also displays the panel layout.

**PF18-TOGGLE**

Switches the fill-mode between blank-fill and null-fill. This key performs this function only when you are editing a panel layout.

**PF7/PF19-SCROLL BACKWARD**

Displays the previous frame in the current fill-in or panel.

**PF8/PF20-SCROLL FORWARD**

Displays the next frame in the current fill-in or panel.

**PF9/PF21-SUMMARY**

Displays the Field Summary Table.

**PF10/PF22-SCROLL TOP**

Positions the panel at the top line.

**PF11/PF23-SCROLL BOTTOM**

Positions the bottom of the panel at the bottom of the screen.

**PF12/PF24-INPUT (creating and editing)**

In layout only, opens a window of null or blank lines preceding the first line of the panel or at the current cursor position. Unused null or blank lines in the window are deleted when you press the Enter key after input.

**SET COMMAND LINE 1 (facsimile display)**

Opens one command line at the top of the panel so you can enter CA Ideal commands.

## Horizontal Scrolling Commands for Panel Layout

When you are editing or displaying panel layouts, the following commands let you scroll the window left and right. They do not have PF key equivalents. For more information about syntax of these commands, see the *Command Reference Guide*.

### **SCROLL LEFT**

Scrolls the window left by a specified number of columns, by an entire window-width, to the left edge of the panel or until the column that contains the cursor is flush right. You can specify a relative number of columns or MAX in the SCROLL LEFT command or you can scroll the default distance set with the SET SCROLL command.

### **SCROLL RIGHT**

Scrolls the window right by a specified number of columns, by an entire window-width, to the right edge of the panel, or until the column that contains the cursor is flush left. You can specify a relative number of columns or MAX in the SCROLL LEFT command or you can scroll the default distance set with the SET SCROLL command.

### **SCROLL COLUMN *nnn***

Moves the absolute column specified with *nnn* to the left margin.

### **SET SCROLL**

Sets the default distance for scrolling. If the SET SCROLL option is set to FRAME, the window is moved the width of the window. If the SET SCROLL option is set to CURSOR, the window is moved until the column that contains the cursor is flush right (SCROLL LEFT) or flush left (SCROLL RIGHT).

## Setting Panel Options for the Session

You can set panel options individually, by using specific SET commands, or you can display and set all panel options by entering the SET PANEL SESSION OPTIONS command. For more information about all of these SET commands, see the *Command Reference Guide*.

The SET PANEL SESSION OPTIONS command shown in the following screen displays the panel options fill-in, shown below. Each option is described and the equivalent SET command is shown after the option description.

```

=>
-----
--
IDEAL: PANEL SESSION OPTION                                SYS:DOC      FILL-IN
Field Level Options:
Decimal character      P      (P=period, C=comma)
Allow:   Digit sep    N      (Y=yes, N=no)
         Minus sign   N      (Y=yes, N=no)
         Currency     N      (Y=yes, N=no)
Panel Parameter Options:
Input fill character  S      (S=space, L=lowval, Z=zeros, U=_, other=itself)
Output fill character U      (S=space, L=lowval, U=_, other=itself)
Non-display character S      (S=space, other=as specified)
Error fill character *      (as specified)
Case translation     U      (U=upper, M=mixed)
Error handling       B      (N=none, *=fill w/errorfill, H=high intensity,)
                                     (B=both: H if illegal value & * if rqd missing)
Allow EOF            N      (Y=yes, N=no)
Panel Width          080    (a value between 80 and 236)
Process appl on scroll Y      (Y=yes, N=no)
PF1=HELP, PF3=CLARIFY Y      (Y=yes, N=no)
PF7=SCR -, PF8=SCR   N      (N=no, Y=opt Y, Z=opt Z)
PF10=SCR TOP, PF11=SCR BOT      (Option Y)
PF10=SCR LEFT,PF11=SCR RIGHT    (Option Z)
Start   field symbol --   End   field symbol ;   New   field symbol
+
Repeating group symbol @      Delete field symbol *      Move   field symbol
>
Copy   field symbol ¢      Destination symbol !
Edit Session Options:
Fill mode      N      (N=nullfill, B=blankfill)
Copy direction V      (H=horizontal, V=vertical)
   label format S      (S=sideview, C=colview, N=none)
   destination T      (T=top, B=bottom)
Wide option    N      (Y=yes, N=no)
Save as profile Y      (Y=yes, N=no)

```



## Field Level Options

The following options set the defaults for certain numeric field attributes. These options apply during creation and editing of panel definitions. You can change the Allow defaults for individual fields on the Input Rules or Extended Field Definition panel.

### **Decimal character**

Establishes the symbol that represents a decimal point. You can also set this option using the command:

```
SET PANEL DECIMAL
```

### **Allow**

**Digit separator**-Establishes whether a digit separator is allowed in numeric fields on input. You can also set this option using the command:

```
SET PANEL ALLOWDIGSEP
```

**Minus sign**-Establishes whether a minus sign is allowed in numeric fields on input. You can set this option using the command:

```
SET PANEL ALLOWMINSIGN
```

**Currency**-Establishes whether a currency symbol is allowed in numeric fields on input. You can also set this option using the command:

```
SET PANEL ALLOWCURRSIGN
```

## Panel Parameter Options

The following SET options determine the initial values of the Panel Parameter fill-in. These values control Layout editing and establish field attributes as fields are created in the panel. You can also set the session defaults created by the SET PANEL options for individual panels on the Panel Parameter fill-in.

### **Input fill character**

Establishes the default character that pads the unused portion of an alphanumeric field on input (always zero for numeric field). You can also set this option using the command:

```
SET PANEL INFILL
```

### **Output fill character**

Establishes the default character that fills blank fields when the panel is initially displayed with a TRANSMIT or REFRESH statement or when low values are moved into the field by the application. You can also set this option using the command:

```
SET PANEL OUTFILL
```

### **Non-display character**

Establishes the default character sent to the screen when the transmitted character cannot display. You can also set this option using the command:

```
SET PANEL NONDISPLAY
```

CA Ideal supports all standard 327x characters, including A-Z, a-z, 0-9, punctuation characters, arithmetic operators and symbols, national characters, braces, and spaces.

### **Error fill character**

Establishes the default character that marks a field that redisplay after an erroneous entry. You can also set this option using the command:

```
SET PANEL ERRORFILL
```

### **Case translation**

Establishes whether the text entered in the field by users at run-time is converted to uppercase (UPPER) or remains as typed by the user (MIXED). You can also set this option using the command:

```
SET PANEL CASE
```

### **Error handling**

Establishes the default of how an erroneous field entry displays. You can also set this option using the command:

```
SET PANEL ERRORHANDLING
```

### **Allow EOF**

Establishes whether the application user can use the Erase EOF key when a minimum or maximum range check is specified for a field. If you press the Erase EOF key when the cursor is positioned in a field, the input fill character is inserted from the cursor position to the end of the field. If inserting the input fill character brings the value outside the range set by the maximum or minimum values, a validation error occurs unless Allow EOF was specified as Yes. You can set this option using the command:

```
SET PANEL ALLOWEOF
```

**Panel Width**

Establishes the default width of all panels created during the session. You can also set this option using the command:

```
SET PANEL WIDTH
```

**Process appl on scroll**

Establishes whether control is passed to the application when you enter a scroll command or press a scroll PF key. You can also set this option using the command:

```
SET PANEL SCROLL
```

**PF1=HELP, PF3=CLARIFY**

Establishes default CA Ideal panel key assignments for PF1 and PF3. You can also set this option using the command:

```
SET PANEL PF13
```

**Note:** The CLARIFY command is assigned to PF3/PF15 only if the Edit rule error procedure is specified as C (for CLARIFY). This does not affect the assignment of PF1/PF13 as HELP.

**PF7/8/10/11=SCR -//TOP/BOT**

Establishes default key assignments for PF7, PF8, PF10, and PF11. You can also set this option using the command:

```
SET PANEL PF781011
```

**Start field symbol**

Establishes the symbol that indicates the beginning of a field on the panel layout. You can also set this option using the command:

```
SET PANEL STARTSYM
```

**End field symbol**

Establishes the symbol that indicates the end of a field on the panel layout. You can also set this option using the command:

```
SET PANEL ENDSYM
```

**New field symbol**

Establishes the symbol that adds a new field. You can also set this option using the command:

```
SET PANEL NEWSYM
```

#### **Repeating group symbol**

Establishes the symbol that indicates a repeating field. You can also set this option using the command:

```
SET PANEL REPSYM
```

#### **Delete field symbol**

Establishes the symbol that deletes a field. You can also set this option using the command:

```
SET PANEL DELSYM
```

#### **Move field symbol**

Establishes the symbol that marks a field to move. You can also set this option using the command:

```
SET PANEL MOVESYM
```

The destination is marked with a destination field symbol.

#### **Copy field symbol**

Establishes the symbol that marks a field to copy in a new location. You can also set this option using the command:

```
SET PANEL COPYSYM
```

The destination is marked with a destination field symbol.

#### **Destination symbol**

Establishes the symbol that marks the destination of a move or copy operation. You can also set this option using the command:

```
SET PANEL DESTSYM
```

## Edit Session Options

The following options set the panel definition environment for the session. These options affect the creation and editing of panel definitions.

#### **Fill mode**

Establishes whether the panel is filled with nulls or blanks when the panel layout is accessed.

#### **N (Nullfill)**

You must enter leading blanks to position fields entered on a blank line or at the end of a line, but you can use the INSERT key to insert fields before an existing field. To enter a blank line between existing lines, you must put at least one space on the line.

**B (Blankfill)**

You can enter new fields exactly where you want them positioned, without adding leading blanks, but you cannot use the INSERT key without first deleting trailing blanks or other characters.

You can also set this option using the command:

```
SET PANEL LAYOUT
```

**Copy direction**

Establishes the default destination and format when dataview fields are copied into a panel definition using the CREATE command or the COPY prompter. Valid values are:

**H** Horizontal. Places the fields one after another across the line. If a field and its header do not fit on the current line, they are placed in the first position of the next line. Five spaces are inserted between fields.

**V** Vertical. Places the fields one after another down the panel, in a column beginning in the first position of each line.

**Label format**

Establishes the default placement of field headings relative to the fields. Valid values are:

**C** Colview. Places the headings on a line preceding the fields.

**S** Sideview. Places the headings to the left of each field.

**N** No heading. No headings are included in the layout. This is the default value.

**Destination**

Establishes the default destination of the copied fields on the panel. Valid values are:

**T** Top. Places the fields at the top of the panel, preceding the first line on the existing layout.

**B** Bottom. Places the fields at the bottom of the panel, below the last line of the existing layout.

You can also set these options using the command:

```
SET PANEL COPY
```

**Note:** An error occurs if the length of a field or a field and its heading does not fit on one panel line.

**Wide option**

Establishes whether you can create wide panels. You can also set this option using the command:

```
SET PANEL WIDEOPTION
```

**Save as profile**

Specifies whether the values specified are stored as SET commands in a member named PDF#ON, which can be executed automatically at sign-on.

The PDF#ON member contains SET commands only for the values that were changed on the Panel Session Options fill-in. Each time the Panel Session Options fill-in is changed and you save it as PDF#ON, the existing member is updated by placing SET commands for the changed values at the end of the member.

To execute the PDF#ON profile member at sign-on, enter the following command in your SIGNON member:

```
EXECUTE PDF#ON
```

**Note:** Regardless of the value specified for this option, changes specified on the Panel Session Options fill-in take effect for the session when you press the Enter key.

# Chapter 2: Creating a Panel Definition

---

Panel definitions are created using a 4-step process. A different fill-in screen is used for each step. The order of the steps is as follows:

1. Identify the panel definition.
2. Change the default panel parameters, if desired.
3. Lay out the fields on the panel.
4. Define the attributes of each field.

You can perform step 3 for all fields before performing step 4, or you can perform steps 3 and 4 for the first field, and then for the second field, and so on.

During the process of creating the panel definition, you might need to modify default parameters, fields, or field attributes that were already defined. You modify parameters and field attributes the same way that you create them. This process is described in the sections titled Changing Panel Parameters and Defining and Changing Field Attributes in this chapter. Placing and moving the fields on the panel is described in the sections titled Designing the Panel Layout and Changing the Panel Layout in this chapter.

At any time during the creation process, you can stop working on the panel definition to either perform another CA Ideal function or leave CA Ideal altogether. Your panel definition is automatically saved with all the information that you entered up to that point.

To return to the panel definition and continue editing, simply enter the command `EDIT PANEL panelname` or select the `EDIT/DISPLAY` option from the Panel Maintenance menu. When the panel displays, you can add, modify, or delete fields in the same way as you did when you initially created the panel definition.

## Identifying the Panel

The first step in creating a panel definition is identifying the panel. To identify the panel, you must first enter the `CREATE PANEL` command, and then fill in the Panel Identification Fill-in. Once you name the panel in either the `CREATE PANEL` command or on the Identification fill-in, an entry for the panel definition is stored in the dictionary facility.

## CREATE PANEL Command

To identify a panel definition, enter the CREATE PANEL command on the command line or on the prompter displayed by selecting the CREATE option from the Panel Maintenance menu. The CREATE PANEL command displays the Panel Identification fill-in.

The format of the CREATE PANEL command is as follows:

```
CREATE PANEL panel-name [{ USING } dataview-clause ]  
                        [{ FROM }                ]
```

### ***panel-name***

Specifies one- to eight-character name that identifies the panel definition.

### **USING | FROM *dataview-clause***

Creates the panel from the dataview specified in the dataview clause. The dataview fields are actually copied into the panel definition after you leave the Identification fill-in.

All fields and values that can be reasonably defined in the panel definition are copied. However, variably repeating groups are copied as elementary fields in the panel definition. The group name and repeat factor are not copied to the panel.

The fields are copied in consecutive order as specified in the dataview. The fields are positioned in the panel definition based on the value of the SET PANEL COPY option. This arrangement can be horizontal, with the fields placed in rows across the panel, or vertical, with the fields placed in columns down the panel. The SET PANEL COPY option also controls where headings are placed, above or to the side of each field, or whether they are omitted. For examples of field arrangements resulting from copied dataview fields, see the section titled Placement of the Dataview Field in the Panel Definition in this chapter.

Once the dataview fields are copied into the panel definition, you can modify and relocate the fields to suit the panel layout. You can also add additional fields in panel layout.

### **dataview-clause**

The dataview clause identifies the dataview from which fields are copied. It has the following format:

```
{Dw dw-name [VERSION ver] }  
{ *                }
```



**dvw-name**

Specifies 1- to 32-character name of a cataloged dataview.

**ver**

The version of the specified dataview, specified as PROD, *Tnnn*, or *nnn* (for sequential dataviews). The default is PROD. You can omit the keyword VERSION when you specify PROD.

\* Specifies the current dataview, if a dataview definition is current. A dataview definition is current if it is the last entity you display or edit.

For more information about copying fields from a dataview, see the section Rules for Copied Dataview Fields in this chapter.

**Note:** To create a wide panel, set the panel session option WIDEOPTION to ON or YES, and use the panel Parameter fill-in to set the width for the panel.

## Panel Identification Fillin

When you enter the CREATE PANEL command, the Panel Identification Fill-in displays as shown in the following screen.

```

=>
-----
IDEAL: PNL IDENTIFICATION      PNL                      SYS: DOC  FILL-IN
Panel name  _____

Created .... By ..._____
Last Modified .... at ... By ..._____
Run Status  _____
Short description _____

Description:
_____
_____
_____
_____

```

You can display the Panel Identification fill-in at any time after the panel is identified by entering the IDENTIFICATION command or pressing the equivalent PF key. Some fields are not displayed until after the initial identification of the panel. You can modify the Panel Identification fill-in at any time as long as the panel definition remains in test status.

The following fields display on the Panel Identification fill-in:

**Panel name**

Specifies 1- to 8- character name that identifies this panel definition. If you specify the panel name on the CREATE PANEL command, the specified value appears in this field when the Panel Identification fill-in displays. If the panel was not named on the CREATE PANEL command, enter the name in this field.

**Created .... By ...**

Identifies the date when the panel definition was created and the user ID of the user who created the panel definition. This field is blank when the Identification fill-in first displays for a new panel. The system enters these values. You cannot change them.

**Last Modified .... at ... By ...**

Identifies the date and time when the panel definition was last changed and the user ID of the user who changed it. This field is blank when the Identification fill-in first displays for a new panel. The system enters these values. You cannot change them.

**Run Status**

Indicates how the panel uses memory while it is running. The CA Ideal Administrator determines the Run Status. This field is blank when the Identification fill-in first displays for a new panel. The value in this field can be either PRIVATE or RESIDENT. The default for newly created panels is PRIVATE.

**Short Description**

Enter a brief description (1- to 24-characters) of the panel. This description displays when you use the DISPLAY INDEX PANEL command to list existing panel definitions.

**Description**

Enter a one- to five-line description of the panel. You are not required to enter a value in this field.

After you complete the panel Identification fill-in and press the Enter key, the panel definition shown as follows is added to the dictionary as version 1 and assigned a status of TEST. You can design the panel layout immediately or you can complete it at a later time.

```

=>
IDEAL: PNL IDENTIFICATION    PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
Panel name ADRMPNL1
Created          07/16/94          By NOVAK
Last Modified    07/16/94 at 15:21  By NOVAK
Run Status PRIVATE
Short description order entry panel
Description:
  order entry panel /order entry application
  -----
  -----
  -----
  -----
  
```

### Where to Go from Here

When you complete the Panel Identification Fill-in, you can proceed to the Panel Parameter Fill-in or the Layout screen. To move to the next desired screen, you can either enter a command on the command line or press the appropriate function key:

For this fill-in	Enter this command	Or press this key
Parameter	PARM	
Layout	LAY	PF6
Copy Dataview	COPY	

## Changing Panel Parameters

The Panel Parameter fill-in provides default settings similar to the panel session options, but they apply only to the current panel definition. If you make no changes to the Panel Parameter fill-in, the settings default to the panel session option settings. If you change the values on the Panel Parameter fill-in, the changes apply to the current panel only. You can override field defaults set for the panel on the Panel Parameter fill-in for any individual fields on the Input Rules, Output Rules, or Extended Field Definition fill-in.

To change the parameters for a specific panel definition, enter the command PARM from the command line. The Parameter fill-in displays as shown in the following illustration:

```

=>
-----
IDEAL: PANEL PARAMETERS      PNL ADRMPNL1 (001) PROD      SYS:DOC      FILL-IN
Input fill character S      (S=space, L=lowval, Z=zeros, U=_, other=itself)
Output fill character U    (S=space, L=lowval, U=_, other=itself)
Non-display character S    (S=space, other=as specified)
Error fill character *    (as specified)
Case translation U        (U=upper, M=mixed)
Required N                (Y=yes, N=no)
Error handling B          (N=none, *=fill w/errorfill, H=high intensity,)
                          (B=both: H if illegal value & * if rqd missing)

Edit-rule error proc _    (C=clarify command, A=application)
Process appl on scroll _   (Y=yes, N=no)
Hardware insert _        (Y=yes, N=no)
Allow eof _              (Y=yes, N=no)
Help panel name _____ Version ___
Prefix panel name _____ Version ___
Suffix panel name _____ Version ___

PF1=HELP, PF3=CLARIFY    (Y=yes, N=no)
PF7=SCR -, PF8=SCR N     (N=no, Y=opt Y, Z=opt Z)
PF10=SCR TOP, PF11=SCR BOT (Option Y)
PF10=SCR LEFT,PF11=SCR RIGHT (Option Z)

Panel Width      80      (a value between 80 and 236)
  
```

You can change any of the parameters on the Panel Parameter Fill-in:

**Input fill character**

The character that pads unused positions after you enter a value and justify it in an alphanumeric field. Valid values for this parameter are:

- **S**-Spaces are entered in unused positions of the entry field. This prevents unused portions of the field or empty fields from receiving unpredictable values.
- **L**-Low values (the lowest value in the alphanumeric collating sequence) are entered in unused positions of the entry field. If you specify L, you can use the insert key to insert characters in the field.  
  
L is the default for this parameter.
- **Z**-Zeros are entered in unused positions of the entry field. This value is used automatically for numeric fields.
- **U**-Underscores are entered in unused positions of the entry field. If you use underscores as the input fill character, the value, complete with any underscore fill characters, is sent to the application.

- **Other**-The value specified here is entered in unused positions of the entry field. An example of a value that could be used is the asterisk (\*). As with the underscore, the value is sent to the application with any asterisk fill characters.

#### Output fill character

The character that fills blank data entry fields when the panel displays (with a TRANSMIT or REFRESH statement). The output fill character also fills the field when the application moves low values into the field or when the application user presses the Erase EOF key to clear a field. (The function \$LOW moves low values into a field.) The output fill character is removed when the panel is transmitted to the application.

Valid values are:

- **S**-Spaces display in this field when no value was moved to the field before the panel was transmitted. If spaces display as the output fill character, there is no indication that an input field is present until the cursor moves to the field.
- **L**-Low values display in this field when no value was moved into the field before the panel was transmitted. If you specified L, the application user can insert characters in this field using the Insert key.
- **U**-Underscores display in this field when no value was moved into the field before the panel was transmitted. Use this value when you want to indicate the field length to the application user.

U is the default for this parameter.

- **Other**-The value specified here displays in this field when no value was entered before the panel is transmitted. An example of a value that could be used is the period (.).

#### Non-display character

The character displayed when the transmitted character is not supported for display. CA Ideal supports all standard 327x characters, including A-Z, a-z, 0-9, and special characters such as punctuation, arithmetic operators and symbols, national characters, braces, and spaces. Valid values are:

- **S**-Spaces display when the character is not a displayable character. Only the non-display character is replaced with a space.
- **Other**-The value specified here displays when the field contains a non-display character.

#### Error fill character

The character that highlights a field that contains an error detected during panel validation. The specified character fills the field when the panel redisplay after validation of the field values.

### Case translation

The entry mode for characters the application user entered on the panel. Valid values are:

- **U**- Translates all entries to upper case before the values are sent to the application. Specify U if you do not want to allow lowercase characters in the file, for example, in files that applications use that do not expect to find lowercase values and do not test for lower case or mixed case values.
- **M**-Sends all entries to the application as the user entered them. Values could be in uppercase, lowercase, or mixed upper and lower case, depending on how the application user entered them. If you specified M for the case translation parameter, be sure that the program tests for lower and mixed case values and upper case values.

### Required

Specifies whether the application user must supply field values or they can be omitted. This parameter applies to all fields on the panel except where it is overridden by the field definition for a specific field. Valid values are:

- **Y**-Specifies that the application user must supply a field value.
- **N**-Specifies that the application user can omit a field value. This option is usually specified when a default value is used for the field, although the resulting field value could simply reflect the input fill character.

### Error handling

Specifies how a field entry is highlighted when an error is detected during panel validation. Valid values are:

- **N**-No highlighting is used when a field error is detected.
- **\***-Moves the error fill character to the field in error, one field at a time. If the Error fill character parameter is not defined, the field is filled with asterisks in low intensity.
- **H**-Displays the invalid field entry in high intensity.
- **B**-Both high intensity and the error fill character highlight errors. If the field contains a value that does not conform to the specified edit rules, the field entry displays in high intensity. If a required field is missing, the error fill character is moved to the field, which then displays in high intensity.

### Edit-rule error proc

Specifies how to handle invalid data entered into panel fields. (Invalid data is data that does not fit the attributes defined for the field on the attribute definition tables or the Extended Field Definition fill-in.) Valid values are:

- **C**-When CA Ideal detects invalid data in a panel field and the highlighted error displays, the application user can enter the CLARIFY command or press the corresponding PF key to display a panel that explains the specific violations of the editing rules for the detected error. This panel is a CA Ideal panel, not an application panel.

If you specify C, all panel fields must pass the editing rules or be corrected by the application user before CA Ideal sends the data to the application.

- **A**-When CA Ideal detects invalid data in a panel field and the highlighted error displays, the panel can still be sent to the application without correcting the error. The application can override the error, provide an emergency escape, and issue its own error help message. (The functions \$PANEL-ERROR and \$PANEL-FIELD-ERROR, which are used in error handling for panel errors, are explained in the *Programming Reference Guide*.) If the application program does not issue an error message, a run-time error occurs when the field is next accessed.

If you specify A, the CLARIFY command does not display the CA Ideal CLARIFY panel.

### Process appl on scroll

Specifies whether control is passed to the application when a scroll command is entered (or a scroll PF key is pressed). Valid values are:

- **Y**-Passes control to the application when a scroll command is entered. Use this value for a panel defined for a browsing application when the application controls the data to display.
- **N**-Does not pass control to the application when a scroll command is entered. Use this value for a data input panel when you want to avoid passing incomplete data to the application.

### Hardware insert

Specifies whether trailing blanks in a field are converted to nulls when the panel is transmitted. Valid values are:

- **Y**-Converts trailing blanks to nulls. This allows an application user to insert characters with the hardware insert key.
- **N**-Does not convert trailing blanks to nulls. An application user must delete characters such as trailing blanks before any characters can be inserted in the field with the hardware insert key.

### **Allow EOF**

Specifies the default value for Allow EOF in the Extended Field Definition, which controls whether you can use the Erase EOF key when a field is defined with a minimum or maximum range check. If you press the Erase EOF key when the cursor is positioned in a field, the input fill character is inserted from the cursor position to the end of the field. Valid values for this parameter are:

- **Y**-Allows the use of the Erase EOF key in the field, even if the input fill character violates the range specified for the field. However, if the input fill character violates the range specified for the field, a validation error results.
- **N**-Does not allow the use of the Erase EOF key, regardless of the value of the input fill character.

### **Help panel name ... Version ...**

Identifies a panel that can display at runtime to explain the panel. The help panel is identified by name and version. The application user displays this help panel by pressing the PF1 or PF13 function key or by entering the command HELP on the command line. The help panel does not become the current panel when it displays.

A help panel, like any panel, is defined using CA Ideal. However, the following additional rules apply to help panel definitions:

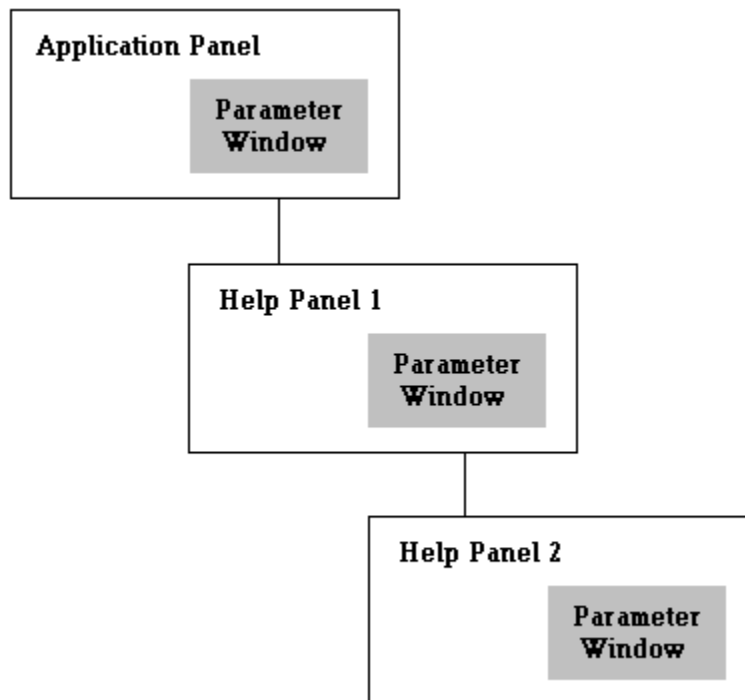
A help panel cannot contain a variably-repeating group (an asterisk (\*) in the Occ column of the Field Summary Table).

A help panel should contain only text fields. If an unprotected field is defined in a help panel and if data is entered in that field when the panel displays, the data is ignored.

You can define as many help panels as are necessary for an application panel. If more than one help panel is required, link the panels in a linear fashion; specify the second help panel as the help panel on the Parameter fill-in for the first help panel, specify the third help panel on the Parameter fill-in for the second help panel, and so on.



The following diagram shows the mode to link help panels:



When more than one help panel exists, mention the existence of an additional help panel in the text of each help panel, except the last panel.

For more information about creating help panels, see the *Working in the Environment Guide*.

**Prefix panel name ... Version ...**

**Suffix panel name ... Version ...**

Specifies the name and version number of a prefix or suffix panel displayed as part of the application panel.

Prefix and suffix panels contain information that is common to many application panels, such as company logos, common footnotes, copyright information, and so on. Prefix and suffix panels make it unnecessary to repeat information on every panel that has material in common. There is no limit to the number of panels that can share a common prefix or suffix panel.

**Note:** These are text only panels. The fields on a prefix or suffix panel are restricted to protected or skipped fields. The program or application user cannot update them.

Prefix and suffix panels display as part of the application panel during execution of the application and when the panel displays for testing or printing.

**PF1=HELP, PF3=CLARIFY**

Specifies whether the standard CA Ideal help key assignments apply for this panel. Valid values are:

**Y**-Standard help key assignments apply; PF1/PF13 provide help and PF3/PF15 display the CLARIFY screen if the Edit-rule error proc parameter is set to C (for CLARIFY).

**N**-The application program determines PF key assignments, which receives control when you press the PF1 or PF3 key.

When you specify Y, this also means that PF2/PF14 returns from the help display.

**PF7=SCR -, PF8=SCR +**

**PF10=SCR TOP, PF11=SCR BOT**

Specifies whether the scrolling functions for this panel are assigned to the standard CA Ideal scroll PF keys. Valid values are:

**Y** Standard scrolling assignments apply:

**PF7/19** SCROLL BACKWARD (SCR -)

**PF8/20** SCROLL FORWARD (SCR )

**PF10/22** SCROLL TOP

**PF11/23** SCROLL BOTTOM

**Z** Standard scrolling assignments for wide panels apply. This option is only available if the panel session options allow creation of wide panels.

**PF7/19** SCROLL BACKWARD (SCR -)

**PF8/20** SCROLL FORWARD (SCR )

**PF10/22** SCROLL LEFT

**PF11/23** SCROLL RIGHT

**N** The application program determines PF key assignments for the above keys, which receives control when you press one of these keys.

**Width** Specifies the width of the panel. This option is only available if the panel session options allow creation of wide panels. Valid values are numbers between 80 and 236, inclusive.

## Where to Go from Here

When you make the changes to the Panel Parameter Fill-in, you can either enter a command on the command line or press the appropriate PF key to continue with the next fill-in as shown in the following table:

<b>For this fill-in</b>	<b>Enter this command</b>	<b>Or press this key</b>
Layout	LAY	PF6
Input Rules	IRULES	
Output Rules	ORULES	
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5
Field Summary	SUM	PF9
Copy Dataview	COPY	

If you did not create a layout with at least one field, you cannot display the Input Rules, Output Rules, Field Summary table, or the Extended Field Definition fill-in.

## Designing the Panel Layout

When you are ready to lay out the fields on the panel, you can either enter the command LAYOUT (LAY) on the command line or press the PF6 key to display the layout screen.

As you can see in the following screen, the layout screen is blank, except for the CA Ideal command line, region separator, status line, and symbol definition line. This lets you place the fields wherever you want them on the screen.

The fields placed on the first line of the layout area display on the first line of the screen when an application is running.

```
=>

IDEAL: PANEL LAYOUT BLANKS   PNL ADRMPNL1 (001) TEST           SYS: DOC   FILL-IN

Start ~   End ;   New +   Rep @   Del *   Move >   Copy ¢   Dest !   Width 80

.....1.....2.....3.....4.....5.....6.....7.....
===== T O P=====

===== B O T T O M =====
```

## Positioning the Cursor

How you position the cursor to begin a field depends on what the fill mode is for that panel. The fill-mode is indicated on the CA Ideal status line as PANEL LAYOUT NULL or PANEL LAYOUT BLANKS.

- If the fill mode is blank-fill, all lines are padded with blanks to the width of the panel. In this case, you can position the cursor using either cursor movement keys or the spacebar. However, you cannot use the Insert key without first deleting a number of spaces corresponding to the number of characters you want to insert.
- If the fill mode is null-fill, the lines are not padded with blanks. In this case, you must use the spacebar to position the cursor; otherwise the space between fields remains null and the field moves back to the position immediately after the last field (or to the beginning of the line). In a null-filled panel, you can use the Insert key to add fields before an existing field without first deleting spaces.

In either mode, trailing blank or null lines are not retained with the stored layout.

---

## Setting the Fill Mode

The SET SITE PANEL LAYOUT command sets the default fill mode or you can change the fill mode on the PANEL SITE OPTIONS screen. You can override the default for the session, for the panel definition, or while editing the layout. To override the default:

### For the session

Enter the command SET PANEL LAYOUT or change the fill mode on the PANEL SESSION OPTIONS screen.

### For the panel

Include the BLANKFILL or NULLFILL option on the LAYOUT command when you access the Layout screen.

For example, if the fill mode is set to nullfill on the session options and you want to edit the layout of the current panel definition in blankfill mode, you can enter the command:

```
LAYOUT BLANKFILL
```

If you want to edit the next panel layout in blankfill mode, you can enter the command:

```
EDIT PNL nextname LAYOUT BLANKFILL
```

### During layout

Enter the command BLANKFILL or NULLFILL or press the PF18 key to toggle back and forth between modes.

## Creating Fields

When you position the cursor where you want a field to begin, use the field symbols defined on the Symbol Definition line to indicate where the field starts. If the field is a text field, such as a caption, you can enter the text to display on the panel. If the field is an unprotected field, such as a data entry field, you can enter spaces in null-fill mode to define the length of the field or, in blank-fill mode, you can enter spaces or use the cursor movement keys to define the length of the field. If the field is followed immediately by another field, you can end the field explicitly with the End symbol or implicitly by beginning the next field. If the field is not followed by another field, you should end the field explicitly with the End symbol.

## Field Symbols

The Symbol Definition line indicates which symbols are defined for the following functions:

### **Start**

This symbol indicates the start of an existing field. This symbol automatically replaces the New-field symbol after the field is added to the layout.

### **End**

Place this symbol at the position where you want the field to end. If no End symbol is used, the field implicitly ends at the next Start symbol or at the end of the panel line.

### **New**

Place this symbol at the position where you want a new field to start. The field is added to the layout when you press the Enter key.

### **Delete**

Type this symbol over the Start-field symbol to delete the field.

### **Repeat**

This symbol indicates that the field is a repeating field. CA Ideal supplies the Repeat symbol when you define a field as repeating on the Field Summary Table. You cannot enter the repeat symbol.

### **Move**

Type this symbol over the Start-field symbol to move a field to a new location. The Destination symbol must mark the target location.

### **Copy**

Type this symbol over the Start-field symbol to mark a field to copy to a new location. The Destination symbol must mark the target location.

### **Destination**

Place this symbol at the target location for a copied or moved field.

### **Width**

This value indicates the width of the panel in columns. The Width value is for display only. You cannot change it.

The default field symbols are set on the PANEL SESSION OPTIONS fill-in. You can change the field symbols on the Layout screen by typing the symbol over the existing symbol on the Symbol Definition line. Do not use any symbol that is already in use for another function or that you need to use in the panel text. Symbols on the Symbol Definition line are evaluated before the field definition area of the Layout screen.

**Note:** When you edit existing panels using CA Ideal r11, the default values for move, copy, and destination might conflict with existing symbol definitions and panel data. An error message displays. You must change the conflicting symbol on the Symbol Definition line.

## Rules for Panel Layout

You must follow the following rules during panel layout:

- Panels intended as prefixes, suffixes, and help panels only can contain text fields that are protected (P) or protected skip (S) and do not have field names.
- You can enter (set) values for input fields (default values) in the layout.
- The symbols that define the fields and the functions must be unique.
- A field must fit, in its entirety, on a single panel line.

## Panel Size

The size of the region where a panel is defined has no effect on the size of the region of the screen where the panel eventually displays during execution. A panel that exceeds the region size can be scrolled forward and backward, left and right.

A panel can be of fixed length with a specific number of lines; or be of variable length with the length of the panel dependent on the number of times a repeating group can display in the screen region.

A fixed-length panel can be any number of lines in length. However, if a panel is longer than the region size at execution time, only as much of the panel as fits the region displays. Therefore, if a panel is defined that is known to be larger than the target region size, set the option for PF781011 (PF7/19, PF8/20, PF10/22, and PF11/23) to Y or Z for scrolling the target panel at execution time. See the section titled Changing Panel Parameters in this chapter for more information.

A variable panel is one whose size expands to fill the region of the screen at execution time. The number of occurrences of the variably-occurring group of fields depends on the size of the target region.

## Wide Panel Considerations

The following considerations assist in the layout and testing of panels that exceed the width of the terminal presentation area.

- In null-fill mode, when adding fields outside the presentation area in a wide panel layout:
  1. Place the field (the new-field symbol followed by the field data) in the left-most part of the panel layout.
  2. Insert spaces to the left of the field until the field is flush right with the screen boundary.
  3. Scroll the panel to the right and insert spaces to the left of the field until it is in the desired position.

This technique also extends a field to column 80 in an 80-column panel.

- In blank-fill mode, when adding fields outside the presentation area in a wide panel layout, scroll the panel to the right and place the field directly at the location.
- The summary table for a panel layout only shows the fields that exist in the presentation area of the layout. Fields that do not display are accounted for in the numbering routine. You must scroll to the left or right to access these fields for summary display or fill-in.
- When you specify a field outside the presentation area in a FIELD n command, the scale line and field are shifted into view along with any fields that precede and follow the specified field on the line.
- The CLARIFY panel, which displays errors encountered when testing a panel facsimile, is the same width as the panel. It can be scrolled horizontally to view errors in fields that do not display. The scroll only affects the data portion of the panel.
- If required fields are defined in the off-screen portion of a wide panel, scrolling is required before the panel is transmitted. To ensure that the entire panel is viewed before being transmitted, place at least one required field in the far-right portion of the panel.



**Example**

The following example illustrates entering new fields using the plus sign (+) as the new-field symbol and the semicolon (;) as the end-field symbol (fields in the first line end implicitly at the beginning of the next field). In this example, the screen is null-filled. You must type a blank to retain a line that does not have a defined field. Blanks are also typed between fields to provide spacing.

```

=>
-----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ;  New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
ORDER#_____CUSTOMER #____ORDER DATE_____ ;
EMPLOYEE NAME_____ ;
ADDRESS_____ ;
QTY; ITEM NO; ITEM DESC; PRICE; AMOUNT;
____; _____; _____; _____; _____;

===== B O T T O M =====

```

The panel layout data is transmitted when you press the Enter key, when you press any PF key (except PF keys assigned for HELP or CLARIFY), or when a scroll, if specified, is performed.

After the data is transmitted:

- The panel layout redisplay with the new-field symbols changed to start-field symbols (shown as the not sign (-) in the following examples).
- Unused lines at the bottom of the panel layout are deleted.
- Each new field is added to the field summary table in the appropriate sequence.

```

=>
-----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST  SYS: DOC      FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
-ORDER#~____-CUSTOMER #~____-ORDER DATE~____;
-EMPLOYEE NAME~____;
-ADDRESS~____;
-QTY; -ITEM NO; -ITEM DESC;    -PRICE;  AMOUNT;
~____; ~____; ~____; ~____; ~____;
===== B O T T O M =====

```

## Defining Field Attributes

You can define field attributes on several different fill-ins; however, when an attribute is changed on one fill-in, it is automatically changed wherever it appears. You can define attributes on the following fill-ins for all fields on the layout:

- Input Rules Table
- Output Rules Table
- Field Summary Table

You can define attributes for one field at a time on the Extended Field Definition fill-in. The Extended Field Definition fill-in displays valid values for each attribute and uses full names rather than abbreviations to identify each attribute.

For more information about defining field attributes, see the section titled Defining and Changing Field Attributes in this chapter.

## Where to Go from Here

From the Layout screen, you can display any of the fill-ins listed in the following table:

For this fill-in	Enter this command	Or press this key
Field Summary	SUM	F9
Input Rules	IRULES	
Output Rules	ORULES	
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5 PF4

For this fill-in	Enter this command	Or press this key
Panel Parameter	PARM	
Copy Dataview	COPY	

## Defining and Changing Field Attributes

You can define field attributes using any of the following fill-ins:

### Field Summary Table

You can enter the field name, display attributes, type, length, number of integer and decimal places, occurrences, and comments, and indicate whether the field can contain null values. This is the only panel where you can define repeating fields or groups.

To display this fill-in, press the PF9 key or enter the command SUMMARY.

### Input Rules Table

You can enter the field name and specify the editing rules and validation that is performed on values entered in the field. The following editing rules can be specified:

- How an input error is highlighted.
- Whether the field requires an entry.
- The minimum and maximum values that you can enter.
- Whether you can use the Erase EOF key in the field.
- How the value is justified in the field.
- What character pads the value to the length of the field.
- Whether values are converted to upper case, or left in mixed case.
- The number of decimal places required.
- Whether a digit separator is allowed in the value.
- Whether a minus sign is allowed in the value.
- Whether a currency symbol is allowed in the value.
- Whether a check digit test is performed for a field entry.
- Whether the value must be the full length of the field.

To display this fill-in, enter the command IRULES.

### **Output Rules Table**

You can enter the field name and specify the rules used for displaying the field when the panel is transmitted. You can specify the following rules:

- The edit pattern that displays a value in the field.
- The character that fills the field when it is blank.
- The color of the displayed field.
- The type of highlighting that displays the field.

To display this fill-in, enter the command `ORULES`.

### **Extended Field Definition fill-in**

This fill-in is different, depending on the Type of the field. There are three versions of the Extended Field Definition fill-in: One for alphanumeric fields, one for numeric fields, and one for group fields. You can change defaults for the field that were set for the entire panel in the Panel Parameter fill-in and entering or changing values that were set in the Input Rules, Output Rules, or Field Summary Table.

To display this fill-in, enter the command `FIELD` with the field name or sequence number.

The Field Summary, Input Rules, and Output Rules tables (collectively known as the attribute definition tables) list all the fields in the panel layout, according to the sequence number assigned the field on the layout. Unlike the attribute definition tables, the Extended Field Definition fill-in shows values for only one field at a time.

If you change information on one fill-in that is duplicated on another fill-in, the information is automatically changed on the other fill-in. Because the attributes appear on more than one panel in the definition process, the attributes are not defined after each panel in this book. Instead, the attributes are defined in alphabetical order in the section titled *Attributes Used to Define Fields* later in this chapter.

## Defining Field Attributes Using Attribute Definition Tables

When you display any of the attribute definition tables, the table displays on the bottom part of the screen and a part of the layout displays above it, with the fields numbered sequentially across and down the layout screen. The fields are listed sequentially on the attribute definition table, with columns next to the field names for entering information about each field.

You can scroll the sequentially numbered fields of the layout and the attribute definition tables forward or backward by entering the SCROLL command or by pressing the PF key assigned to the scrolling function. (The default settings are PF7 to scroll backward and PF8 to scroll forward.) When there is no room to display a field in the layout, but the field's entry displays in the attribute definition table, you can enter the POSITION editing command with the field sequence number to position the field at the top of both the layout and the attribute definition table.

While an attribute definition table displays, you cannot change the layout. You can, however, change the attribute values displayed on the table to assign attributes to the fields defined on the layout panel. To change any of these attributes, use the Tab key to position the cursor on the attribute to change and type the correct value over the displayed value.

### Field Summary Table

The Field Summary Table enters basic information about each field, such as field name, screen attributes, field type and length, the number of integer and decimal places, number of occurrences, and comments. The Field Summary Table is the only place where you can define a repeating field. See the section titled Defining Repeating Fields and Groups in this chapter.

To display the Field Summary Table shown in the following illustration, enter the SUMMARY command or press the PF9 key.

```

=>
-----
IDEAL: FIELD SUMMARY TABLE  PNL ADRMPNL1 (001) TEST      SYS: DOC      FILL-IN
-----
      ORDER#-      CUSTOMER NUMBER-      ORDER DATE-      ;
      1      2      3      4      5      6
      EMPLOYEE NAME-      ;
      7      8
.....1.....2.....3.....4.....5.....6.....7.....
Fld Lv Field Name      Attr  T Len  In.dp Occ N Comments
-----
  1 2      PSL   X   6      N ORDER#
  2 2 ORDER-NO      UAL   X   6      N
  3 2      PSL   X  18      N CUSTOMER NUMBER
  4 2 CUST-NO      UAL   X   4      N
  5 2      PSL   X  10      N ORDER DATE
  6 2 ORDER-DATE      UAL   X   8      N
  7 2      PSL   X  13      N EMPLOYEE NAME
  8 2 EMP-NAME      UAL   X  35      N
  9 2      PSL   X   7      N ADDRESS
 10 2 ADDRESS      UAL   X  40      N
 11 2      PSL   X  48      N QTY  ITEM NO  ITEM
 12 2      G      *
 13 3 QTY      UAL   N   3      3      N
 14 3 ITEM-NO      UAL   X   7      N
 15 3 ITEM-DESC      UAL   X  13      N
 16 3 UNIT-PRICE      UAL   N   7      7      N
 17 3 AMOUNT      UAL   N   7      7      N
    
```

Where to Go from Here

If you displayed the Field Summary Table from the Layout screen, you can press PF6 to return to the Layout screen. You can display any of the following screens by either entering a command on the command line or pressing the appropriate function key as shown in the following illustration:

For this fill-in	Enter this command	Or press this key
Layout	LAY	PF6
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5 PF4
Input Rules	IRULES	
Output Rules	ORULES	
Panel Parameter	PARM	
Copy Dataview	COPY	

### Input Rules Table

You can define input validation rules for all the fields in the layout by using the Input Rules Table. To display the Input Rules Table, enter the command IRULES on the command line.

Below is the Input Rules Table for the sample panel.

```

->

----->>>
IDEAL: INPUT RULES TABLE      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
===== T O P =====
  - ORDER#-  - - - - - - - - - - CUSTOMER NUMBER-  - - - - - ORDER DATE-  - - - - - ;
  1      2      3      4      5      6
  - EMPLOYEE NAME-  - - - - - - - - - - - - - - - - - - - - - - - - - - - ;
  7      8
  - DEPT. CODE-  - - - - - ;
  9      10
.....1.....2.....3.....4.....5.....6.....7...
.....
Seq Field name      E R Minimum      Maximum      A J I C Mn D M A
C M      H Q value      value      E S F S DP S S C
D F
-----
- -
  1      * Y      L S U      N
  2 ORDER-NO      * Y      L S U      Y
  3      * Y      L S U      N
  4 CUST-NO      * Y      L S U      Y
  5      * Y      L S U      N
  6 ORDER-DATE      * Y      L S U      N
  7      * Y      L S U      N
  8 EMP-NAME      * Y      L S U      Y
  9      * Y      L S U      N
  10 DCODE      * Y      L S U      N
  11      * Y      L S U      N
  12 ADDRESS      * Y      L S U      Y
  13      * Y      L S U      N
  14
  15 QTY      * Y      R Z U      N N N      Y
  16 ITEM-NO      * Y      L S U      Y
  17 ITEM-DESC      * Y      L S U      Y
  18 UNIT-PRICE      * Y      R Z U      N N N      Y
  19 AMOUNT      * Y      R Z U      N N N      Y
  20      * Y      L S U      N
  21 PHONE-NO      * Y      L S U      N

```

## Where to Go from Here

You can display any of the following screens by either entering a command on the command line or pressing the appropriate function key as shown in the following table:

<b>For this fill-in</b>	<b>Enter this command</b>	<b>Or press this key</b>
Layout	LAY	PF6
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5 PF4
Output Rules	ORULES	
Field Summary	SUM	PF9
Panel Parameter	PARM	
Copy Dataview	COPY	

## Output Rules Table

You can define output editing rules for all the fields in the layout by using the Output Rules Table. To display the Output Rules Table, enter the command ORULES on the command line.



The following example shows the Output Rules Table for the sample panel.

```

=>

-----

IDEAL: OUTPUT RULES TABLE      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
=====      T O P      =====
  - ORDER#-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - ;
   1    2    3         4    5         6
  - EMPLOYEE NAME- _____;
   7        8
.....1.....2.....3.....4.....5.....6.....7.....
Seq Field name      Edit pattern                               0  E
                                                    F C H
-----
 1
 2 ORDER-NO
 3
 4 CUST-NO
 5
 6 ORDER-DATE
 7
 8 EMP-NAME
 9
10 DCODE
11
12 ADDRESS
13
14
15 QTY
16 ITEM-NO
17 ITEM-DESC
18 UNIT-PRICE
19 AMOUNT
20
21 PHONE-NO
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
                                                    U N N
  
```

Where to Go from Here

You can display any of the following screens by either entering a command on the command line or pressing the appropriate function key as shown in the following table:

For this fill-in	Enter this command	Or press this key
Layout	LAY	PF6
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5 PF4
Input Rules	IRULES	
Field Summary	SUM	PF9

For this fill-in	Enter this command	Or press this key
Panel Parameter	PARM	
Copy Dataview	COPY	

## Defining Attributes One Field at a Time

The Extended Field Definition fill-in defines detailed information for one field at a time. The information entered on the Extended Field Definition fill-in includes parameter overrides and validation rules.

You can define any attribute that can be defined on the Extended Field Definition fill-in on one of the attribute definition tables. The advantage to using the Extended Field Definition fill-in is that the attribute names are not abbreviated and the options you can enter are listed to the right of the field. Any modification you make in this fill-in is reflected automatically in any attribute definition table that includes that attribute.

To display the Extended Field Definition fill-in, you can use one of three commands shown in the following table:

Command	PF Key	Displays
FIELD <i>id</i>		Displays the Extended Field Definition for the field named <i>id</i> , or with the sequence number <i>id</i>
NEXT	PF5	When entered from the Extended Field Definition fill-in, displays the Extended Field Definition for the next field in sequence on the Layout panel. When entered from any other panel definition fill-in, displays the Extended Field Definition for the first field on the layout.
PREVIOUS	PF4	When entered from the Extended Field Definition fill-in, displays the Extended Field Definition for the previous field in sequence on the Layout panel. When entered from any other panel definition fill-in, displays the Extended Field Definition for the last field on the layout.

When an extended field definition displays, the line of the panel layout that contains the requested field displays in the top portion of the region, with a series of asterisks positioned directly below the field. The attributes defining the field display in a column down the remainder of the screen.

Depending on the type of the field, the Extended Field Definition fill-in shows attributes for an alphanumeric, numeric, or group field. The following example shows the extended attributes for an alphanumeric field. The example in the section titled For an Alphanumeric Field shows the extended attributes for a numeric field. The example in the section titled For a Group Field shows the attributes for a group field.

The field number and length display on the Extended Field Definition fill-in, but you cannot change them. An asterisk to the right of a value on this fill-in marks a value that was set on the Parameter fill-in.

Alphanumeric Field

```

=>
IDEAL: EXTENDED FIELD DEFN.  PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN

ORDER# _____ CUSTOMER # _____ ORDER DATE _____;
***** 2 _____ 3 _____ 4 _____ 5 _____ 6 _____;
.....1.....2.....3.....4.....5.....6.....7.....8
Field name
-----
Field number 1  Field length 6

Comments
Type           X      (X=alphanumeric, N=numeric, G=group)
Attribute      PSL    (U=unprot  H=highlight  A=327x alpha  C=cursor)
                (P=prot    I=invisible  N=327x numeric  )
                (S=skip    L=lowlight  E=ensure received  )
Color          B      (N=neutral, B=blue, R=red, P=pink, G=green,)
                (T=turquoise, Y=yellow, W=white/black  )
Ex highlighting N      (N=none, B=blink, R=reverse video, U=underscore)
Error handling * *    (N=none, *=fill *, H=highlight,)
                (B=both: H if illegal value & * if reqd is missing)
Input fill char S *    (S=spaces, L=lowval, Z=zeros, U=_, other=itself)
Output fill char U *   (S=spaces, L=lowval, U=_, other=itself)
Required       N *    (Y=yes, C=conditional, N=no)
Must-fill      N      (Y=yes, N=no)
Minimum value  _____ Maximum value _____  Allow EOF _
Justify input  L      (N=no, L=left, R=right, A=align by decimal)
Case          U *    (U=upper, M=mixed)
Hardware insert N     (Y=yes, N=no)
NULLable field N     (Y=yes, N=no)
Help Panel Name _____ Version _____

```

## Group Field

```
=>
-----
--
IDEAL: EXTENDED FIELD DEFN.  PNL ADRMPNL1 (001) PROD          SYS: DOC
DISPLAY

15  16  17  18  19
...1.....2.....3.....4.....5.....6.....7.....8
Field Name      Field number      14  Field length  87
Comments
Type            G            (X=alphanumeric, N=numeric, G=group)
Occurrences     *            (for groups only)
```

You can only create group fields on the Field Summary Table. However, you can change the number of occurrences of a group field using the Extended Field Definition fill-in for a group field.

Numeric Field

```

=>
IDEAL: EXTENDED FIELD DEFN.  PNL ADRMPNL1 (001) TEST          SYS: CCF  FILL-IN
*** 18      19      20      21
.....1.....2.....3.....4.....5.....6.....7.....
8
Field name      QTY
Comments
Type            N      (X=alphanumeric, N=numeric, G=group)
Attribute       UNL    (U=unprot H=highlight A=327x alpha C=cursor)
                (P=prot I=invisible N=327x numeric )
                (S=skip L=lowlight E=ensure received )
Color           P      (N=neutral, B=blue, R=red, P=pink, G=green,)
                (T=turquoise, Y=yellow, W=white/black )
Ex highlighting N      (N=none, B=blink, R=reverse video, U=underscore)
Error handling  * *    (N=none, *=fill *, H=highlight,)
                (B=both: H if illegal value & * if reqd is missing)
Edit pattern
Input fill char Z      (S=spaces, L=lowval, Z=zeros, U=_, other=itself)
Output fill char U *   (S=spaces, L=lowval, U=_, other=itself)
Required        N *   (Y=yes, C=conditional, N=no)
Must-fill       N      (Y=yes, N=no)
Minimum value   _____ Maximum value _____ Allow
Justify input   R      (N=no, L=left, R=right, A=align by decimal) EOF _
Case            U *   (U=upper, M=mixed)
Hardware insert N      (Y=yes, N=no)

NULLable field N      (Y=yes, N=no)

Help Panel Name _____ Version _____
In.dp           3      (integers.decimals)
Min req decimals (valid ONLY for TYPE=N and JUSTIFY=A)
Allow digit sep N Allow minus sign N Allow currency N (Y=yes, N=no)
Check digit     N      (N=none, T=MODULO 10, E=MODULO 11)

```

Where to Go from Here

To continue with the next fill-in, you can either enter a command on the command line or press the appropriate function key as shown in the following table:

For this fill-in	Enter this command	Or press this key
Layout	LAY	PF6
Field Summary	SUM	PF9
Input Rules	IRULES	
Output Rules	ORULES	
Panel Parameter	PARAM	
Copy Dataview	COPY	

## Attributes Used to Define Fields

The attributes that define panel fields in CA Ideal are described here in alphabetical order. The panels where each attribute appears are indicated on the line below the attribute name. If the attribute appears on the panel under an abbreviated name, the abbreviation is shown on the headline preceding the panel name, otherwise, an uppercase letter "X" appears prior to the panel name.

The field attribute of currency is as follows:

<b>Allow Currency</b>	<b>AC</b>	<b>X</b>
	Input Rules	Extended Field Definition (numeric)

Specifies whether you can enter a currency symbol in this field. Valid values are:

- **Y**-Indicates that you can enter a currency symbol, such as \$ or # in the field, although it is removed before the value is sent to the application.
- **N**-Indicates that you cannot enter a currency symbol in this field.

The following chart shows the combined effect of justification with Allow Digit Sep, Allow Minus Sign, and Allow Currency on values entered in the panel field. The field has a length of 8, with 4 integer and 2 decimal places. No edit pattern is specified. The decimal position assumed by the application is indicated by a v. The following table displays the effect of justification on numeric entries:

	<b>Allow Currency</b>	<b>Allow Digit Sep</b>	<b>Allow Minus Sign</b>
<b>Values entered as</b>	\$627_____	8,62700_	_-627__
<b>Justify Input R</b>	000006v27	008627v00	000006v27-
<b>Justify Input L</b>	627000v00	862700v00	0627000v00-
<b>Justify Input N</b>	062700v00	086270v00	006270v00-
<b>Justify Input A</b>	000627v00	862700v00	000627v00-

## Field Attributes

The field attribute of digital separator is as follows:

<b>Allow digit sep</b>	<b>DS</b>	<b>X</b>
	Input Rules	Extended Field Definition (numeric)

Specifies whether the digit separator (comma in the United States, period in Europe) is allowed in the field. Digit separators are removed from the value before the value is passed to the application. The Panel Session option Decimal Character determines the value used as the digit separator. If the period is set as the decimal character, the comma is used as the digit separator. If the comma is used as the decimal character, the period is used as the digit separator.

Valid values are as follows:

- **Y** Indicates that you can enter valid digit separators in the field.
- **N** Indicates that you cannot enter digit separators in the field.

For example, if you specify Y, an application user can enter the value 12345 as 12,345. If you specify N, the entry 12,345 results in a validation error.

**Note:** If the field entry is justified in a way that changes the value, the digit separator the user entered does not determine the value sent to the application. The justification determines the value sent to the application.

The field attribute of EOF is as follows:

<b>Allow EOF</b>	<b>AE</b>	<b>X</b>
	Input Rules	Extended Field Definition

Allows the application user the option of using the Erase EOF key when a minimum or maximum range check is specified for the field. If you press the Erase EOF key when the cursor is positioned in a field, the input fill character is inserted from the cursor position to the end of the field. If inserting the input fill character brings the value outside the range set by the maximum or minimum values, a validation error occurs unless Allow EOF was specified.

Valid values for this field are:

- **Y**-Lets you use the Erase EOF key in the field, even if the value with the inserted input fill character violates the range specified for the field. If the value with the input fill character is outside the range specified for the field, a validation error does not occur.
- **N**-You cannot use the Erase EOF key, regardless of the value of the input fill character.

The field attribute of minus sign is as follows:

<b>Allow minus sign</b>	<b>MS</b>	<b>X</b>
	Input Rules	Extended Field Definition (numeric)

Specifies whether you can enter the minus sign in the field. Valid values are:

- **Y**-You can enter a minus indicator (a minus sign, parenthesis, or the CR credit indicator) in the field. The minus indicator is removed before the value is sent to the application, but the value is sent as a negative number.

If you specify Y, you can enter values in any of the following forms to indicate a negative number: *-nn*, *nn-*, *(nn)*, *nnCR*, or *CRnn*.

- **N**-You cannot enter a minus indicator in this field.

Attribute	Attr	X
	Field Summary	Extended Field Definition

A combination of codes that set the display attributes of the field. You can use the following codes:

- **P**-Indicates a protected field. You cannot change or delete the value in a protected field. If you specify P alone or with A, the cursor does not skip the field during data entry. If you specify P with N or S, the cursor skips the field during data entry.
- **U**-Indicates an unprotected field. You can change or delete the value in an unprotected field during data entry.
- **A**-Indicates a field that accepts any character.
- **N**-Indicates a field that accepts only numeric characters (0-9, comma, decimal point, and minus sign). The comma, decimal point, and minus sign are only allowed in the field if the Input Rules Table includes the appropriate settings for the Allow Digit Sep and Allow Minus Sign attributes.
- **S**-Indicates that the cursor skips the field during data entry. Due to IBM 327x bit-mapping conventions, S and N are synonymous when you specify P.
- **H**-Indicates that the field displays with high intensity characters.
- **L**-Indicates that the field displays with regular low intensity characters.
- **I**-Indicates that the field is invisible and characters in the field do not display.
- **E**-Indicates that the field is treated as if it were entered on the current transaction, even if it was entered on a previous transaction or was a default value that the user did not enter at all.
- **C**-Indicates that this field contains the cursor when the panel is initially displayed.

The codes P and PA have the same effect. The codes S, PS, and PN have the same effect. The codes U, A, and UA have the same effect. The codes N and UN have the same effect.



A protected (P) field is skipped if :

- The field is defined as S, PS, or PN.
- The previous field is defined as PS.
- The previous field is defined as PA and has an End field symbol. The hardware recognizes the end field symbol as an indicator to skip to the next unprotected field.

If a protection attribute (U, P, S, A, or N) is not specified, the default value UA is used.

If a highlight attribute (H, L, or I) is not specified, the default value L is used.

If a program executes a SET ATTRIBUTE statement that does not specify both a protection and a highlight attribute, the missing attribute is set to the default, no matter how it was previously set.

Ordinarily, a panel field is defined with a beginning field character and an end of field character, for example, a plus (+) and a semicolon (;). The end of field character is recognized as the beginning of a new field with an attribute of AUTOSKIP. If the layout of your panel definition includes:

```
+ ; + ;
```

Even though it looks like two fields with null characters between and after them, CA Ideal interprets it as four fields. The semicolon (end of field) says “start a new dummy field” with an attribute of AUTOSKIP,. when the user fills the first field, skip to the next field.

To define a “stopper” field (a protected field that is not skipped), do not end the affected field with an end of field symbol. Code a one-byte field immediately following the affected field. Give this one-byte field an attribute of PAI.

The panel layout now looks like this:

```
+ + ; + ;
```

Overtyping the first field stops the cursor in the one-byte field and locks the terminal. To get to the next field, use the Tab key.

<b>Case</b>	<b>CS</b>	<b>X</b>
	Input Rules	Extended Field Definition

Indicates whether entries are converted to upper case or left unconverted when they pass to the application. If you do not enter a value for this attribute, the value specified on the Panel Parameter fill-in is used as the default. An asterisk (\*) next to this value on the Extended Field Definition fill-in indicates that the value was set on the Panel Parameter fill-in.

Valid values are as follows:

- **U**-Converts all entries for this field to uppercase. The values redisplay in upper case when you press the Enter key and are sent to the application in upper case.
- **M**-Entries for this field remain as entered by the user, in upper case, lower case, or mixed case.

<b>Check Digit</b>	<b>CD</b>	<b>X</b>
	Input Rules	Extended Field Definition (numeric)

Specifies whether a check-digit test is performed. Valid values are:

- **N**-The check-digit test is not performed.
- **T**-The field entry is tested for Modulo 10.
- **E**-The field entry is tested for Modulo 11.

For more information about check-digit tests, see Appendix B.

On the Input Rules Table, this field is located to the right of column 80. To display this field, enter the SCROLL RIGHT command.

Colon	C	X
	Output Rules	Extended Field Definition

The color of the characters displays in this field. You can select only one color for a field. The colors that you can select are:

- **B**-Blue
- **G**-Green
- **N**-Neutral
- **P**-Pink
- **R**-Red
- **T**-Turquoise
- **W**-White/Black
- **Y**-Yellow

N, neutral, is the default. Generally, you should define all text (caption) fields in neutral or cool colors, such as green, blue, or neutral. You can define data entry fields in brighter colors such as pink, turquoise, or yellow. Red is often used for error highlighting.

Comments	X	X
	Field Summary	Extended Field Definition

Explanatory comments that describe the field or its use. If you do not enter a value in this field, no default value is inserted.

On the Field Summary Table, this area contains the text that specifies the field on the panel layout until you enter a comment. Changes made in the comment area are not reflected in the text of the layout. You must make changes to the text displayed on the panel on the layout panel.

Edit Pattern	X	X
	Output Rules	Extended Field Definition (numeric)

For numeric fields, indicates the pattern or format in which the field value displays. The edit pattern is a sequence of any of the symbols shown in the first column of the following table. The maximum length of the edit pattern and of the generated display is 45 characters, allowing for 31 digits plus the edit characters.

If you omit the edit pattern, the field is right justified and no decimal point is shown. A negative number is shown in zoned decimal format (the sign is shown as the characters J-R in place of 1-9 in the rightmost position).

The following table shows the valid edit pattern symbols, some edit patterns built with those symbols, and the resulting display values.

**Note:** If the edit pattern includes the minus sign, debit symbol, credit symbol, or decimal point, you must set the Allow Minus Sign or Allow Digit Sep attribute to Y.

Symbols	Meaning	Data	Edit Pattern	Display on Screen
L	Left-justify before output	123	LZ(3),ZZ9	123
9	Unsuppressed numeric digit	123	999	123f
Z	Zero suppression	v12	ZZZ.99	.12
*	Asterisk replacement	1v23	**9.99	**1.23
,	Comma	002234v56	ZZZ,ZZZ.99	2,234.56
/	Slash	123083	99/99/99	12/30/83
B	Blank space	123083	99B99B99	12 30 83
0	zero	123	99900	12300
.	decimal point	030v99	ZZZ.99	30.99
-	Minus sign, fixed right	-23v45 23v45	9(2).99 -9(2).99	23.45
-	Minus sign, fixed left	-23v45	-9(2).99	-23.45
-	Minus sign, floating	-v23	--.99	-.23
+	Plus sign, fixed right	67v89	9(2).99	67.89
+	Plus sign, fixed left	67v89	9(2).99	67.89

Symbols	Meaning	Data	Edit Pattern	Display on Screen
+	Plus sign, floating	00v67	.99	.67
CR	Credit symbol, right	-25v00 25v00	9(2).99CR 9(2).99CR	25.00CR 25.00
DB	Debit symbol, right	-13v00 13v00	9(2).99DB 9(2).99DB	13.00DB 13.00
\$	Dollar sign, fixed	004v00	\$Z9.99	\$ 4.00
\$	Dollar sign, floating	001v23	\$\$\$9.99	\$1.23
<>	Encloses negative numbers in parentheses, fixed	-23v45	<9,999.99>	(0,023.45)
<>	Encloses negative numbers in parentheses, floating	-23v45	\$<<<<.99>	\$ (23.45)

**Note:** You can condense edit patterns by using multipliers. For example, you can specify the expanded pattern ZZZ,ZZZ.99 as Z(3),Z(3).9(2).

Lowercase v represents the position of an assumed decimal point.

For a complete explanation of the rules summarized in this table, see the *CODASYL COBOL Journal of Development*.

Error Handling	EH	X
	Input Rules	Extended Field Definition

Specifies how the field entry is highlighted when an error is detected during panel validation. If you do not specify a value for this attribute, the value specified in the Panel Parameter fill-in appears on the Extended Field Definition fill-in, with an asterisk next to the value to indicate that it is the default set in the Panel Parameter fill-in.

Valid values are:

- **N**-No highlighting is used for this field when an error is detected.
- **\***-Moves the error fill character to the field when an error is detected. If the Error fill character parameter was not defined, the field is filled with asterisks in low intensity.

- **H**-Displays the invalid entry in high intensity.
- **B**-Both high intensity and the error fill character highlight errors, depending on the type of error. If the field contains a value that does not conform to the edit rules specified on the field definition fill-ins, the field entry displays in high intensity. If a required field is missing, the error fill character moves to the field, which then displays in high intensity.

Extended Highlighting	EH	X
	Output Rules	Extended Field Definition

Indicates the type of extended highlighting used for the field. You can select only one of the following extended highlighting attributes for the field:

- **N**-No extended highlighting is used. This is the default.
- **B**-The field is highlighted by blinking.
- **R**-The field is highlighted in reverse video.
- **U**-The field is highlighted with underscores.

**Note:** To use the extended highlighting attributes, you must specify both EH (extended highlighting) and C (color) for the FEATURE parameter of the TCT.

Field Name	All attribute definition panels
------------	---------------------------------

The name that identifies the field to an application. The field name references data contained in the panel. If the field contains a caption rather than data the user entered, no name is required.

A group field name identifies the entire repeating group to an application. This name is a level-2 name. The fields that are part of the repeating group are level-3 fields. The field names that an application references most usually are the level-3 field names, which must be indexed to access the desired occurrence of the data.

The Field Name field is 1 to 32 characters long, can be composed of any alphanumeric character (letters, numerals, national characters, embedded underlines and hyphens), and must begin with a letter (A through z) or national character (\$, @, #). If the field name is longer than 18 characters, you must use the semicolon at the end of the field name on the first line to continue the field name on the next line. The semicolon is not considered part of the field name.

Field names, if specified, must be unique in the panel definition. If they are not unique in the application, you must qualify the name with the panel name when it is used in the application. To qualify the field name with the panel name, type the panel name, followed by a period and the field name, in the format panel.field.

---

<b>Hardware insert</b>	<b>X</b>
------------------------	----------

---

Extended Field Definition

---

Specifies whether trailing blanks in a field are converted to nulls when the panel is transmitted. Valid values are:

- **Y**-Converts trailing blanks to nulls. This allows an application user to insert characters with the hardware insert key.
- **N**-Trailing blanks are not converted to nulls. An application user must delete characters such as trailing blanks before any characters can be inserted in the field with the hardware insert key.

---

<b>Help Panel Name...Version</b>	<b>X</b>
----------------------------------	----------

---

Extended Field Definition

---

Identifies a panel that can display at runtime to explain the field. The help panel is identified by a one- to eight-character name and an explicit version number. The help panel must exist in the same system as the panel for which it is defined. The application user displays this help panel by pressing the PF1 or PF13 function key or by entering the command HELP on the command line. The help panel does not become the current panel when it displays.

A help panel, like any panel, is defined using CA Ideal. However, the following additional rules apply to help panel definitions:

- A help panel cannot contain a variably-repeating group (an asterisk (\*)) in the Occ column of the Field Summary Table).
- A help panel should contain only text fields. If an unprotected field is defined in a help panel and if data is entered in that field when the panel displays, the data is ignored.
- You can define as many help panels as are necessary for a field. If more than one help panel is required, link the panels in a linear fashion; specify the second help panel as the help panel on the Parameter fill-in for the first help panel, specify the third help panel on the Parameter fill-in for the second help panel, and so on.

When more than one help panel exists, mention the existence of an additional help panel in the text of each help panel but the last.

For more information about creating help panels, see the *Working in the Environment Guide*.

<b>Input Fill</b>	<b>IF</b>	<b>X</b>
	Input Rules	Extended Field Definition

The character that pads unused positions after a value is entered and justified in an alphanumeric field, which occurs after you press the Enter key during data entry. Valid values for this parameter are:

- **S**-Spaces are entered in unused positions of the entry field. This normally is specified for alphanumeric fields to prevent unused positions of the field or empty fields from being filled with unpredictable characters.
- **L**-Low values (the lowest value in the alphanumeric collating sequence) are entered in unused positions of the entry field. If you specify L, the application user can insert characters in this field using the Insert key.  
L is the default for this parameter.
- **Z**-Zeros are entered in unused positions of the entry field. This value is used automatically for numeric fields.
- **U**-Underscores are entered in unused positions of the entry field. The underscores are then sent to the application along with the rest of the value entered in the field.
- **Other**-The value specified here is entered in unused positions of the entry field. Numeric digits are not permitted for this value. An example of a value that you can use is the asterisk (\*). As with the underscore, the asterisk fill characters are sent to the application with the value entered in the field.

<b>Integers.Decimal Places</b>	<b>In.dp</b>	<b>In.dp</b>
	Field Summary	Extended Field Definition (numeric)

For numeric fields only, indicates the total number of digits that can be entered in the field, in the form integer.decimal-places, where:

- **integer**-Indicates the number of integer positions in the field.
- **decimal-places**-Indicates the number of decimal places in the field.

The maximum number of digits allowed (integer decimal-places) is 31. If you specified a field length of less than 45, the maximum number of digits allowed is the specified length less the number of edit characters required.



For example, if a field is defined with an edit pattern of \$9,999,999.99 and an In.dp value of 7.2, the length must be at least 13 to allow all the required characters to display:

$$\text{Integers} + \text{Decimal Places} + \text{Edit Characters} = \text{Length}$$

$$7 + 2 + 4 = 13$$

If the field is defined with a length of 12 and a total of 9 digits (7 integer digits and 2 decimal places), there is only room for 3 edit characters. If you try to define an edit pattern longer than the length of the field, an error message displays.

Justification	JS	Justify input
	Input Rules	Extended Field Definition

Establishes the justification for entries in the field before they are presented to the application procedure. When a justified value does not fill all positions of the field, the input fill character fills the remaining positions.

Valid values are:

- **N**-No justification is applied. The value is passed to the application procedure exactly as entered. You can specify no justification when a field is defined as Must Fill, since no padding is required when the value fills the field.
- **L**-Left justifies the value, that is, the value is moved to the beginning of the field. This is the default for alphanumeric fields.
- **R**-Right justifies the value, that is, the value is moved to the right until the last character of the value is in the last position of the field. This is the default for numeric fields, but could be used for an alphanumeric field that is expected to contain numbers.
- **A**-Aligns the value on the decimal symbol. You can specify this option only for numeric (Type N) fields. A decimal symbol is only allowed in a numeric field entry if you specify A for this attribute. If you enter a decimal symbol, it is removed before the value is aligned and is not sent to the application.

The following chart shows how data is passed to the application based on justification specifications. The input field length is eight characters with 4 integer and 2 decimal places. A v indicates the decimal position assumed by the application.

Value entered as	___62.7	627___	_62700_	___627
<b>Justify Input - R</b>	Error	000006v27	000006v27	000006v27
<b>Justify Input - L</b>	Error	627000v00	627000v00	627000v00
<b>Justify Input - N</b>	Error	627000v00	062700v00	000006v27

<b>Justify Input - A</b>	000062v70	000627v00	062700v00	000627v00
--------------------------	-----------	-----------	-----------	-----------

**Note:** The validation errors received for the value 62.7 occur because the decimal point is not a numeric digit and is not removed before alignment when Justify is set to R, L, or N.

<b>Length</b>	<b>Len</b>
Field Summary	

The length of the field as CA Ideal calculates it based on how the field was defined in the layout. The maximum alphanumeric field length is the length of the line. The maximum numeric field length is 45 characters, which allows for a number with a maximum of 31 digits. The remaining length specifies an edit pattern.

You can modify the length of a field if the new length:

- Does not overlay the next field.
- Does not extend the field beyond the panel width.

<b>Level</b>	<b>Lv</b>
Field Summary	

The level number of the field in the hierarchy of names in a panel. Valid values are:

- **2** The field is an elementary or group field. A group field is a named set of fields that repeats (a group field is considered a repeating group even if it occurs only once). There can be only one repeating group in a panel.
- **3** The field is part of a repeating group.

**Note:** You cannot change the field level while a copy or move operation is pending.

<b>Maximum Value</b>	<b>X</b>	<b>X</b>
	Input Rules	Extended Field Definition

A numeric or alphabetic value that specifies the highest acceptable value that the application user can enter for this field. This value can be up to 20 characters long.

<b>Minimum Decimal Places</b>	<b>Mn DP</b>	<b>Min req decimals</b>
	Input Rules	Extended Field Definition (numeric)

Specifies the number of digits that must be entered after the decimal point. If any value is specified for this attribute, the Type must be N and the Justify Input attribute must be set to A (align by decimal). The minimum number of required decimal places must be less than or equal to the number of decimal places specified in the In.dp attribute.

The chart below shows how data is passed to the application based on the Min Req Decimal specification. The input field length is eight characters with 4 integer and 2 decimal places. Justify input is set to A, align by decimal. The decimal position assumed by the application is indicated by a v.

Value entered as	____23	____23.4	____23.45	____23.456
<b>Min req decimals</b>				
0	000023v00	000023v40	00023v45	Error
1	Error	000023v40	00023v45	Error
2	Error	Error	00023v45	Error

Minimum Value	X	X
	Input Rules	Extended Field Definition

A numeric or alphabetic value that specifies the lowest acceptable value that can be entered for this field by the application user. This value can be up to 20 characters long.

Must Fill	MF	X
	Input Rules	Extended Field Definition

Specifies whether the field entry must fill every character of the field. Valid values are:

- **Y** If you enter data in the field, every position in the field must be filled.
- **N** An entry is not required to fill every position of the field.

On the Input Rules Table, this field is located to the right of column 80. To display this field, enter the SCROLL RIGHT command.

Nullable Field	N	X
	Field Summary	Extended Field Definition

Determines whether the field can accept or return the null value. Valid values are:

- **Y** The field can contain a null value. The field will be NULL if:
  - The application user does not enter any data in the field
  - Press the Erase EOF key to clear the field (the cursor must be positioned at the beginning of the field to clear the entire field)
  - A NULL value is moved to the field by the application

Panel fields with null values are treated as empty (\$EMPTY is true). Null values in panel fields display as questions marks (?)
- **N** The field cannot contain a null value. If the application user does not enter data or uses the Erase EOF key to clear the field, the field contains the input fill character.

Occurrences	Occ	X
	Input Rules	Extended Field Definition (group)

The number of times a repeating group field occurs. You can only change this entry on group field entries (Type G). Valid values are:

- **\***-During execution of the application, the number of occurrences equals the number of lines that remain in the actual region of the screen. This lets you take advantage of video monitors that display more than 24 lines. The asterisk (\*) is automatically inserted for newly created repeating groups.
- **1-99**-The number of occurrences of the field. If a number is specified, the panel has a fixed size and always displays with the same number of lines, regardless of the number of lines available on the video monitor.
- **D**-Enter D in the Occ field to delete the group field entry and change the fields in the group to level-2 elementary fields. You can only enter this value on the Field Summary Table.

**Note:** A group field is considered a repeating group, even if it occurs only one time. You cannot modify the value in this field while operations are pending in the panel layout.

Output Fill	OF	X
	Output Rules	Extended Field Definition

The character fills blank data entry fields when the panel displays (with a TRANSMIT or REFRESH statement). The output fill character is removed when the panel is transmitted to the application.

The output fill character also fills the field when the application moves low values into the field or when the application user presses the Erase EOF key to clear a field. (The function \$LOW moves low values into a field.)

Valid values for the output fill character are:

- **S**-Spaces display in this field when no value was moved to the field before the panel was transmitted. If spaces display as the output fill character, there is no indication that an input field is present until the cursor moves to the field.
- **L**-Low values display in this field when no value was moved into the field before the panel was transmitted. If you specified L, the application user can insert characters in this field using the Insert key.
- **U**-Underscores display in this field when no value was moved into the field before the panel was transmitted. Use this value when you want to indicate the field length to the application user. U is the default for this parameter.
- **Other**-The value specified here displays in this field when no value was entered before the panel is transmitted. An example of a value that you can use is the period (.).

Required	RQ	X
	Input Rules	Extended Field Definition

Specifies whether the application user must supply a value or can omit it. If you do not enter a value for this attribute, the value set on the Panel Parameter fill-in appears, with an asterisk next to the value on the Extended Field Definition fill-in to indicate that it was set on the Panel Parameter fill-in.

Valid values are:

- **Y**-The application user must supply a field value. If the application user does not supply a value, a validation error occurs.
- **C**-For a level-3 field (a field in a repeating group), a value is required only if you entered another level-3 field in the same occurrence of the repeating group.
- **N**-The application user can omit a field value without causing a validation error. If the application user does not supply a value, the field contains the input fill character. If an initial value was specified for the field on the Field Definition fill-in, the field contains the initial value.

Sequence Number	Fld	Seq	Seq
	Field Summary	Input Rules	Output Rules

A sequence number assigned by CA Ideal. These numbers appear in the first column of the Field Summary, Input Rules, and Output Rules Tables, and below the start field symbol for each corresponding field in the panel layout. You cannot change the value in the Seq field.

The Field Summary, Input Rules, and Output Rules Tables only show the fields displayed in the layout area of the screen. However, all the fields are numbered regardless of whether they are currently displayed.

Type	T	X
	Field Summary	Extended Field Definition

The field type. Valid values are:

- **X**-The field is alphanumeric and can contain any character.
- **N**-The field is numeric and can contain only numeric characters (0-9, comma, decimal point, and minus sign). The comma, decimal point, and minus sign are only allowed in the field if the Input Rules Table includes the appropriate settings for the Allow Digit Sep and Allow Minus Sign attributes.
- **G**-The field is a group field composed of more than one elementary field.

You can change an X field to an N field or an N field to an X field, but you cannot change a G field to either an X or an N field or change an X or an N field to a G field. See the section titled Defining Repeating Fields and Groups for information on defining G type fields.

If the Extended Field Definition fill-in contains settings that require a field to be a specific type, you cannot change those settings on the Field Summary Table. You must use the Extended Field Definition, Input Rules, or Output Rules Table to change both the type and the type-dependent settings. Field attributes affected by a change in the type include Edit Pattern, In.dp, Min Req Decimals, Allow Digit Sep, Allow Minus Sign, Allow Currency, and Check Digit.

## Changing the Panel Layout

You modify panels by changing either the physical arrangement of a layout or the characteristics of the data contained in the layout. These changes can include modification of the specification of a field, the addition or deletion of fields, and the relocation of fields. Modifications to a panel layout can also include changes to the summary table that contains information about the fields in the layout. The summary table is described in the section titled Field Summary Table earlier in this chapter. An explanation of how changes to the layout may require corresponding changes in the summary table is included in this section.

## Fill Mode

When adding new fields on an empty line and after the last field of a line, the fill mode in effect has an impact:

- Creating a new field on an empty line or after the last entry on the line.
  - A null-filled screen. Enter leading characters to position the fields, otherwise the fields shift left after you press the Enter key.  
To maintain space between fields, enter spaces in place of the null characters. To leave a blank line, enter at least one space on the line.
  - A blank-filled screen. Enter the fields exactly where they are to be positioned. No shifting occurs after you press the Enter key.
- Inserting fields before an existing field.
  - A null-filled screen. Insert the fields by pressing the INSERT key and then typing the data.
  - A blank-filled screen. Enter the fields exactly where they are to be positioned. Existing fields are not shifted. If you press the INSERT key, characters must be deleted before inserting the new fields.
- To switch between null-fill and blank-fill mode, press the PF18 key or enter the BLANKFILL or NULLFILL command.  
In either mode, trailing blank or null lines are not retained with the stored layout. The fill-mode only pertains to panel layout editing.

## Modifying Existing Fields on the Panel Layout

You can modify the specification of a field on the layout panel. To edit the layout of the current panel definition, press the PF6 (LAYOUT) key or type LAYOUT in the command line and press the Enter key. If the panel definition is not current, you must enter the command EDIT PNL *name*. The layout displays in edit mode.

You can make the following changes to existing fields directly on the layout panel:

- Field Length  
You can increase the length of a field by overtyping the end-of-field symbol with a space and typing additional spaces until the begin-field symbol of the next field is reached, the end of the presentation area, or a new end-of-field symbol is typed.  
You can decrease the length by pressing the delete character key. You might have to insert spaces to properly align the fields following the shortened field.



- Field Use: Input or Text

You can change a field from an input field to a text field by overtyping the blanks with text. The attribute for the field remains UAL. You can change this on the summary fill-in.

You can change a text field to an input field by overtyping the text with blanks. The attribute for the field remains PSL. You can change this on the summary fill-in.

- You can change the text of a text field by overtyping the text.

- You can relocate a field using the layout editing symbols.

Since you can copy a field to multiple locations, you must specify a field name on the summary fill-in for the new field. All other attributes, except location, are copied.

You can move a field to only one location; therefore, the name of the field is retained. All other attributes, except location, are copied.

### Example

The following example illustrates the use of the INSERT key to modify a field in the original layout. In this example, the decision was made to replace the number symbol (#) with the word NUMBER. On a null-filled screen, place the cursor over the number symbol (#) on line one and press the INSERT key. On a blank-filled screen, delete the number of blanks equal to the number of characters in the word NUMBER.

```

=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
-ORDER#~_____-CUSTOMER #~_____-ORDER DATE~_____;

-EMPLOYEE NAME~_____;
-ADDRESS~_____;
-QTY; -ITEM NO; -ITEM DESC;    -PRICE;  -AMOUNT;
~ ____; ~ ____; ~ ____; ~ ____; ~ ____;

===== B O T T O M =====

```

You can use terminal editing facilities to modify the number symbol to the word NUMBER as shown below.

```
=>
-----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST   SYS: DOC      FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
-ORDER NUMBER~_____-CUSTOMER NUMBER~_____-ORDER DATE~_____;
-EMPLOYEE NAME~_____;
-ADDRESS~_____;
-QTY; -ITEM NO; -ITEM DESC;      -PRICE;  -AMOUNT;
~____; ~____; ~____; ~____; ~____;
===== B O T T O M =====
```

### Adding Lines to a Layout

If additional lines are needed in a panel either during layout or editing, you can insert lines at the bottom or top of the layout or between existing lines with the INPUT command. When you specify INPUT, lines to fill the region are inserted below the line that contains the cursor when you press the Enter key. If the cursor is in the command area, lines are inserted at the top of the layout.

The inserted lines are null-filled or blank-filled based on the current layout fill specification. Lines inserted during null-fill are not retained. Lines inserted during blank-fill are retained.

For more information about the INPUT command, see the *Command Reference Guide*.

## At the Bottom

You can add lines to the bottom of the panel by pressing PF10(SCROLL TOP), backtab, and PF12 (INPUT) consecutively. You can also use the INPUT command. The following example illustrates the use of the INPUT editing command to add lines at the bottom of the panel.

First, type the INPUT command on the command line. Next, place the cursor on the bottom line of the layout and press the Enter key.

```

=>INPUT
=>
=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
-ORDER#~_____-CUSTOMER #~_____-ORDER DATE~_____;

-EMPLOYEE NAME~_____;
-ADDRESS~_____;

-QTY; -ITEM NO; -ITEM DESC;    -PRICE;  -AMOUNT;

~____; ~____; ~____; ~____; ~____;
===== B O T T O M =====

```

Entering the INPUT command with the cursor on the bottom line of the layout causes PDF to insert null-filled lines at the bottom of the layout to fill the region. In blank-fill mode, blank lines are inserted and retained for the entire editing session. The bottom line of the panel is retained with the display as a context line as shown in the following example:

```

=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
~____; ~____; ~____; ~____; ~____;

===== B O T T O M =====

```

In this example, six null-filled lines were entered at the bottom of the layout and retained by placing a space on each of them. On a seventh line a new field, PHONE NUMBER, was added to the layout. Any unused null-filled lines inserted by the INPUT command are deleted when you press the Enter key. Any blank lines at the bottom of the panel are deleted when the editing session is terminated. You can use the SCROLL TOP command to display the layout from the first line.

```
=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ^ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
-ORDER#-^-----^ -CUSTOMER #-^-----^ -ORDER DATE-^-----^ ;
-EMPLOYEE NAME-^-----^ ;
-ADDRESS-^-----^ ;
-QTY; -ITEM NO; -ITEM DESC;    -PRICE;  -AMOUNT;
^-----^ ; ^-----^ ; ^-----^ ; ^-----^ ; ^-----^ ;
-PHONE NUMBER-^-----^ ;
===== B O T T O M =====
```

### At the Top

To add lines to the top of a layout, use PF10 (SCROLL TOP) followed by PF12 (INPUT) or the INPUT command, leaving the cursor in the command area when you press Enter.

When using the INPUT command, the top line of the existing layout is retained on the display as a context line at the bottom of the panel and the remainder of the screen is filled with lines for data entry. The lines are null-filled or blank-filled based on which layout fill option is in effect.

### Between Existing Lines

To add lines between existing lines in the layout, press the PF12 (INPUT) key with the cursor at the location or specify the INPUT command, position the cursor to the location, and press Enter. The line containing the cursor redisplay as a context line and the remainder of the screen is provided to insert new lines. You can insert a specific number of lines by specifying INPUT WINDOW *n*, where *n* is the number of lines to insert.

When the mode is blank-fill, the inserted lines are retained regardless of whether data is typed on them.

When the mode is null-filled, you must type data on each line to retain. You must type at least one blank on lines inserted for spacing.

## Adding Fields to an Existing Panel Layout

Any time you add a new field to a layout, you must specify it with the new-field symbol. This is true both when a panel is first laid out and when you add fields during modification of a panel. When you modify a panel, you can add fields at any point in the layout. When the modifications are transmitted, the fields are renumbered to accommodate the new field or fields and the new-field symbol is changed to a start-field symbol.

The following example adds two new fields to the sample layout used throughout this chapter. The new-field symbol used in this example is the plus sign (+). The panel was opened for input by entering the INPUT command, as explained in the section titled *Between Existing Lines*.

```
=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
  -EMPLOYEE NAME~_____;
      DEPT CODE_____;
```

In this example, the SCROLL TOP command acts as if you pressed Enter before the scroll request. The added fields are incorporated into the layout and the new-field symbol is changed to the start-field symbol. Since null-fill is in effect, any unused inserted lines are deleted.

```
=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  -ORDER#~_____-CUSTOMER #~_____-ORDER DATE~_____;
  -EMPLOYEE NAME~_____;
  -DEPT CODE~_____;
  -ADDRESS~_____;
  -QTY; -ITEM NO; -ITEM DESC;      -PRICE;  -AMOUNT;
  ~____; ~____; ~____; ~____; ~____;
===== B O T T O M =====
```

## Deleting Lines and Fields from the Panel Layout

You can delete lines and fields from the panel layout.

### Deleting Lines

You can use the EOF key to delete an entire line, including any fields. To use the EOF key in this manner, the cursor must be in the first position of the line.

### Deleting Fields

To delete a field from a layout, overtype the start-field symbol with the delete-field symbol. When you use the delete-field symbol, the field is removed from the panel definition when you press the Enter key. All references to the field in the layout, the summary table, and the extended field definition are deleted. The remaining fields on the layout are then resequenced. In blank-fill mode, the deleted fields are replaced with blanks. In null-fill mode, the remaining fields on the line are shifted left. If there are no fields remaining on the line, the line is deleted.

The following examples illustrate using the delete-field symbol, an asterisk (\*) in this example, to delete fields from the layout.

```
=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ^  End ;  New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ^ ORDER# ^ _____ ^ CUSTOMER # ^ _____ ^ ORDER DATE ^ _____ ;
  ^ EMPLOYEE NAME ^ _____ ;
  *DEPT. CODE* _____ ;
  ^ ADDRESS ^ _____ ;
  ^ QTY ; ^ ITEM NO ; ^ ITEM DESC ;          ^ PRICE ; ^ AMOUNT ;
  ^ _____ ; ^ _____ ; ^ _____ ; ^ _____ ; ^ _____ ;

  ^ PHONE NUMBER ^ _____ ^ _____ ;
===== B O T T O M =====
```

As the following example shows, fields that were marked with the delete-field symbol were removed from the panel.

```

=>
-----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____;
  ~ EMPLOYEE NAME~ _____;
  ~ ADDRESS~ _____;
  ~ QTY; ~ ITEM NO; ~ ITEM DESC;      ~ PRICE; ~ AMOUNT;
  ~ ____; ~ _____; ~ _____; ~ _____; ~ _____;

  ~ PHONE NUMBER~ ____ ~ _____;
===== B O T T O M =====

```

## Using the EOF Key

You can use the EOF key to delete fields in a layout if the entire line in the layout is deleted. You must place the cursor at the beginning of the line. All fields on that line are deleted with the corresponding summary table and extended definition entries. In null-fill mode, you can only issue an EOF from the first column of a line.

You can use the EOF key to delete an entire line when you are editing a wide panel layout. If the non-displayed portion of the line contains only nulls or blanks, the line is deleted. However, if the non-displayed portion contains data, the data is left when you press the Enter key.

## Relocating Fields

You can relocate a field using the hardware editing facilities or by using the layout editing symbols to move and copy fields.

## By Adding and Deleting Data

You can relocate a field in the current order in relation to the other fields in the layout by inserting or deleting spaces on the line before the field. You can use the layout editing symbols to add new fields or delete existing fields before any field, relocating it. All changes are made automatically to the summary table.

## By Using Layout Symbols

You can use the move and copy layout editing symbols to relocate a field to a new position in relation to the other fields in the layout.

When you use the move-field symbol, the attributes for the field including the field name are maintained. The location, obviously, is the only value that changes. When you use the copy-field symbol, the attributes for the field except for the field name are duplicated at the destination. You must use the summary table or extended field definition to define a name for the destination field.

## Moving Fields

You can move a field from one location to another using the move-field symbol to mark the field to move and the destination-field symbol to mark the new location. This is clearly evident in an example. On the following blank-filled sample panel layout, the data entry field after the word ADDRESS is moved to the next line.

```
=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ^ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ^ ORDER# ^ _____ ^ CUSTOMER # ^ ____ ^ ORDER DATE ^ _____ ;
  ^ EMPLOYEE NAME ^ _____ ;
  ^ ADDRESS > _____ ;
  !
  ^ QTY ; ^ ITEM NO ; ^ ITEM DESC ; ^ PRICE ; ^ AMOUNT ;
  ^ ____ ; ^ _____ ; ^ _____ ; ^ _____ ; ^ _____ ;
===== B O T T O M =====
```

The move-field symbol is typed over the start-field symbol. A destination symbol is typed at the new location. In this example, that location is directly beneath the current location. Blanks replace the moved field at the original location.



The fill-mode in effect has a direct impact at the new location. On a blank-filled panel, as used in the preceding example, the destination symbol is typed where the field is to be placed. On a null-filled panel, you must insert blanks before the destination symbol or the moved field shifts to the left and is not retained as expected. For example, the resulting null-filled panel, without blanks inserted, appears as:

```

=>
-----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____ ;
~ EMPLOYEE NAME~ _____ ;
~ ADDRESS;
~ _____ ;
~ QTY; ~ ITEM NO; ~ ITEM DESC; ~ PRICE; ~ AMOUNT;
~ ____; ~ ____; ~ ____; ~ ____; ~ ____;
===== B O T T O M =====

```

### Copying Fields

The copy-field symbol maintains a field at the original location and inserts a copy of the field at one or more new locations. It is used much like the move-field symbol. For example, rather than move the data entry field after the word ADDRESS, a second field is inserted to allow for a two-line address as shown in the following example.

```

=>
-----
IDEAL: PANEL LAYOUT BLANK     PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____ ;
~ EMPLOYEE NAME~ _____ ;
~ ADDRESS¢_____ ;
~ _____ !
~ QTY; ~ ITEM NO; ~ ITEM DESC; ~ PRICE; ~ AMOUNT;
~ ____; ~ ____; ~ ____; ~ ____; ~ ____;
===== B O T T O M =====

```

The resulting layout is shown below. The copied field is placed exactly where the destination symbol was placed because blank-fill is in effect.

```

=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____ ;
  ~ EMPLOYEE NAME~ _____ ;
  ~ ADDRESS~ _____ ;
  ~ _____ ;
  ~ QTY; ~ ITEM NO; ~ ITEM DESC; ~ PRICE; ~ AMOUNT;
  ~ _____; ~ _____; ~ _____; ~ _____;
===== B O T T O M =====
    
```

### Relocating Multiple Fields

You can mark up to nine fields to copy or move in a single transaction. PDF keeps track of the fields by assigning a number from 1 to 9 to each marked field in the order in which they are encountered on the layout panel. The order is determined from left to right, top to bottom.

This value is called the edit ID. It is distinct from the field sequence number. The edit ID is a temporarily assigned value that is lost once the copy and move operations are completed. The edit ID is defined so that you can copy or more multiple fields and one field can be copied multiple times in one transaction.

When only one field is copied or moved, the edit ID is not needed with the destination-field symbol. When multiple fields are involved, the edit ID is required.

For example, to move the three fields on the bottom line and copy the field for data entry after the word ADDRESS. PDF regards the edit IDs of the fields as:

Edit ID	Field Content
1	_____
2	PHONE NUMBER
3	_____
4	_____

The destination for each of these fields must contain the edit ID to identify the data to receive at each location as shown in the following screen.

**Note:** The edit IDs are renumbered on every transaction.

```

=>
-----
DEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____;

  ~ EMPLOYEE NAME~ _____;
  !2          !3  !4

  ~ ADDRESS¢ _____;
  !1

  ~ QTY; ~ ITEM NO; ~ ITEM DESC;      ~ PRICE; ~ AMOUNT;
  ~ ___; ~ _____; ~ _____; ~ _____; ~ _____;

  >PHONE NUMBER>__>____;
===== B O T T O M =====

```

The resulting panel layout is:

```

=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____;

  ~ EMPLOYEE NAME~ _____;
  ~ PHONE NUMBER~ __~ ____;
  ~ ADDRESS~ _____;
  ~ _____;

  ~ QTY; ~ ITEM NO; ~ ITEM DESC;      ~ PRICE; ~ AMOUNT;
  ~ ___; ~ _____; ~ _____; ~ _____; ~ _____;

  ===== B O T T O M =====

```

You can specify a range of fields with the destination symbol. For example, in the previous sample layout, one destination could be specified as the receiving location for the moved fields. Fields having edit IDs 2, 3, and 4 could be defined as !2-4. The result is the same.

When a single field is copied, there must be room for the start-field symbol and the number of characters in the field. If room is available, the end-field symbol is added.

When a range of fields is specified, PDF checks for adjacent and non-adjacent fields.

- Adjacent fields have no intervening spaces (for example, - field1- field2- field3). Adjacent fields are considered related to one another; therefore, they are copied or moved together as designated at the original location, including end-field symbols as specified.
- Non-adjacent fields have intervening spaces (for example, - field1; - field2; - field3;). Non-adjacent fields are treated as unrelated individual fields. The start-field symbol and the characters that comprise the field are copied. The end-field symbol is not included.

Whether adjacent or non-adjacent, an end-field symbol is always provided after the last field if room is available.

Although you can move a field to only one location, you can copy a field to multiple locations by specifying the edit ID with more than one destination-field symbol. For example, on the following layout, the heading QTY is copied at three locations. The edit ID 1 is added for clarity, but is not required since the field being copied is the first marked field.

```

=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start -   End ;  New +  Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
- ORDER#- _____ - CUSTOMER #- _____ - ORDER DATE- _____; !1

- EMPLOYEE NAME- _____;
- ADDRESS- _____;

¢QTY; - ITEM NO; - ITEM DESC;      - PRICE;      - AMOUNT;      !1
- _____; - _____; - _____; - _____; - _____;

- PHONE NUMBER- ____- _____;

===== B O T T O M =====

```

The resulting panel layout is as follows:

```

=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____ ; ~ QTY;

  ~ EMPLOYEE NAME~ _____ ;

  ~ ADDRESS~ _____ ;

  ~ QTY; ~ ITEM NO; ~ ITEM DESC; ~ PRICE; ~ AMOUNT; ~ QTY;
  ~ ____; ~ _____; ~ _____; ~ _____; ~ _____;

~ PHONE NUMBER~ ____~ _____ ; ~ QTY;
===== B O T T O M =====

```

### Pending Operations

If all move and copy operations cannot be successfully processed, none of the operations are performed. These operations are pending. Any terminal editing and any new, repeat, or delete operations that the field symbols provide are performed. An unsuccessful copy or move operation results when a destination is not provided for every field marked for relocation, when a marked field is not provided for every destination edit ID, or when a field to copy or move does not fit at the new location.

A message displays noting the pending operations. Each operation is distinguished by the defined function symbol. On the following panel layout, a move operation was specified for the field following ADDRESS. It is assigned edit ID 1. A destination was not specified for the field. A destination, under the field EMPLOYEE NAME, is pending for a field to define as edit ID 2. As a result, the operations cannot be performed. The pending message displays and the symbols are retained as specified on the layout. The cursor is placed on the first incomplete operation specification (for example, copy-symbol or move-symbol lacking a destination or destination symbol lacking a copy or move designation).

```

=>
-----
IDEAL: PANEL LAYOUT BLANK      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
Pending: >(1) !(2)
Start ~   End ;   New + Rep @ Del *   Move >   Copy ¢   Dest !   Width 80
.....1.....2.....3.....4.....5.....6.....7.....8
===== T O P =====
  ~ ORDER#~ _____ ~ CUSTOMER #~ ____ ~ ORDER DATE~ _____;
  ~ EMPLOYEE NAME~ _____;
  !2
  ~ ADDRESS> _____;

  ~ QTY; ~ ITEM NO; ~ ITEM DESC;      ~ PRICE; ~ AMOUNT;
  ~ ____; ~ _____; ~ _____; ~ _____; ~ _____;

----- B O T T O M -----
  
```

The pending message lists all pending copy, move, and destination field specifications. The following sample pending message contains examples of the different ways you can designate the edit ID.

PENDING: >(1) ¢(2,3,9) !(4,5-8,9)

It indicates that the following are pending:

- A move of the field identified with edit ID 1.
- A copy of the fields identified with edit IDs 2, 3, and 9.
- A destination was marked for edit ID 4 and the range 5-8.
 

**Note:** The edit ID 5-8 indicates fields to place consecutively at the same location.
- A copy of the field identified with edit ID 9 is pending only because the other operations are pending.

The copy and move functions are always re-evaluated and the pending message revised each time the panel is transmitted. The primary commands, the new, repeat, and delete-field operation symbol, and the hardware editing functions are performed while pending operations exist. The pending message is removed once all of the move and copy operations can be successfully performed.

The pending state can be useful. For example, INPUT can insert lines in the layout to designate as the destination of a move or copy function. It is also useful when editing panels that are larger than the current display screen.

Pending functions are maintained for the current PDF session. You can access the other PDF prompt and fill-in panels and the pending functions are maintained and redisplayed upon return to the layout.

## Resetting

You can change or cancel any individual pending move or copy operation by overtyping the field symbol in the layout area. You can respecify individual destination locations by overtyping. The RESET primary command cancels all pending move and copy operations. That means all specified move and copy field symbols are replaced by the start-field symbol and all destination field symbols are removed from the layout. The pending message is removed. Any other editing is performed.

## Copying and Moving Repeating Groups

You can use copy and move operations on all or part of a repeating group. You can move an entire repeating group only as a range. Its status as a repeating group is maintained. You can copy an entire repeating group to a new location. The copied fields in the group are established as elementary fields at the new location.

You can copy or more individual fields in a repeating group. If the destination is in the repeating group, the fields are maintained as repeating fields. If the destination is outside of the repeating group, the fields become elementary non-repeating fields.

Any elementary field moved or copied into a repeating group is incorporated into the repeating group.

# Defining Repeating Fields and Groups

You can define repeating fields and groups as detailed in the next section.

## Rules for Repeating Groups

The following rules apply to the creation of repeating groups:

- Only one repeating group is allowed in a panel layout.
- A field must be complete on one line.
- All repeating fields in the group must be contiguous.
- To create a repeating field or group in a panel:
  1. Specify a field using the new-field symbol.
  2. Use the field summary table to make the field into a repeating group as described below.
- The fields in a repeating group copied from one location to another in the panel layout are duplicated as elementary fields at the receiving location. This is true even when the entire repeating group is copied.
- A repeating group copied from a dataview to the panel is reduced to elementary fields. The group name and repeat factor are not copied. For more information about copying from a dataview, see the section titled Copying Fields from a Dataview later in this chapter.
- You cannot define a repeating group on the summary table while copy and move operations are pending in the panel layout.

## Creating a Repeating Group

You can make a field a repeating group by changing values in the summary table:

- Change the level number to indicate that the field is a repeating field.
- Change the field name, if necessary.
- Enter a value in the Occur column to specify how many times the repeating group is to repeat.



In the following example, the level number of the field or fields to repeat was changed from a 2 to 3 for fields 14 through 18.

```

=>
-----
IDEAL: FIELD SUMMARY TABLE  PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
-----
                                T O P
-----
-ORDER#-      -CUSTOMER NUMBER-  -ORDER DATE-
 1      2      3      4      5      6      ;
-EMPLOYEE NAME-
 7      8
-----
.1.....2.....3.....4.....5.....6.....7.....
Seq Lv Field Name      Attr  T Len  In.dp Occ N Comments
-----
 1 2      ORDER#      PSL   X   6      ORDER#
 2 2 ORDER-NO      UAL   X   6      ORDER-NO
 3 2      CUSTOMER NUMBER  PSL   X  18      CUSTOMER NUMBER
 4 2 CUST-NO      UAL   X   4      CUST-NO
-----
 5 2      ORDER DATE    PSL   X  10      ORDER DATE
 6 2 ORDER- DATE  UAL   X   8      ORDER- DATE
 7 2      EMPLOYEE NAME  PSL   X  13      EMPLOYEE NAME
 8 2 EMP- NAME    UAL   X  35      EMP- NAME
 9 2      DEPT. CODE    PSL   X  10      DEPT. CODE
-----
10 2 DCODE      UAL   X   7      DCODE
11 2      ADDRESS      PSL   X   7      ADDRESS
12 2 ADDRESS    UAL   X  40      ADDRESS
13 2      QTY          PSL   X  48      QTY
14 3 QTY        UAL   N   3      3
15 3 ITEM- NO   UAL   X   7      ITEM- NO
16 3 ITEM- DESC UAL   X  13      ITEM- DESC
17 3 UNIT- PRICE UAL   N   7      7
18 3 AMOUNT    UAL   N   7      7
19 2      PHONE NUMBER  PSL   X  12      PHONE NUMBER
20 2 PHONE-NO   UAL   X  11      PHONE-NO
-----

```

When the Field Summary Table redisplay, notice that a level-2 entry was inserted in the summary table to define as the group name for the repeating group. As shown in the next example, you can give the new entry (field 14) a name that identifies the repeating group (the repeating group name).

The entry for the group name initially is defined with an asterisk (\*) in the Occur column. In the summary table shown in the following example, the fields are resequenced to include the group name.

Elementary fields might be on the same line as a repeating group. When a field is defined before the repeating group, it is on the line with the first occurrence of the repeating group. When the field is defined after the repeating group, it is on the line with the last occurrence of the repeating group.

```

=>
-----
IDEAL: FIELD SUMMARY TABLE  PNL ADRMPNL1 (001) TEST      SYS: DOC      FILL-IN
-----
                                T O P
-----
-ORDER#-  -CUSTOMER NUMBER-  -ORDER DATE-  ;
 1      2      3      4      5      6
-EMPLOYEE NAME-  ;
 7      8
.....1.....2.....3.....4.....5.....6.....7.....
Seq Lv Field Name          Attr  T Len  In.dp Occ N Comments
-----
 1 2          PSL      X   6          ORDER#
 2 2 ORDER-NO  UAL      X   6          ORDER-NO
 3 2          PSL      X  18          CUSTOMER NUMBER
 4 2 CUST-NO   UAL      X   4          CUST-NO
 5 2          PSL      X  10          ORDER DATE
 6 2 ORDER-DATE UAL      X   8          ORDER-DATE
 7 2          PSL      X  13          EMPLOYEE NAME
 8 2 EMP-NAME  UAL      X  35          EMP-NAME
 9 2          PSL      X  10          DEPT. CODE
10 2 DCODE    UAL      X   7          DCODE
11 2          PSL      X   7          ADDRESS
12 2 ADDRESS  UAL      X  40          ADDRESS
13 2          PSL      X  48          QTY  ITEM NO  ITEM

14 2 ORDER-INFO          G          *
15 3 QTY                UAL      N   3   3
16 3 ITEM-NO            UAL      X   7
17 3 ITEM-DESC          UAL      X  13
18 3 UNIT-PRICE         UAL      N   7   7
19 3 AMOUNT             UAL      N   7   7
20 2          PSL      X  12          PHONE NUMBER
21 2 PHONE-NO          UAL      X  11
-----

```

The asterisk in the Occ column indicates that the field or fields are to repeat until the available lines in the region (at execution time) are filled. You can replace the asterisk with a number that indicates the exact number of times for the field or fields to repeat. A panel with fields that repeat a specific number of times is called a fixed-size panel. If a fixed-size panel does not fit in the region, the message PARTIALLY SHOWN appears in the right side of the separator line. You can use scrolling commands to view the undisplayed portion of the panel.

The following example shows the layout of the panel after the summary table was edited to define repeating fields. As shown, the start-field symbol is changed to a repeat field symbol (an at sign (@) in this example) for each field that was defined as a repeating field.

```

=>
-----
--
--
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST      SYS: DOC      FILL-IN
Start ~ End ; New + Rep @ Del * Move > Copy ¢ Dest ! Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
-ORDER#-_____-CUSTOMER NUMBER-_____-ORDER DATE-_____;
-EMPLOYEE NAME-_____;
-DEPT. CODE-_____;
-ADDRESS-_____;
-QTY; -ITEM NO; -ITEM DESC; -PRICE; -AMOUNT;
@____; @____; @____; @____; @____;
-PHONE NUMBER-____-____;
===== B O T T O M =====

```

A repeating group can extend over more than one line; however, you can only include complete lines in the group and they must be contiguous. Individual fields must be complete on one line.

You can include fields in a repeating group on the summary table. The fields to include must be consecutive. To include the fields in a repeating group, change the level from 2 to 3.

### Changing to a NonRepeating Field

You can redefine a repeating group as a non-repeating group of fields by entering a D (for DELETE) in the Occurs column in the summary table on the line that contains the group name. This retains the fields, returns the level numbers of the fields formerly in the group to 2, and deletes the group name entry.

In the following example, a D is entered in the Occurs column for field 14.

```

=>
-----
IDEAL: FIELD SUMMARY TABLE  PNL ADRMPNL1 (001) PROD      SYS: DOC  DISPLAY
-----
                                T O P
-----
-ORDER#-  -CUSTOMER NUMBER-  -ORDER DATE-
 1      2      3              4      5      6
-EMPLOYEE NAME-
 7      8
-----
.....1.....2.....3.....4.....5.....6.....7.....
Seq Lv Field Name          Attr  T Len  In.dp Occ N Comments
-----
 1 2                      PSL   X   6                ORDER#
 2 2 ORDER-NO              UAL   X   6                ORDER-NO
 3 2                      PSL   X  18                CUSTOMER NUMBER
 4 2 CUST-NO               UAL   X   4                CUST-NO
 5 2                      PSL   X  10                ORDER DATE
 6 2 ORDER-DATE            UAL   X   8                ORDER-DATE
 7 2                      PSL   X  13                EMPLOYEE NAME
 8 2 EMP-NAME              UAL   X  35                EMP-NAME
 9 2                      PSL   X  10                DEPT. CODE
10 2 DCODE                 UAL   X   7                DCODE
11 2                      PSL   X   7                ADDRESS
12 2 ADDRESS               UAL   X  40                ADDRESS
13 2                      PSL   X  48                QTY  ITEM NO  ITEM
14 2 ORDER-INFO            G                D
15 3 QTY                   UAL   N   3   3
16 3 ITEM-NO              UAL   X   7
17 3 ITEM-DESC            UAL   X  13
18 3 UNIT-PRICE           UAL   N   7   7
19 3 AMOUNT               UAL   N   7   7
20 2                      PSL   X  12                PHONE NUMBER
21 2 PHONE-NO             UAL   X  11
-----

```

The resulting example shows the group name removed and the level 3 fields returned to level 2 for fields 14 through 18.

```

=>
-----
--
IDEAL: FIELD SUMMARY TABLE  PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
===== T O P =====
  -ORDER#-  -CUSTOMER NUMBER-  -ORDER DATE-
   1      2      3              4      5      6
  -EMPLOYEE NAME-
   7      8
.....1.....2.....3.....4.....5.....6.....7.....
Seq Lv Field Name          Attr  T Len  In.dp Occ N Comments
-----
  1 2                      PSL   X   6                ORDER#
  2 2 ORDER-NO              UAL   X   6                ORDER-NO
  3 2                      PSL   X  18                CUSTOMER NUMBER
  4 2 CUST-NO               UAL   X   4                CUST-NO
  5 2                      PSL   X  10                ORDER DATE
  6 2 ORDER-DATE           UAL   X   8                ORDER-DATE
  7 2                      PSL   X  13                EMPLOYEE NAME
  8 2 EMP-NAME              UAL   X  35                EMP-NAME
  9 2                      PSL   X  10                DEPT. CODE
 10 2 DCODE                 UAL   X   7                DCODE
 11 2                      PSL   X   7                ADDRESS
 12 2 ADDRESS               UAL   X  40                ADDRESS
 13 2                      PSL   X  48                QTY  ITEM NO  ITEM
 14 2 QTY                   UAL   N   3   3                QTY
 15 2 ITEM-NO               UAL   X   7                ITEM-NO
 16 2 ITEM-DESC             UAL   X  13                ITEM-DESC
 17 2 UNIT-PRICE           UAL   N   7   7                UNIT-PRICE
 18 2 AMOUNT                UAL   N   7   7                AMOUNT
 19 2                      PSL   X  12                PHONE NUMBER
 20 2 PHONE-NO             UAL   X  11                PHONE-NO
-----

```

### Deleting Fields in a Repeating Group

You can delete individual fields in a repeating group by overtyping the repeat-field symbol with the delete-field symbol on the panel layout.

You can use the EOF key to delete all fields on a line to the right of the cursor in the presentation area on the panel layout. This removes the fields entirely from the panel definition. If all fields in the repeating group are deleted, PDF deletes the group name entry in the summary table.

**Note:** Use EOF with caution on wide panels. EOF does not delete any fields that extend beyond the presentation area.

## Copying Fields from a Dataview

You can create a panel definition based on an existing dataview definition in one of two ways:

- You can specify the dataview on the CREATE command when creating the panel definition. For example, to create a panel named ADRMPNL3 based on the production version of a dataview named TESTDVW, enter the command as:

```
CREATE PANEL ADRMPNL3 FROM DVW TESTDVW PROD
```

For the complete syntax of the CREATE PANEL command, see the section titled CREATE PANEL Command earlier in this chapter.

- You can use the panel copy prompter, accessed through the COPY command, when editing an existing panel definition.

### Using the Panel Copy Prompter

The panel copy prompter adds fields to a panel layout during the editing process. You can copy dataview fields into a panel definition on the create process. For more information, see the section titled CREATE PANEL Command earlier in this chapter. The added fields are based on cataloged dataview field definitions, not the definitions in the dictionary facility. Once the field definitions are copied, there is no relationship between the dataview and the panel.

To display the panel copy prompter, enter the COPY command while creating or editing a panel definition. There are no operands for this form of the COPY command.

The copy prompter shown in the following example provides for one to three dataviews. That is, you can specify a maximum of three dataviews each time the prompter is used. You can specify one or more dataview fields from each dataview listed on the prompter. You can copy up to 32,000 bytes.

```
=>
-----
---
IDEAL: PANEL COPY          PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
-----
---
Entity                    Name                    Ver          Field Selection
-----
DwW  _____          _____          _____
DwW  _____          _____          _____
DwW  _____          _____          _____
Copy  direction:  _  (V-vertical, H-horizontal)
      label format:  _  (S-sideview, C-columnview, N-none)
      destination:  _  (T-top, B-bottom)
```

The prompter contains the following fields:

- **Entity**-The designation DVW specifying that a dataview is the source.
- **Name**-The name of the dataview from which fields are being copied.
- **Ver**-The version number of the dataview specified as PROD or Tnnn. If a version number is not specified, PROD is assumed.
- **Field Select**-The sequence number of one or more fields to copy. The sequence number is specified as:

Single field      5  
 List of fields    5, 7, 9 or 5 7 9  
 Range of fields   5-9

Dataview fields are identified by sequence number. You can specify any assigned sequence number, except for the first entry. The first entry is the dataview name and not a field.

- **Copy** The format of the headings and the placement of the fields for copied dataview fields specified as:
  - **direction**
    - V**-Vertical, each field is placed in the first position of a new line.
    - H**-Horizontal, fields are placed consecutively one after another on the line. Five spaces are inserted between fields for spacing. When a field and its header cannot fit on the line, they are shifted to the first position of the next line.
  - **label format**
    - S**-Sideview, labels immediately precede field.
    - C**-Colview, labels are used as column headings.
    - N**-No headings, no labels are included.
  - **destination**
    - T**-Top, before the existing first line in the panel layout.
    - B**-Bottom, after the existing last line in the panel layout.

The following is a sample CA Datacom/DB cataloged dataview. This dataview is used in the examples.

```

IDEAL: DISPLAY DATAVIEW          DWW EMPLOYEE (001) PROD      SYS: DOC  DISPLAY
Command Seq Level Field Name          T I Ch/Dg Occur K Value/Redef/Dep On
===== T O P =====
000001 CATALOGED 12/23/87 10:02      DATACOM/DB UPD=NO  DBID=001
000002 1 1      EMPLOYEE
000003 2 2      NUMBER              U Z    5      K
000004 3 2      NAME                X      24
000005 4 2      STREET-ADDRESS          X      24
000006 5 2      CITY-ADDRESS           X      15
000007 6 2      STATE-ADDRESS          X      2
000008 7 2      ZIP-CODE-LOC           X      5      K
000009 8 2      SOCIAL-SECURITY        N P    9
===== B O T T O M =====
    
```

The copy panel prompter is specified to use the sample dataview. The dataview name, EMPLOYEE, is specified under the Name heading. The version of the dataview, PROD, is specified under Ver. The sequence numbers of a range of fields, 3-7, are specified under the heading Field Select.

Labels are placed to the left of each data field. The name of the field is used as the label if a CA-DataDictionary heading attribute was not defined for the field. This is a text field. The resulting named panel field, a data field, assumes the attributes of the dataview field. For example, the dataview field NAME was specified as a 24-character alphanumeric field. A default initial value was specified as underscores, therefore the panel field contains underscores.

The fields are placed vertically, therefore, each header and field are to start in the first position of the line. The copied fields are placed before the first line of the existing panel definition as shown in the following example.

```

=>
-----
IDEAL: PANEL COPY          PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN
-----
Entity          Name          Ver      Field Selection
DWW  EMPLOYEE_____  PROD    3-7_____
DWW  _____
DWW  _____
Copy direction: V (V-vertical, H-horizontal)  label format: S (S-sideview,
C-columnview, N-none)
destination: T (T-top, B-bottom)
    
```



The resulting layout is shown below. To simplify the display, the existing panel layout fields are not shown.

```

=>
-----
--
--
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
Start  End ;  New + Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
NAME; _____;
STREET ADDRESS; _____;
CITY ADDRESS; _____;
STATE; _;
ZIP CODE; _____;

===== B O T T O M =====

```

## Placement of the Dataview Field in the Panel Definition

When copying dataview fields, whether using the CREATE command or the Panel Copy Prompter, default values are in effect for the field placement. Your site establishes these values. You can modify them to suit your session using the SET PANEL COPY command. The possible settings include:

- **HORIZONTAL**-Fields are placed horizontally.
- **VERTICAL**-Fields are placed vertically.
- **NONE**-Headings are not included with the data field.
- **COLVIEW**-Headings are presented above each data field in column format.
- **SIDEVIEW**-Headings are presented as labels on the left of each data field. The heading includes colon.
- **TOP**-Fields are placed before the first line of the panel.
- **BOTTOM**-Fields are placed after the last line of the panel.

For example, using SET PANEL COPY, you can establish a default placement to have the headings in column format, placed horizontally, and at the bottom of the panel by specifying:

```

SET PANEL COPY COLVIEW
SET PANEL COPY HORIZONTAL
SET PANEL COPY BOTTOM

```

Each operand is specified separately.

In the previous example, if the placement was horizontal and the headings sideview, the resulting layout positions each header and field consecutively on the line as long as they fit in their entirety. Any field and its header, if specified, that did not fit is placed in the first position of the next line. The first field is placed beginning in the first position on the line. Whenever possible, the second field is positioned to begin in column 30. If this is not possible, five blank spaces are inserted between the fields.

Assuming our sample panel is 80 characters wide, when sideview horizontal is specified, the layout is shown as follows:

```

=>
-----
----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN

  Start~ End ;  New + Rep @ Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
~NAME~;_____ ; ~STREET ADDRESS~;_____ ;
~CITY ADDRESS~;_____ ; ~STATE~;__ ; ~ZIP CODE~;____ ;

===== B O T T O M =====
  
```

When colview vertical is specified, the resulting layout is shown as follows:

```

=>
-----
----
IDEAL: PANEL LAYOUT NULL      PNL ADRMPNL1 (001) TEST      SYS: DOC  FILL-IN

  Start~ End ;  New + Rep @ Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
~NAME~;
~_____ ;
~STREET ADDRESS~;
~_____ ;
~CITY ADDRESS~;
~_____ ;
~STATE~;
~;
~ZIP CODE~;
~____ ;

===== B O T T O M =====
  
```

When colview horizontal is specified, the resulting layout is shown as follows:

```

=>
-----
--
--
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
  Start ~  End ;  New +  Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
~NAME;                               ~STREET ADDRESS;
-----;                               -----;
~CITY ADDRESS;                       ~STATE;                               ~ZIP CODE:
~_____;                               ~__ ;                               ~____;

===== B O T T O M =====

```

When no headings are included, NONE is specified. For vertical placement, the panel layout is shown as follows:

```

=>
-----
----
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
  Start ~  End ;  New +  Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
~_____;
~_____;
~_____;
~__ ;
~____;

===== B O T T O M =====

```

When no headers horizontal is specified, the resulting panel layout is shown as follows:

```
=>
-----
---
IDEAL: PANEL LAYOUT NULL          PNL ADRMPNL1 (001) TEST          SYS: DOC  FILL-IN
  Start~  End ;  New +  Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
~      ;~          ;~          ;~          ;~
~      ;~          ;          ;          ;          ;
===== B O T T O M =====
```

Once the dataview fields are copied into the panel definition, you can modify the field to suit the panel as if added directly on the panel layout. See the section titled Changing the Panel Layout in this chapter for information on modifying the panel layout.

## Rules for Copied Dataview Fields

You can only copy field definitions from cataloged dataviews into the panel definition. All fields and values that can be reasonably defined in the panel definition are copied. Once the dataview fields are copied into the panel definition, you can modify and relocate the fields to suit the panel layout.

When using the copy panel prompter, consider field names and field sizes. A warning is issued if a copied field has the same name as an existing panel field. An error occurs if you try to copy a field that is longer than the panel width. Any error aborts all fields being copied with the current transmission of the copy panel prompter.

The rules for copied dataview fields to be applied are as follows:

## Data Type

- Any alphanumeric field is copied as is. Since a fixed-length value is required for the panel, the maximum length of a variable length dataview field is assumed to be the panel field length. If the length of a dataview field exceeds the maximum width of a panel, the field is truncated to the maximum width less 1 (max-width - 1). This applies to all copied fields, whether they are copied on the CREATE command or with the copy prompter.
- Any numeric field is copied as an unsigned numeric field, regardless of the internal definition. Signed and unsigned numeric fields in the dataview are copied as numeric fields without regard to sign.

The number of integer and decimal places noted in the panel definition as IN.DP is copied directly from the dataview field definition. The size of the panel field is based on the total number of integer and decimal places plus one for a decimal point if so defined. The total for integer and decimal places cannot exceed 31.

- Any CA Ideal date field is copied as a numeric field. Once defined in the panel, you can change the data type to alphanumeric, depending on the date display format.
- Any condition-name is ignored.

For information on displaying or changing data types, see the section titled Defining and Changing Field Attributes earlier in this chapter.

## Groups

- Any field that is or can be reduced to an elementary field is copied. REDEF fields and group fields are copied as elementary fields, but fields with DEP ON are not copied.
- Nesting of OCCURS groups is ignored.

For more information about group fields, see the section, Defining Repeating Fields and Groups, earlier in this chapter.

## Field Attributes

- Initial values, if specified, are copied.
- Edit patterns, if specified, are copied. However, the size of the panel field is taken from the defined length of the dataview field and does not necessarily account for the length of the edit pattern. You might need to modify the panel field after it is copied from the dataview.
- The panel field name is the same as the dataview field name. The dataview qualification for panel field names is dropped since CA Ideal allows only one level of group qualification.
- The panel field label is generated from the cataloged dataview heading, if defined, or from the panel field name if a cataloged dataview heading is not defined.

For information on displaying or changing field attributes, see the section titled *Defining and Changing Field Attributes* earlier in this chapter.

# Chapter 3: Handling Errors

---

Errors can occur both during the development of a panel definition and when the panel displays and is used during an application run. Errors that occur during development of a panel definition are mostly problems like placing a field in the wrong column or row or defining the attributes of a field incorrectly. You can handle these errors by simply moving the field or changing the field attributes. However, this chapter describes how to handle more complex error situations during panel definition.

The next section, Error Handling at Runtime, describes the facilities and the techniques you can use during panel definition and program definition to handle runtime errors.

## Error Handling During Panel Definition

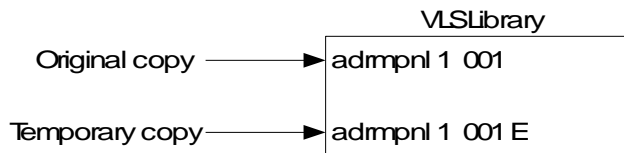
If an error occurs when editing a panel layout, an appropriate message displays on the message line, the line containing the error is highlighted, and the cursor is positioned to the field in error. No changes are applied to the panel; however, the pending line is updated. Possible errors include:

- Deleting a start-field symbol but not the entire field.
- Overtyping a valid field symbol with an invalid symbol.
- Attempting to add a field without preceding it by a new-field symbol.
- Attempting to insert a field by a copy or move operation that cannot fit at the destination.

Once the error is resolved, processing continues.

## Restoring Prior Edits: CHECKPOINT and ROLLBACK

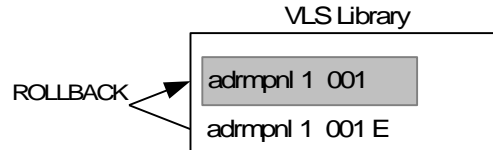
When you create or edit a panel definition, CA Ideal creates a temporary copy of the panel definition as shown in the following illustration.



The changes you make are written to the original copy of the panel definition. When you finish the editing session by entering a command that invokes another CA Ideal function, such as EDIT PANEL or DISPLAY PROGRAM, the temporary (E) copy is deleted.

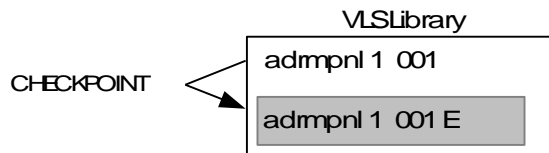
If you decide that you do not want to keep the changes you made so far during the editing session, you can restore the panel definition to its original condition by entering the ROLLBACK command

The original copy, which contains the changes you made during the editing session, is overwritten by the rollback (E) copy, as shown below. Any changes made since the beginning of the editing session are lost when the panel definition is refreshed from the rollback copy as shown in the following illustration.



If you are working on a panel definition and reach a point where you know that you want to keep the changes you made so far, but you are unsure of the next few changes you intend to make, you can update the rollback copy of the panel definition with the edited original copy by entering the CHECKPOINT command.

Since the CHECKPOINT command saves the current changes to the rollback (E) copy, as shown below, you can restore the panel definition to the checkpointed state if you decide not to keep any changes made after the CHECKPOINT was issued as shown in the following illustration.



If a system failure interrupts an editing session, both copies of the panel definition remain in the library. You must indicate which copy you want to work with after you enter the EDIT command for that panel. To continue working with the edited original copy, enter the CHECKPOINT command. To continue from the last checkpointed changes, enter the ROLLBACK command.

If you are not sure which changes were checkpointed, you can enter the command DISPLAY ROLLBACK to display the rollback copy of the panel definition. You then have to enter the EDIT command, followed by either CHECKPOINT or ROLLBACK, to continue editing the copy of the panel definition.



## Error Handling at Runtime

You can handle errors that occur at runtime in two ways:

- You can allow CA Ideal to validate data and guide the application user through the correction of any errors that are found.
- You can write the application program to validate panel entries and handle any errors that are found.

You can also provide help panels for both fields and panels that explain to the application user the requirements for the field or panel. Setting up the help panels for the application panel is described in the section titled Changing Panel Parameters and Defining and Changing Field Attributes in Chapter 3.

If you define help panels for your application, the application user can press the PF1/13 key or enter the HELP command to display the help panels. You must be sure to set up either the panel definition or the application to process the HELP command when the PF1/13 key is pressed.

## Using CA Ideal to Validate Entries

When you define field attributes, you can specify such validation criteria as follows:

- Minimum and maximum values
- Whether the field must be filled
- Whether an entry is required in the field
- Whether a digit separator, minus sign, or currency symbol can be entered
- How many digits are required after the decimal point

If the value entered in the application panel or the panel facsimile does not conform to the requirements specified in the field definition, CA Ideal finds the error and redisplay the panel with the fields in error highlighted (as specified in the Extended Field Definition fill-in for Error Handling) as shown in the following illustration.

If you specified C (for Clarify) in the Edit-rule Error Proc parameter of the Panel Parameter fill-in, the application user can enter the CLARIFY command or press the PF3/15 key to display a panel that explains the edit rule violations (the edit rules are specified in the Extended Field Definition fill-in). The Clarify panel is available from CA Ideal. You do not have to define the Clarify panel to use it in an application.

**Note:** You can also use the CLARIFY panel to display errors encountered when testing a panel facsimile.

```
=>
IDEAL:                                     DISPLAY

      C l a r i f y   E d i t   V i o l a t i o n s

      _____ a l k d n g _   l s k e n t _
                1*****      2*****

1 - 1-ICSCCEVM04E - Enter only digits
2 - 1-ICSCCEVM04E - Enter only digits

Type RETURN or press PF2 to return to main panel
```

The Clarify panel is the same width as the application panel. It lists all errors detected for all fields on the application panel. You can scroll the Clarify panel forward or backward, left or right, to view errors in fields that are not displayed. To return from the Clarify panel to the application panel, press the PF 2/14 (RETURN) key.

**Note:** If you set the Edit-rule Error Proc parameter to use the Clarify panel, the user must correct all edit errors before the panel can be sent to the application.

## Handling Errors in the Application Program

You can also handle violations of the edit rules (specified in the Extended Field Definition fill-in) in the application program. To use the program to handle errors, you must specify A for the Edit-rule Error Proc parameter in the Panel Parameter fill-in.

To determine whether an error occurred in the panel entries, use the function \$PANEL-ERROR. The \$PANEL-ERROR function has a value of TRUE if any field on the panel contains an error. The value remains TRUE until the user or the application program corrects all the errors on the panel.

To determine what type of error occurred for a specific field, use the \$PANEL-FIELD-ERROR function. This function returns a number that indicates the specific type of error that occurred:

Number	Error
0	No error.
1	A required field is missing.
2	Non-numeric data is detected in a numeric field.
3	Field content is outside the range specified as the minimum and maximum values allowed for the field.
4	An invalid check digit was specified.
5	The field entry does not have the required number of decimal places.
6	A field specified as must-fill was not filled.

### Example

The following section of program code shows how you can use \$PANEL-ERROR and \$PANEL-FIELD-ERROR to handle both edit-rule and application-rule errors.

```

LOOP
  SET USER-ERROR = FALSE
  TRANSMIT TRACKING REINPUT
  SELECT
    WHEN $PANEL-FIELD-ERROR(ID) = 1
      SET MESSAGE = "REQUIRED FIELD (ID) IS MISSING"
    WHEN $PANEL-FIELD-ERROR(ID) = 0 AND NAME = ' '
      FOR THE FIRST EMP
        WHERE EMP.ID = TRACKING.ID
        MOVE EMP.NAME TO TRACKING.NAME
      WHEN NONE
        SET MESSAGE = "ID DOES NOT EXIST ON MASTER FILE"
        SET USER-ERROR = TRUE
    ENDFOR
    WHEN $PANEL-FIELD-ERROR(LOG-IN) = 3
      SET MESSAGE = "LOG-IN TIME IS OUTSIDE OF RANGE"
    WHEN $PANEL-FIELD-ERROR(LOG-OUT) = 1
      SET LOG-OUT = '05:00'
  ENDSELECT
  WHILE $PANEL-ERROR(TRACKING) OR USER-ERROR
  ENDL00P

```

In this example, the TRACKING panel is analyzed for field entries that violate the panel definition's validation rules or the application's rules. The LOOP, which transmits the panel and analyzes field entries, continues until all input errors are corrected. The WHILE statement controls the exit from the loop by testing the value of the \$PANEL-ERROR function and the USER-ERROR flag field. (USER-ERROR is reinitialized before the TRANSMIT statement because it is reevaluated each time the panel is transmitted.)

If a value is not entered in the ID field, which is required, an error message moves to the MESSAGE field. The MESSAGE field must be defined on the panel definition. If the ID entered is not in error but the NAME field is blank, the name is retrieved from the employee master file. If there is no match for the ID on the employee master file, an error message is issued.

If the LOG-IN value is outside the minimum and maximum values specified for the field, an error message moves to the MESSAGE field. If there is no value supplied for the LOG-OUT field, a default value moves to the field. You could also specify the default value on the Field Definition fill-in.

# Chapter 4: Working with Panels

This section explains the following commands that you might need to use while defining panels:

- Listing the panels that were already defined in the system
- Displaying a panel
- Printing a panel
- Deleting a panel
- Duplicating a panel to a new name

## Displaying a List of Panels

To display a list of the panels defined in your system, enter the command:

```
DISPLAY INDEX PANEL
```

The list of panels displays as follows:

```
=>
IDEAL: DISPLAY INDEX          PNL                      SYS: CCF  DISPLAY
Command Name  Ver S Run-Sta Description          Created Updated
=====
000001 ADRMPNL1 001 T PRIVATE order entry panel          07/16/94 07/16/94
000002 ARMERR 001 T PRIVATE Common subpgm for errors    09/25/93 09/25/93
000003 ADRMD0X 001 T PRIVATE Order Detail                05/11/94 05/11/94
000004 MASKA 001 T PRIVATE Help Template #1           05/05/93 07/09/93
000005 MASKB 001 T PRIVATE Help Template #2           05/05/93 07/09/93
000006 MASKC 001 T PRIVATE Help Template #3           05/05/93 07/09/93
=====
                                B O T T O M=====
```

The information displayed about the panels includes:

### Command

Shows the sequence number of the panel in the list. You can enter line commands in this field to delete, display, edit, or print the panel named on that line. For more information about complete explanation of how to use line commands in the DISPLAY INDEX command field, see the description of the DISPLAY INDEX command in the *Command Reference Guide*.

### Name

Shows the name that identifies the panel to CA Ideal. This is the name that was entered in the Identification fill-in and is recorded in the dictionary.

**Description**

Displays the short description entered in the Identification fill-in.

**Created**

Identifies the creation date from the Identification fill-in.

**Updated**

Identifies the date when the panel was last modified. This date comes from the Identification fill-in.

## Displaying a Panel Definition

There are three ways to display a panel definition when you do not intend to make any changes to it:

1. Enter the following command on the command line.

```
DISPLAY PANEL panelname [VERSION version]
```

If you do not include a panel name, a prompter displays. Enter the panel name on the prompter to display the panel layout.

2. Select option 1, DISPLAY/EDIT, from the Panel Maintenance menu. This displays a prompter. You must specify not only the name of the panel, but also whether you want to display or edit the panel.
3. From the DISPLAY INDEX PANEL line command field, enter the line command DIS next to the name of the panel you want to display.

When you display a panel definition, the layout displays by default as shown in the following illustration. To display the Identification fill-in, the Field Definition fill-in, or the Field Summary Table immediately, you can include a keyword on the DISPLAY command entered from the command line. See the *Command Reference Guide* for information on the keywords for the DISPLAY PANEL command.

```
=>
IDEAL: PANEL LAYOUT NULLS      PNL ADRMPNL1 (001) TEST          SYS: CCF  DISPLAY
Start (  End ;  New +  Rep @  Del *  Move >  Copy ¢  Dest !  Width 80
.....1.....2.....3.....4.....5.....6.....7.....
===== T O P =====
(OORDER#(_____(CUSTOMER #(_____(ORDER DATE(_____;
(EMPLOYEE NAME(_____;
(ADDRESS(_____;
(QTY; (ITEM NO; (ITEM DESC;      (PRICE;      (AMOUNT;
@____; @____; @____; @____; @____;
===== B O T T O M =====
```

## Displaying Wide Panels

CA Ideal lets you display panels that are wider than the terminal's presentation area. When a wide panel is partially displayed, the following indication is given:

- When the separator line is a repeated character and the panel is truncated on the left, the left-most three characters of the separator line are <<<. When the panel is truncated on the right, the right-most three characters of the separator line are >>>.
- When the separator line on a panel is a scale line, the scale line on the panel extends to include the entire panel width and is scrolled horizontally with the panel. For example, a panel 132 columns wide has a scale line showing 132 positions, with 9, 10, 11, 12, and 13 representing columns 90, 100, 110, 120, and 130.

**Note:** The actual column position of a column represented by a two-digit number is under the right-most digit. For example, column 130 is represented on the scale line as column 13 and is actually the column under the 3 in the number 13.

## Where to Go from Here

You can display any of the definition fill-ins by entering the appropriate command on the command line or by pressing the appropriate function key as shown in the following illustration:

For this fill-in	Enter this command	Or press this key
Extended Field Definition	FIELD <i>id</i> NEXT PREVIOUS	PF5 PF4
Input Rules	IRULES	
Output Rules	ORULES	
Field Summary	SUM	PF9
Panel Parameter	PARM	
Identification	IDE	

To return to the panel layout from one of the definition fill-ins, press the PF6 (LAYOUT) key.

## Displaying a Panel Facsimile

The FACSIMILE command displays a facsimile of a specific panel.

When a facsimile displays, field delimiters, symbols, and any invisible fields are suppressed. Highlighted fields appear highlighted. Protected and skip fields are protected and skipped, respectively. Repeating fields are repeated the specified number of times (or until the region of the screen is filled, if the number of occurrences is specified as "\*" on the summary or detail fill-in). The cursor is placed in the field selected to receive the cursor.

## Testing a Facsimile

You can use a facsimile to test the input validation criteria for a panel if the panel definition is in EDIT mode.

The test process applies all the rules specified in the field editing and validation rules table. If you enter erroneous data in a field, the field is returned, highlighted with the error handling rule specified for the field. You can display an associated clarification panel for an explanation of the violation that corresponds to each highlighted field in the panel. Display the clarifying panel by entering the command CLARIFY. For more information, see the section Using CA Ideal to Validate Entries in this chapter. This test and clarify with a panel facsimile simulates the CLARIFY option available at run-time.

The following example shows the facsimile of the sample layout used the section on changing the panel layout.

```
=>
-----
ORDER# _____ CUSTOMER NUMBER ____ ORDER DATE _____
EMPLOYEE NAME _____
DEPT. CODE _____
ADDRESS _____

  QTY  ITEM NO  ITEM DESC      PRICE      AMOUNT
  ---  ---     ---           ---         ---
  ---  ---     ---           ---         ---
  .
  .
  ---  ---     ---           ---         ---
  ---  ---     ---           ---         ---
  ---  ---     ---           ---         ---

PHONE NUMBER _____
```



## Testing Fields on Wide Panels

When a wide panel displays, some fields can be only partially displayed. All partially displayed fields are protected, no matter how their display attributes are defined. To enter data into such a field, scroll left or right so that the entire field displays.

## Editing a Panel Definition

There are three ways to display a panel definition for editing:

1. Enter the following command on the command line.

```
EDIT PANEL panelname [VERSION version]
```

If you do not include a panel name, a prompter displays. Enter the panel name on the prompter to display the panel layout. If you do not want to edit the default version of the panel definition, you can enter the version on the EDIT PANEL command.

2. Select option 1, DISPLAY/EDIT, from the Panel Maintenance menu. This displays a prompter. You must specify not only the name of the panel, but also whether you want to display or edit the panel.
3. From the DISPLAY INDEX PANEL line command field, enter the line command EDI next to the name of the panel you want to edit.

When you edit a panel definition, the layout displays by default. To display the Identification fill-in, the Field Definition fill-in, or the Field Summary Table immediately, you can include a keyword on the EDIT command entered from the command line. See the *Command Reference Guide* for information on the keywords for the DISPLAY PANEL command.

You can enter the following commands when editing a panel definition:

### **IDENTIFICATION**

Displays the panel Identification fill-in for editing.

### **LAYOUT**

Displays the panel layout for editing. You can specify BLANK or NULL on the LAYOUT command to control the fill-mode to use when editing the panel layout. The default is null-fill when editing, blank-fill when creating a layout.

### **COPY**

Displays the Copy Dataview fill-in used for copying dataview fields into a panel definition.

### **SUMMARY**

Displays the Field Summary Table in the lower region of the screen and part of the panel layout in the top region of the screen.

**IRULES**

Displays the Input Rules Table in the lower region of the screen and part of the panel layout in the top region of the screen.

**ORULES**

Displays the Output Rules Table in the lower region of the screen and part of the panel layout in the top region of the screen.

**FIELD id**

Displays the Extended Field Definition fill-in for the specified field.

**FACSIMILE**

Displays the panel layout as it appears to the application user.

**NEXT**

Displays the Extended Field Definition fill-in for the next field in sequence on the layout panel. When entered from a fill-in other than the Extended Field Definition fill-in, displays the Extended Field Definition for the first field on the layout.

**PREVIOUS**

Displays the Extended Field Definition fill-in for the previous field in sequence on the layout panel. When entered from a fill-in other than the Extended Field Definition fill-in, displays the Extended Field Definition fill-in for the last field on the layout.

**INPUT**

Opens a blank line for input in the panel layout. You can only enter this command when you are in the layout panel.

**SCROLL**

Moves the window left, right, up, or down over the displayed component.

**POSITION**

Moves the line containing the specified field to the top of the layout region and the definition entry for that field to the top of the attribute definition table region.

**CHECKPOINT**

Writes any changes from the edited original copy of the panel definition to the rollback copy of the panel definition.

**ROLLBACK**

Replaces the edited original copy of the panel definition with the rollback copy of the panel definition. Any changes made before the ROLLBACK command was issued from either the beginning of the editing session or the last CHECKPOINT are lost.

**DISPLAY ROLLBACK**

Displays the rollback copy of the panel definition without overwriting the edited original copy of the panel definition.

See the section titled Restoring Before Edits: CHECKPOINT and ROLLBACK in this chapter for more information about the use of the CHECKPOINT and ROLLBACK commands for error handling during panel definition.

## Printing a Panel Definition

There are three ways to print a panel definition:

1. Enter the following command on the command line:

```
PRINT PANEL panelname [VERSION version]
```

If you enter an incomplete PRINT command, a prompter displays to help you finish the command.

2. Select option 3, PRINT, from the Panel Maintenance menu. This always displays the PRINT prompter since you cannot supply the panel name from the menu.
3. From the DISPLAY INDEX PANEL line command field, enter the line command PRI or PRINT next to the name of the panel you want to print. You can print multiple panels by entering the line command for each panel you want to print.

When you print a panel definition, each fill-in of the definition is printed on a separate page. If a fill-in was not changed, it is printed showing the default settings.

## Deleting a Panel Definition

There are three ways to delete a panel definition:

1. Enter the following command from the command line.

```
DELETE PANEL panelname VERSION version
```

If you do not include the panel name and version, a prompter displays. Enter the panel name on the prompter to delete the panel definition.

2. Select option 4, DELETE, from the Panel Maintenance menu. The prompter displays so you can enter the name of the panel you want to delete.
3. From the DISPLAY INDEX line command area, enter the command DEL next to the name of the panel you want to delete. You can delete multiple panels by entering the line command for each panel you want to delete.

The following screen shows a list of the panels in the \$ID system, with the delete command entered on the command line to delete the TRACK1 panel.

```
=> delete panel adrmpnl1 version 002

IDEAL: DISPLAY INDEX          PNL                      SYS: DOC  DISPLAY
Command Name  Ver S Run-Sta Description              Created Updated
=====
000001 ADRMPNL1 001 T PRIVATE Order Entry panel (1) 07/19/94 08/25/94
000002 ADRMPNL1 002 T PRIVATE Order Entry panel (1) 08/25/94 08/25/94
000003 ADRMPNL2 001 T PRIVATE ORDER ENTRY PANEL 07/19/94 07/19/94
000004 CANCLPNL 001 T PRIVATE Order Entry panel (1) 08/25/94 08/25/94
=====
                                B O T T O M
```

When the command is processed, the panel is deleted. The following screen shows the result of another DISPLAY INDEX PANEL command executed after the panel was deleted.

```
=>

IDEAL: DISPLAY INDEX          PNL                      SYS: DOC  DISPLAY
Command Name  Ver S Run-Sta Description              Created Updated
=====
000001 ADRMPNL1 001 T PRIVATE Order Entry panel (1) 07/19/94 08/25/94
000002 ADRMPNL2 001 T PRIVATE ORDER ENTRY PANEL 07/19/94 07/19/94
000003 CANCLPNL 001 T PRIVATE Order Entry panel (1) 08/25/94 08/25/94
=====
                                B O T T O M
```

The Delete command removes the identification of the panel stored in the dictionary and the panel object module in the VLS library.

## Duplicating a Panel Definition

There are two ways to duplicate a panel definition to a new name:

1. Enter the following command from the command line:

```
DUPLICATE PANEL name [VERSION version] [NEWNAME newname]
```

When you enter any information on the Identification fill-in, you can press the PF6 (LAYOUT) key to display the Layout screen in edit mode. You can make any changes using any of the function keys, just as you would when creating a panel.

2. Select option 5, DUPLICATE, from the Panel Maintenance menu. The prompter displays as follows so you can complete the command.

```
=>
IDEAL: DUPLICATE          PNL                      SYS: CCF  PROMPTER
DUPLICATE PNL _____ VERSION 001 SYSTEM ____ TO _____
          (1)   (2)                (3)   (4)   (5)   (6)
-----
(1) MEM = Member   RPT = Report   (2) Name           (3) nnn=Ver #
    PGM = Program  SYS = System                    LAST
    PLA = Plan     USR = User                       PROD
    PNL = Panel    DW = Sequential Dataview
(4) Original System id           (5)-(6) "NEXT" "VERSION"
    (Default current)           or
                                "NEWNAME" name
                                (For DW, PGM, PLA, PNL, MEM, RPT)
```

When you duplicate a panel to the next version, the entire definition is duplicated and the layout of the new version displays for editing.

When you enter the DUPLICATE command with the NEWNAME option, a new panel definition is created with the same parameters, layout, and attributes as the original panel. The Identification fill-in displayed (as shown below) so you can enter the identification information to record in the dictionary.

```
=>
IDEAL: PNL IDENTIFICATION    PNL ORDRNTRY (001) TEST          SYS: CCF  FILL-IN
Panel name ORDRNTRY
Created          07/16/94                By NOVAK
Last Modified   07/16/94 at 16:10        By NOVAK
Run Status PRIVATE
Short description order entry panel
Description:
    order entry panel /order entry application
-----
-----
```

## Changing the Status of a Panel Definition

When you create a panel definition, the definition is in test status. The MARK STATUS command changes the status of a panel definition to production or history status. If you enter an incomplete MARK STATUS command or select option 5 from the Panel Maintenance Menu, a prompt displays. The prompt indicates the options that are required to complete the command, and explains the possible values that you can enter for each option. When you complete the prompt and press the Enter key, the command is passed to CA Ideal for processing.

A definition is marked from test to production status when the decision was made that no further testing is necessary and the definition is ready to use in a production application. Production versions are subject to the following rules:

- There can be only one production version of a panel definition at a time, and that version cannot be edited or deleted.
- A production version of a panel definition that is a resource of a production program cannot be marked to history without first being replaced with a new production version.

- A production version of a panel definition that is not a resource of a production program can be marked directly to history.
- Marking another test version of a panel definition to production automatically causes the existing production version to be retired to history status. Production programs that have been compiled with the old (history) panel version must be duplicated to the next version, and the resource section must be updated with the new production panel version. Lastly, the production program must be recompiled and marked to production status.

**Note:** When moving a new production version of a panel to a production region, it is necessary to migrate any program that contains the panel in its resource section, since a production program will only transmit the panel with which it was compiled.





## Appendix A: Field Attributes by Panel

Attribute	Summary	Input Rules	Output Rules	Extended Field
Allow Currency		AC		Allow currency (numeric)
Allow EOF		AE		X
Attribute	Attr			X
Case		CS		X
Check Digit		CD		X (numeric)
Color			C	X
Comments	X			X
Digit Separator		DS		Allow digit sep (numeric)
Edit Pattern			X	X (numeric)
Error Handling		EH		X
Extended Highlighting			EH	X
Field Name	X	X	X	X
Hardware Insert				X
Help Panel Name				X
Input Fill		IF		X
Integers.Decimal Places	In.dp			In.dp (numeric)
Justification		JS		Justify input
Length	Len			Field Length
Level	Lv			
Maximum Value		X		X
Minimum Decimal Places		Mn DP		Min req decimals (numeric)
Minimum Value		X		X
Minus Sign		MS		Allow minus sign (numeric)
Must Fill		MF		X
Nullable Field	N			X

<b>Attribute</b>	<b>Summary</b>	<b>Input Rules</b>	<b>Output Rules</b>	<b>Extended Field</b>
Occurrences	Occ			X (group)
Output Fill			OF	X
Required		RQ		X
Sequence Number	Seq	Seq	Seq	Field Number
Type	T			X

# Appendix B: Check-Digit Tests

---

Check-digit tests determine whether a number (usually an identification number) entered in a panel field is a valid entry. A check-digit is an extra digit added to the end of a number used for comparison with the remainder of the number after it is processed through an algorithm. Two different check-digit tests are available under CA Ideal to determine if a panel entry is valid: Modulo 10 and Modulo 11.

CA Ideal does not generate check-digits. You must create them as follows: Before a check-digit test can be used on a number, you must first apply the algorithm to the number to generate the check-digit. The check-digit is then appended to the number and is tested during processing.

## CheckDigit Calculation

The following two sections demonstrate the algorithms CA Ideal uses in calculating the Modulo-10 and Modulo-11 check-digits.

### Modulo10 CheckDigit Calculation

The field entered is 735183. The last digit (3) is the check-digit. The actual data value is 73518. The units digit and each alternating digit to the left of the units digit are treated as one number and are referred to as the odd-digits number. In this example, the odd-digits number is 758.

1. CA Ideal multiplies the odd-digits number by 2 ( $758 \times 2 = 1516$ ).
2. CA Ideal adds together the individual digits in the product with the even digits (3 and 1) in the original data value ( $1\ 5\ 1\ 6\ 3\ 1 = 17$ ).
3. CA Ideal subtracts the sum (17) from the next higher number ending in zero (20). In the example, this step is  $20 - 17 = 3$ .

Thus, the complete check-digit field is 735183.

## Modulo11 CheckDigit Calculation

The field entered is 9434578423. The last digit (3) is the check-digit. The actual data value is 943457842.

The following occurs:

1. CA Ideal assigns Modulo-11 weights. Modulo-11 weights are the consecutive digits 2 through 7. They are assigned beginning on the right side of the data value.
2. After weight 7, the series begins again with 2 until each digit of the data value is assigned a weight, as shown below:

Data Value	9	4	3	4	5	7	8	4	2
Modulo-11 Weights	4	3	2	7	6	5	4	3	2
Product	36	12	6	28	30	35	32	12	4

3. CA Ideal assigns each digit in the data value a Modulo-11 weight.
4. CA Ideal multiplies each digit by its assigned weight.
5. CA Ideal adds the products together ( $36 + 12 + 6 + 28 + 30 + 35 + 32 + 12 + 4 = 195$ ).
6. CA Ideal divides the resulting sum by 11.  $195$  divided by  $11 = 17$  with a remainder of  $8$ .
7. CA Ideal subtracts the remainder from 11 ( $11 - 8 = 3$ ).

Thus, the complete Modulo-11 check-digit field is 9434578423.

If the sum of the products is evenly divisible by 11, the check-digit is 0. If the remainder is 1, the check-digit is 10. In this case, the data value is not allowable and must be eliminated from the Modulo-11 check-digit system.

## Using the Modulo10 and Modulo11 Checkdigit Tests

The algorithm used for the CA Ideal modulo 10 and modulo 11 check-digit test uses the following logic:

The number to check is assumed to contain the check-digit in the low order (right-most) position. The calculation begins with the second digit from the right and proceeds through the high order (left-most) position. The loop used is:

```
SET SUM = 0
SET MULTIPLIER = 2
position on first digit
LOOP WHILE digits remain
  SET PRODUCT = MULTIPLIER * DIGIT
  SET SUM = SUM + PRODUCT
  IF MULTIPLIER LT 7
    SET MULTIPLIER = MULTIPLIER + 1
  ELSE
    SET MULTIPLIER = 2
  ENDIF
  position on next digit
ENDLOOP
SET REMAINDER = $REMAINDER(SUM,DIV=11)
IF REMAINDER NOT = 0
  SET REMAINDER = 11 - REMAINDER
ENDIF
SELECT FIRST ACTION
  WHEN REMAINDER EQ 10
    not eligible for Modulo-11 check-digit test
  WHEN CHECK-DIGIT NOT = REMAINDER
    panel field has a check-digit error
  WHEN OTHER
    check-digit is correct
ENDSEL
```