

A Guide to Fast Print Support

z/VSE How-To

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Fast Print Support

3800 Fast Print support may be used to improve performance of jobs with heavy print activity by blocking the print requests from application to POWER. You need no software other than that which is included in z/VSE.

Basically, for each existing FCB you have for your real line printers today, you should define a 3800 FCB image, using the same last 4 characters (the first four characters are device dependent with FCB1 being used for 3800s and other prefixes for other printer types). Just make sure the part of the name after the first four characters are the same for all FCBs related to the same form, then POWER will load and interpret the 3800 FCB at application execution time, and the real printer's FCB at spool print time.

How it Works

At OPEN time, z/VSE will detect the 3800 printer, allocate 4K of GETVIS to use as a buffer, and connect a blocked-IO printer logic module in place of the standard one. This will cause each print PUT to simply move its data into the buffer (divide into two parts for overlap) and when the 2K buffer fills up, then do the EXCP which POWER intercepts. Thus, POWER will be driven once per 2K of printout, instead of once per line. Much less POWER overhead results in shorter application execution times.

Possible Issues

If you have applications which skip to printer channels (all skip at least to channel 1 for top of forms, as JCL does) you need a 3800 FCB for that purpose. You should make a 3800 FCB for each real printer FCB you have, but you may be able to have a single 3800 default FCB with all channels punched IF NO applications uses the VSE PRTOV function (COBOL AT-END-OF-PAGE) logic.

Applications using PRTOV in ALC or AT-END-OF-PAGE in COBOL, will need custom FCBS so POWER can keep track of line counting and know to raise the unit exception condition to simulate finding the channel 9 or 12 indication.

Implementing the Facility

Define your real printers to z/VSE with their true characteristics (1403, PRT1, or whatever) as usual. Under VM, the VM spool printers look like real printers to z/VSE, if that applies.

```
ADD 00E,PRT1
```

Define POWER DUMMY printers with different device numbers for use by applications, different from the real printers. In the ADD statements, make them type 3800.

```
ADD F10:F13,3800,EML (FOUR 3800 DUMMY PRINTERS)
```

Change the PSTART partition command PRINTERS= list to include the new 3800 DUMMY printers:

```
PRINTERS=F10,F11,F12,F13,. . .
```

Change the \$\$JCL procedures to ASSGN SYSLST to the new dummy printer instead of the old printer or the real printer:

```
ASSGN SYSLST,F10
```

Change you other ASSGN SYSnnn for old dummy or real printers to the 3800 DUMMY printers:

```
ASSGN SYSnnn,F11
```

Change any POWER \$\$LST statements referencing the old CUU values to the corresponding new CUU values for the 3800 DUMMY printers. If the \$\$LST statements use SYSnnn specifications, they should not need changing.

In the POWER you will need to add the following statement, which tell POWER not to write this message to the console on the console when spooling the output to a real printer that is not a 3800.

```
SET 1Q41I=NO
```

There are two FCBs involved in every job and there must be one for the real printer and one for the 3800 DUMMY printer with the same name.

The FCBs have a 4 character name prefixed by either by FCBn where n is equal to 1 for a 3800 , 2 for 1403 or 3211, and 5 for 6262 or 4245.

In the \$\$LST statement you would use for example:

```
FCB=$$$$XSTD
```

The program execution would then use FCB1XSTD while writing to the queue and when POWER prints to on a 6262 printer it would use FCB5XSTD.

If you are only using Channel 1 to skip to top of form then you can omit the FCB from the \$\$LST statement and it will use the default FCBs. The default FCB for the 3800 DUMMY while the program is executing and the default FCB when POWER is printing the output. You will receive the following message when it is printed by POWER:

```
F1 0097 1B19I X'cuu'LFCB WITH PHASE $$BFCBxx EXECUTED
```

If you specify in the \$\$LST statement FCB=\$\$\$\$XSTD. You will receive the following message when it is printed by POWER.

```
F1 0097 1B19I X'cuu'LFCB WITH PHASE FCB5XSTD EXECUTED
```

Generating FCBs

You can generate your FCBs for non-3800 printers using your present method or using the IUI.

PRINT	DC	255X'00'
	ORG	PRINT+0+6-1
	DC	X'01'
	ORG	PRINT+0+60-1
	DC	X'0C'
	ORG	PRINT+0
	DC	X'00'
	ORG	PRINT+0+66-1
	ORG	
MSG	DC	CL80' \
	ORG	MSG
	DC	CL16'FCB5XSTD LOADED \
	ORG	

You generate the FCB for a 3800 using the IEBIMAGE Utility (see the Appendix for the definition of the parameters).

```
FCB CH=1,CH2=6,CH3=13,LPI=6,SIZE=120
NAME XSTD,REPLACE=YES
```

This example has specifications for channel 1 at line 1, channel 2 at line 6 and channel 3 at line 13. LPI=6 indicates 6 lines per inch. SIZE is the length of the form in tenths of an inch. It defaults to SIZE=110. To allow for

the 3800 requirement of ½” margin at the top and ½” at the bottom of the form you must add 10 to the 110 for 11 inch form.

In order to keep the two FCBs with the same name it is recommended that you use the following job stream to generate the two FCBs at the same time:

```

1   * $$ JOB JNM=GENFCBS,CLASS=0,. . .
2   // JOB GENFCBS
3   /* * ===== *
4   /* * GENERATE DUAL FCBS FOR THE 3800 DUMMY *
5   /* * AND THE REAL PRINTER FORM = 1 PART 11 *
6   /* * INCH GREEN BAR *
7   /* * ===== *
8   * $$ LST LST=SYSLST,CLASS=A,. . .
9   /. DT3800
10  // OPTION NODECK,CATAL
11  // EXEC IEBIMAGE,SIZE=IEBIMAGE
12  FCB CH1=6,F12=60,LPI=6,SIZE=120
13  NAME=XSTD,REPLACE=YES
14  /*
15  // IF $RC NE 0 THEN
16  // GOTO ERROR
17  /. DT6262
18  // OPTION NODECK,CATAL
19  PHASE FCB5XSTD,+0,NOAUTO
20  // EXEC ASMA90,SIZE=(ASMA90,64K),. . .
21  PRINT      DC   255X'00'
22             ORG PRINT+0+6-1
23             DC   X'01'
24             ORG PRINT+0+60-1
25             DC   X'0C'
26             ORG PRINT+0
27             DC   X'00'
28             ORG PRINT+0+66-1
29             ORG
30  MSG        DC   CL80' `
31             ORG MSG
32             DC   CL16'FCB5XSTD LOADED `
33             ORG
34             END
35  /*
36  // EXEC LNKEDT
37  /*
38  // IF $RC EQ 0 THEN
39  // GOTO END
40  /* ERROR
41  // PAUSE GEN OF FCBS ERROR, INVISTIGATE
42  /. END
43  /*
44  /*
45  * $$ EOJ

```


IEBIMAGE Utility (extract)

IEBIMAGE is a utility program liberated from z/OS, that is used for the creating and maintaining of FCBs for 3800 printers in the z/VSE environment. The two statements of the utility that are used for the generation of FCBs are the FCB statement with parameters and the NAME statement with parameters.

The FCB statement must always be followed by a NAME statement.

FCB Statement

The syntax of the FCB statement is:

```
[label] FCB CHx=line, . . . .  
          LPI=1,  
          SIZE=length
```

CHx=*line* specifies the channel code and the line number to be skipped to when that code is specified. CHn specifies a channel code, where x is a decimal integer from 1 to 12. *line* specifies the line number of the print line to be skipped to, and is expressed as a decimal integer. The first printable line on the page is line number 1. The value of *line* cannot be larger than the line number of the last printable line on the form.

Only one channel code can be specified for a print line. However, more than one print line can contain the same channel code.

Conventions:

- Channel 1 is used to identify the first printable line on the form.
- Channel 9 is used to identify a special line. To avoid interruptions that are caused by use of channel 9, count lines to determine the line position.
- Channel 12 is used to identify the last print line on the form to be used. To avoid I/O interruptions that are caused by use of channel 12, count lines to determine the page size.
- Use of an FCB that lacks a channel code to stop a skip operation causes a data check at the printer when the corresponding skip is issued. This data check cannot be blocked.

SIZE=length specifies the vertical length of the form, in tenths of an inch. See 3800 Printing Subsystem Programmer's Guide for the allowable lengths for the 3800. The complete length of the form is specified (for example, with the 3800, SIZE=110 for an 11-inch form) even though the amount of space available for printing is reduced by the ½-inch top and bottom areas where no printing occurs.

When the SIZE, LINES and LPI keywords are specified in the FCB statement, each parameter value is checked against the others to ensure that there are no conflicting page-length specifications. For example SIZE=35 specifies a 3-½ inch length, acceptable LPI values for the 3800 cannot define more than the printable 2-½ inches of this length.

When SIZE is not specified, the form length defaults to the value specified in LINES. If LINES is not specified, SIZE is assumed to be 11 inches (110).

LINES=lines specifies the total number of lines to be contained in an FCB module.

lines is the decimal number, from 1 to 256, which indicates the number of lines on the page.

When the LINES, SIZE, and LPI parameters are specified in the FCB statement, each parameter value is checked against the others to ensure that there are no conflicting page-length specifications.

When LINES is not specified, the form length defaults to the value of LPI multiplied by the value of SIZE, in inches. If no SIZE parameter is specified, LINES defaults to 11 times the value of LPI.

NAME Statement

The NAME statement can name a new library module to be built by the IEBIMAGE program. The NAME statement can also specify the name of an existing library module. The NAME statement is required, and must be the last statement in each operation group.

The syntax of the NAME statement is:\

<code>[label] NAME <i>module name</i>[(R)]</code>

where:

module name names or identifies a library module. The module name is 1 to 4 alphanumeric and national (\$, #, and @ characters, in any order, or, for a library character set module, a 2-character ID that represents two hexadecimal digits (0-9, A-F), the second digit being odd. Note that 7F and FF cannot be used.

(R) indicates that this module is to be replaced by a new module with the same name, if it exists. R must be coded in parentheses.