



**Program Directory for**  
**SCRIPT Mathematical Formula Formatter Feature**  
**for Document Composition Facility/MVS**

Release 4.1.Modification Level 1

Program Number 5748-XX9

for Use with  
Document Composition Facility/MVS Version 1, Release 4.1  
PROGRAM 5748-XX9  
FEATURES 5520/5521/5522

JUNE, 2020

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This directory contains information concerning the material and  
procedures associated with the installation of this program.

You should read all of it before installing the  
program and then keep it for future reference.

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## Preface

This document is intended for the system programmer responsible for program installation and maintenance. This document contains the following sections:

- Introduction

This section provides an overview of the SCRIPT Mathematical Formula Formatter (SMFF).

- Program Materials

This section identifies the basic and optional program materials and documentation for SMFF.

- Program Support

This section describes the IBM support available for SMFF.

- Program and Service Level Information

This section lists the program level authorized program analysis reports (APARs) and service level program temporary fixes (PTFs) incorporated into SMFF.

- Installation Requirements and Considerations

This section identifies the resources and considerations for the installation and use of SMFF.

- Installation Instructions

This section provides detailed installation instructions for SMFF.

It also describes the procedures for activating the functions of SMFF and the installation verification procedure (IVP).

- Appendix A

This appendix provides the SMP/E modification control statements (SMPMCS) for SMFF.

- Appendix B

This appendix provides the SMFF IVP sample problem.

- Appendix C

Reader's Comments

Do not use this program directory if you are installing SMFF with an MVS Custom-Built Installation Process Offering (CBIPO) (5751-CS1). Instead use the CBIPO related installation materials (RIMs) provided with CBIPO. If necessary, the CBIPO RIMs will point you to specific sections of the program directory as required.

If you are installing SMFF using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), use the softcopy program directory provided on the CBPDO tape. Your CBPDO will contain a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for SMFF are included on the CBPDO tape.

Before installing SMFF, read section 3.2, "Preventive Service Planning" on page 7. This section tells you how to find any updates to the information and procedures in this program directory.

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## Contents

<b>Preface</b> . . . . .	iii
Notices . . . . .	v
Trademarks . . . . .	v
 <b>1.0 Introduction</b> . . . . .	 1
 <b>2.0 Program Materials</b> . . . . .	 3
2.1 Basic Machine-Readable Material . . . . .	3
2.2 Optional Machine-Readable Material . . . . .	4
2.3 Program Publications . . . . .	4
2.3.1 Basic Program Publication . . . . .	4
2.3.2 Optional Program Publications . . . . .	4
2.3.3 Publications Useful During Installation . . . . .	5
2.4 Microfiche Support . . . . .	6
 <b>3.0 Program Support</b> . . . . .	 7
3.1 Program Services . . . . .	7
3.2 Preventive Service Planning . . . . .	7
3.3 Statement of Support Procedures . . . . .	7
 <b>4.0 Program and Service Level Information</b> . . . . .	 9
4.1 Program Level Information . . . . .	9
4.2 Service Level Information . . . . .	9
4.3 Cumulative Service Tape . . . . .	10
 <b>5.0 Installation Requirements and Considerations</b> . . . . .	 11
5.1 Driving System Requirements . . . . .	11
5.1.1 Operating System Requirements . . . . .	11
5.1.2 Machine Requirements . . . . .	11
5.1.3 Programming Requirements . . . . .	11
5.1.4 DASD Storage Requirements . . . . .	11
5.2 Target System Requirements . . . . .	11
5.2.1 Operating System Requirements . . . . .	12
5.2.2 Machine Requirements . . . . .	12
5.2.3 Programming Requirements . . . . .	12
5.2.4 DASD Storage Requirements . . . . .	12
5.2.4.1 SMP/E Data Set Storage Requirements . . . . .	13
5.2.4.2 Target and Distribution Library DDDEFs . . . . .	14
5.2.4.3 Target and Distribution Library Storage Requirements . . . . .	15
5.3 Programming Considerations . . . . .	16
5.4 System Considerations . . . . .	17
5.5 Special Considerations . . . . .	18

<b>6.0 Installation Instructions</b>	19
6.1 Unload Sample JCL	19
6.2 Installation Steps	20
6.2.1 RECEIVE SMFF Feature	21
6.2.2 RECEIVE Cumulative Service Tape, if Applicable	22
6.2.3 Perform SMP/E APPLY CHECK	22
6.2.4 Load Target Libraries using APPLY	23
6.2.5 Perform SMP/E ACCEPT CHECK	24
6.2.6 Load Distribution Libraries using ACCEPT	25
<b>7.0 Installation Verification Procedure for SMFF</b>	27
7.1 Make SMFF Load Module Available to the Command Processor	27
7.2 Create a New Font Library Index	27
7.3 Format the Sample Problem	27
7.3.1 Format the Sample Problem for a Terminal	27
7.3.2 Format the Sample Problem for a Page Printer	28
7.4 SMFF Tasks after Installation Verification	29
<b>Appendix A. SMFF SMPMCS</b>	31
<b>Appendix B. IVP Sample Problem</b>	35
<b>Appendix C. Reader's Comments</b>	37

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## Figures

1. Basic Material - Program Tape	3
2. Program Tape - File Content	3
3. Basic Material - Program Publication	4
4. Optional Material - Program Publications	4
5. Values	7
6. Component ID and Field Engineering Service Number	7
7. Library Type Definition	13
8. Storage Requirements for SMP/E System Entries	13
9. Storage Requirements for SMP/E Data Sets	13
10. Target Library DD Statements	14
11. Distribution Library DD Statements	14
12. Storage Requirements for Target Libraries	15
13. Storage Requirements for Distribution Libraries	16
14. Unload JCL	20
15. RECEIVE JCL for SMFF	21
16. RECEIVE JCL for Cumulative Service Tape	22
17. APPLY CHECK JCL for SMFF	23



18.	APPLY JCL for SMFF . . . . .	23
19.	ACCEPT CHECK JCL for SMFF . . . . .	24
20.	ACCEPT JCL for SMFF . . . . .	25
21.	Device Reference . . . . .	28
22.	SMPMCS . . . . .	32
23.	DSMEQSPL Sample Problem . . . . .	35
24.	Formatted DSMEQSPL Sample Problem for Non-page Printer Device . . . . .	36



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## 1.0 Introduction

SMFF has been service updated to incorporate PTFs and APARs against this product since it was released. This product is now at Service Update Level SMC9416. The Service Level represents the weekly CBPDO service tape number that SMFF was updated to. To determine the latest level of PUT maintenance installed on the SMFF tape, refer to 4.0, "Program and Service Level Information" on page 9.

SMFF is capable of formatting documents for the following printers:

- Advanced Function Printing (AFP) Page Printers, including:
  - IBM 3800 Printing Subsystem Models 3 and 6
  - IBM 3812 Page Printer
  - IBM 3816 Page Printer
  - IBM 3820 Page Printer
  - IBM 3825 Page Printer
  - IBM 3827 Page Printer
  - IBM 3828 Advanced Function MICR Printer
  - IBM 3835 Page Printer
  - IBM 3900 Advanced Function Printer
  - Other printers compatible at the data stream level.
- PostScript printers configured to accept 8-bit ASCII such as the IBM 4019 LaserPrinter.
- IBM 4250 Printer.

**Note:** The IBM 4250 Printer requires the Composed Document Print Facility (CDPF) licensed program to print SMFF formatted output. Although you can still use SMFF to format for a 4250 Printer, the 4250 Printer and CDPF are no longer available from or serviced by IBM.

- For other printers, if the SMFF code is installed, the formula input is checked for errors, but the formula will not be produced. The formula input is printed "as is" in the output.



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## 2.0 Program Materials

An IBM program is identified by a program number. The program number for the Document Composition Facility, Release 4.1 for MVS (DCF/MVS Release 4.1) is 5748-XX9. The FMID for SMFF is JSR1415.

The following sections identify:

- The basic and optional program materials available with this program
- Publications useful during installation
- Available microfiche.

---

### 2.1 Basic Machine-Readable Material

The distribution medium for this program is a 9-track magnetic tape, written at either 1600 or 6250 bpi, or a 3480 cartridge. The tape or cartridge contains all the data needed for installation. It is installed using the SMP/E installation program. See 6.0, "Installation Instructions" on page 19 for more information about installing the program. Figure 1 describes the tape or cartridge. Figure 2 describes the file content of the program tape or cartridge.

<i>Figure 1. Basic Material - Program Tape</i>				
Medium	Feature Number	Physical Volume	External Tape Label	VOLSER
1600 tape	5520	1	DCF.MVS.SMFF.1.4.0	SR1415
6250 tape	5521	1	DCF.MVS.SMFF.1.4.0	SR1415
3480 cart.	5522	1	DCF.MVS.SMFF.1.4.0	SR1415

<i>Figure 2. Program Tape - File Content</i>				
VOLSER	File	Name	No. of Elements	Other Information
SR1415	1	SMPMCS	1	BLKSIZE = 6400
	2	JSR1415.F1	20	BLKSIZE = 6144 DLIB = DCFDIST
	3	JSR1415.F2	2	BLKSIZE = 8800 DLIB = ADCFGML
	4	JSR1415.F3	8	BLKSIZE = 8800 DLIB = ADCFSAMP
	5	JSR1415.F4	1	BLKSIZE = 8800 DLIB = ADCFASM
	6	JSR1415.F5	7	BLKSIZE = 6233 DLIB = AFONTPS

File 1 of the tape contains the SMFF System Modification Program modification control statements (SMPMCS). Files 2 through 6 contain the data sets that SMP/E processes.

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## 2.2 Optional Machine-Readable Material

There is no optional machine-readable material for SMFF.

---

## 2.3 Program Publications

The following sections identify the basic and optional publications for SMFF.

Other publications you may find useful during installation are also identified.

The majority of the SMFF basic and optional publications are available as displayable BookManager built BOOKs and as source files on a CD-ROM, SK25-1980.

### 2.3.1 Basic Program Publication

Figure 3 identifies the basic program publication for SMFF. A copy of the *SCRIPT Mathematical Formula Formatter Program Directory for MVS* and one copy of the publication listed, is included when you order the basic materials for SMFF. For additional copies, contact your IBM representative. See 2.3.2, "Optional Program Publications" for information about ordering additional copies of the program directory.

<i>Figure 3. Basic Material - Program Publication</i>	
Publication Title	Order/Form Number
<i>Document Composition Facility: SCRIPT Mathematical Formula Formatter User's Guide</i>	S544-3306

### 2.3.2 Optional Program Publications

Figure 4 identifies the optional program publications for SMFF. These publications are available for a fee.

<i>Figure 4 (Page 1 of 2). Optional Material - Program Publications</i>	
Publication Title	Order/Form Number
<i>Document Composition Facility Licensed Program Specifications</i>	GH20-9159
<i>Document Composition Facility: Diagnosis Guide and Reference</i>	LH40-0209

<i>Figure 4 (Page 2 of 2). Optional Material - Program Publications</i>	
<b>Publication Title</b>	<b>Order/Form Number</b>
<i>Document Composition Facility: Generalized Markup Language Starter Set User's Guide</i>	SH20-9186
<i>Document Composition Facility: Generalized Markup Language Starter Set Reference</i>	SH20-9187
<i>Document Composition Facility: SCRIPT/VS Text Programmer's Guide</i>	SH35-0069
<i>Document Composition Facility: SCRIPT/VS Language Reference</i>	SH35-0070
<i>Document Composition Facility: Generalized Markup Language (GML) Applications Guide</i>	G544-3305
<i>Document Composition Facility: ABOUT DCF</i>	G520-6362
<i>Document Composition Facility and Document Library Facility General Information</i>	GH20-9158
<i>Document Composition Facility: Text Programmer's Quick Reference</i>	SX26-3723
<i>Document Composition Facility: GML Starter Set Quick Reference Summary</i>	SX26-3719
<i>Document Composition Facility: Introduction to Generalized Markup Language</i>	G544-3192
<i>Document Composition Facility: Barcode User's Guide</i>	S544-3115
<i>Document Composition Facility: Generalized Markup Language Starter Set Implementation Guide</i>	SH35-0050
<i>Document Composition Facility Post-Processor Examples Language</i>	S544-3484
<i>Document Composition Facility: SCRIPT/VS User's Guide</i>	S544-3191
<i>Document Composition Facility: TSO Enhancements Guide</i>	G544-3345
<i>Document Composition Facility Messages</i>	SH35-0048
<i>Document Composition Facility: MVS Program Directory</i>	G544-3669
<i>Program Directory for use with DCF and SMFF for VM</i>	G544-3670
<i>Document Composition Facility: VSE Program Directory</i>	G544-3371
<i>SCRIPT Mathematical Formula Formatter Program Directory for MVS</i>	G544-3685
<i>Office Document Feature Directory for MVS</i>	G544-3687
<i>Office Document Feature Directory for VM</i>	G544-3686
<i>Document Composition Facility: Double Byte User's Guide</i>	S544-3795

### 2.3.3 Publications Useful During Installation

Refer to *Document Composition Facility: MVS Program Directory* for Release 4.1 for a list of publications that you may find useful during the installation of SMFF.

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## 2.4 Microfiche Support

There is no microfiche available for SMFF.



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## 3.0 Program Support

This section describes the IBM support available for SMFF.

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### 3.1 Program Services

This program is a feature of DCF/MVS Release 4.1. Contact your IBM marketing representative or operations specialist system engineer (OPSSE) for specific information about available program services.

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### 3.2 Preventive Service Planning

If you obtained SMFF in a CBPDO, there is HOLDDATA and PSP information for SMFF on the CBPDO tape.

Whether you obtained SMFF from IBM Software Manufacturing and Delivery independently, or obtained it in a CBPDO, you should check with your IBM Support Center or use either Information/Access or IBMLink (ServiceLink) before installing the product to see if there is any additional preventive service planning (PSP) information. To obtain this information, specify the following upgrade and subset values:

Figure 5. Values	
Upgrade	Subset
DCF141	JSR1415/9416

---

### 3.3 Statement of Support Procedures

Report any difficulties you have using this program or this program directory to your IBM Support Center. If an APAR is required, submit the data to the location identified in the *Programming System General Information Manual* (PSGIM), G229-2228.

Figure 6 identifies the component ID (COMP ID) and the field engineering service number (FESN) for SMFF.

Figure 6. Component ID and Field Engineering Service Number			
FMID	COMP ID	Component Name	FESN
JSR1415	5748XX900	SMFF Feature	6596504



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## 4.0 Program and Service Level Information

This section identifies the program and service levels of SMFF. The program level refers to the APAR fixes that are incorporated into the program. The service level refers to the PTFs that are incorporated.

SMFF has been service updated to incorporate PTFs and APARs against this product since it was released. This section identifies the PTFs and APARs that have been incorporated into this product.

This program is at Service Update Level SMC9416.

---

### 4.1 Program Level Information

The following APAR fixes against the previous release of SMFF are incorporated into this release:

PL70105  
PL79985

The following APAR fixes against the current release of SMFF are incorporated into this service update (Service Update Level SMC9416):

PL84986 PN01191 PN01192 PN02793 PN03525  
PN04560 PN04583 PN11639 PN12772 PN20103  
PN21493 PN21554 PN22641 PN22702 PN25608  
PN33781 PN36437 PN50976 PN52137

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### 4.2 Service Level Information

The following PTFs containing the APAR fixes against the previous release of SMFF are incorporated into this release:

JSR1315  
UL92714  
UL94151

The following PTFs containing the APAR fixes against the current release of SMFF are incorporated into this service update (Service Update Level SMC9416). This list contains the PTF number, and corresponding PUT tape number that the PTF is included on. COR-CLOSED PTFs that were not yet available on a PUT tape at the time that this program directory was written, have a category of SMCREC (PTFs that were researched, recommended and included in the service update), or SMCCOR (PTFs that had no recommendation, but were included in the service update).

JSR1415

UN02510-PUT9106	UN02524-PUT9106	UN02618-Superceded by UN22844
UN04477-PUT9106	UN07312-PUT9107	UN16996-PUT9204
UN17625-PUT9204	UN22844-PUT9207	UN23538-PUT9207
UN23919-PUT9206	UN24231-PUT9207	UN29298-PUT9208
UN29300-PUT9207	UN35845-PUT9302	UN45416-PUT9307
UN55562-PUT9401	UN57305-PUT9402	

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### 4.3 Cumulative Service Tape

If you received this product through CBPDO, there will be no cumulative service tape. Service information is included on the CBPDO tape.

If you received this product independently, a cumulative service tape may be included. This tape contains PTFs not incorporated into this program.

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## **5.0 Installation Requirements and Considerations**

The following sections identify the system requirements for installing and activating SMFF. The information is categorized into two areas, each of which describes a distinct system environment:

1. The system used to install the program (driving system).
2. The system on which the program is installed (target system).

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### **5.1 Driving System Requirements**

The following sections describe the environment of the driving system required to install SMFF.

#### **5.1.1 Operating System Requirements**

SMFF requires that an MVS/SP operating system or higher be used on the driver system for installation.

#### **5.1.2 Machine Requirements**

There are no driver machine requirements for SMFF.

#### **5.1.3 Programming Requirements**

System Modification Program Extended (SMP/E) Release 5.0 or higher is required on the driver system for installation.

#### **5.1.4 DASD Storage Requirements**

SMFF uses any storage device that is supported by the environment in which it is operating. See 5.2.4, "DASD Storage Requirements" on page 12 for additional information about the amount of storage required to install SMFF.

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### **5.2 Target System Requirements**

The following section describes the environment of the target system required for installation and use of SMFF.

## 5.2.1 Operating System Requirements

SMFF operates under the following operating systems:

- MVS/SP 370 Version 1, Release 3.5 and above
- MVS/SP Version 2, Release 2.0 and above
- MVS/SP Version 3, Release 1.0 and above
- MVS/ESA Version 4, Release 1.0 and above.

## 5.2.2 Machine Requirements

SMFF is designed to operate on all IBM System/370 Models 138 and above, the IBM 3032 processor and above, and the IBM 4332, 4341, 4361, 4381, and 9370 processors that are supported by MVS. Floating point hardware is required.

## 5.2.3 Programming Requirements

DCF/MVS Release 4.1 (FMID HSR1401) and the TSO feature of DCF/MVS Release 4.1 (FMID JSR1413) are required to be installed (SMP/E ACCEPTed) to run the SMFF feature.

SMFF is supported under TSO in any of the MVS operating system environments that are specified in 5.2.1, "Operating System Requirements."

For 4250 printers, the Characters for Math and Science font (5771-ACW) is recommended as a prerequisite for minimum acceptable formatting capability.

For AFP Printers, the Characters for Math and Science font (5771-ADT) is recommended as a prerequisite for minimum acceptable formatting capability.

You must ensure that the PostScript fonts are installed on your printer prior to using SMFF. The Lucida Math font is recommended as a prerequisite for PostScript printers. The Symbol font is used if the Lucida Math font is not available.

## 5.2.4 DASD Storage Requirements

SMFF uses any storage device supported by the environment in which it is operating.

The data set *type* values shown in the tables in this section may have the values specified in Figure 7.

<i>Figure 7. Library Type Definition</i>		
Type	Usage	New or Existing
NU	Used only by this program	New
NM	Used by more than one program	New
EU	Used only by this program	Existing
EM	Used by more than one program	Existing

#### 5.2.4.1 SMP/E Data Set Storage Requirements

Figure 8 shows the SMP/E storage requirements to install SMFF.

The DSSPACE parameters are identified in 3380 DASD tracks.

<i>Figure 8. Storage Requirements for SMP/E System Entries</i>	
SUB-ENTRY	Value
DSSPACE	(50,20,100) or greater
PEMAX	2000 or greater

Figure 9 shows an estimate of the additional storage needed in the SMP/E data sets for SMFF. The estimates must be added to those of any other programs and service being installed to determine the total storage requirements. To allocate all SMP/E data sets and DDDEFs, refer to *System Modification Program Extended Reference*.

Keep these points in mind:

- The number of blocks and directory blocks specified is the minimum storage required by SMFF to install the program. You may want to specify additional storage and directory blocks to allow for maintenance.
- Data sets may be reblocked to a larger size for your system.

<i>Figure 9. Storage Requirements for SMP/E Data Sets</i>						
Data Set Name OR Library Name	DSORG	RECFM	LRECL	No. BLKS	Block Size	No. DIR. BLKS.
SMPPTS	PO	FB	80	1	6160	1

### 5.2.4.2 Target and Distribution Library DDDEFs

The following DD statements for the target and distribution libraries are required only if they were not created during the installation of DCF/MVS Release 4.1. Refer to Section 5.2.4.2 of the DCF/MVS Release 4.1 Program Directory, for information on creating the target and distribution DD statements.

Figure 10 on page 14 lists the target library DD statements that can be used in the SMP/E job step for APPLY and RESTORE of SMFF to define the libraries for the target zone. After the sample JCL is unloaded from the tape into the data set *script.smff40.jcllib*, the JCL exists in *script.smff40.jcllib(DSMSFIS1)*. See 6.0, "Installation Instructions" on page 19 for information about unloading the sample JCL from the tape.

SMP/E dialog panels may be used to define these DD statements.

```
//DCFLOAD DD DISP=OLD,DSN=SCRIPT.R40.DCFLOAD
//DCFSAMP DD DISP=OLD,DSN=SCRIPT.R40.DCFSAMP
//DCFASM DD DISP=OLD,DSN=SCRIPT.R40.DCFASM
//DCFGML DD DISP=OLD,DSN=SCRIPT.R40.MACLIB
//FONTPS DD DISP=OLD,DSN=SCRIPT.R40.FONTPS
```

Figure 10. Target Library DD Statements

Figure 11 lists the distribution library DD statements that can be used in the SMP/E job step for ACCEPT and RESTORE of SMFF to define the libraries in the distribution zone. After the sample JCL is unloaded from the tape into the data set *script.smff40.jcllib*, the JCL exists in *script.smff40.jcllib(DSMSFIS2)*. See 6.0, "Installation Instructions" on page 19 for information about unloading the sample JCL from the tape.

SMP/E dialog panels may be used to define these DD statements.

```
//DCFDIST DD DISP=OLD,DSN=SCRIPT.R40.DCFDIST
//ADCFSAMP DD DISP=OLD,DSN=SCRIPT.R40.ADCFSAMP
//ADCFASM DD DISP=OLD,DSN=SCRIPT.R40.ADCFASM
//ADCFGML DD DISP=OLD,DSN=SCRIPT.R40.AMACLIB
//AFONTPS DD DISP=OLD,DSN=SCRIPT.R40.AFONTPS
```

Figure 11. Distribution Library DD Statements

All of the target and distribution library DDDEFs should have been allocated during the DCF/MVS Release 4.1 installation. For more information about the SMP/E data set storage requirements and DDDEFs, refer to *Document Composition Facility: MVS Program Directory* for Release 4.1.



### 5.2.4.3 Target and Distribution Library Storage Requirements

Figure 12 on page 15 lists the target libraries (data sets) and Figure 13 on page 16 lists the distribution libraries (data sets) for SMFF. These data sets were created when DCF/MVS Release 4.1 was installed.

The following tables identify the additional storage used in the DCF/MVS Release 4.1 target and distribution data sets when SMFF is installed. The DCF/MVS Release 4.1 data set allocations should be adequate for SMFF installation, you do not need to reallocate these data sets to install SMFF. Refer to *Document Composition Facility: MVS Program Directory* for Release 4.1 for target and distribution library storage requirements of DCF/MVS Release 4.1.

You may want to specify additional storage and directory blocks to allow for maintenance. These data sets may be reblocked to a larger size for your system.

<i>Figure 12. Storage Requirements for Target Libraries</i>		
<b>Data Set Name or Library Name</b>	<b>Type</b>	<b>Data Set Information</b>
script.R40.DCFLOAD	EM	RECFM = U LRECL = 0 BLKSIZE = 6144 Blocks = 121 Dir. Blks = 1
script.R40.DCFSAMP	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 2 Dir. Blks = 1
script.R40.DCFASM	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 9 Dir. Blks = 1
script.R40.MACLIB	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 18 Dir. Blks = 1
script.R40.FONTPS	EM	RECFM = VB LRECL = 255 BLKSIZE = 6233 Blocks = 5 Dir. Blks = 1

<i>Figure 13. Storage Requirements for Distribution Libraries</i>		
<b>Data Set Name or Library Name</b>	<b>Type</b>	<b>Data Set Information</b>
script.R40.DCFDIST	EM	RECFM = U LRECL = 0 BLKSIZE = 6144 Blocks = 24 Dir. Blks = 4
script.R40.ADCFSAMP	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 2 Dir. Blks = 1
script.R40.ADCFASM	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 9 Dir. Blks = 1
script.R40.AMACLIB	EM	RECFM = FB LRECL = 80 BLKSIZE = 6160 Blocks = 18 Dir. Blks = 1
script.R40.AFONTPS	EM	RECFM = VB LRECL = 255 BLKSIZE = 6233 Blocks = 5 Dir. Blks = 1

### 5.3 Programming Considerations

The following list of programming considerations should be noted:

- DCF/MVS Release 4.1 (FMID HSR1401) and the DCF TSO feature (FMID JSR1413) must be successfully installed (SMP/E ACCEPTed) prior to installing SMFF. It is possible to install SMFF at the same time as DCF/MVS 4.1 and the TSO feature.
- SMFF must be installed in the same consolidated software inventory (CSI) as DCF/MVS Release 4.1.
- The virtual storage requirements for formatting a document with SMFF include the following:
  - Minimum module: 475K
  - Each dictionary: 27K - 162K

The total amount of working storage depends on the complexity of the document being formatted. In general, a region size of 2 megabytes is adequate.

- Font considerations:

- The characters and symbols that appear in printed formulas are limited to those that are available in your font libraries. For example, if you do not have a 30 point integral symbol in your font libraries, you cannot print one. The variations in the characters and symbols include the assortment of the characters themselves, their point size, and their style.
- SMFF will function without special math fonts; it tries to use any fonts that are available. To receive the full capability of SMFF, all math and typographic fonts should be made available.
- Many typewriter fonts have Greek letters and mathematical symbols available in small sizes. SMFF tries to find large sizes of these symbols. Square root radicals, integrals, summations, large braces and brackets must be available in sizes that can enclose complex expressions. The large symbol sizes are found only if the proper math fonts are available in your font library.
- SMFF uses ascender and descender information from the font library to format formulas. This information is available from the font library in FONT4250 or FONT3820 format, but it is not available in the FONT38PP format. If no ascender and descender information is available, SMFF estimates the values. If the FONT38PP library is used for formatting, the results might not be as accurate as with the FONT3820 or FONT4250 libraries, because fine vertical positioning must be estimated.
- A file that is *formatted* with the FONT3820 library can be printed using the FONT38PP fonts. No ascender or descender information is needed for printing. The output file contains specific requests to move the horizontal and vertical position. SMFF uses this information to determine these requests.
  - If you have the FONT3820 library at your installation, you can use the following example to format a document:
 

```
SCRIPT 'userid.xxxx.xxx(xxx)' DEV(38ppn)
      FONTLIB('SYS1.FONT3820') CHARS(X0T00395)
```
- If new fonts are installed or deleted for an IBM page printer, a new font library index must be created using the Font Library Index Program (FLIP), which is included with DCF/MVS Release 4.1. For information about creating this index, refer to *Document Composition Facility: SCRIPT/VS Text Programmer's Guide*.
- If PostScript fonts are added or deleted, the PostScript font index (DCFINDEX) must be modified. FLIP cannot be used to create a font index for PostScript. For more information concerning the PostScript font index or PostScript font usage, refer to the appendix entitled "PostScript Information" in *Document Composition Facility: SCRIPT/VS Text Programmer's Guide*.
- If you have Lucida Math fonts on your PostScript printer, the PostScript font index (DCFINDEX) must be modified to allow SMFF to recognize these fonts. For more information concerning the PostScript font index or PostScript font usage, refer to the appendix entitled "PostScript Information" in *Document Composition Facility: SCRIPT/VS Text Programmer's Guide*.

---

## 5.4 System Considerations

There are no system considerations for SMFF.

---

## 5.5 Special Considerations

The load module created when SMFF is installed replaces the DCF/MVS Release 4.1 TSO feature (FMID JSR1413) load module, DSMTSX40.

SMFF was service updated since the original release of SMFF. It is now at Service Update Level SMC9416. See 4.0, "Program and Service Level Information" on page 9 for information on service that has been rolled into this product.

---

## 6.0 Installation Instructions

The following sections describe the step-by-step procedures to install and to activate the functions of SMFF.

If you obtained SMFF in a CBPDO, use the RIMLIB job on the CBPDO tape to do the SMP/E RECEIVE for SMFF. All service, HOLDDATA, and preventive service planning (PSP) information is included on the CBPDO tape. For more information, refer to *MVS CBPDO Memo to User Extension* included with the CBPDO.

SMFF is installed using the SMP/E RECEIVE, APPLY, and ACCEPT method. SMP/E dialog panels may be used for the installation of SMFF. If you choose not to use the SMP/E dialog panels, sample JCL is provided for the installation of SMFF.

All SMP/E install steps provided assume the existence of a catalogued procedure called SMPPROC containing all necessary DD statements for the execution of SMP/E. If your SMP/E procedure is not named SMPPROC, substitute your procedure name for SMPPROC. If you do not have an SMP/E procedure, refer to *System Modification Program Extended (SMP/E) Users Guide* or *System Modification Program Extended (SMP/E) Reference* for instructions to build one.

The SMPPROC procedure is not required when using the SMP/E dialogs.

In the sample JCL provided, all sets to the global zone in SMP/E consolidated software inventory (SMPCSI) are GLOBAL. Sets to the target zone are *target*, and sets to the distribution zone are *dlib*. The target and distribution zone names for the DCF/MVS Release 4.1 zone must be substituted in the JCL for your installation.

---

### 6.1 Unload Sample JCL

Sample JCL for the installation of SMFF is provided on the product tape to aid in SMP/E installation. These samples are unloaded from the tape into the data set *script.smff40.jcllib*, where they are available for modification and use on your system.

Use the JCL shown in Figure 14 on page 20 to unload the sample JCL from the SMFF tape.

If the sample JCL is unloaded into a data set with a different name from *script.smff40.jcllib*, all future references in this Program Directory to the data set *script.smff40.jcllib* must be replaced with that new name.

```

//UNLOAD JOB (acct. no.),'name',CLASS=A,MSGLEVEL=(1,1)
//*
//* UNLOAD SAMPLE INSTALLATION JCL FROM TAPE
//*
//STEP1      EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//IN         DD DSN=JSR1415.F3,UNIT=(TAPE,,DEFER),
//           LABEL=(4,SL),VOL=SER=SR1415,DISP=(OLD,KEEP)
//OUT        DD DSN=script.smff40.jcllib,
//           DISP=(NEW,CATLG,DELETE),
//           UNIT=SYSDA,DCB=SYS1.PROCLIB,
//           SPACE=(TRK,(5,1,2))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN      DD *
//           COPY OUTDD=OUT,INDD=IN
//
//

```

Figure 14. Unload JCL

After unloading these samples, data set *script.smff40.jcllib* contains the following members which may be used to aid in SMP/E installation:

- DSMSFIS1 - Target library DD statements
- DSMSFIS2 - Distribution library DD statements
- DSMSFIS4 - Sample RECEIVE JCL
- DSMSFIS5 - Sample APPLY CHECK JCL
- DSMSFIS6 - Sample APPLY JCL
- DSMSFIS7 - Sample ACCEPT CHECK JCL
- DSMSFIS8 - Sample ACCEPT JCL
- DSMEQSPL - SAMPLE IVP problem.

## 6.2 Installation Steps

Before installing SMFF, check the following:

- Ensure that the sample JCL is unloaded from the product tape. See 6.1, “Unload Sample JCL” on page 19 for instructions on unloading sample JCL from the product tape.
- Ensure that all programming requirements are met. See 5.2.3, “Programming Requirements” on page 12 for a list of programming requirements.
- Ensure that the SMP/E global zone OPTIONS entry is correct. See 5.2.4.1, “SMP/E Data Set Storage Requirements” on page 13 for the SMP/E global zone OPTIONS entry.
- Ensure that SMP/E DD definitions (DDDEFs) are defined. See 5.2.4.2, “Target and Distribution Library DDDEFs” on page 14 for SMP/E data definitions.

- Ensure that all required target and distribution library data sets are allocated. See 5.2.4.3, “Target and Distribution Library Storage Requirements” on page 15 for data set allocations.

The following steps are performed to install the SMFF feature:

1. RECEIVE SMFF feature, FMID JSR1415.
2. RECEIVE cumulative service tapes, if applicable.
3. Perform SMP/E APPLY CHECK.
4. Load target libraries using APPLY.
5. Perform SMP/E ACCEPT CHECK.
6. Load distribution libraries using ACCEPT.
7. Perform all activities in 7.0, “Installation Verification Procedure for SMFF” on page 27 to run the installation verification procedure for SMFF.

## 6.2.1 RECEIVE SMFF Feature

Run the SMP/E RECEIVE JCL in Figure 15 to unload the SMFF data from the tape into SMP/E temporary data sets.

This JCL exists in the data set *script.smff40.jcllib*(DSMSFIS4).

SMP/E dialog panels can be used for the RECEIVE step instead of the supplied JCL.

**Note:** This step is bypassed if receiving the product from a CBPDO.

```
//JOB1      JOB 'acct no.','name',MSGLEVEL=(1,1)
//RECEIVE   EXEC SMPPROC
//SMP.SMPPTFIN DD DSN=SMPMCS,DISP=(OLD,PASS),
//           VOL=SER=SR1415,LABEL=(1,SL),
//           UNIT=(tape,,DEFER)
//SMP.SMPTLIB DD UNIT=xxxx,DISP=OLD,VOL=SER=nnnnnn
//SMP.SMPCNTL DD *
//           SET BDY(GLOBAL).
//           RECEIVE S(JSR1415) SYSMOD.
//*
```

Figure 15. RECEIVE JCL for SMFF

A return code of “0” should be received from the RECEIVE JCL.

## 6.2.2 RECEIVE Cumulative Service Tape, if Applicable

A cumulative service tape may be shipped with the product package. If no cumulative service tape is shipped or if the product is received by CBPDO, disregard this section.

The JCL in Figure 16 on page 22 is a sample job to RECEIVE the PTFs and HOLDDATA from the cumulative service tape.

```
//RECEIVEC JOB 'account #','name',MSGLEVEL=(1,1)
//*****
/* Receive cumulative service data. The UNIT
/* and SOURCEID fields must be filled in.
/* SOURCEID is a unique name that assigns
/* a common identifier to the SYSMODS received.
//*****
//RECEIVEC EXEC SMPPROC
//SMPHOLD DD UNIT=tape,LABEL=(4,NL),DISP=SHR,
// VOL=SER=CUMTAP,
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200)
//SMPPTFIN DD UNIT=tape,LABEL=(1,NL),DISP=SHR,
// VOL=SER=CUMTAP,
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200)
//SMP.SMPCNTL DD *
SET BDY(GLOBAL).
RECEIVE SYSMODS HOLDDATA SOURCEID(sssssss).
/*
```

Figure 16. RECEIVE JCL for Cumulative Service Tape

A return code of "0" should be received from this job.

If any of the PTFs on the tape have a system hold by the ++HOLD SYSTEM modification control statement with a reason ID equal to UCLIN, file 6 of the cumulative service tape will contain the UCLIN for that PTF. The instructions for the UCLIN are contained in the cover letter of the PTF.

## 6.2.3 Perform SMP/E APPLY CHECK

Run the SMP/E APPLY CHECK JCL in Figure 17 on page 23 to determine which SYSMODs, if any, are missing. Any missing SYSMODs should be installed before continuing with the installation of SMFF.

This JCL exists in the data set *script.smff40.jcllib*(DSMSFIS5).

SMP/E dialog panels can be used for the APPLY CHECK instead of the supplied JCL.



```

//JOB2      JOB 'acct. no.', 'name', MSGLEVEL=(1,1)
//APPLY      EXEC SMPPROC
//SMP.SMPTLIB DD UNIT=xxxx, DISP=OLD, VOL=SER=nnnnnn
//SMP.SMPCNTL DD *
    SET BDY(target).
    APPLY CHECK S(JSR1415)
    BYPASS(PRE, ID, REQ, IFREQ, HOLDSYS, HOLDUSER,
    HOLDCLASS(UCLREL, ERREL)) GROUPEXTEND.
/*

```

Figure 17. APPLY CHECK JCL for SMFF

A return code of "0" should be received from the APPLY CHECK JCL.

**Note:** Investigate any problems if you do not receive a return code of "0" before continuing with the installation of SMFF.

## 6.2.4 Load Target Libraries using APPLY

Run the SMP/E APPLY JCL in Figure 18 to load the SMP/E target libraries from SMP/E temporary data sets.

This JCL exists in the data set *script.smff40.jcllib*(DSMSFIS6).

SMP/E dialog panels can be used for the APPLY instead of the supplied JCL.

```

//JOB3      JOB 'acct. no.', 'name', MSGLEVEL=(1,1)
//APPLY      EXEC SMPPROC
//SMP.SMPTLIB DD UNIT=xxxx, DISP=OLD, VOL=SER=nnnnnn
//SMP.SMPCNTL DD *
    SET BDY(target).
    APPLY S(JSR1415)
    BYPASS(HOLDCLASS(UCLREL, ERREL))
    GROUPEXTEND COMPRESS(ALL).
/*

```

Figure 18. APPLY JCL for SMFF

The message IEW0461 will be issued against the DSMTXS40 module for each of the following unused dictionary modules:

DSMEUVER  
DSMECVER  
DSMGEVER  
DSMDUVER  
DSMSPVER  
DSMITVER  
DSMFNVER  
DSMFCVER  
DSMDAVER  
DSMFIVER  
DSMICVER  
DSMNOVER  
DSMPOVER  
DSMSWVER

**Note:** You will receive the message IEW0461 issued against the DSMATS30, DSMATS40 and DSMLXS30 modules for the module DSMEQKEQ.

This will cause a return code of "4" for the APPLY JCL. Any other error conditions must be investigated before continuing with the installation of SMFF.

The Installation Verification Procedure can be run now. See 7.0, "Installation Verification Procedure for SMFF" on page 27 for a description of these procedures.

### 6.2.5 Perform SMP/E ACCEPT CHECK

Run the SMP/E ACCEPT CHECK JCL in Figure 19 to determine which SYSMODs, if any, are missing. Any missing SYSMODs should be installed before continuing with the installation of SMFF.

This JCL exists in the data set *script.smff40.jcllib*(DSMSFIS7).

SMP/E dialog panels can be used for the ACCEPT CHECK instead of the supplied JCL.

```
//JOB4      JOB 'acct. no.', 'name', MSGLEVEL=(1,1)
//ACCEPT    EXEC SMPPROC
//SMP.SMPTLIB DD UNIT=xxxx, DISP=OLD, VOL=SER=nnnnnn
//SMP.SMPCNTL DD *
  SET BDY(dlib).
  ACCEPT S(JSR1415) CHECK GROUPEXTEND
  BYPASS(ID,PRE,REQ,IFREQ,HOLDSYS,HOLDUSER,
  HOLDCLASS(UCLREL,ERREL)).
/*
```

Figure 19. ACCEPT CHECK JCL for SMFF

A return code of "0" should be received from the ACCEPT CHECK JCL.

**Note:** Investigate any problems if you do not receive a return code of "0" before continuing with the installation of SMFF.

## 6.2.6 Load Distribution Libraries using ACCEPT

Run the SMP/E ACCEPT JCL in Figure 20 on page 25 to load the SMP/E distribution libraries from SMP/E temporary data sets.

This JCL exists in the data set *script.smff40.jcllib*(DSMSFIS8).

SMP/E dialog panels can be used for the ACCEPT instead of the supplied JCL.

```
//JOB5      JOB 'acct. no.', 'name', MSGLEVEL=(1,1)
//ACCEPT    EXEC SMPPROC
//SMP.SMPTLIB DD UNIT=xxxx, DISP=OLD, VOL=SER=nnnnnn
//SMP.SMPCNTL DD *
    SET BDY(dlib).
    ACCEPT S(JSR1415) GROUPEXTEND
    BYPASS(HOLDCLASS(UCLREL,ERREL))
    COMPRESS(ALL).
/*
```

Figure 20. ACCEPT JCL for SMFF

A return code of "0" should be received from the ACCEPT JCL.



---

## 7.0 Installation Verification Procedure for SMFF

The following steps are performed for the SMFF IVP:

1. Make the SMFF load module available to the command processor.
2. Create a new font library index.
3. Format the sample problem.

---

### 7.1 Make SMFF Load Module Available to the Command Processor

Make the SMFF load module available to the command processor by including the load library data set *script.R40.DCFLOAD* in the TSO logon procedure. There are several ways to do this:

1. Point to the data set *script.R40.DCFLOAD* with a STEPLIB DD statement in the TSO logon procedure, then log off and log back on to TSO.
2. Put the data set *script.R40.DCFLOAD* in LNKST within the data set SYS1.PARMLIB, then re-ipl the MVS system.

---

### 7.2 Create a New Font Library Index

The installation verification procedure for SMFF can be formatted for any page printer supported by SMFF. Before running the IVP for a page printer, a new font library index must be created to include the required DCF/MVS Release 4.1 fonts and SMFF fonts. This index is created by using the Font Library Index Program (FLIP) supplied with DCF/MVS Release 4.1. Refer to *Document Composition Facility: SCRIPT/VS Text Programmers Guide* for important information about creating this index.

---

### 7.3 Format the Sample Problem

A sample problem in the data set *script.smff40.jcllib*(DSMEQSPL) must be formatted for the IVP. This sample problem can be formatted for your terminal or for any page printer supported by SMFF. If the sample problem is formatted for your terminal, no formula will be formatted, but SMFF will still check that the syntax of the formula is correct.

**Note:** The profile DSMFPROF, was set up so that the high level qualifier *SCRIPT* is used. If you changed the high level qualifier when you installed SMFF to a name other than *SCRIPT*, you must modify *script.R40.MACLIB*(DSMFPROF) so that the data set names within DSMFPROF reflect your new high level qualifier. This must be done prior to formatting the sample problem.

#### 7.3.1 Format the Sample Problem for a Terminal

To format the sample problem for a terminal, enter the command:

```
SCRIPT 'script.smff40.jc1lib(DSMEQSPL)'
  PROF('script.R40.MACLIB(DSMFPROF)')
  LIB('script.R40.MACLIB')
```

The output is sent to your terminal.

See Appendix B, “IVP Sample Problem” on page 35 for information on the IVP sample problem.

If the sample problem formats without error, the SMFF feature is installed correctly.

### 7.3.2 Format the Sample Problem for a Page Printer

To format the sample problem for a page printer, enter the command:

```
SCRIPT 'script.smff40.jc1lib(DSMEQSPL)'
  PROF('script.R40.MACLIB(DSMFPROF)')
  LIB('script.R40.MACLIB')
  CONTINUE DEVICE(xxxx)
  FONTLIB('font library name')
```

Where:

- font library name is the name of your printer device font library
- xxxx is the device name for your printer.

See 5.3, “Programming Considerations” on page 16 for additional information on selecting a font library name.

See Figure 21 for the device name of your printer. For more information about printer devices, refer to the “Script Command Options” chapter of the *Document Composition Facility: SCRIPT/VS Language Reference*.

<i>Figure 21. Device Reference</i>	
Device Option	Physical Device
38PPxxxx	3800-3
3820xxxx	3820
PSxxxx	PostScript
4250xx	4250

When the command is executed, an output file is produced on the JES spool. To print this file, use your installation’s normal procedures.

See Appendix B, “IVP Sample Problem” on page 35 for information on the IVP sample problem.

If the sample problem formats without error, the SMFF feature is installed correctly.

---

## 7.4 SMFF Tasks after Installation Verification

After the sample problem is formatted correctly, the SMFF load library data set *script.R40.DCFLOAD*, and the GML macro library data set *script.R40.MACLIB* must be made available to the general user.

**Note:** The profile DSMFPROF, was set up so that the high level qualifier *SCRIPT* is used. If you changed the high level qualifier when you installed SMFF to a name other than *SCRIPT*, you must modify *script.R40.MACLIB*(DSMFPROF) so that the data set names within DSMFPROF reflect your new high level qualifier.





---

## **Appendix A. SMFF SMPMCS**

The SMP/E modification control statements (SMPMCS) for SMFF are listed in this appendix.

The SMPMCS can be obtained by printing the first file of the product tape. It is included in this section for information purposes only.

```

++FUNCTION(JSR1415 ) FESN(6596504 ) REWORK(1994103 ) FILES(5)
/*
  THIS PRODUCT CONTAINS RESTRICTED MATERIALS OF IBM
    - 5748-XX9 COPYRIGHT IBM CORP 1978, 1991
    LICENSED MATERIAL - PROGRAM
    PROPERTY OF IBM
    REFER TO COPYRIGHT INSTRUCTIONS
    FORM NUMBER G120-2083

    US Government Users Restricted Rights -
    Use, Duplication or disclosure restricted by
    GSA ADP Schedule Contract with IBM Corp.

*/
.
++VER(Z038 ) FMID(HSR1401 ) PRE(JSR1413 )
      REQ(UN07308 UN17622 UN17624 UN22802 UN24227
          UN24230 UN29299 UN35841 UN35844 UN45413
          UN45424 )
      SUP(AL84986 AN01191 AN01192 AN02793 AN03525
          AN04560 AN04583 AN11639 AN12772 AN20103
          AN21493 AN21554 AN22641 AN22702 AN25608
          AN33781 AN36437 AN50976 AN52137 UN02510
          UN02524 UN02618 UN04477 UN07312 UN16996
          UN17625 UN22844 UN23538 UN23919 UN24231
          UN29298 UN29300 UN35845 UN45416 UN55562
          UN57305 ) .
++IF FMID(JSR1411 )
      REQ(UN07309 UN17623 UN24228 UN35842 UN45414 ) .
++IF FMID(JSR1412 )
      REQ(UN07310 UN24229 UN35843 UN45415 ) .
++IF FMID(JSR1416 )
      REQ(UN22803 UN23920 UN24232 UN29301 UN35846 UN45417 ) .
++IF FMID(JSR1417 )
      REQ(UN22804 UN29380 UN45418 ) .
++MOD(DSMEQADJ) DISTLIB(DCFDIST ) RMID(UN29300 )
      LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
      RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQERR) DISTLIB(DCFDIST ) RMID(UN29300 )
      LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
      RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQFAB) DISTLIB(DCFDIST ) RMID(UN35845 )
      LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
      RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQFOR) DISTLIB(DCFDIST ) RMID(UN45416 )

```

Figure 22 (Part 1 of 3). SMPMCS

```

        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQFOX) DISTLIB(DCFDIST ) RMID(UN57305 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQFRE) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQINT) DISTLIB(DCFDIST ) RMID(UN35845 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQKEQ) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQKEY) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQLEX) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQLIN) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQMDM) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQMEA) DISTLIB(DCFDIST ) RMID(UN57305 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQPRS) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQRUL) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQSEM) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQSET) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQSYM) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQTRA) DISTLIB(DCFDIST ) RMID(UN35845 )

```

Figure 22 (Part 2 of 3). SMPMCS

```

        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++MOD(DSMEQVRS) DISTLIB(DCFDIST ) RMID(UN29300 )
        LMOD(DSMTXS40) LEPARM ( AMODE=31 NCAL RENT
        RMOD=ANY ) RELFILE(1) .
++SRC(DSMEQMDM) DISTLIB(ADCFASM ) SYSLIB(DCFASM )
        RMID(UN29300 ) RELFILE(4) .
++DATA(DCFINDEX) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSCPLME ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSCPLMI ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSCPLMS ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSFLME ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSFLMI ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++DATA(PSFLMS ) DISTLIB(AFONTPS ) SYSLIB(FONTPS ) RELFILE(5) .
++SAMP(DSMEQSPL) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS1) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS2) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS4) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS5) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS6) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS7) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++SAMP(DSMSFIS8) DISTLIB(ADCFSAMP) SYSLIB(DCFSAMP ) RELFILE(3) .
++TEXT(DSMFMAC ) DISTLIB(ADCFGML ) SYSLIB(DCFGML ) RELFILE(2) .
++TEXT(DSMFPROF) DISTLIB(ADCFGML ) RMID(UN23919 )
        SYSLIB(DCFGML ) RELFILE(2) .

```

Figure 22 (Part 3 of 3). SMPMCS

---

## Appendix B. IVP Sample Problem

The sample problem in the data set *script.R40.DCFLOAD*(DSMEQSPL) contains the following text:

```
.  
.*  
.eq ?  
.*  
.sp2  
:df align=center frame=rule.  
  left lb  
  a over b  
  = 5  
  right rb  
:edf.
```

Figure 23. DSMEQSPL Sample Problem

A test is made to see if SMFF is installed. If SMFF is installed, a message is issued that specifies the SMFF version number and date. If SMFF is *not* installed, then no message is issued. The input for the first test is `.eq ?`.

A second test is made to ensure that the Generalized Markup Language (GML) tags in the sample problem are correctly defined. The input for the second test is:

```
:df align=center frame=rule.  
  left lb  
  a over b  
  = 5  
  right rb  
:edf.
```

When the GML tags are processed for a page printer or PostScript device, the result is a formatted display formula that is centered and separated from the surrounding text with two horizontal rules.

This IVP will work even if SMFF is not installed. If the GML tags provided on the SMFF tape are correct, they will provide horizontal rules and the centering.

If you do not format the sample problem for a page printer or PostScript device, then the *input* is displayed and centered between two horizontal rules. Figure 24 on page 36 shows an example of the output from the IVP if it is not formatted for a page printer or PostScript device.

---


$$\frac{a}{b} = 5$$


---

*Figure 24. Formatted DSMEQSPL Sample Problem for Non-page Printer Device*

## Appendix C. Reader's Comments

**Program Directory for SCRIPT Mathematical Formula Formatter Feature, Release 4.1.Modification Level 1 Service Update Level SMC9416**

To enable us to reflect your needs better in future program directories, please complete the following matrix, entering a number in the range of 1 (for very poor or very low) to 5 (for very good or very high).

Completeness
Accuracy
Clarity
Format
Usefulness

Please provide specific comments below. Attach additional sheets if necessary.

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