

FUJITSU Software

PowerFORM Runtime V11.0

Reference

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Preface

PowerFORM Runtime (PowerFORM RTS) is a service program that supports the printing of forms designed using the PowerFORM tool.

Audience

The PowerFORM RTS Reference describes the functions and usage of PowerFORM RTS. This document is intended for developers who makes programs to use form descriptors.

How this Manual is Organized

This manual consists of the following chapters and appendixes:

Chapter 1 Overview

Explains the basics of PowerFORM RTS.

Chapter 2 Operating PowerFORM RTS

Explains the development and execution of application programs.

Chapter 3 Basic Functions

Explains basic printing function.

Chapter 4 Extended Functions

Explains Extended printing function.

Chapter 5 Printer Information File

Explains the printer information file.

Chapter 6 Program Interfaces

Explains the program interfaces provided by PowerFORM RTS.

Appendix A Troubleshooting and Error Recovery

Explains PowerFORM RTS errors and operator responses for error recovery.

Appendix B Special Processing

Explains the special processing of PowerFORM RTS.

Appendix C Printer Information File

Explains the key word of the printer information file.

Appendix D Trace Log

Explains output log function.

Appendix E Error Messages

Explains the error message that PowerFORM RTS outputs.

Related manuals

- While reading this handbook, you may also wish to use the following manuals:
 - Various manuals and documents for Red Hat Linux
 - Various manuals for Microsoft® Windows ® operating system
- To create form descriptors, use the following manual:
 - PowerFORM Getting Started
- To create application programs in COBOL, use the following manual:
 - NetCOBOL User's Guide

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Chapter 1 Overview

This chapter explains the basics of PowerFORM RTS.

1.1 Outline of PowerFORM RTS Functions

1.1.1 What is PowerFORM RTS?

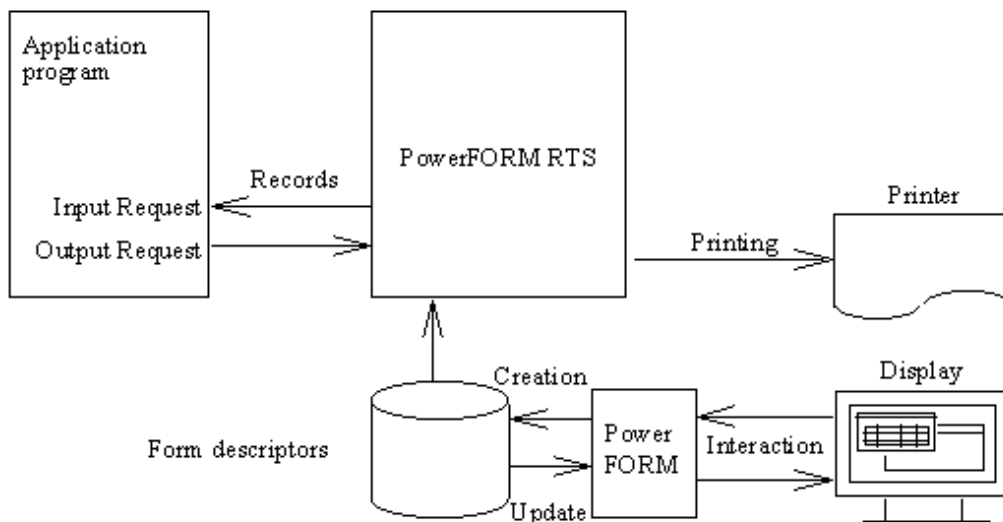
PowerFORM RTS is the service library called when an application program outputs data using a printer.

When PowerFORM RTS is used, the application program need not consider the complicated control codes of the printer. That is, the application program need only consider the output data itself.

The fixed data part of the output data need not be included in the application program. You need define the fixed data only in form descriptors. Then PowerFORM RTS automatically prints the fixed data for you. In addition to the fixed data, form descriptors can also be used to define output information such as output data locations, length, and ruled lines. In this case, such output information need not be considered at all in the application program.

Through PowerFORM RTS, application programs using forms are easily created.

Figure 1.1 PowerFORM RTS Operation



1.1.2 PowerFORM RTS Features

- Form descriptors used by PowerFORM RTS have specifications that are common across systems. Therefore, a system can use form descriptors created by other systems.
- Output requests for any field groups can be issued to PowerFORM RTS.
- PowerFORM RTS supports 50 or more numeric edit patterns.
- The character attributes of a field, such as underline bold or italic, in form descriptors can be changed from within the application programs.
- Overlay data common to various systems can be printed in the same way as form descriptors.
- Windows-bitmap and TIFF data can be printed.

1.1.3 Using PowerFORM RTS

Complete the following steps before using the PowerFORM RTS:

- Design the form layout.
- Create a printer information file.
- Create the application program.
- Execute the application program.

To use PowerFORM RTS, create a form descriptor using PowerFORM on Windows. PowerFORM is an interactive tool for creating or updating a descriptor.

In addition to the above descriptor, prepare a printer information file using a text-editor.

The application programs to be used with PowerFORM RTS must be created using the NetCOBOL program language.

After the above preparations have been completed, execute the application programs.

1.1.4 Development Environment of PowerFORM RTS

To develop application programs in COBOL:

Use NetCOBOL V11.0

1.2 How to Use PowerFORM RTS

PowerFORM RTS uses records to communicate with application programs. Records contain the areas for all the fields defined in a form descriptor with the exception of static fields. The record parts assigned to these fields are record data fields. Records have an area where an application program can change the attributes of each field. PowerFORM RTS then posts the status of each changed field. This area is called a field-control field.

All the record data fields and field-control fields are generically referred to as record data areas.

1. Data storage format

The format for storing data in a record data field depends on the data type.

The following explains the types of data that can be processed in the various supported fields:

- Numeric fields

External decimal numbers are stored. For details, see "Format of numeric fields" below.

- Text fields

Alphanumeric (0x00-0x7f) characters are stored.

2. Format of numeric fields

A numeric field is represented by an external decimal integer.

Table 1.1 lists the data format of external decimal integers.

Table 1.1 Data format of external decimal integers

		0	1	2	3	4	5	6	7	8	9
None	Character representation	0	1	2	3	4	5	6	7	8	9
	Hexadecimal representation	30	31	32	33	34	35	36	37	38	39
Positive	Character representation	@	A	B	C	D	E	F	G	H	I
	Hexadecimal representation	40	41	42	43	44	45	46	47	48	49
Negative	Character representation	P	Q	R	S	T	U	V	W	X	Y

		0	1	2	3	4	5	6	7	8	9
	Hexadecimal representation	50	51	52	53	54	55	56	57	58	59

1.2.1 Form Descriptor

Form descriptors must be created using PowerFORM.

To use PowerFORM RTS, the directory of the printer information file that contains the above descriptors must be specified. The extensions of the descriptor file names and the number of registered descriptors must be specified.

1.2.2 Printer Information Files

A printer information file is prepared for each printer to be opened. It is created using any text-editor.

To open a printer, the corresponding printer information file must be specified using its full path name. If only the file name is specified, the directory of the printer information file must be stated in the environment variable "MEFTDIR". If the environment variable "MEFTDIR" is not defined or a correct directory name is not specified, PowerFORM RTS searches the current directory.

If a printer information file is not found in the current directory, the error of MEFD_RC_ENV(C3) is notified.

For an explanation of the information that can be specified in a printer information file, see "Printer Information File".

Chapter 2 Operating PowerFORM RTS

This chapter explains the preparations required before using PowerFORM RTS and explains the development and execution of application programs. For an explanation of installing PowerFORM RTS:

Refer to the "NetCOBOL Installation Guide"

2.1 Developing Application Programs

An application program must be coded to output print files with the FORMAT clause. The compile option "FORMLIB" must be specified, and the pathname of the directory in which form descriptors are stored must be provided.

2.2 Executing Application Programs

To execute an application program that uses PowerFORM RTS, set the following environment variables:

1. LD_LIBRARY_PATH

- Explanation

Specify the search path for PowerFORM RTS and necessary libraries.

- Setting

Set to the PowerFORM RTS-installation directory.

- Example

(in bash)

```
export LD_LIBRARY_PATH=/opt/FJSVXmeft/lib
```

2. MEFTDIR

- Explanation

Specify the search path for the printer information files.

- Setting

Two or more directories can be specified by delimiting them with semicolons.

- Example

(in bash)

```
export MEFTDIR=/dir1:/dir2
```

Chapter 3 Basic Functions

Application programs use form descriptors to output data to the printer. Three PowerFORM RTS functions are used for printing. Finally, the physical aspects (the form and the type of paper) must be defined. This chapter covers these basic printing operations:

3.1 Using PowerFORM RTS

This section uses the results of printing the sales slip shown in Figure 3.1 to illustrate the basic functions of PowerFORM RTS.

Figure 3.1 A sales slip to be printed

Sales slip		Slip No.		
Customer code				
Customer name		A		
Delivery date				
No.	Item code	Item	Quantity	Amount
1	0005	Rince	4	2,000
2	0006	Shampoo	4	2,000
3	0020	Conditioner	2	2,000
4				
5				
<u>Totals</u>				

Figure 3.2 below shows a program that prints a sales slip such as that shown in Figure 3.1.

Figure 3.2 Sample Program: Printing a Sales Slip

```
...  
INPUT-OUTPUT SECTION.  
FILE-CONTROL.  
SELECT print-file ASSIGN TO PRTFILE  
  ORGANIZATION IS SEQUENTIAL  
  ACCESS MODE IS SEQUENTIAL  
  FORMAT IS PRT-FORMAT  
  GROUP IS PRT-GROUP  
.  
...  
DATA DIVISION.  
FILE SECTION.  
FD print-file.  
COPY BILL OF XMDLIB.  
...  
PROCEDURE DIVISION.  
  OPEN OUTPUT print-file.  
  INITIALIZE BILL.  
  MOVE "BILL" TO PRT-FORMAT.  
  MOVE "SCREEN" TO PRT-GROUP.  
  WRITE BILL.  
  CLOSE print-file.
```

When an application program uses a form descriptor, the following PowerFORM RTS functions are used:

3.1.1 Open

The open function declares the start of output to the printer and specifies the printer information file. To output data to the printer, always execute the open function before using other functions. In Figure 3.2, the following statement opens the printer:

```
OPEN OUTPUT print-file
```

File identifier specified in ASSIGN clause: Printer information file name

FILE STATUS clause: Return code storage area for abnormal termination of the open process

After the operation is complete, be sure to close the file opened by the application program. If it is not closed, data is not printed and internal resources can remain allocated.

3.1.2 Specifying the Form Descriptor

You need to provide the name of the group and form descriptor to the PowerFORM RTS.

```
MOVE "SCREEN" TO PRT-GROUP.
```

Name of field group containing all fields in the descriptor

```
MOVE "BILL" TO PRT-FORMAT.
```

Specification of form descriptor "BILL"

3.1.3 Output

Output sends fixed data in the form descriptor, data provided by the application program, and overlay data to the printer. Actual printing is done during the close process.

In Figure 3.2, the following statement outputs data to the printer:

```
WRITE BILL
```

FILE STATUS clause: Return code storage area at abnormal termination.

3.1.4 Close

Close declares the end of output to the printer and disables any PowerFORM RTS functions except Open.

After the close function is executed, printing starts.

In Figure 3.2, the following statement closes the printer:

```
CLOSE print-file
```

FILE STATUS clause: Return code storage area for abnormal termination of the close process.

3.2 Specifying Fields

Output is executed for a field. When the form descriptor is created, add the partition names to the partition. Specify the partition name in a GROUP clause, and execute WRITE statements.

3.3 Printing Forms

This section explains the output process when PowerFORM RTS is used to print forms.

3.3.1 Partition Output

In partition output, the position of the field to be printed is not specified when creating the descriptor. The program dynamically specifies the position of the field. The position of the immediately preceding printed field is used as a reference. The print position is dynamically specified by feeding any number of lines before or after a field group is printed.

Partition field groups include the floating partition field group and fixed partition field group. The print position of the floating partition field group can be dynamically specified. The position of the fixed partition field group is specified when creating the descriptor. The field group is always printed at the position with the left top end of the form used as an origin.

When a partition field group is printed, execute the form feed function or line feed function as required. If the descriptor is changed, the system executes form feed processing according to the vertical size of the form.

If a fixed partition is output which has a position before the position of the immediately preceding output partition, a form feed is output before the fixed partition. The partition is then printed at the specified position.

Note: For a fixed partition field group that specifies a number of lines to be fed, only "printing before line feed" is valid.

The following print methods are valid for partition output:

- Printing before a line feed
- Printing after a line feed

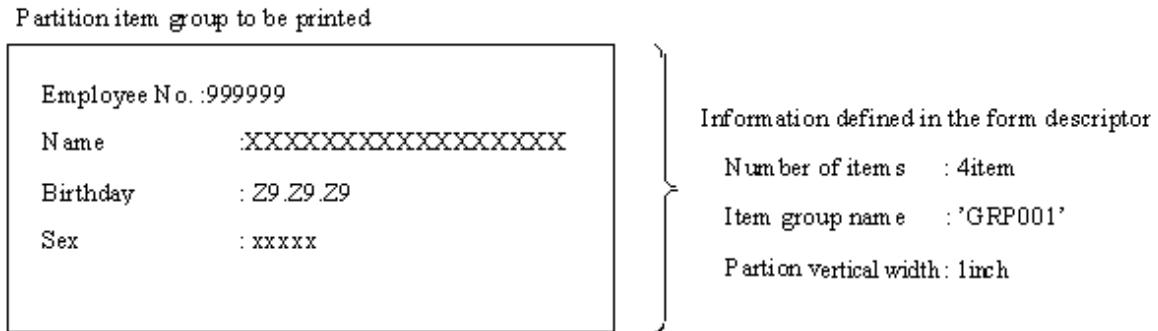
1. Printing before a line feed

Printing before line feed prints a partition field group, then feeds the specified number of lines.

The number of lines is specified during output. If 0 is specified, no lines are fed. If 0 is specified for the number of lines and a floating partition field group is continuously printed using partition output, the first line of the field group overlaps with the last line of the previously printed field group. To avoid this processing error, specify something other than 0 for the number of lines or leave the last or first line of the partition field group blank when creating the descriptor.

Figure 3.3 shows an example of printing before line feed.

Figure 3.3 Example of printing before a line feed



The above partition field group is used to execute printing after line feed twice consecutively. Four lines are fed before printing.

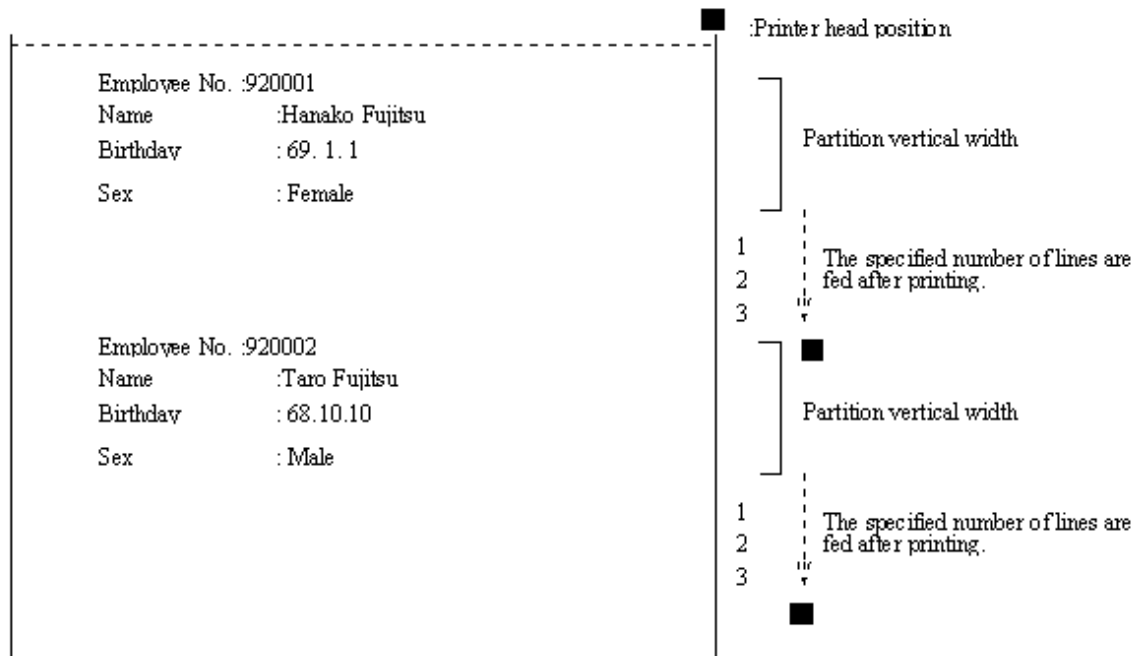


Figure 3.4 Sample Program: Printing before line feed

```
MOVE descriptor-name TO PRT-FORMAT.
MOVE partition-name TO PRT-GROUP.
...
WRITE record BEFORE ADVANCING 4
...
WRITE record BEFORE ADVANCING 4
```

2. Printing after a line feed

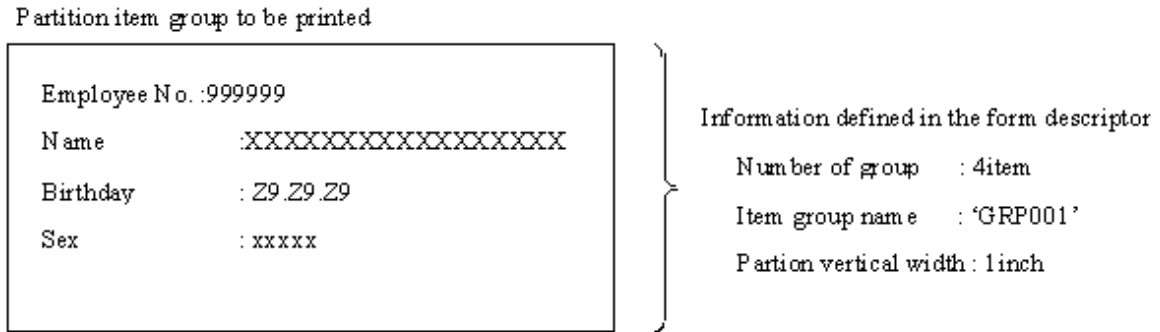
Printing after a line feed feeds a specified number of lines, and then prints a partition field group.

The number of lines is specified during output. If 0 is specified, no lines are fed. If 0 is specified for the number of lines and a floating partition field group is continuously printed using partition output, the first line of the field group overlaps with the last line of the previously printed field group. To avoid this output error, specify a value other than 0 for the number of lines or leave the last or first line of the partition field group blank when creating the descriptor.

Printing after line feed is only valid for a floating partition field group. When a fixed partition field group is printed, the number of feed lines specified by the application program is ignored. The fixed partition field group is always printed at the position specified in the descriptor.

Figure 3.5 shows an example of printing after line feed.

Figure 3.5 Example of printing after a line feed.



The above partition field group is used to execute printing after line feed twice consecutively. Four lines are fed before printing.

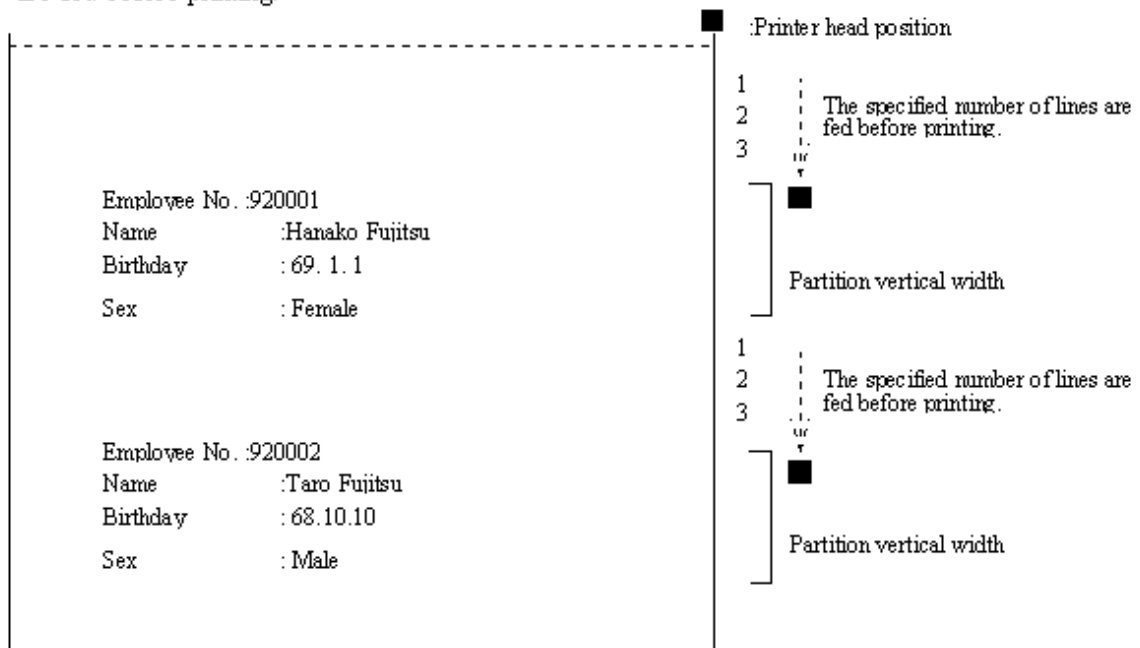


Figure 3.6 Sample Program: Printing after line feed

```
MOVE descriptor-name TO PRT-FORMAT.
MOVE partition-name TO PRT-GROUP.
...
WRITE record AFTER ADVANCING 4
...
WRITE record AFTER ADVANCING 4
```

3.3.2 Output Field Decorations

The application program can set editing for the data stored in the record data area for each field.

One of the following seven can be specified for the decoration:

Note: Setting the color of the characters is not possible for a PS2 printer.

1. Character highlight

The application program can print decorating data by using Setting the field highlight attribute.

- Underline

Underline is applied to character strings or the whole field.

2. Numeric editing

Numeric fields can be printed with data edited.

The edit format is specified when creating the descriptor.

Numeric fields can now be handled with a size up to 31 digits.

See Table 3.1, "Edit Format and Example of Edit and Output" for an example of the print results when the edit format is specified.

Table 3.1 lists examples of editing formats and editing output.

Table 3.1 Examples of editing formats and editing output

Data value	123456	001234	-00123.4	00000.0	-0.34
Number of all digits	6	6	6	6	2
Number of decimal digits	0	0	1	1	2
Editing format					
999,999,999,999,999,999	123,456	001,234	00,123.4	00,000.0	.34
<i>ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9</i>	123,456	1,234	123.4	0.0	.34
999999999999999999	123456	001234	00123.4	00000.0	.34
<i>ZZZZZZZZZZZZZZZZZZ9</i>	123456	1234	123.4	0.0	.34
,,***,***,***,***9	123,456	**1,234	***123.4	*****0.0	.34
\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9	\$123,456	\$1,234	\$123.4	\$0.0	\$.34
999,999,999,999,999,999CR	123,456__	001,234__	00,123.4CR	00,000.0__	.34CR
<i>ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9CR</i>	123,456__	1,234__	123.4CR	0.0__	.34CR
999999999999999999CR	123456__	001234__	00123.4CR	00000.0__	.34CR
<i>ZZZZZZZZZZZZZZZZZZ9CR</i>	123456__	1234__	123.4CR	0.0__	.34CR
,,***,***,***,***9CR	123,456__	**1,234__	***123.4CR	*****0.0__	.34CR
\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9CR	\$123,456__	\$1,234__	\$123.4CR	\$0.0__	\$.34CR
999,999,999,999,999,999-	123,456_	001,234_	00,123.4-	00,000.0_	.34-
<i>ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9-</i>	123,456_	1,234_	123.4-	0.0_	.34-
999999999999999999-	123456_	001234_	00123.4-	00000.0_	.34-
<i>ZZZZZZZZZZZZZZZZZZ9-</i>	123456_	1234_	123.4-	0.0_	.34-
,,***,***,***,***9-	123,456_	**1,234_	***123.4-	*****0.0_	.34-
\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9-	\$123,456_	\$1,234_	\$123.4-	\$0.0_	\$.34-
-999,999,999,999,999,999	123,456	001,234	-00,123.4	00,000.0	-.34
<i>-ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9</i>	123,456	1,234	-__123.4	0.0	-.34
-999999999999999999	123456	001234	-00123.4	00000.0	-.34
<i>-ZZZZZZZZZZZZZZZZZZ9</i>	123456	1234	-__123.4	0.0	-.34
**_*_*_*_*_*_*_*_*_*_*_*_*_*9	123,456	**1,234	-***123.4	*****0.0	-.34
-\$\$\$\$,\$\$\$,\$\$\$,\$\$\$,\$\$\$,\$\$\$9	\$123,456	\$1,234	-__\$123.4	\$0.0	-\$\$.34
----,---,---,---,---9	123,456	1,234	-123.4	0.0	-.34
-----9	123456	1234	-123.4	0.0	-.34
<i>ZZZZZZZZZZZZZZZZZZ</i>	123456	1234	123.4	(*1)	.34
2-digit delimited editing Z9.Z9.Z9	12.34.56	0.12.34	(*2)	(*2)	(*2)
2-digit delimited editing 99.99.99	12.34.56	00.12.34	(*2)	(*2)	(*2)

Data value	123456	001234	-00123.4	00000.0	-0.34
Number of all digits	6	6	6	6	2
Number of decimal digits	0	0	1	1	2
Editing format					
<i>ZZZZZZZZZZZZZZZZZZ-</i>	123456_	1234_	123.4-	(*1)	.34-
<i>-ZZZZZZZZZZZZZZZZZZ</i>	123456	1234	-__123.4	(*1)	-.34
999,999,999,999,999,999DB	123,456__	001,234__	00,123.4DB	00,000.0__	.34DB
<i>ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9</i> DB	123,456__	1,234__	123.4DB	0.0__	.34DB
999999999999999999DB	123456__	001234__	00123.4DB	00000.0__	.34DB
<i>ZZZZZZZZZZZZZZZZZZ9</i> DB	123456__	1234__	123.4DB	0.0__	.34DB
<i>***,***,***,***,***,***9</i> DB	123,456__	**1,234__	***123.4DB	*****0.0__	.34DB
<i>\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9</i> DB	\$123,456__	\$1,234__	\$123.4DB	\$0.0__	\$.34DB
999,999,999,999,999,999+	123,456+	001,234+	00,123.4-	00,000.0_	.34-
<i>ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9</i> +	123,456+	1,234+	123.4-	0.0_	.34-
999999999999999999+	123456+	001234+	00123.4-	00000.0_	.34-
<i>ZZZZZZZZZZZZZZZZZZ9</i> +	123456+	1234+	123.4-	0.0_	.34-
<i>***,***,***,***,***,***9</i> +	123,456+	**1,234+	***123.4-	*****0.0_	.34-
<i>\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9</i> +	\$123,456+	\$1,234+	\$123.4-	\$0.0_	\$.34-
+999,999,999,999,999,999	+123,456	+001,234	-00,123.4	00,000.0	-.34
<i>+ZZZ,ZZZ,ZZZ,ZZZ,ZZZ,ZZ9</i>	+123,456	+__1,234	-__123.4	0.0	-.34
+999999999999999999	+123456	+001234	-00123.4	00000.0	-.34
<i>+ZZZZZZZZZZZZZZZZZZ9</i>	+123456	+__1234	-__123.4	0.0	-.34
<i>+***,***,***,***,***,***9</i>	+123,456	+**1,234	-***123.4	*****0.0	-.34
<i>+\$\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$\$,\$\$\$9</i>	+\$123,456	+__\$1,234	-__\$123.4	\$0.0	-\$.34
++++,++++,++++,++++,++++,++9	+123,456	+1,234	-123.4	0.0	-.34
+++++9	+123456	+1234	-123.4	0.0	-.34
<i>ZZZZZZZZZZZZZZZZZZ+</i>	123456+	1234+	123.4-	(*1)	.34-
<i>+ZZZZZZZZZZZZZZZZZZ</i>	+123456	+__1234	-__123.4	(*1)	-.34

"_": 1-byte blank

"__": 2-byte blanks

*1 Zero is suppressed, and no data is displayed.

*2 The editing result is undefined.

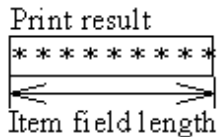
3. Character expansion editing and output

The character extended editing display function repeatedly displays the first character of a record data field up to the field length. Use Field display attribute setting at output to execute character extension editing. This editing function is valid only when an attribute of an output field is numeric. Figure 3.7 shows an output example.

Figure 3.7 Character extension editing

Setting the contents of the data output for a record data

* [?] [?] [?] [?] [?] [?] [?] [?] [?] ? : Arbitrary data



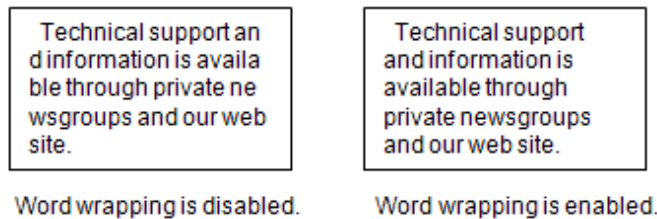
4. Multi-point and multi-pitch

Specify an optional character size and pitch for output fields.

5. Block field

Characters are output as multi-line. Word wrapping is processed, if specified in the descriptor. Specify LFCODE and LFPRINT in printer information file, if line-feeds are explicitly needed.

Figure 3.8 Block field



3.3.3 Printing ruled lines and shadings

The application program can overprint ruled lines and shading on printing data.

Ruled lines and shading are specified when creating the descriptor. The ruled lines and shadows are always printed at a fixed position.

Specify the following information fields when creating the descriptor:

1. Line information

Line information is as follows:

- Ruled line type

Ruled line type - a combination of line type and line width:

Line type: Solid line, dotted line, chain line or dashed line

Line width: Fine line or bold line

2. Shading information

Shading information is as follows:

- Shading pattern

Specify one of the 16 types of shading patterns.

3.4 Processing Depending on Print Paper

This section explains how to establish the print environment.

The print environment must be set up before running the print program. The type of paper used for printing determines how the print environment is set up. The user selects the processing to suit the paper type.

3.4.1 Printing on Separate Sheets

The printing of separate sheets (or "cut forms") depends on how the paper is supplied:

- Specify "hopper 1", "hopper 2", "hopper 3", "hopper 4", or "cut-sheet feeder" for SUPLY (paper supply) in the printer information file.
- Prepare the printer with the cut-sheet feeder filled with the appropriate forms. If the printer information file is for a printer without a cut-sheet feeder, then cut forms are fed manually.

Chapter 4 Extended Functions

PowerFORM RTS has several special printer functions. These functions allow the printing of standard forms (form overlay) and manipulation of graphic images as explained below.

4.1 Form Overlay

An application program can overlap and print an overlay file and descriptor. The printed output is created using the form overlay function. Up to 2 gigabytes of data can be overlaid.

To use the form overlay function, complete the following steps before running the print program:

- Create an overlay file.
- Specify the overlay file name in the descriptor or the printer information file.
- Specify the directory which contains the overlay file in the OVLDIR parameter (overlay file storage directory name) in the printer information file.

If the overlay file name is specified in both the descriptor and the printer information file, the overlay file name specified for the descriptor is used.

If the overlay file directory is not specified in either the descriptor or the printer information file, the current directory is used as the overlay file storage directory.

4.2 Bitmap field

When a bitmap field is specified in the form descriptor, it must be either a Windows-bitmap format image, or a TIFF image.

To output a Windows bitmap, define the format of the bitmap field to "B". For TIFF, set the format to "V".

For JFIF (JPEG), set the format to "J". For PNG, set the format to "P". For GIF, set the format to "F".

Set the type as "file name data" when creating the form descriptor.

(See "Clipping and Centering".)

To print image data in the Windows-bitmap format, write the application program as follows:

- Write to the field control field.
Set the field control field of the bitmap field to output in bit map format by Setting the field display attribute.
- Specify the bitmap file.
Specify the bitmap file by writing the file name in the bitmap field of the record to be used for printing.
- Print the bitmap.
Enter the partition name containing the bitmap field as a single name specified in a GROUP clause. Specify the bitmap file for record data.

The following code shows an example of outputting a bitmap field in COBOL.

"PICTURE.BMP" is printed in bitmap field S001 as the bit map.

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "B" TO EDIT-MODE OF S001 OF SAMP.  
MOVE "PICTURE.BMP" TO S001 OF SAMP.  
MOVE "S001" TO PRT-GROUP.  
WRITE SAMP.
```

4.3 PDF output

The form can be preserved as a PDF file in cooperation with the List Creator PDF conversion function.

To use the PDF output, Interstage List Creator Enterprise Edition is necessary.

The printer information file is specified as follows.

- STREAM (Stream type)
The output to PDF file is specified. The keyword value is set to "PDF".
- STREAMENV (Stream administrative information file name)
The document information file name in which particular information on the List Creator PDF conversion function is described is specified. Refer to the manual of the List Creator PDF conversion function for details of the file. When the file name is omitted, the error code of MEFD_RC_OPEN(10) is produced.
- STREAMFILE (Stream output file name)
The PDF file name is specified. When the file name is omitted, the error code of MEFD_RC_OPEN(10) is produced

See "Appendix C" by the List Creator PDF conversion function for the specification of an effective printer information file.

4.4 Form descriptor (free frame) Printing

The form descriptor (free frame) is composed of three fixed partition field groups of "Header, body, and footer". (The header and the footer can be omitted.) Two or more areas to output details of frame to the body can be defined.

Refer to the PowerFORM help for details of the form descriptor (free frame).

Figure 4.1 Example of defining the form descriptor (free frame)

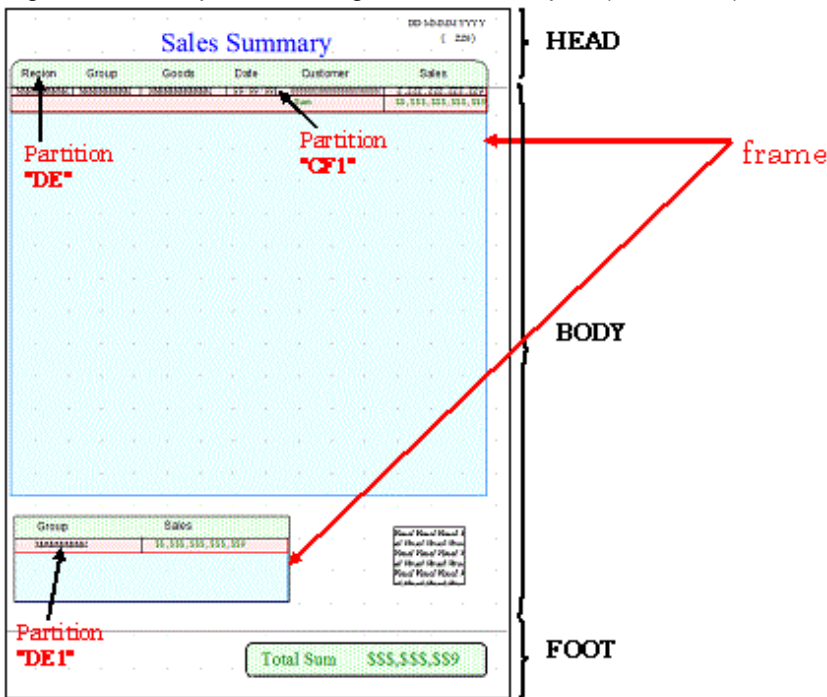


Figure 4.2 Example of outputting the form descriptor (free frame)

Sales Summary					
Region	Group	Goods	Date	Customer	Sales
New York	SOFT	Books	10-01-99	Pottery Barn Inc.	200,000
		Mag.	10-02-99	Pottery Barn Inc.	800,000
		Mag.	10-03-99	Pottery Barn Inc.	100,000
		Mag.	10-04-99	Pottery Barn Inc.	1,000,000
		Books	10-05-99	Pottery Barn Inc.	200,000
		Mag.	10-06-99	Pottery Barn Inc.	200,000
		Crash Sat	10-07-99	Pottery Barn Inc.	1,000,000
		Mag.	10-08-99	Pottery Barn Inc.	800,000
		Mag.	10-09-99	Pottery Barn Inc.	1,000,000
		Books	10-10-99	Pottery Barn Inc.	200,000
		Crash Sat	10-11-99	Pottery Barn Inc.	1,000,000
		Mag.	10-12-99	Pottery Barn Inc.	200,000
Sum					\$9,310,000
New York	FOOTBALL	Books	10-01-99	Pottery Barn Inc.	200,000
		Mag.	10-02-99	Pottery Barn Inc.	800,000
		Mag.	10-03-99	Pottery Barn Inc.	100,000
		Mag.	10-04-99	Pottery Barn Inc.	1,000,000
		Books	10-05-99	Pottery Barn Inc.	200,000
		Mag.	10-06-99	Pottery Barn Inc.	200,000
		Crash Sat	10-07-99	Pottery Barn Inc.	1,000,000
		Mag.	10-08-99	Pottery Barn Inc.	800,000
		Mag.	10-09-99	Pottery Barn Inc.	1,000,000
		Books	10-10-99	Pottery Barn Inc.	200,000
		Crash Sat	10-11-99	Pottery Barn Inc.	1,000,000
		Mag.	10-12-99	Pottery Barn Inc.	200,000
Sum					\$7,800,000
New York	SOFT	Books	10-01-99	Pottery Barn Inc.	200,000
		Mag.	10-02-99	Pottery Barn Inc.	800,000
		Mag.	10-03-99	Pottery Barn Inc.	100,000
		Mag.	10-04-99	Pottery Barn Inc.	1,000,000
		Books	10-05-99	Pottery Barn Inc.	200,000
		Mag.	10-06-99	Pottery Barn Inc.	200,000
		Crash Sat	10-07-99	Pottery Barn Inc.	1,000,000
		Mag.	10-08-99	Pottery Barn Inc.	800,000
		Mag.	10-09-99	Pottery Barn Inc.	1,000,000
		Books	10-10-99	Pottery Barn Inc.	200,000
		Crash Sat	10-11-99	Pottery Barn Inc.	1,000,000
		Mag.	10-12-99	Pottery Barn Inc.	200,000
Sum					\$4,410,000
New York	TENNIS	Books	10-01-99	Pottery Barn Inc.	200,000
		Mag.	10-02-99	Pottery Barn Inc.	800,000
		Mag.	10-03-99	Pottery Barn Inc.	100,000
		Mag.	10-04-99	Pottery Barn Inc.	1,000,000
		Books	10-05-99	Pottery Barn Inc.	200,000
		Mag.	10-06-99	Pottery Barn Inc.	200,000
		Crash Sat	10-07-99	Pottery Barn Inc.	1,000,000
		Mag.	10-08-99	Pottery Barn Inc.	800,000
		Mag.	10-09-99	Pottery Barn Inc.	1,000,000
		Books	10-10-99	Pottery Barn Inc.	200,000
		Crash Sat	10-11-99	Pottery Barn Inc.	1,000,000
		Mag.	10-12-99	Pottery Barn Inc.	200,000
Sum					\$4,910,000

Group	Sales
SOFT	\$9,310,000
FOOTBALL	\$7,800,000
SOFT	\$4,410,000
TENNIS	\$4,910,000

Total Sum	\$22,640,000
------------------	---------------------

To use the form descriptor (free frame) outputs it by the display file interface.

Refer to NetCOBOL User's Guide for details of the display file.

When the item defined in "header, footer, and body" is output, the following are specified for a partition field group name.

- 'HEAD' in case of "header"
- 'FOOT' in case of "footer"
- 'BODY' in case of "body"

Even if these partitions are output, the partition defined in the frame is not output.

<Example of application program>

* Output of header

```
MOVE "HEAD" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "P001" TO PRT-CONTROL.
```

* Output of body

```
MOVE "BODY" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A001" TO PRT-CONTROL.
WRITE SAMP.
```

* Output of footer

```
MOVE "FOOT" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A001" TO PRT-CONTROL.
WRITE SAMP.
```

Specify the partition item group name when outputting the frame partition defined in the frame.

<Example of application program>

* Output of Details

~ Setting of record data ("GOLF", "Shoes", etc) ~

MOVE "DE" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A000" TO PRT-CONTROL.
WRITE SAMP.

~ Setting of record data ("Bag", etc) ~

MOVE "DE" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A001" TO PRT-CONTROL.
WRITE SAMP.

(Omission)

* Output of Control Footer (Setting the monetary amount)

~ Setting of record data ("GOLF", "Shoes", etc) ~

MOVE "CF1" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A001" TO PRT-CONTROL.
WRITE SAMP.

* Output of Control Footer (Setting the monetary amount)

~ Setting of record data ("GOLF", etc) ~

MOVE "DE1" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A000" TO PRT-CONTROL.
WRITE SAMP.

~ Setting of record data ("FOOTBALL", etc) ~

MOVE "DE1" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "A001" TO PRT-CONTROL.
WRITE SAMP.

 Note

- The frame is automatically selected by the specified partition name, and it is output to the position of the frame.
- Output it in each frame when outputting the frame partition. Whenever the partition of two or more frames is alternately output, it is output to the head of the frame. After all the processing of one intraframe is completed, it is necessary to process other frames to obtain a correct output result.
- There is no problem even if the header, the footer, the body, and the frame partition output either early.
- Even when a fixed partition is output for the form descriptor (free frame) above the position of a present printer head, new page is not done. It is overwritten. When new page is necessary, it is necessary to do the new page control to discernment by the user program.
- The error of MEFP_RC_ENDFRAMELINK(6B) is notified when the field group is output exceeding the frame size.

The same floating partition can be output to two or more frames by using the link function of the frame.

Figure 4.3 The form descriptor (free frame): Example of defining link function

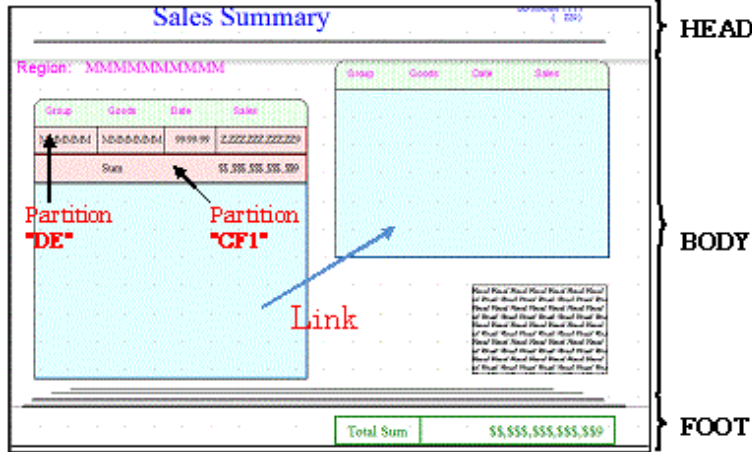


Figure 4.4 The form descriptor (free frame): Example of outputting link function



New block is specified when moving to linked frames. When new block is specified when there is no linked frames, it is treated as new page.

See "the printer device control" of "Chapter 6" for new block and new page.

<Example of application program>

* Output of Details ("FOOTBALL", "Wear", etc.)

MOVE "DE" TO PRT-GROUP.
 MOVE "PW" TO PRT-MODE.
 MOVE "A001" TO PRT-CONTROL.
 WRITE SAMP.

* Output of Details ("Ball", etc.) ~

MOVE "DE" TO PRT-GROUP.
 MOVE "PW" TO PRT-MODE.
 MOVE "A001" TO PRT-CONTROL.
 WRITE SAMP.

* ~ The case to change the frame ~

MOVE "CT" TO PRT-MODE.
 MOVE "BLCK" TO PRT-CONTROL.
 WRITE SAMP.

* Output of Details ("Shoes", etc.) ~

MOVE "DE" TO PRT-GROUP.
 MOVE "PW" TO PRT-MODE.
 MOVE "A001" TO PRT-CONTROL.

WRITE SAMP.
MOVE "CF1" TO PRT-GROUP.
MOVE "PW" TO PRT-MODE.
MOVE "P001" TO PRT-CONTROL.
WRITE SAMP.

(Omission as follows)

 Note

- The error of MEFP_RC_ENDFRAMELINK(6B) is notified when there is no following link frame when the field group is output exceeding the frame size. The error of MEFP_RC_ENDFRAME(6C) is notified when there is following link frame.

Chapter 5 Printer Information File

This chapter explains the printer information files required by the application program in order to use PowerFORM RTS.

The printer information file is a text file created using any text editor. Up to 512 characters can be specified on one line. Always add a line feed code to the end of each line.

See "APPENDIX C" for keywords and values.

- Format

keyword value

*comment

- Parameters

- keyword:

Keywords must start in column 1.

- value:

Place one or more blanks between each keyword and its value.

- comment:

Code an asterisk (*) in column 1 of the line, then enter the comment. To begin a comment in the middle of a line containing a keyword, insert one or more blanks followed by an asterisk (*) after the keyword, then enter the comment.

- Example

```
* Media storage
MEDIADIR /usr/local/media
* Printer Device
PRTDEV PS2 * Postscript level 2
```

Chapter 6 Program Interfaces

This chapter explains the program interfaces provided by PowerFORM RTS.

6.1 Function Interfaces

This section explains the function interfaces provided by PowerFORM RTS.

The names, formats, functions, parameters, examples, diagnosis, and notes about individual functions are explained below.

- Open processing
- Output processing
- Partition output processing
- Setting the descriptor name
- Close processing
- Setting the field attribute
- Setting the field highlight attribute
- Printer device control
- Obtaining the return code

6.2 Open Processing

- Format

```
OPEN OUTPUT file-name.
```

- Function

Open processing starts processing the print file.

- Parameters

ASSIGN clause

Specify the printer information file name using a file-identifier. Refer to NetCOBOL User's Guide. A file name can be specified by a full path or with the path name omitted. To specify only a file name, the environment variable MEFTDIR must contain the directory name or the file must be in the execution directory.

- Diagnosis

The return code is stored in the field specified in the FILE STATUS clause.

- NOTE

If a printer information file cannot be found due to an invalid or missing specification, standard values (default) are assumed.

6.3 Output Processing

- Format

```
WRITE record-name
```

- Function

Output processing edits data contained in the record data area and outputs it to the printer according to the field attribute. The application program stores the output data in the record data field of the field to be output before calling this function.

To call this function immediately after open processing, always use the Setting the descriptor name function to set the descriptor name to be used.

- Parameters

GROUP clause:

Specify the partition name to be output.

- Example

Print the field S001 in the form descriptor "SAMP".

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "S001" TO PRT-GROUP.  
WRITE SAMP.
```

- Diagnosis

Return code is stored in the field defined in the FILE STATUS clause.

6.4 Partition output Processing

- Format

Specify in the PROCESSING MODE clause and UNIT CONTROL clause.

- Function

The following can be specified for a function of the partition output processing.

- The arbitrary number of lines for changing line processing before and after outputting the partition field group based on the present printer head position.
- The partition field group is output to the specified position based on the present printer head position.

The field group that can be specified by this function is a fixed partition field group and a floating partition field group.

- Parameters

- PROCESSING MODE clause:

Specify "PW".

- UNIT CONTROL clause:

Specify the print pattern by four character fixation.
The values and their meanings are as follows.

A_{nnn} (nnn : integral value) :

The item is output after nnn new lines are output.

B_{nnn} (nnn : integral value) :

After the item is output, nnn new lines are output.

P_{nnn} (nnn : integral value) :

The item is output to the line number defined by nnn.

APAG : It is output after a new page.

BPAG : It is a new page after output.

ABLK : It is output after a new block.

BBLK : It is a new block after output.

- Example

The floating partition field group "PTGRP1" is output after 10 new lines are output from the present printer head position.

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "PTGRP1" TO PRT-GROUP.
```

```
MOVE "PW" TO PRT-MODE.  
MOVE "A010" TO PRT-CONTROL.  
WRITE SAMP.
```

- Diagnosis

Return code is stored in the field defined in the FILE STATUS clause.

- NOTE

New block specification is effective for only the form descriptor (columns partition) and the form descriptor (free frame). When new block is specified while printing the final block by the form descriptor (column partition) and the form descriptor (free frame), the new page processing is completed. Also, even if new block is specified while printing the form descriptor other than the above-mentioned form, it is defined as a new page.

6.5 Setting the Descriptor Name

- Format

Specify in the FORMAT clause.

- Function

Specify the name of the descriptor to be used for output processing for one name specified in FORMAT clause. To call an output function immediately after open processing and switch a descriptor, use this function to set the descriptor name, and then call the output function.

- Parameters

FORMAT clause:

Specify the name of the descriptor to be used for output. Specify a character string of up to eight characters for the descriptor file name, excluding the file extension.

6.6 Close Processing

- Format

```
CLOSE file-name.
```

- Function

Close processing terminates processing of the print file.

- Parameters

None

- Diagnosis

Return code is stored in the field defined in the FILE STATUS clause.

6.7 Setting the Field Attribute

- Format

Specify the EDIT-MODE of the field.

- Function

Dynamically sets the field display attribute.

- Parameters

EDIT-MODE:

Specify the display attribute to be set. The values and their meanings are as follows:

(Blank): The field is to be output.

X: The field is excluded from output processing

*: Characters are expanded and edited

-: Deletion line is output

=: Double deletion line is output

B: Windows-Bitmap is output

V: TIFF is output

J: JFIF (JPEG) is output

P: PNG is output

F: GIF is output

- Example

The field name R001 in the field group name S001 is expanded and edited.

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "*" TO EDIT-MODE OF R001.  
MOVE "S001" TO PRT-GROUP.  
WRITE SAMP.
```

- NOTE

When the character pitch is not specified for the field, the length of the strike-through line ("Deletion line") may not match the length of the character string.

6.8 Setting the Field Highlight Attribute

- Format

Specify in the EDIT-OPTION of the field.

- Function

Dynamically sets the field highlight attribute.

- Parameters

EDIT-OPTION:

Specify the highlight attribute to be set. The values and their meanings are as follows:

(blank): The previously set attribute is not changed.

U: Print with underline (whole field).

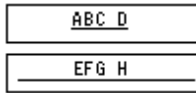
H: Print with underline (on characters).

- Example

The field name R001 and R002 in the field group name S001 is printed with underline.

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "H" TO EDIT-OPTION OF R001.  
MOVE "ABC D" TO R001.  
MOVE "U" TO EDIT-OPTION OF R002.  
MOVE "EFG H" TO R002.  
MOVE "S001" TO PRT-GROUP.  
WRITE SAMP.
```

- Produces:



- NOTE

When the character pitch is not specified for the field, the length of the underline line may not match the length of the character string.

6.9 Printer device control

- Format

Specify in the PROCESSING MODE clause and the UNIT CONTROL clause.

Define the following in the FILE-CONTROL of the INPUT-OUTPUT section.

```

INPUT-OUTPUT SECTION
FILE-CONTROL.
SELECT print-file ASSIGN TO GS-PRTFILE
  ORGANIZATION      IS SEQUENTIAL
  ACCESS MODE       IS SEQUENTIAL
  SYMBOLIC DESTINATION IS "PRT"
  FORMAT            IS PRT-FORMAT
  GROUP             IS PRT-GROUP
  PROCESSING MODE   IS PRT-MODE
  UNIT CONTROL      IS PRT-CONTROL.

```

- Function

The following printer functions are controlled.

- New page of paper
- Output range specification in rectangular domain
- Print cancel
- New block of column setting partition and new frame of frame partition
- Bottom information setting

The output range specification in the rectangular domain is effective for only a form descriptor (columnize table) and a form descriptor (Labels).

- Parameters

- PROCESSING MODE clause:

Specify "CT".

- UNIT CONTROL clause:

The printer function to control is specified.

The values and their meanings are as follows.

PAGE : Paper is a new page.

PRCT : The range of the output in the rectangular domain is specified.

CAN : The print is canceled.

BLCK : The new block of the column setting partition is specified. Or, the new frame of the frame partition is specified.

ULMT : The arrangement of the partition and an extensible bottom position of the partition is set. Either the following is specified for detailed information (last 2 digits of the UNIT CONTROL phrase).

- PT :
The fixed partition name is specified. It is possible to output to the starting position of a fixed partition. The MEFD_RC_FLD(24) error is displayed when the partition name that does not exist or the floating partition name is specified.
- LN :
The relative line position from the head of the form is specified, except for the form descriptor (free frame). The relative line position from the head of the frame is specified for the form descriptor (free frame). It positions to the bottom where it can output just before the specified line. It is not possible to specify it for the partition defined in a horizontal frame. In this case, the MEFD_RC_PARA(26) error is displayed. The MEFD_RC_PARA(26) error is displayed when the size of the form descriptor is exceeded or the size of the frame is exceeded.
- DT :
The relative dot position (1/1440 inches) from the head of the form is specified except for the form descriptor (free frame). The relative dot position (1/1440 inches) from the head of the frame is specified for the form descriptor (free frame). It moves it to the bottom where the specified dot position can be output. The MEFD_RC_PARA(26) error is displayed when the size of the form descriptor is exceeded or the size of the frame is exceeded.
- RS :
Bottom information set by either PT, LN or DT is released. Except for the form descriptor (free frame), it moves to the bottom where the height of the form descriptor can output the partition.
The bottom (right edge) that can be output is as follows for the form descriptor (free frame) by the direction where the frame is output.
 - Vertical defines the height of the frame for the output.
 - Horizontal defines the width of the frame for the output.

PRCT : Output range specification in rectangular domain

The record used when the output of the partition is controlled by output range specification (PRCT) in the rectangular domain is defined as follows.

01	Output control record	
03	Header output information	PIC X(1)
03	Footer output information	PIC X(1)
03	FILLER	PIC X(22)
03	Print beginning body number	PIC X(4)
03	Print end body number	PIC X(4)

Header output information

The output of the header is specified by the numerical value (binary).

- 0 : Output
- 1 : Control

Footer output information

The output of the footer is specified by the numerical value (binary).

- 0 : Output
- 1 : Control

Print beginning body number

The print beginning body number is specified by the character string of the numerical value.

- '0001' - '0999' : Print beginning number
- '0000' : Specified release

Print end body number

The print end body number is specified by the character string of the numerical value.

- '0001' - '0999' : Print end number
- '0000' : Specified release

Set a value that is smaller than the print end number for the print beginning number. If the print beginning number is more than the print end number, the each value is considered to be specified release. Anything outside of those values is ignored.

ULMT : Bottom information setting

The record used when the bottom position in which the partition can be output is specified by bottom information setting (ULMT) is shown.

- The last 2 digits of the UNIT CONTROL phrase : "PT"

It specifies it for a bottom position in which the starting position of a fixed partition can be output.

01	Bottom information record		
03	Specified partition	PIC X(6)	
03	FILLER	PIC X(2)	
03	Bottom partition	PIC X(6)	
03	FILLER	PIC X(2)	

Specified partition

The name of the partition that specifies the bottom position that can be output is specified within six characters.

Set to blank or NULL when six characters cannot be used.

Bottom partition

The name of a fixed partition by which the starting position becomes bottom is specified within six characters.

Set to blank or NULL when six characters cannot be used.

- The last 2 digits of the UNIT CONTROL phrase : "LN" or "DT"

This specifies where a bottom position in which the line position or the dot position can be output.

01	Bottom information record		
03	Specified partition	PIC X(6)	
03	FILLER	PIC X(2)	
03	Bottom value	PIC 9(6)	
03	FILLER	PIC X(2)	

Specified partition

The name of the partition that specifies the bottom position that can be output is specified within six characters.

Set to blank or NULL when six characters cannot be used.

Bottom value

The bottom position is specified by an external decimal number within six digits.

Set blank or NULL when six characters cannot be used.

- The last 2 digits of the UNIT CONTROL phrase : "RS"

Specify it with either of "PT", "LN" or "DT" record data format. Only a specified partition is effective. Even if the bottom partition and the bottom value are specified, those values are ignored.

- Example

- A new page is output after the form descriptor is printed on the form.

MOVE	"SAMP"	TO	PRT-FORMAT.
MOVE	" "	TO	PRT-MODE
MOVE	"@ALLF"	TO	PRT-GROUP.
WRITE	SAMP.		
MOVE	"CT"	TO	PRT-MODE.
MOVE	"PAGE"	TO	PRT-CONTROL.
WRITE	SAMP.		

- The output range specification in the rectangular domain is specified.

```
* Output control
MOVE "CT"      TO PRT-MODE
MOVE "PRCT"    TO PRT-CONTROL
MOVE X"00"     TO Header output information
MOVE X"01"     TO Footer output information.
MOVE "0002"    TO Print beginning body number
MOVE "0004"    TO Print end body number
WRITE Output control record.
```

- A fixed partition is specified for arrangement of the partition and an extensible bottom position.

```
* Bottom information setting (Bottom partition specification)
MOVE "CT"      TO PRT-MODE
MOVE "ULMTPT" TO PRT-CONTROL
MOVE "DE"      TO Specified partition.
MOVE "PF"      TO Bottom partition.
WRITE Bottom information record.
```

* "PF" is specified for a bottom partition. It is possible to output "DE" just before "PF".

- The line position is specified for arrangement of the partition and an extensible bottom position.

```
* Bottom information setting (Line position specification)
MOVE "CT"      TO PRT-MODE
MOVE "ULMTLN" TO PRT-CONTROL
MOVE "DE"      TO Specified partition.
MOVE 51        TO Bottom value.
WRITE Bottom information record.
```

* 51 is specified for a bottom value. It is possible to output "DE" to the 50 th line.

- Diagnosis

Return code is stored in the field defined in the FILE STATUS clause.

- NOTE

- The output range specification in the rectangular domain is effective in the form descriptor(Labels) and the form descriptor (columnize table). Specifying the output range is not allowed when specifying it in other form descriptor.
- Set the output range specification in the rectangular domain earlier than the output of the form descriptor that will become an object.
- It adjusts to all the form descriptors where specification is output until releasing it when the output range specification in the rectangular domain is specified.
- When new block of the column setting partition is specified excluding the column setting partition form, it operates as new page of the paper.

6.10 Obtaining the Return Code

- Format

Check the FILE STATUS clause after execution.

- Function

The return code is stored in the field defined in the FILE STATUS clause. See "[Trouble Analysis and Recovery](#)".

- Parameter

None

- Example

Check whether an error occurred on output.

```
MOVE "SAMP" TO PRT-FORMAT.  
MOVE "S001" TO PRT-GROUP.  
WRITE record-name.  
IF PRT-STATUS = "CX" THEN.  
~ Processing if the outputting error is occurred in the field group S001 ~  
END-IF.  
~ Program error processing ~
```

Appendix A Troubleshooting and Error Recovery

Appendix A explains PowerFORM RTS errors and operator responses for error recovery. An error code without a return code label in this table indicates an error that occurs only in COBOL programs.

Table A.1 List of return codes

Return codes	Codes
MEFD_RC_END	00
MEFD_RC_UNOP	03
MEFD_RC_LENG	08
MEFD_RC_IN	09
MEFD_RC_OPEN	10
MEFD_RC_ACCESS	18
MEFD_RC_NOSPACE	20
MEFD_RC_WRK	21
MEFD_RC_MED	22
MEFD_RC_MDMEM	23
MEFD_RC_FLD	24
MEFD_RC_PRC	25
MEFD_RC_PARA	26
MEFD_RC_INE	32
MEFD_RC_CLOSE	40
MEFD_RC_MALOAD	42
MEFD_RC_OPMDA	44
MEFD_RC_LFLD	47
MEFP_RC_MALINE	62
MEFP_RC_ENDBLOCK	65
MEFP_RC_BLOCKLW	6A
MEFP_RC_ENDFRAMELINK	6B
MEFP_RC_ENDFRAME	6C
MEFP_RC_PMITEM	84
MEFP_RC_PMTYPE	85
MEFP_RC_SYSTOP	86
MEFP_RC_NOOVLF	91
MEFP_RC_PRTABT	92
MEFP_RC_LIBLOAD	99
MEFP_RC_STREAMLOAD	9H
MEFP_RC_NOSTREAM	9I
MEFP_RC_CALLAPI	9M
MEFD_RC_ENV	C3
MEFD_RC_NOENV	C4

A.1 Return code explanation

A.1.1 MEFD_RC_END

Alphanumeric code:

00

Explanation:

Ended normally.

A.1.2 MEFD_RC_UNOP

Alphanumeric code:

03

Explanation:

The printer is not open.

Resolution:

- Open the printer before write.

A.1.3 MEFD_RC LENG

Alphanumeric code:

08

Explanation:

The record in the specified descriptor could not be used because the record was longer than the record area of the application program.

Resolution:

- Increase the record area of the application program.
- Recompile the application program using the COPY phrase. (COPY xxx of XMDLIB.)

A.1.4 MEFD_RC_IN

Alphanumeric code:

09

Explanation:

An internal error occurred. The internal area of PowerFORM RTS may have been destroyed.

Resolution:

- Contact your systems engineer - a system error may have occurred.

A.1.5 MEFD_RC_OPEN

Alphanumeric code:

10

Explanation:

Open processing failed. One of the following errors occurred:

- The user-account has insufficient authority.
- There are not enough system resources.

- The printer that was specified as the output printer in the printer information file is not available.
- The mistake is found in the description of the printer information file in PDF output.

Resolution:

- Check the authority of the user-account.
- Increase the available resources by terminating other unnecessary programs.
- Activate the printer that was specified as the output.
- It is necessary to specify the following keywords in PDF output.
 - STREAMENV (Stream administrative information file name)
 - STREAMFILE (Stream output file name)

A.1.6 MEFD_RC_ACCESS

Alphanumeric code:

18

Explanation:

The specified file is not accessible.

Resolution:

- Check the authority to access the directory and/or the file.
- Check the path of environment variable MEFTTMP specified by the printer information file confirmation function.
- STREAMENV (Stream administrative information file name) and STREAMFILE (Stream output file name) specified to output PDF are confirmed.

A.1.7 MEFD_RC_NOSPACE

Alphanumeric code:

20

Explanation:

The capacity of the disk is insufficient.

Resolution:

- Increase disk and memory capacity by deleting unnecessary files.

A.1.8 MEFD_RC_WRK

Alphanumeric code:

21

Explanation:

- A memory shortage occurred; the work area could not be allocated and processing stopped.
- An access error occurred; the temporary folder could not be accessed.

Resolution:

- Increase the available memory by terminating other unnecessary programs.

A.1.9 MEFD_RC_MED

Alphanumeric code:

22

Explanation:

One of the following descriptor read errors occurred:

- The specified descriptor file was not found.
- The reference authority for the descriptor file was not found.

Resolution:

- Check whether an attempt was made to execute output processing before setting a descriptor name by using the Setting the Descriptor Name function.
- Check that the descriptor name specified in the Setting the Descriptor Name function is valid.
- Check that the name of the directory that contains the descriptor specified for MEDDIR in the printer information file is valid.

A.1.10 MEFD_RC_MDMEM

Alphanumeric code:

23

Explanation:

A descriptor could not be read because of a memory shortage.

Resolution:

- Increase the available memory by terminating other unnecessary programs.

A.1.11 MEFD_RC_FLD

Alphanumeric code:

24

Explanation:

The specified field name or field group name is invalid. The following error occurred:

- The specified partition field group was not defined in the descriptor.

Resolution:

- Specify a valid name in the descriptor.

A.1.12 MEFD_RC_PRCs

Alphanumeric code:

25

Explanation:

An invalid parameter is specified for the PROCESSING MODE clause.

Resolution:

- Correct the parameter.

A.1.13 MEFD_RC_PARA

Alphanumeric code:

26

Explanation:

An invalid parameter is specified for the UNIT CONTROL clause.

Resolution:

- Correct the parameter.

A.1.14 MEFD_RC_INE

Alphanumeric code:

32

Explanation:

An error was detected while reading the descriptor. One of the following errors occurred:

- The descriptor is incomplete.
- The function defined in the descriptor is not supported.

Resolution:

- Correct the error when creating the descriptor.
- Check that the function defined in the descriptor is supported by PowerFORM RTS.

A.1.15 MEFD_RC_CLOSE

Alphanumeric code:

40

Explanation:

An error was detected in processing the close.

Resolution:

- Review the close processing of the application program.
- Since a system abnormality was detected, please open a support incident with your support provider.

A.1.16 MEFD_RC_MALOAD

Alphanumeric code:

42

Explanation:

Media data could not be loaded. One of the following errors occurred:

- The specified media file was not found.
- The reference authority for the media file was not found.
- The memory space for the specified media data could not be allocated.
- Unsupported media type.

Resolution:

- Specify the correct directory for MEDIADIR.
- Check the authority of media files.

- Replace the media file with one of a supported type.

A.1.17 MEFD_RC_OPMDA

Alphanumeric code:

44

Explanation:

The following error occurred:

- The memory space for the specified media (image) data could not be allocated.

Resolution:

- Release unused memory space.

A.1.18 MEFD_RC_LFLD

Alphanumeric code:

47

Explanation:

One of the following errors occurred:

- Barcode data is invalid.

Resolution:

- Specify correct data for the barcode.

A.1.19 MEFP_RC_MALINE

Alphanumeric code:

62

Explanation:

When the field was moved according to the specified feed lines, the field position exceeded the vertical size of the descriptor.

Resolution:

- Specify the correct position.

A.1.20 MEFP_RC_ENDBLOCK

Alphanumeric code:

65

Explanation:

The position of the partition has exceeded the vertical size of the block.

Resolution:

- Specify the correct position.

A.1.21 MEFP_RC_BLOCKLW

Alphanumeric code:

6A

Explanation:

The error was detected on outputting the form descriptor (columns) or the form descriptor (free frame). The possible causes include the following.

- While outputting the form descriptor (columns) or the form descriptor (free frame), the line record output was specified.
- While using the form descriptor (free frame), new frame and new page were executed in a print file with the FORMAT phrase.

Resolution:

- Do not specify the line record output.
- Output with the display file. Or use the descriptor other than the descriptor (free frame).

A.1.22 MEFP_RC_ENDFRAMELINK

Alphanumeric code:

6B

Explanation:

The error was detected by the form descriptor (free frame). The possible causes include the following.

- The partition specified by the form descriptor (free frame) exceeded the last frame.

Resolution:

- The partition specified by the form descriptor (free frame) is specified not to exceed the last frame.

A.1.23 MEFP_RC_ENDFRAME

Alphanumeric code:

6C

Explanation:

The error was detected by the form descriptor (free frame). The possible causes include the following.

- The partition specified by the form descriptor (free frame) exceeded the frame.
- The last position of partition specified by the form descriptor (free frame) was exceeded by the bottom position specified for on setting bottom information.

Resolution:

- The partition specified by the form descriptor (free frame) is specified not to exceed the frame.
- The last position of partition specified by the form descriptor (free frame) is specified not to exceed the bottom position specified for on setting bottom information.

A.1.24 MEFP_RC_PMITEM

Alphanumeric code:

84

Explanation:

The following error was detected in print data output processing:

- A field name was specified.

Resolution:

- Specify a field group name.

A.1.25 MEFP_RC_PMTYPE

Alphanumeric code:

85

Explanation:

The following errors were detected by the output processing of the print.

- It output it by the partition power output excluding the partition descriptor.

Resolution:

- The descriptor of the partition form is output in the partition power output.

A.1.26 MEFP_RC_SYSTOP

Alphanumeric code:

86

Explanation:

One of the following printer errors occurred:

- Excessive output was generated without close processing to allow the printer to begin physical output, thus exceeding the capacity of temporary storage.
- A system error occurred.
- The print server is over-loaded.

Resolution:

- Increase the temporary disk space or segment the output.
- Re-execute the application program.
- Contact your systems engineer - a system error may have occurred.

A.1.27 MEFP_RC_NOOVLF

Alphanumeric code:

91

Explanation:

An overlay file was read unsuccessfully. The following error occurred:

- The specified overlay file was not found.

Resolution:

- Check that the overlay file exists in the directory specified with keyword OVLDIR of the printer information file.

A.1.28 MEFP_RC_PRTABT

Alphanumeric code:

92

Explanation:

The printing process has been aborted (canceled).

Resolution:

- Close the printer by calling the CLOSE function.

A.1.29 MEFP_RC_LIBLOAD

Alphanumeric code:

99

Explanation:

Library loading failed. One or more libraries have been corrupted or deleted.

Resolution:

- Re-install PowerFORM Runtime.

A.1.30 MEFP_RC_STREAMLOAD

Alphanumeric code:

9H

Explanation:

The library of the List Creator PDF conversion function cannot be loaded.

Resolution:

- Install the List Creator PDF conversion function normally.

A.1.31 MEFP_RC_NOSTREAM

Alphanumeric code:

9I

Explanation:

The mistake is found in the specification of the stream type.

Resolution:

- Confirm the stream type that can be specified.

A.1.32 MEFP_RC_CALLAPI

Alphanumeric code:

9M

Explanation:

The error was detected by the output processing of the print. The possible causes for the error include the following.

- The error occurred in the List Creator library that output PDF.

Resolution:

- Confirm there is no error in the description of the document information file.
- Confirm there is no error in the data (ex. data of the barcode field) that outputs PDF.
- Confirm whether to output the overlay or the picture file of the unsupported to List Creator.
- It contacts charge SE because there is fear of the system malfunction.
- Refer to the manual of the List Creator PDF conversion function for notes on PDF output.

A.1.33 MEFD_RC_ENV

Alphanumeric code:

C3

Explanation:

The printer information file is not found due to one of the following:

- The environment variable MEFTDIR is not specified.
- An invalid value is specified in MEFTDIR.
- The filename is incorrect.

Resolution:

- Specify the correct directory for MEFTDIR.
- Correct the printer information filename.

A.1.34 MEFD_RC_NOENV

Alphanumeric code:

C4

Explanation:

One of following errors occurred in the OPEN process:

- An invalid printer name was specified.
- PRTDEV was not specified.

Resolution:

- Correct the printer name.
- Specify PRTDEV.

Appendix B Special Processing

PowerFORM RTS supports special processing as follows.

B.1 Clipping and Centering

A bitmap image can be clipped and centered.

If "yes" is set to clip a bitmap field, the bitmap image is output according to the size of the bitmap field. If "no" is set, bitmap data is enlarged or reduced according to the size of the bitmap field without changing the aspect ratio of image data. Table B.1 in the diagram below shows the printing result when "yes" is specified. Table B.2 shows the printing result when "no" is specified.

Table B.1 Printing result when "yes" is specified

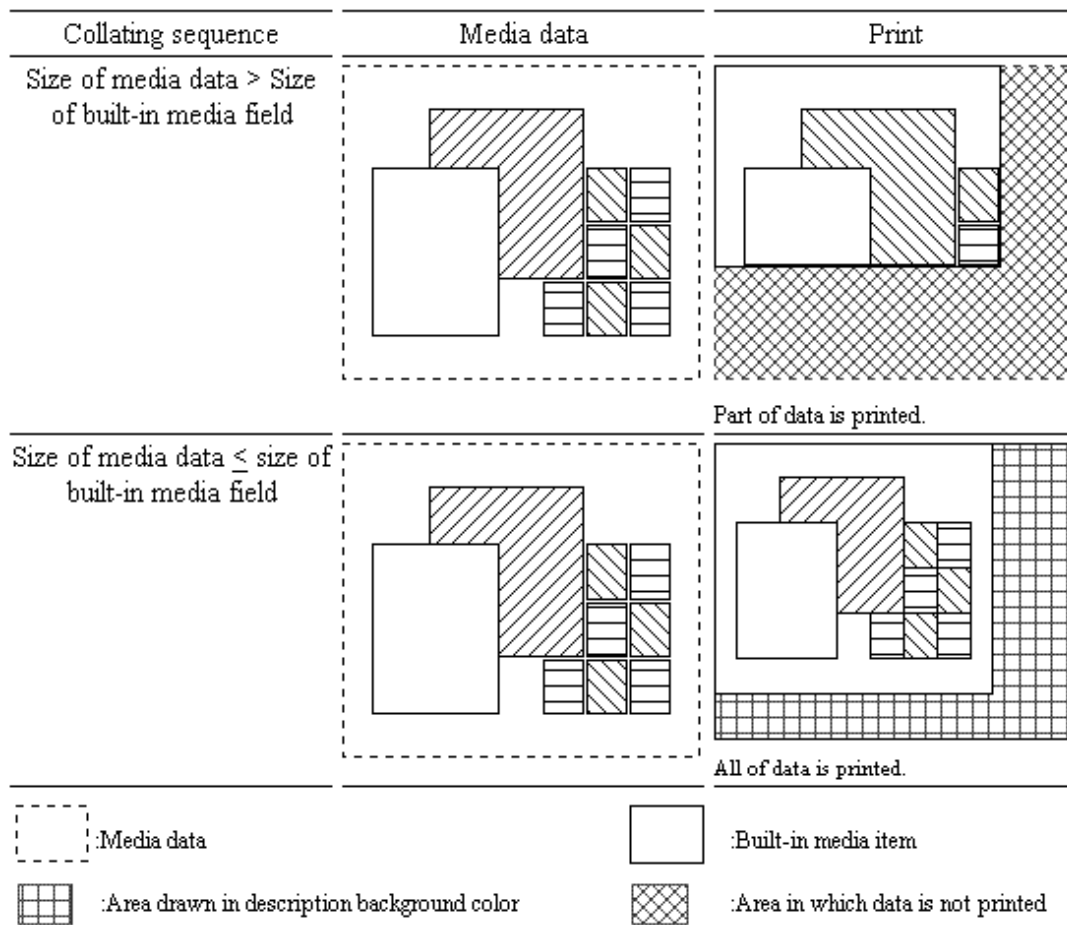


Table B.2 Printing result when "no" is specified

Similarity	Media data	Print
The shape of media data and that of built-in media field are similar.		
The shape of media data and that of built-in media field are not similar.		

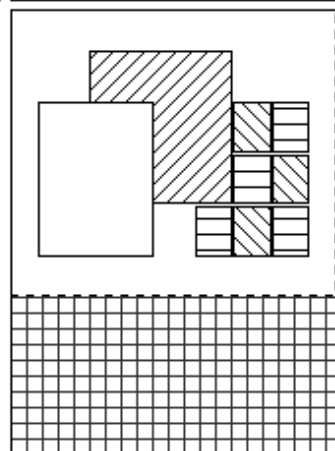
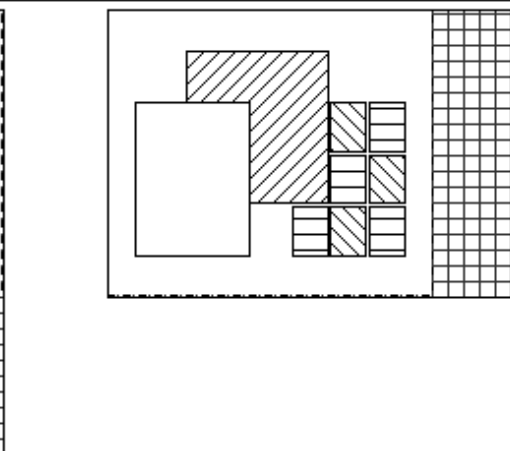
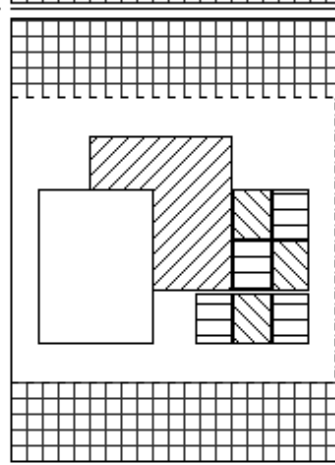
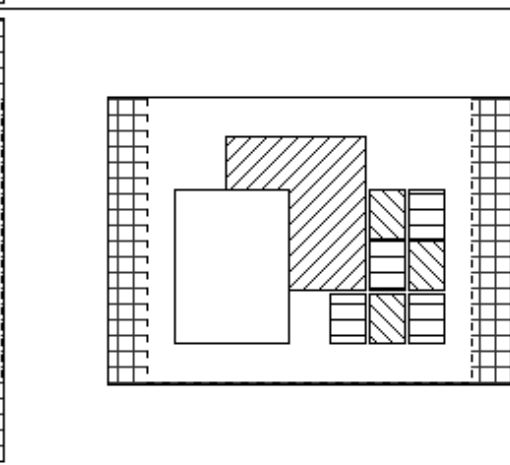
:Media data
 :Built-in media item

:Area drawn in description background color

When "yes" is selected to center a bitmap field, media data is printed at the center of the bitmap field. This is valid when "no" is specified in the clip bitmap field.

Table B.3 shows the print position depending on the centering setting.

Table B.3 Print position depending on whether centering is specified

Centering	Print position	
No		
Yes		



Media data



Area drawn in description background color



Built-in media item

Appendix C Printer Information File

The printer information file applies to the handling of file output from open processing to close processing for the print file.

Besides the printer information file, the information specified in the I-control record or form descriptor is used.

The order of priority is as follows:

1. Information specified in the I-control record.
2. Information specified in the form descriptor.
3. Specifications in the printer information file.

C.1 Printer Information File list

Table C.1 Printer information file contents

Information classification	Contents	Keyword	Print	PDF
Printer control information	Printer device name	PRTDEV	o	o
	Print name	PRTNAME	o	-
	Number of copies	COPYG	o	-
	BANNER printing	BANNER	o	-
	BANNER title	TITLE	o	-
Paper information	Form size	FORMSIZE	o	o
	Print format	PRTFORM	o	o
	Paper supply orientation	SUPLY	o	-
	Print origin position (Column)	PRTPO SX	o	o
	Print origin position (Line)	PRTPO SY	o	o
	Print origin position (Column)	PRTMPO SX	o	o
	Print origin position (Line)	PRTMPO SY	o	o
Form export information	Stream type	STREAM	-	o
	Stream administrative information file name	STREAMENV	-	o
	Stream output file name	STREAMFILE	-	o
Edit details	Line-Feed Code	LFCODE	o	o
	Printable LFCODE	LFPRINT	o	o
Font information	Map font names	MAPFONT	o	o
Descriptor information	Descriptor storage	MEDDIR	o	o
	Descriptor extension	MEDSUF	o	o
Overlay information	Overlay storage	OVLDIR	o	o
	Overlay file name	OVLNAME	o	o
Media information	Media storage	MEDIADIR	o	o
Local information	Time zone	TIMEZONE	o	o

o : Valid keyword

- : Invalid keyword

This section explains the settings of the keywords.

If the keywords and values set in the printer information file are invalid, no error is reported, and the standard values (default) are used instead.

C.2 Printer control information

C.2.1 PRTDEV (Output printer device name)

Explanation:

Specify the printer device.

Setting:

Specify "PS2".

Default:

This must be specified. If it is omitted, the OPEN process is ended abnormally. (MEFD_RC_NOENV)

C.2.2 PRTNAME (Printer name)

Explanation:

Specify the printer name.

Setting:

Specify a printer name of up to 15 characters.

Default:

The registered printer name by the lp-system is applied.

C.2.3 COPYG (Number of copies)

Explanation:

Specify the number of times to print the same page.

This specification is valid only for print drivers that accept the "number of copies" parameter.

Setting:

Specify the number of copies.

Default:

1

C.2.4 BANNER (BANNER printing)

Explanation:

Specify banner printing.

Setting:

Y: A banner is printed.

N: No banner is printed.

Default:

N: No banner is printed.

C.2.5 TITLE (Banner title)

Explanation:

Specify the title string to be printed in the banner.

Setting:

Title string up to 32 characters.

Default:

No title is printed.

C.3 Paper information

C.3.1 FORMSIZE (Paper size)

Explanation:

Specify the paper size as A3, A4, A5, B4, B5, postcard, letter, or legal. This specification is valid if "Default" is specified for the paper size in the descriptor.

Setting:

"A3": A3

"A4": A4

"A5": A5

"B4": B4

"B5": B5

"PS": Postcard

"LT": Letter

"LG": Legal

Default:

"LT": Letter

C.3.2 PRTFORM (Print format)

Explanation:

Specify whether data is printed in portrait (vertical), landscape (horizontal), or LP mode. This specification is valid if "Default" is specified for the form size in the descriptor. LP mode is used to print 136 column data as a line printer image on A4 paper. LP mode is valid only for a laser printer.

Setting:

"PO": Portrait

"LA": Landscape

"LP": LP mode

Default:

"PO": Portrait

C.3.3 SUPPLY (Paper supply orientation)

Explanation:

Specify the cut sheet feeder, hopper 1, hopper 2, hopper 3, hopper 4, manual, or default as the paper feed slot. This specification is valid when "default" is specified for the paper supply orientation in the descriptor.

If default is specified, the behavior depends on the device.

Setting:

CF: Cut sheet feeder

H1: Hopper 1

H2: Hopper 2

H3: Hopper 3

H4: Hopper 4

MA: Manual feed

NO: Default

Default:

"CF": Cut sheet feeder

Notes:

If "NO" is specified, specify FORMSIZE (Paper size).

C.3.4 PRTPOSX (Printing start column position)

Explanation:

Specify the printing start column position.

Setting:

Set the horizontal position using an integer representing 1/10 inch.

Default:

The printer default is used.

If PRTPOSY (printing start line position) is specified, 0 is set.

C.3.5 PRTPOSY (Printing start line position)

Explanation:

Specify the printing start line position.

Setting:

Set the vertical position using an integer representing 1/10 inch.

Default:

The printer default is used.

If PRTPOSX (printing start column position) is specified, 0 is set.

C.3.6 PRTMPOSX (Printing start column position)

Explanation:

Specify the printing start column position.

Setting:

Set the horizontal position using an integer representing 1/100 mm.

Default:

The printer default is used.

If PRTMPOSY (printing start line position) is specified, 0 is set.

C.3.7 PRTMPOSY (Printing start line position)

Explanation:

Specify the printing start line position.

Setting:

Set the vertical position using an integer representing 1/100 mm.

Default:

The printer default is used.

If PRTMPOSX (printing start column position) is specified, 0 is set.

C.4 Form export information

C.4.1 STREAM (Stream type)

Explanation:

Specify the output stream type.

Setting:

PDF: PDF output

Default:

No specification.

C.4.2 STREAMENV (Stream administrative information file name)

Explanation:

Specify the document information file used in PDF output.

Setting:

The document information file name is specified in the full path.

Default:

No omissible. In this case, the error is notified.

C.4.3 STREAMFILE (Stream output file name)

Explanation:

Specify the PDF file name. When only the file name is specified, it is made for a current folder.

Setting:

Specify the PDF file name.

Default:

No omissible. In this case, the error is notified.

C.5 Edit details

C.5.1 LFCODE (Line-Feed Code)

Explanation:

Specify the line-feed code to explicitly feed a line in block field.

Setting:

Specify line-feed code in hexadecimal. (2digits.)

Example:

```
LFCODE 0A
```

Default:

Line-feed is automatically processed.

C.5.2 LFPRINT (Printable LFCODE)

Explanation:

In a block field, specify printing the LFCODE itself.

Setting:

Y: LFCODE is printed. (LFCODE must be printable character)

N: LFCODE is not printed.

Default:

N: LFCODE is not printed.

C.6 Font information

C.6.1 MAPFONT (Font substitution)

Explanation:

To substitute another font for that defined in the descriptor, specify the font names up to 63 characters total.

Setting:

"font name before substitution" "font name after substitution"

C.7 Descriptor information

C.7.1 MEDDIR (Descriptor storage directory)

Explanation:

Specify the descriptor storage directory. Multiple directories can be specified by delimiting them with a semicolon.

Setting:

Directory name

Example:

```
MEDDIR /home/user1/PMED;/home/user1/PMED/other
```

Default:

If the printer information file name is specified only in Open processing by file name, the current directory must contain the descriptor.

If the printer information file name is specified using a full path, the directory containing the printer information file must contain the descriptor.

C.7.2 MEDSUF (Descriptor extension)

Explanation:

Specify the extension added to the descriptor file name. If four or more characters are specified for the extension, only the first three characters are used.

Specify "NONE" if there is no extension.

Setting:

Specify extension without a dot (period).

Default:

The extension PMD is used.

C.8 Overlay information

C.8.1 OVLDIR (Overlay file storage directory name)

Explanation:

Specify the overlay file storage directory's parent directory name. Multiple directories can be specified by delimiting them with a semicolon.

The overlay storage directory itself must be named "kol5".

Setting:

Directory name

Example:

```
OVLDIR /home/user1/PMED
```

The overlay files are stored at "/home/user1/PMED/kol5"

Default:

Current directory

C.8.2 OVLNAME (Overlay file name)

Explanation:

Specify the overlay file name. This specification is valid if the overlay file name is not specified in the descriptor.

Setting:

Specify the overlay file name using up to eight characters.

Default:

The overlay file is not printed.

C.9 Media information

C.9.1 MEDIADIR (Media file storage directory name)

Explanation:

Specify the media file storage directory.

Multiple directories can be specified by delimiting them with a semicolon. If the media file name is specified using the full path by a program, the specification overrides MEDIADIR.

Setting:

Specify media file storage directory.

Example:

```
MEDIADIR /home/user1/BMPs;/home/user1/TIFFs
```

Default:

The current directory or a directory specified by a directory path.

C.10 Local information

C.10.1 TIMEZONE (Time zone)

Explanation:

Specify the time difference from UTC (Coordinated Universal Time).

Setting:

+HHMM (When you advance time)

-HHMM (When you delay time)

- HH: Time (00 - 23)

- MM: Minutes (00 - 59)

Default:

It is output at local time.

Appendix D Trace Log

The trace log can be output in PowerFORM RTS. If you encounter an error that is not described here, please open a support incident with your support provider.

The following information is gathered in the trace log:

- System information (environment variable, module information)
- Form descriptor, Form overlay, media data
- Printer information file
- Record data
- Error information

D.1 Trace log storage directory

The storage directory for the trace log is as follows:

```
"root directory" /"function directory"/"output date directory"
```

- root directory

The full path for the root directory of the trace log is specified by key word "MEFTLOGROOT". The following default root directory can be changed by the application program.

```
/var/opt/FJSVXmeft/log
```

- function directory

The function directory is MEFTPLOG. If it does not already exist, it is automatically created during output. The name of the function directory cannot be changed.

- output date directory

The output date directory contains the date on which the directory was created (in YYYYMMDD format) in the directory name. It contains various information files that are output by subordinate programs.

Please attach your trace log directory to the associated incident when working with your support provider.

D.2 Trace log operating environment file

Use the following trace log operating environment file to set up the collection of trace log information. When the log operating environment file is installed, the content of each key word is as follows:

- trace log operating environment file

```
/etc/opt/FJSVXmeft/conf/meftlog.conf
```

- key word

```
MEFTLOGROOT /var/opt/FJSVXmeft/log  
MEFTLOGNUMP 32  
MEFTLOGSIZEP 8192
```

A blank is required after each key word. A "change line" code is required at the end of each key word setting.



- EUC codes are valid.
- Each line starts from the first digit.

- When two or more same key words exist, the last definition becomes effective.
- One or more normal-width blanks are required between the key word and the set point.

Key words and content are as follows:

- MEFTLOGROOT
Specifies the full path for the root directory of the trace log. The default directory is as follows:
`/var/opt/FJSVXmeft/log`
- MEFTLOGNUMP
Specifies the largest number of trace log entries, 0-1024, that can be included in one day. When the maximum number is exceeded, the oldest output date directory is deleted. When 0 is specified, the trace log is not output. If a number outside the range is entered, a maximum of 32 is assigned.
- MEFTLOGSIZEP
Specify the maximum size of the log that can be output in one job unit (an output date directory unit), 1 - 8192 MB. If a number outside the range is entered, a maximum of 8192 is assigned. If the log exceeds the maximum, subsequent trace logs are not output.

Note

- You must have enough disk space available to accommodate the trace log. This can be calculated by multiplying the value of MEFTLOGNUMP (maximum trace log entries) by the value of MEFTLOGSIZEP (maximum log size output in one job unit).
- The output file to use in an enlarge/reduce print is output. When using enlarge/ reduce for multiple page files, specify the size according to the value in MEFTLOGSIZEP. A size of 2,048MB is recommended.
- Outputting the trace log can affect print quality. Check the print quality with trace log enabled versus disabled.
- When uninstalling, the following directory is not deleted. This directory can be deleted after saving any critical information it may contain.

`/var/opt/FJSVXmeft`

D.3 Trace log delete command

Output date directory can be deleted by trace log delete command.

All directories that the created date are older than the parameter specified in "days" are deleted.

The description form of the command is shown as follows:

```
/opt/FJSVXmeft/lib/cleanlog.sh -p days
```

A blank is required after each parameter.

Explanation of Parameters

- `-p`
Deletes output date directories in "MEFTPLOG".
- `days`
Specify lapsed days of output date directories to be deleted.
Only unsigned integers may be specified.
The directory that passes in 24 hours * (*days* + 1) becomes the object of the deletion.
For instance, if 0 is specified, the directory that passes 24 hours or more becomes an object. If one is specified, the directory that passes 48 hours or more becomes an object.

 Note

- When these parameters are omitted, no directories are deleted.
- When the delete command is started with the scheduler, the right of access for the storage directory for the trace log is necessary for the start account (user).
- This command uses the `find(1)` command. See man-page of `find(1)` about details of the parameter "days".

Appendix E Error Messages

This appendix provides information about PowerFORM RTS output error messages.

E.1 Output format of error messages

PowerFORM RTS error messages are output by the system log for the Linux version.

An example of a PowerFORM RTS error message is shown below.

- Example of output of Red Hat Enterprise Linux

```
May 21 09:14:15 hostname sampletp: Meft: ERROR WRITE error. ERROR CODE: 42-12a0-00000002-00000000  
SUPPLEMENT:123, PMED0001.PMD, Bitmap001, No such file or directory, /media/BMP01.bmp
```

The output format of the error messages is as follows: (* is a normal-width blank)

```
date * hostname * process name: * source name: * Type: * explanation
```

- "date", "hostname", "process name" output information acquired from operation OS.
- The source name is output by "MeFt".
- "Error" or "Warn" is output in the Type field.

Detailed error information is output as follows:

- **For ERROR type: "Explanation" is output as follows:**

```
error information * error detailed information, * error supplemental information
```

- The processing type at the error detection is output to "Error information".
OPEN error: An error occurred during an OPEN of MeFt PowerFORM RTS.
WRITE error: An error occurred during a WRITE of MeFt PowerFORM RTS.
CLOSE error: An error occurred during a CLOSE of MeFt PowerFORM RTS.
CANCEL error: An error occurred during a CANCEL of MeFt PowerFORM RTS.
- Detailed error information is output to "Error detailed information":

```
ERROR CODE: aa[Return code]-xxxx[detection information]-yyyyyyyy[system error code]-  
zzzzzzz[tool error code]
```

- aa: The processing result post code is output in two alphanumeric characters.
- xxxx: Error detection information is output in four hexadecimal numbers.
- yyyyyyyy: Code output indicating a system function call error.
- zzzzzzz: Code output indicating an error in an API product call.
- Additional error information is output to "Error supplemental information" (SUPPLEMENT). There is no output if there is no supplemental information.

```
SUPPLEMENT: dddd[Page Number], form descriptor, partition name, item name, system error code  
explanation, file path information
```

When an error is detected during the processing of each file, the descriptors, integration media, and path information for each associated file are output to "file path information".

- For a **WARNING** type: The "Explanation" is output in messages as follows:

- If a failure occurs when creating the MEFTPLOG directory in the trace log collection, the following is output:

It failed in making the MEFTPLOG directory for the log collection.

- If a failure occurs when creating the output date directory in the trace log collection, the following is output:

It failed in making the YYYYMMDDHEDxxx directory for the log collection.

- If a failure occurs when opening the log file in the trace log collection, the following is output:

It failed in the opening of the log file.

- If a failure occurs when writing to the log file in the trace log collection, the following is output:

It failed in the write of the log file.

- If a failure occurs when closing the log file in the trace log collection, the following is output:

It failed in the close of the log file.

- If a job log in the trace log exceeds the maximum size:

The log file exceeded the upper bound value of one job.

E.2 Detailed error information

This section provides detailed information about the error messages output, and the corrective action that can be taken. This information is categorized by return code. "Error code when the error is detected by system function" and "Error code notified from the liaising product" are omitted here.

E.2.1 Return code 03 - 09

"03-3030" - "03-3035"

Meaning

The specified presentation file identifier was incorrect, and processing was discontinued.

User Action

Use the presentation file identifier acquired by open processing.

"08-3050"

Meaning

The record length of the form descriptor was larger than the length of the record area of the application program, and processing was discontinued.

User Action

Increase the length of the record area of the application program and rebuild the application program.

"09-04b1", "09-04b2"

Meaning

An internal error was detected during ruled line and half-tone dot meshing processing when printing.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"09-05c3" - "09-05c8"**Meaning**

An internal error was detected during character processing when printing.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"09-45b0", "09-45b1"**Meaning**

A system failure was detected by the print start processing.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"09-45b2" - "09-45be"**Meaning**

An internal error was detected during the drawing process when printing.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"09-45d0" - "09-45d4", "09-45e0" - "09-45ec"**Meaning**

An internal error was detected during the integration media processing when printing.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

E.2.2 Return code 10 - 18

"10-0011"**Meaning**

The maximum (1024) that can be opened at the same time in the same process was exceeded by the open processing of PowerFORM RTS.

User Action

The document output under execution is ended. Close the open document and execute the output again.

"10-041f", "10-0510"**Meaning**

An error occurred during temporary file creation processing when printing.

User Action

Check the system failure code for more information.

"10-3010"**Meaning**

The specified presentation file identifier was incorrect, and processing was discontinued.

User Action

Use the presentation file identifier acquired by the open processing.

"10-3e10"

Meaning

The document information file is not specified in PDF output.

User Action

Specify the document information file for STREAMENV(administrative information file name specification) of the printer information file.

"10-3e11"

Meaning

PDF file name is not specified in PDF output.

User Action

Specify the PDF file name for STREAMFILE (stream output file name) of the printer information file.

"10-3e12"

Meaning

The error was notified from the initialization of the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"10-4510" - "10-4512"

Meaning

An internal error was detected when beginning to print.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"18-0010"

Meaning

A file access error occurred during the creation of the printer information confirmation file.

User Action

Confirm that environment variable MEFTTMP or TMPDIR exists. Set the necessary access authority. Confirm that the disk space specified with environment variable MEFTTMP or TMPDIR is available.

"18-04b0"

Meaning

A system failure was detected while the data was output for printing.

User Action

Check the system failure code for more information.

"18-0eb0", "18-0eb1", "18-0ef0" - "18-0ef4"

Meaning

The file access error was notified from the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"18-45d1"

Meaning

An access error occurred during the media power output.

User Action

Confirm whether the access authority of the specified media data or the specified media data exists.

"18-45d2"

Meaning

A system function error was detected during creation of the temporary file at the media power output.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"18-4e10", "18-4e20", "18-4ec0", "18-4ef0", "18-4ef1", "18-4ef2"

Meaning

The file access error was notified from the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

E.2.3 Return code 20 - 26

"20-04b0"

Meaning

Insufficient disk space during printing.

User Action

Increase the disk capacity by deleting unnecessary files, etc.

"20-41b0"

Meaning

Insufficient disk space to create the temporary file when outputting to media.

User Action

Output the file again after increasing the disk capacity by deleting unnecessary files, etc.

"20-45d0"

Meaning

Insufficient disk space during printing.

User Action

Increase the disk capacity by deleting unnecessary files, etc.

"21-0010" - "21-0015"

Meaning

Failure to acquire the work area due to memory shortage.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0016", "21-0017"

Meaning

An error occurred during initialization.

User Action

Check for an error that corresponds to the error explanation associated with the system failure code.

"21-0211"

Meaning

Failure to acquire the work area due to memory shortage.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0410", "21-04a0", "21-04b0", "21-05d1", "21-05d2"

Meaning

Failure to acquire the work area due to memory shortage.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0e10", "21-0e11"

Meaning

It failed in the acquisition of the work area due to memory shortage in the PDF output.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0eb0" - "21-0eb2"

Meaning

A memory shortage occurred while being outputting PDF by the PDF conversion function.

User Action

- Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.
 - The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.
-

"21-0ed0"

Meaning

It failed in the acquisition of the work area due to memory shortage in the PDF output.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0ef0", "21-0ef1"

Meaning

A memory shortage occurred while being outputting PDF by the PDF conversion function.

User Action

- Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.
 - The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.
-

"21-0ef2", "21-0ef3"

Meaning

It failed in the acquisition of the work area due to memory shortage in the PDF output.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-0ef4" - "21-0ef8"

Meaning

In the barcode processing in PDF output, memory shortage occurred by the PDF conversion function.

User Action

- Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.
 - The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.
-

"21-4510", "21-45b0", "21-45c0", "21-45d0"

Meaning

System failure was detected during printing.

User Action

Check the system failure code for more information.

"21-45d1"

Meaning

Memory shortage occurred in the output processing.

User Action

Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.

"21-4e10", "21-4e11", "21-4e20", "21-4ec0", "21-4ee0", "21-4ef0" - "21-4ef2"

Meaning

A memory shortage occurred while being outputting PDF by the PDF conversion function.

User Action

- Terminate unnecessary applications and increase the virtual memory, or increase the memory, and execute it again.
- The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"22-3050"

Meaning

An error was detected by the descriptor reading processing.

User Action

Check the specified definition name for errors, and check the directory specified with MEDDIR of the printer information file (descriptor storage directory).

"22-3090"

Meaning

The descriptor name was omitted on setting bottom information of the printer device control.

User Action

Confirm the specification of the descriptor name.

"23-0050"

Meaning

A memory shortage occurred during the descriptor reading processing.

User Action

Terminate unnecessary applications and increase the virtual memory or increase the memory, and execute it again.

"24-05d3"

Meaning

An unsupported media form or media attribute was specified at the media power output.

User Action

Specify a supported media form or media attribute.

"24-2040"

Meaning

The specified item name or item group name was not found.

User Action

Check the item name and item group name by the descriptor.

"24-3092"

Meaning

The specified partition field group name was not found in descriptor on setting bottom information of the printer device control.

User Action

Confirm the specification of partition field group name on the descriptor.

"24-3093"

Meaning

The floatage partition was specified for the bottom partition on setting bottom information of the printer device control.

User Action

Specify a fixed partition for the bottom partition.

"24-3094"

Meaning

In the form descriptor (free frame), The bottom partition is not corresponding to the frame of a specified partition.

User Action

Specify the partition of the same frame.

"25-3040", "25-3041"

Meaning

An error was found in the argument specified by the application program. The value that was specified excluding the constant label or specified for the PROCESSING MODE phrase is not correct.

User Action

Check the constant label in the argument and the value specified for use in the PROCESSING MODE phrase.

"26-3040"

Meaning

There is an error in the argument specified by the application program. The value that was specified for the constant label or specified for the UNIT CONTROL phrase is not correct.

User Action

Check the constant label in the argument and the value specified for use in the UNIT CONTROL phrase.

"26-3043"

Meaning

"0" was specified for the absolute line number when the partition was output.

User Action

Specify "1" or greater for the absolute line number.

"26-3044", "26-3045"

Meaning

There is an error in the argument specified by the application program. The value that was specified for the constant label or specified for the UNIT CONTROL phrase is not correct.

User Action

Check the constant label in the argument and the value specified for use in the UNIT CONTROL phrase.

"26-3047"

Meaning

There is an error in the argument specified by the application program. Neither the value specified for the number of lines or number of changing lines nor the value specified for the UNIT CONTROL phrase are correct.

User Action

Check the value specified for the number of lines or the number of changing lines or the value specified for the UNIT CONTROL phrase.

"26-3090"

Meaning

The value that was specified for the UNIT CONTROL phrase is not correct on setting bottom information of the printer device control.

User Action

Check the value specified for the UNIT CONTROL phrase.

"26-3091"

Meaning

In setting bottom information of the printer device control, the partition that had been defined in the frame in the horizontal direction of the description (free frame) was specified.

User Action

Do not specify the partition defined in a horizontal direction frame.

"26-3092"

Meaning

A non-numeric value was specified for a bottom value on setting bottom information of the printer device control.

User Action

Specify the numeric for a bottom value.

"26-3093"

Meaning

The value that exceeded the size of the form descriptor or the frame was specified for a bottom value on setting bottom information of the printer device control.

User Action

Specify the value that does not exceed the form descriptor or the frame for a bottom value.

E.2.4 Return code 32

"32-05b0"

Meaning

The error occurred during the reading of the overlay. An unsupported overlay form may have been specified.

User Action

Confirm the form of the overlay used.

"32-3050" - "32-3052"

Meaning

An error occurred while reading the descriptor. The descriptor is incomplete or incorrect or it defines an unsupported function.

User Action

Check and correct the descriptor.

"32-3090"**Meaning**

The form descriptor excluding the partition format and the free frame was specified for on setting bottom information of the printer device control.

User Action

Specify the form descriptor of the partition format and the free frame.

E.2.5 Return code 40 - 47

"40-4520", "40-4521"**Meaning**

An error was detected during the close processing.

User Action

Check the system failure code for more information.

"40-4522"**Meaning**

The error occurred by the lp startup processing.

User Action

End all unnecessary applications and execute again.

"40-4523", "40-4525"**Meaning**

The error was detected by close processing.

User Action

Check the system failure code for more information.

"42-04b0"**Meaning**

A file access error was detected during the print data power output.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"42-35d0" - "42-35d1"**Meaning**

The media file that was specified at the integration media power output was not found.

User Action

Check the directory that specifies the integration media file.

"42-3ed1"**Meaning**

The OLE cooperation was specified in the PDF output.

User Action

It is not used in the PDF output.

"42-3ed2"

Meaning

The unsupported media form was specified for the Image Field in PDF output.

User Action

Confirm the specified media form.

"42-45d5", "42-45d7", "42-45e0", "42-45e1"

Meaning

Internal error was detected at the media power output.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"42-4ee0"

Meaning

In the media processing in PDF output, a file access error occurred by the PDF conversion function.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"44-05d0"

Meaning

An internal error was detected at the media power output.

User Action

Record this message and the content of the operation, and open a support incident with your support provider.

"47-0ef1", "47-0ef3", "47-0ef4"

Meaning

A barcode output error occurred by the PDF conversion function in PDF output.

User Action

- Check the barcode data specifications.
 - Confirm a detailed error from log information on the PDF conversion function.
-

E.2.6 Return code 62 - 6C

"62-00b0"

Meaning

The length of the descriptor was exceeded when the partition was output.

User Action

Change the descriptor and the application program so that the length of the descriptor is not exceeded when the specified partition is output.

"65-00b0"**Meaning**

The descriptor size was exceeded by the descriptor of the column setting partition form when the partition was output.

User Action

Output the partition so as not to exceed the descriptor size.

"6A-3060"**Meaning**

The following errors were detected on outputting the form.

- While outputting the form descriptor (columns) or the form descriptor (free frame), the line record output was specified.
- While using the form descriptor (free frame), new frame and new page was executed in a print file with the FORMAT phrase.

User Action

- Do not specify the line record output.
 - Output with the display file. Or use the descriptor other than the form descriptor (free frame).
-

"6B-30b0"**Meaning**

While outputting the form descriptor (free frame), the specified partition exceeded the last frame.

User Action

Specify not to exceed the last frame by executing new frame and new page.

"6C-30b0"**Meaning**

While outputting the form descriptor (free frame), the specified partition exceeded the frame or bottom position.

User Action

Do not exceed the frame or the bottom position.

E.2.7 Return code 84 - 86

"84-3090"**Meaning**

The output item group name was not specified when the partition form was specified.

User Action

Specify the output item group name.

"85-3090"**Meaning**

The partition output was specified in descriptors other than the partition form.

User Action

Do not specify the partition output in descriptors other than the partition form.

"86-00b1"

Meaning

A memory shortage occurred during character output processing.

User Action

Terminate unnecessary applications and increase the virtual memory or increase the memory, and execute again.

E.2.8 Return code 91 - 9M

"91-05b0"

Meaning

The overlay that had been specified at the overlay power output was not found.

User Action

Confirm whether the overlay pattern file exists in the directory specified with OVLDIR of the printer information file (overlay pattern storage directory name).

"91-0ef0"

Meaning

The form overlay that was specified in PDF output was not found.

User Action

Verify that the form overlay pattern file exists in the folder specified for OVLDIR (overlay file storage directory name) in the printer information file.

"91-0ef2", "91-0ef3"

Meaning

In the form overlay processing in PDF output, an error occurred by the PDF conversion function.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"92-1000" - "92-1bbb"

Meaning

A print cancellation was executed that prevented the close of the print file.

User Action

Close the print file.

"99-05d0", "99-45b0", "99-45b1"

Meaning

Loading failure during the print control processing.

User Action

Confirm whether PowerFORM RTS is correctly installed.

"99-45d0"

Meaning

Initialization failure during the print control processing.

User Action

Confirm whether PowerFORM RTS is correctly installed.

"9H-0090"

Meaning

When PDF was output, there was a failure in loading the PDF conversion function.

User Action

Confirm that List Creator (PDF conversion function) is correctly installed.

"9H-0e10" - "9H-0e13"

Meaning

When PDF was output, there was a failure in loading the PDF conversion function.

User Action

Confirm that List Creator (PDF conversion function) is correctly installed.

"9I-3010"

Meaning

The values other than "PDF" were specified for STREAM (Stream type) of the printer information file.

User Action

Confirm the specification of the stream type.

"9M-0eb0", "9M-0eb1"

Meaning

The file access error was notified from the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-0ef0", "9M-0ef1"

Meaning

In the barcode processing in PDF output, an error occurred by the PDF conversion function.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-3ef0" - "9M-3ef5"

Meaning

In the barcode processing in PDF output, an error occurred from the PDF conversion function.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-4e10"

Meaning

The error was notified from the initialization of the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-4e20"

Meaning

The error was notified from the initialization of the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-4ec0"

Meaning

The file access error was notified from the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-4ee0"

Meaning

In the media processing in PDF output, an error occurred by the PDF conversion function.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

"9M-4ef0" - "9M-4ef2"

Meaning

The file access error was notified from the PDF conversion function in the PDF output.

User Action

The error code notified the tool error code from the PDF conversion function is output. Confirm a detailed error from log information on the PDF conversion function.

E.2.9 Return code C3 - C4

"C3-0410", "C3-3410"

Meaning

Failure reading the printer information file.

User Action

Confirm whether the printer information file exists in the directory or the current directory specified for environment variable MEFTDIR.

"C4-3010", "C4-3011"

Meaning

An incorrect printer model name was specified for PRTDEV in the printer information file (printer model).

User Action

Confirm whether the printer model name specified for PRTDEV of the printer information file (printer model) is correct.

E.2.10 Other Return Codes

For return codes other than those above:

Meaning

An internal error was detected.

User Action

Record the return code, the message, and the content of the operation, and open a support incident with your support provider.

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