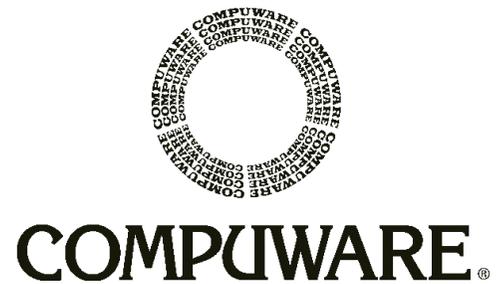


Abend-AID XLS

SMF Cost Analysis Tool User's Guide

Release 9.4



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Chapter 1.

Overview

Facilities

The MVS System Management Facility (SMF) is an MVS component that continuously collects data about system operation. The Abend-AID XLS SMF Cost Analysis Tool analyzes any SMF data you supply, producing detailed totals of the fault volume on your system over the time spanned by the data. The analysis includes most abends and return codes in the following categories:

COBOL	Language Environment
DB2	PL/I
IDMS	General system
IMS	General user

The report additionally projects costs for resources such as programmer troubleshooting time, dump printing costs, application downtime, and DASD dump storage, to show how much Abend-AID XLS is saving your MIS group. The basis costs for these estimates may be tailored to your site.

The information about system faults that you will find in an SMF Cost Analysis Tool report — including faults by job and by program — presents a unique opportunity for application programmers, support staff, and administrative personnel to review and monitor the reliability of their applications.

Reading the Report

The SMF Cost Analysis Tool report presents its analysis of your SMF data in concise, easy-to-read sections that require little or no interpretation. You can specify only the report sections that you need. Parameters enable you to focus the report on specific dates, compilers, programs, or types of faults.

Cost Savings Results

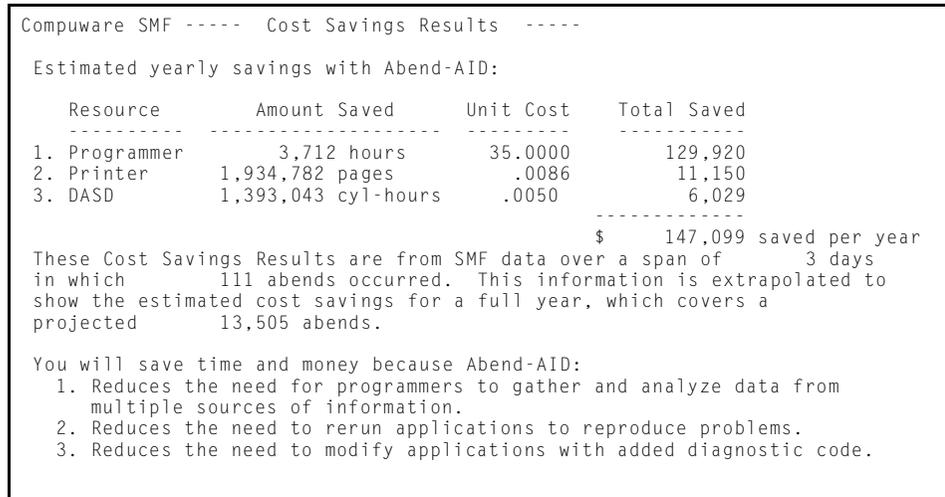
Cost Savings Results shows the annual cost savings that can be realized from using Abend-AID XLS. The calculations are based on the number of abends occurring within the specified period. In the sample shown in Figure 1-1 on page 1-2, this period is three days.

The SMF Cost Analysis Tool estimates the number of abends that may occur in a year at that rate, and then uses the base resource values to estimate these totals for a year:

- Programmer hours
- Printer pages
- DASD cylinder hours.

From that and the base costs, which you can tailor to your site, the SMF Cost Analysis Tool calculates the expenses saved by Abend-AID XLS in a year.

Figure 1-1. Cost Savings Results



Application Down Time

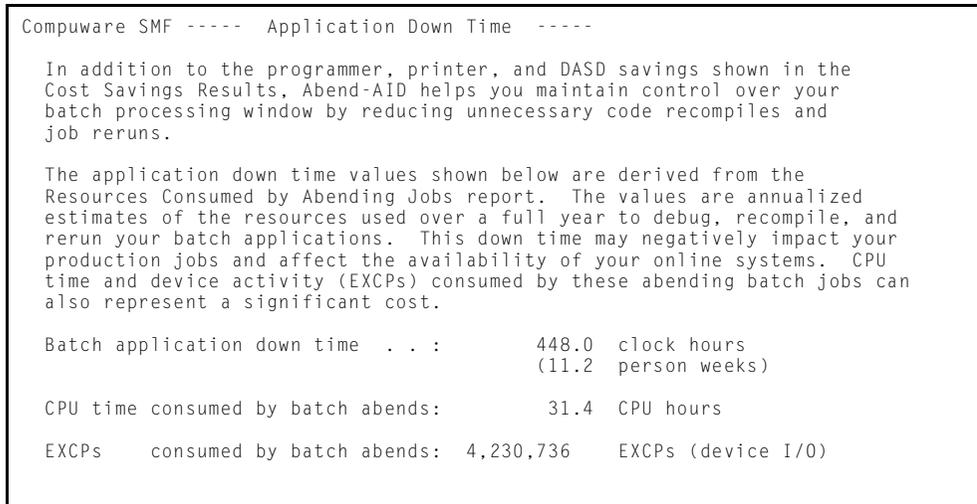
Application Down Time represents an estimate of the resources consumed over the course of a year to debug, recompile, and rerun abending jobs.

The information in this summary comes from the Resources Consumed by Abending Jobs. See Figure 1-9 on page 1-7.

These resources are translated into

- Clock hours and person weeks
- CPU time consumed by batch abends
- EXCPs consumed by batch abends.

Figure 1-2. Application Down Time



Cost Savings Calculations

Cost Savings Calculations shows the calculations used by the SMF Cost Analysis Tool to arrive at cost savings estimates for a full year in the areas of:

- Programmer time

- Printer resources
- DASD storage.

Figure 1-3. Cost Savings Calculations

```

Compuware SMF ----- Cost Savings Calculations -----

The Cost Savings Results is based on your company's cost
parameters, listed in Cost Savings Assumptions, and on the following
calculations. The printer and DASD savings figures reflect the fact that
Abend-AID would have successfully diagnosed 91% of the abends shown in
the SMF data, eliminating the requirement for a dump.

1. Programmer savings

Application programmers fix their abends in a variety of ways,
including examining JCL, looking through message manuals, studying
source code, recompiling programs, re-running against test data,
and analyzing dumps. Abend-AID saves time for programmers by
placing the diagnostic information needed to resolve problems into
a single location, the Abend-AID report.

5,344 hours = 13,717 abends * 23.37 minutes saved each, on average.

2. Printer savings

Some of the abends result in dumps that are printed. The cost of
the printer involves the cost of the hardware and the print supplies.

1,934,782 pages = 13,717 dumps * 50% printed * 310 pages *
                  91% of abends resolved without a dump

3. DASD savings

Some of the abends result in dumps that are stored on DASD. The
cost of the DASD is expressed in number of cylinders for a number
of hours (cylinder-hours).

1,393,043 cyl-hours = 13,717 dumps * 50% online * 3.1 cylinders *
                    72 hours * 91% of abends resolved without a dump.

```

Cost Savings Assumptions

Cost Savings Assumptions shows all of the variables used by the SMF Cost Analysis Tool. You can change these variables using the parameters listed in Table 2-1 on page 2-5 and Table 2-2 on page 2-6 to more accurately reflect the environment of your site. Variables include:

- Minutes of programmer time saved listed by abend difficulty (1-4 with 4 being the most difficult)
- Programmer cost per hour
- Percentage of abends with printed dumps
- Percentage of abends with dumps stored on DASD
- Percentage of abends with dumps suppressed
- Printer hardware costs per page
- Printer paper costs per page
- Printer supplies cost per page
- Average cylinders of DASD per stored dump
- Average hours on DASD per stored dump
- DASD cost per cylinder-hour.

Figure 1-4. Cost Savings Assumptions

```

Compuware SMF ----- Cost Savings Assumptions -----
1. Minutes saved by programmer for difficulty 1 abends . . : 10
2. Minutes saved by programmer for difficulty 2 abends . . : 20
3. Minutes saved by programmer for difficulty 3 abends . . : 30
4. Minutes saved by programmer for difficulty 4 abends . . : 60
5. Programmer cost per hour . . . . . : 35.0000

6. Percentage of abends with printed dumps . . . . . : 50
7. Percentage of abends with dumps on DASD . . . . . : 50
8. Percentage of abends with dump suppressed . . . . . : 0

9. Average pages per printed dump . . . . . : 200.0
10. Printer hardware cost per page . . . . . : 0.0001
11. Printer paper cost per page . . . . . : 0.0075
12. Printer supplies cost per page . . . . . : 0.0011

13. Average cylinders of DASD per stored dump . . . . . : 3.1
14. Average hours on DASD per stored dump . . . . . : 60.0
15. DASD cost per cylinder-hour . . . . . : 0.0050
    
```

SMF Analysis Statistics

SMF Analysis Statistics shows the following statistical data analyzed:

- Company name
- First day with SMF job step records
- Last day with SMF job step records
- Days in the interval
- Days with SMF job step records
- Records rejected due to errors
- Number of jobs
- Number of job steps
- Number of abends
- First day of DB2 recording table data
- Last day of DB2 recording table data
- Days with recording table data.

Figure 1-5. SMF Analysis Statistics

```

Compuware SMF ----- SMF Analysis Statistics -----
1. Company name . . . . . : XYZ Corporation
2. First day with SMF job step records . . . . . : 30OCT1994
3. Last day with SMF job step records . . . . . : 15DEC1994
4. Days in the interval . . . . . : 48
5. Days with SMF job step records . . . . . : 46
6. Records rejected due to errors . . . . . : 0
7. Number of jobs . . . . . : 321,157
8. Number of job steps . . . . . : 1,742,623
9. Number of Abends . . . . . : 26,209
10. First day of DB2 recording table data . . . . . : 12JAN1994
11. Last day of DB2 recording table data . . . . . : 19JAN1994
12. Days with recording table data . . . . . : 80
    
```

Abend Activity

Abend Activity shows system faults and the potential time saved by diagnosing them with Abend-AID XLS. The information includes abend code, time saved for all abends, time saved per abend, total abends, abend type, and abend description. This report can be sorted by:

- Time savings
- Abend type
- Abend code.

Figure 1-6. Abend Activity Sorted by Time Savings

```

Compuware SMF ----- Abend Activity, Sorted by Time Savings -----

```

Abend Code	Time Saved All Abends	Time Saved Per Abend	Total Abends	Abend Type	Abend Description
S 0C7	2040	30	68	System	Data exception
S 013	1180	20	59	System	Open error
S 0CB	870	30	29	System	Decimal-divide exception
S 0C4	870	30	29	System	Protection exception
S 322	870	30	29	System	Time limit exceeded
S 0C1	510	30	17	System	Operation exception
S 213	360	20*	18	System	OPEN error
U3001	260	20	13	PL/I	PL/I Error condition raised
S 806	250	10	25	System	LINK, ATTACH, or XCTL error
S 913	200	20*	10	System	OPEN execution error
S 001	180	60	3	System	I/O error
S 0C9	150	30	5	System	Fixed-point-divide exception
R2222	100	20	5	PL/I	PL/I condition, user defined
S 0C2	90	30	3	System	Privileged operation exception
S C03	60	30	2	System	Task close error
S 813	60	30*	2	System	OPEN execution error
S A03	50	10	5	System	Return before subtask ended
U0305	40	10	4	User	User Abend
U0888	40	10	4	User	User Abend
S 122	30	10	3	System	Operator cancel with dump
U0002	30	10	3	User	User Abend
U0929	30	30	1	IMS	IMS, Member not in DBD or PSB
S 0C6	30	30	1	System	Specification exception
S 106	20	10	2	System	LINK, LOAD, ATTACH, XCTL error
S 80A	20	10	2	System	GETMAIN, FREEMAIN error
U0008	20	10	2	User	User Abend
U0209	20	20	1	IMS	IMS, Bad DBD or access method
R2000	20	20	1	PL/I	PL/I Error condition raised
S 214	20	20	1	System	CLOSE error
S 0C3	10	10	1	System	Execute exception
S B14	10	10	1	System	CLOSE execution error
S C13	10	10	1	System	OPEN execution error
S D6C	10	10	1	System	System Abend
U0102	10	10	1	User	User Abend
U0799	10	10	1	User	User Abend
S D37	0	Not used	54	System	Output operation error
S E37	0	Not used	52	System	Output operation error
S 222	0	Not used	52	System	Operator cancel without dump
S B37	0	Not used	11	System	End-of-volume error
S 522	0	Not used	4	System	Wait state time limit exceeded

Total	141.33 hours		353 abends		
Notes:					
	1. '*' means that this SMF report has been run with a time savings value that is less than the default value supplied by Compuware.				
	2. 'Not used' marks an abend code that this SMF report has been directed to ignore when computing the programmer time savings field.				

Abends Grouped by Job Name

Abends Grouped by Job Name shows job names and the type and number of abend codes for each job.

Figure 1-7. Abends Grouped by Job Name

Compuware SMF ----- Abends Grouped by Job Name -----		
Job Name	Abend Code	Number
AA80J80A	S 0C7	3
CWPPRE0	S 806	1
DKHBADTS	U1066	4
DQHSXS08	S A03	1
EFHTW0X	S 813	1
EFWMXB0E	U0100	1
FCWTBW1X	S 80A	1
H01AR037	S 222	1
H01AR041	S 222	3
H01AR127	S 222	1
	S A03	1
H01AR129	S 222	2
H01AR134	S A03	1
H01AR153	S C03	1
IMS2STB1	S 222	1
MFHF0N01	S 013	2
PFCDFH0A	S 806	1
PFCJEM0E	S B37	1
-----		-----
Total		27

Abends Grouped by Program Name

Abends Grouped by Program Name shows the program name and the type and number of abend codes for each program.

Figure 1-8. Abends Grouped by Program Name

Compuware SMF ----- Abends Grouped by Program Name -----		
Program Name	Abend Code	Number
DFHSIP	S 222	7
	S A03	2
	S C03	1
EXSOC7	S 0C7	1
IEBGENER	S B37	1
	S 813	1
IEV90	S 222	1
IKJEFT01	S 522	36
	S 013	2
	S 622	2
MAIN	S 806	1
PP000	S 80A	1
TSLOAD	S 222	1
TSTPGM	U1066	4
-----		-----
Total		61

Resources Consumed by Abending Jobs

The SMF Cost Analysis Tool does not calculate application down time for a job executed only once or for a series of job executions that span more than one day. This is indicated with the "***:**:**" in the "Application Down Time" column. Application down times of more than 12 hours are not added to the total hours consumed by abends. CPU time is rounded up to the next one-hundredth of a second. Zero and numbers less than one-hundredth of a second are shown as :00 in the CPU Time column.

Notes:

1. Execute Channel Program (EXCP) is a low-level method of sending I/O directly to a device and also is used by high-level services such as QSAM, VSAM, and BSAM.
2. Some content of Figure 1-9 was omitted for figure sizing.

Figure 1-9. Resources Consumed by Abending Jobs

Compuware SMF ----- Resources Consumed by Abending Jobs -----											
System Id	Job Name	Abend Code	Start Date DDDMMYYYY	Start Time	End Time	Elapsed Time	CPU Time	EXCP Count	Application Down Time	CPU Time Consumed	EXCPs Consumed
SYS1	AAPROG01	S B37	14DEC1994	8:30:27	8:39:20	8:53	:38	18,781			
SYS1	AAPROG01	-NONE-	14DEC1994	9:23:16	9:44:28	21:12	:46	15,758	43:56	:38	18,781
SYS1	AAPROG02	S 013	13DEC1994	13:03:15	13:10:35	7:20	:12	583			
SYS1	AAPROG02	-NONE-	13DEC1994	13:49:18	13:55:53	6:35	:11	403	38:44	:12	583
SYS1	AAPROG03	S 913	01DEC1994	13:06:15	13:06:44	:29	:01	239	**:**:**	:01	
SYS1	AAPROG07	S 122	01NOV1994	13:34:56	13:49:22	14:26	:51	11,315			
SYS1	AAPROG07	-NONE-	01NOV1994	16:16:22	16:38:53	22:30	4:33	51,239	2:27:01	:51	11,315
SYS1	AAPROG08	S 322	01DEC1994	13:06:04	13:11:41	5:36	1:02	267			
SYS1	AAPROG08	-NONE-	01DEC1994	13:14:44	13:28:23	13:39	2:17	264	3:04	1:02	267
SYS1	AAPROG15	U0102	21NOV1994	9:32:24	9:32:52	:28	:01	227			
SYS1	AAPROG15	-NONE-	21NOV1994	10:03:10	10:03:11	:01	:00	19	30:18	:01	227
SYS1	AAPROG16	S D37	07DEC1994	12:57:12	12:57:28	:17	:00	41	**:**:**	:00	
SYS1	AAPROG17	S 0C7	06DEC1994	2:12:16	2:15:45	3:29	:01	489			
SYS1	AAPROG17	S 0C7	06DEC1994	2:47:33	2:47:40	:07	:00	238			
SYS1	AAPROG17	S 0C7	06DEC1994	3:01:37	3:01:42	:05	:00	237			
SYS1	AAPROG17	-NONE-	06DEC1994	8:36:54	9:17:54	41:00	1:10	45,269	6:21:09	:02	964
SYS1	AAPROG19	S 913	09NOV1994	5:00:21	5:01:18	:57	:01	1,853			
SYS1	AAPROG19	-NONE-	10NOV1994	5:00:02	5:03:11	3:08	:02	4,742	**:**:**	:01	
SYS1	AAPROG21	S 0C1	08DEC1994	7:49:43	7:50:09	:26	:02	703	**:**:**	:02	
SYS1	AAPROG22	S B37	01NOV1994	1:03:43	1:38:46	35:03	26:52	16,287			
SYS1	AAPROG22	-NONE-	01NOV1994	1:56:12	3:54:12	1:58:00	29:46	160,123	17:26	26:52	16,287
SYS1	AAPROG24	S 0C4	01DEC1994	10:39:02	10:39:14	:12	:01	335			
SYS1	AAPROG24	S 013	12DEC1994	12:42:28	12:42:30	:02	:00	122			
SYS1	AAPROG24	S 013	12DEC1994	12:57:38	12:57:40	:03	:00	120			
SYS1	AAPROG24	S 013	12DEC1994	12:59:44	12:59:47	:03	:00	120			
SYS1	AAPROG24	-NONE-	12DEC1994	13:29:38	13:29:39	:01	:00	127	**:**:**	:02	
SYS1	AAPROG33	U0010	28NOV1994	15:20:17	15:20:41	:24	:01	420			
SYS1	AAPROG33	-NONE-	28NOV1994	16:21:49	16:22:53	1:03	:01	396	1:01:08	:01	42
SYS1	AAPROG34	U0295	09DEC1994	13:35:07	13:35:10	:04	:00	127			
SYS1	AAPROG34	S 0C7	09DEC1994	15:12:34	15:12:37	:03	:00	164			
SYS1	AAPROG34	U0105	12DEC1994	9:56:55	9:56:58	:04	:00	203			
SYS1	AAPROG34	U0105	12DEC1994	12:42:49	12:42:52	:03	:00	226			
SYS1	AAPROG34	-NONE-	12DEC1994	12:56:17	13:00:35	4:19	:16	17,314	**:**:**	:01	
SYS1	AAPROG38	S B0A	14DEC1994	11:29:59	11:30:07	:08	:01	324	**:**:**	:01	
SYS1	AAPROG41	S 913	01DEC1994	10:20:48	10:21:18	:30	:02	154			
SYS1	AAPROG41	S 322	01DEC1994	10:28:60	10:58:31	29:31	1:07	19,918			
SYS1	AAPROG41	-NONE-	01DEC1994	11:15:10	11:23:21	8:11	:51	10,937	53:52	1:09	20,072
SYS1	AAPROG45	S B37	08NOV1994	20:56:08	21:07:32	11:24	:32	23,349			
SYS1	AAPROG45	-NONE-	08NOV1994	21:49:41	21:58:08	8:27	:09	19,537	42:10	:32	23,349
Resources consumed by abends =									1,549:19:36	177:49:33	120,884,153
									hours	hours	EXCPs
Notes: 1. "Application Down Time" is the time between the end of a batch job's first failure and the start of a successful run for that same job. It represents time that may have been spent debugging, recompiling, rerunning batch jobs that abended											
2. "CPU Time Consumed" and "EXCPs Consumed" are measures of the resources used by batch jobs that abend.											

Compiler and Language Processor Usage

Compiler and Language Processor Usage displays the program description, program name, number of runs per compiler and total number of runs. Products reported on include:

- Assembler H
- Compuware ASM processor
- PL/I
- Compuware COBOL processor
- OS/VS COBOL
- VS COBOL II and COBOL/370
- DB2 Pre-compiler

- Assembler F
- CA-Optimizer
- High-Level Assembler
- IMS
- Compuware PL/I Processor.

Figure 1-10. Compiler and Language Processor User

Compuware SMF ----- Compiler and Language Processor Usage -----		
Description	Program Name	Number of Runs
Assembler H	IEV90	1,930
Compuware ASM Processor	CWPADRVR	702
PL/I	IEL0AA	494
Compuware COBOL Processor	CWPCDRVR	233
OS/VS COBOL	IKFCBL00	153
VS COBOL II & COBOL/370	IGYCRCTL	93
DB2 Pre-compiler	DSNHPC	92
Assembler F	IFOX00	57
CA-Optimizer	CPXUPTSM	40
High Level Assembler	ASMA90	22
IMS	DFSRR00	19
Compuware PL/I Processor	CWPPDRVR	4
-----		-----
Total		3,839

DB2 Error Activity

Note: DB2 analysis is available only if your site has Abend-AID for DB2 installed with the recording table.

DB2 Error Activity can be sorted by:

- SQL code
- Time saved.

Each analysis shows:

- Error code
- Time saved for all errors
- Time saved per error
- Total errors for each error code
- Error type and description
- Total number of errors and amount of time saved.

Figure 1-11. DB2 Error Activity Sorted by SQL Code

Compuware SQL Code	SMF Time Saved All Errors	DB2 Error Time Saved Per Error	Activity, Sorted Total Errors	Error Type	by SQL Code Error Description
-924	30	15	2	DB2	Connection internal error
-923	50	5*	10	DB2	Connection not established
-922	30	15	2	DB2	Authorization failure
-818	60	15	4	DB2	StoneSeriftamps do not match
-803	90	15	6	DB2	Insert or update value invalid
-508	90	15	6	DB2	Cursor not positioned on a row
-501	90	15	6	DB2	Cursor is not open
-407	165	15	11	DB2	Column cannot have null values
-305	570	15	38	DB2	Null value cannot be assigned
-303	225	15	15	DB2	Data types not compatible
-302	165	15	11	DB2	Input variable value too large
+100	630	15	42	DB2	Row not found
S 04E	210	30	7	DB2	DB2 system abend
S 04F	330	30	11	DB2	DB2 system abend
Total	45.58 hours		171 errors		

NOTES: 1. '*' means that this SMF report has been run with a time savings value that is less than the default value supplied by Compuware.

Chapter 2.

Preparing a Report

This chapter describes how to prepare SMF data and produce an analysis report. Sample JCL is in the Abend-AID XLS installation library. Contact the Abend-AID XLS installer for the name of the library, if necessary.

Procedure

The processing to create an Abend-AID XLS SMF analysis report involves three sample JCL members supplied in the Abend-AID XLS installation library: JCLCSMF1, JCLCSMF2, and JCLCSMF3. In JCLCSMF3 you specify your output preferences.

Note: If you are preparing SMF data for the PC version of the SMF Cost Analysis Tool, the SMF Analyzer, for JCLCSMF3 you will substitute JCLCSMFP.

This procedure extracts from your SMF data type 30, subtype 4 records that are then sorted, formatted, and presented as you specify. Compuware recommends that you send the output from each processing step to a sequential file on DASD rather than to tape.

1. Determine how much SMF data to study. Compuware recommends 28 to 60 days of data, although as little as one day can be used. One to two months worth will accommodate system fluctuations and fault occurrences of low frequency, contributing to better cost estimates.
2. If necessary, merge data on separate tapes or in separate files to enable a single processing run spanning the preferred time range. The SMF Cost Analysis Tool requires unbroken data input.
3. Run the sample JCL named JCLCSMF1 to extract from the SMF data the applicable records.

Return Codes

RC=4

One or more type 30 records missing one or more sections. The process completes successfully.

Note: The following return codes will stop JCLCSMF1 processing:

RC=8

Unable to open SMFIN.

RC=12

Unable to open SMFOUT.

RC=16

Unable to open SYSPRINT.

Figure 2-1. JCL Member JCLCSMF1

```

/*****
/*
/* JCLCSMF1  --  SMF COST ANALYSIS TOOL
/*
/* STEP COPYSMF:  EXTRACTS THE TYPE 30 SUBTYPE 4 RECORDS.
/*
/*      MODIFY THE //DUMPIN DD TO POINT TO THE SMF DATASETS.
/*      MODIFY THE //DUMPOUT DD TO POINT TO TEMPORARY DATASET
/*      THAT WILL BE PASSED TO THE CSMF1 UTILITY.
/*
/* STEP CSMF1 - EXECUTES THE CSMF1 UTILITY WHICH EXTRACTS THE
/*      REQUIRED DATA FROM THE SMF TYPE 30 SUBTYPE 4 RECORDS.
/*
/*      MODIFY THE //SMFIN DD TO POINT TO THE DATASET CREATED
/*      BY THE //DUMPOUT DD IN THE COPYSMF STEP.
/*      MODIFY THE //SMFOUT DD TO POINT TO A TEMPORARY DATASET
/*      TO BE PASSED TO THE SORT STEP.
/*
/* STEP SORT - EXECUTES YOUR SORT UTILITY.
/*
/*      MODIFY THE //SORTIN  TO POINT TO THE DATASET CREATED
/*      BY THE //SMFOUT DD IN THE SMFOUT STEP.
/*      MODIFY THE //SORTOUT TO POINT TO A PERMANENT DATASET
/*      TO BE USED BY THE CSMF2 UTILITY IN JCLCSMF2.
/*
/*****
/* STEP COPYSMF
/*****
//COPYSMF EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
//DUMPIN  DD DSN=YOUR.RAWSMF.DATA,DISP=SHR,          <== CHECK DSN
//      VOL=SER=(CART1,CART2,...)                  <== CHECK VOLSER
//DUMPOUT DD DSN=&&TEMPSMF,
//      DISP=(NEW,PASS,DELETE),
//      SPACE=(CYL,(10,10),RLSE),
//      DCB=(RECFM=VBS,LRECL=32760,BLKSIZE=32760),
//      UNIT=SYSDA                                <== CHECK UNIT
//SYSIN   DD *
INDD(DUMPIN,OPTIONS(DUMP))
OUTDD(DUMPOUT,TYPE(30(4)))
/*
/*****
/* STEP CSMF1
/*****
//CSMF1 EXEC PGM=CSMF1
//STEPLIB DD DSN=AASMF.LOAD,DISP=SHR                <== CHECK DSN
//SYSPRINT DD SYSOUT=*
//SYSOUT  DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SMFIN   DD DSN=&&TEMPSMF,DISP=SHR
//SMFOUT  DD DSN=&&CMPDATA,DISP=(NEW,PASS,DELETE),
//      SPACE=(TRK,(45,15)),UNIT=SYSDA            <== CHECK UNIT
/*****
/* STEP SORT
/*****
//SORT EXEC PGM=SORT
//SORTIN DD DSN=&&CMPDATA,DISP=MOD
//SORTOUT DD DSN=COMPRESS.SMF.DATA,                <== CHECK DSN
//      DISP=(NEW,CATLG,DELETE),
//      SPACE=(TRK,(45,15)),
//      UNIT=SYSDA                                <== CHECK UNIT
//SYSOUT  DD SYSOUT=*
//SYSIN   DD *
SORT      FIELDS=(1,4,CH,A,5,8,CH,A,13,4,PD,A,17,4,BI,A,33,2,BI,A)

```

4. With the output from the previous step, run the sample JCL named JCLCSMF2 to organize the extracted SMF data into a form suitable for use. In JCLCSMF2 you can specify various data selection parameters, which are shown in Table 2-1 on page 2-5.

Figure 2-2. JCL Member JCLCSMF2

```

/*****
/*
/* JCLCSMF2  --  SMF COST ANALYSIS TOOL
/*
/* STEP CSMF2:  EXECUTES THE CSMF2 UTILITY WHICH FORMATS THE
/*      EXTRACTED DATA FROM THE CSMF1 UTILITY.
/*
/*      MODIFY THE //STEPLIB DD TO POINT TO THE SMF COST ANALYSIS
/*      TOOL LOAD LIBRARY.  INCLUDE THE DB2 LOAD LIBRARIES
/*      ONLY IF YOU HAVE INSTALLED ABEND-AID FOR DB2 WITH THE
/*      ABEND-AID RECORDING TABLE.
/*
/*      MODIFY THE //SMFIN DD TO POINT TO THE DATASET CREATED
/*      BY THE //SORTOUT DD IN THE SORT STEP OF JCLCSMF1.
/*
/*      MODIFY THE //SMFSIFT DD TO POINT TO A DATASET TO BE
/*      PASSED TO THE CSMF3 UTILITY IN JCLCSMF3.
/*
/*      MODIFY THE //SYSIN DD TO POINT TO ANY CSMF2 PARMS THAT
/*      YOUR SITE MAY REQUIRE.
/*
/*****
//CSMF2      EXEC PGM=CSMF2
//STEPLIB   DD DSN=AASMF.LOAD,DISP=SHR              <== CHECK DSN
//          DD DSN=DSN310.DSNLOAD,DISP=SHR         <== DB2 ONLY
//          DD DSN=DSN310.RUNLIB.LOAD,DISP=SHR      <== DB2 ONLY
//SYSPRINT  DD SYSOUT=*
//SYSOUT    DD SYSOUT=*
//SYSUDUMP  DD SYSOUT=*
//SMFIN     DD DSN=COMPRESS.SMF.DATA,DISP=SHR      <== CHECK DSN
//SMFSIFT   DD DSN=AASMF.SMFSIFT,                  <== CHECK DSN
//          DISP=(NEW,CATLG),
//          UNIT=SYSDA,
//          SPACE=(TRK,(15,5))
//SMFJPA    DD DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SYSIN     DD *
//          INPUT PARMS HERE
/*

```

5. With the output of the previous step, run sample JCL member JCLCSMF3 to produce a cost analysis report. You can write the report to a file or SYSOUT. In JCLCSMF3 you can specify various data selection parameters, which are shown in Table 2-2 on page 2-6. Note that the REPORT parameter enables you to produce single or multiple report sections.

Note: If you are preparing SMF data for the PC version of the SMF Cost Analysis Tool, the SMF Analyzer, and will not generate reports on the host system, skip this step. Instead, follow the instructions in “SMF Analyzer” on page 2-4.

Figure 2-3. JCL Member JCLCSMF3

```

/*****
/*
/* JCLCSMF3  --  SMF COST ANALYSIS TOOL
/*
/* STEP CSMF3:  EXECUTES THE CSMF3 UTILITY WHICH PRODUCES
/* THE SMF COST ANALYSIS TOOL REPORTS.
/*
/* MODIFY THE //STEPLIB DD TO POINT TO THE SMF COST
/* ANALYSIS TOOL LOAD LIBRARY.
/*
/* MODIFY THE //SMFSIFT DD TO POINT TO THE DATASET
/* POINTED TO BY THE SMFSIFT DD IN JCLCSMF2.
/*
/* MODIFY THE //SYSIN DD TO POINT TO ANY CSMF3 PARMS
/* THAT YOUR SITE MAY REQUIRE.
/*
/*****
//CSMF3      EXEC PGM=CSMF3
//STEPLIB   DD  DSN=AASMF.LOAD,DISP=SHR          <== CHECK DSN
//SYSPRINT  DD  SYSOUT=*
//SMFSIFT   DD  DSN=AASMF.SMFSIFT,DISP=SHR      <== CHECK DSN
//REPORTS   DD  SYSOUT=*
//SYSOUT    DD  SYSOUT=*
//SYSUDUMP  DD  SYSOUT=*
//SMFWRK1   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SMFWRK2   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SMFWRK3   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SMFWRK4   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SMFWRK5   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SMFWRK6   DD  DISP=(NEW,DELETE),UNIT=SYSDA,SPACE=(CYL,(20,20))
//SYSIN     DD  *
INPUT PARMS HERE
/*

```

SMF Analyzer

The sample JCL member JCLCSMFP is distributed with the SMF Cost Analysis Tool in Abend-AID XLS Release 8.3 or more current. This is used by the sales representative to run analysis reports.

1. When preparing data for Abend-AID XLS's SMF Analyzer, with the output from JCLCSMF2 run sample member JCLCSMFP instead of JCLCSMF3. This converts the formatted data file into seven separate text files numbered 0 to 6.
2. Transfer the DDNAME SMSOUT1 file to the desktop environment for the SMF Analyzer. Identify it as a text file to the downloading utility. The other files may be deleted.

Parameters

The tables in this section summarize the parameters that may be used or modified for JCLCSMF2 (Table 2-1) and JCLCSMF3 (Table 2-2). To override default parameter values, place parameter cards after the //SYSIN DD * statement.

Follow these standards when coding parameters:

- One parameter per card.
- Keyword begins in column 1, followed by an equal sign then the value.
- No intervening spaces.
- Asterisk in column 1 indicates comment card.

Examples of parameter cards:

```
COMPANY=Compuware
REPORT=5,6,7
*DIFF1=03
DIFF1=12
ABEND=U1234,C,2,Y,Accounting balance error
```

Parameters are echoed to SYSPRINT. After parameters are validated, appropriate error messages are written to SYSPRINT.

Tips for New Users

Here are suggestions for preparing to monitor system fault activity on a scheduled or frequent basis. First create pilot SMF analysis reports for different time ranges, to see how the SMF Cost Analysis Tool works within your site configuration.

- Identify a standard method of selecting SMF data and making it available for SMF Cost Analysis Tool processing.
- Try out the default analysis criteria and change them to suit your site. For example, if your site doesn't use PL/I, you can disable the default parameter that presents PL/I abend codes. The parameters for JCLCSMF2 set the analysis criteria.
- Decide whether any default basis values for resources of time, cost, or DASD should be modified to better reflect conditions at your site. The parameters for JCLCSMF3 set the basis resource values.

Review the defaults for report formatting and modify as preferable. The parameters for JCLCSMF3 set the report format.

Table 2-1. Parameters for JCLCSMF2

Parameter	Default	Valid Range	Description
	aaaa-none (required)	Snnn Unnnn Rnnnn	Override or add to the defaults in the abend code table. Refer to the notes at the end of this table.*
ABEND=aaaa,b,c,d,e Example:	b-none (required)	1 character	Error type: C - COBOL user abend D - DB2 system abend I - IMS user abend M - IDMS user abend P - PL/I abend code S - System abend U - User abend R - PL/I return code L - LE/370 return code.
ABEND=S0CB,C,2,Y,COBOL ABEND	c-none (required)	1-4	Difficulty code for this abend (4 is the most difficult).
	d-none (required)	Y or N	Applicability - whether to use this abend in calculations.
	e-blanks (optional)	62 characters	Abend description.
DB2_PLAN=	CSMFPLN	8-byte name	Plan name for DB2 analysis.
DB2_SUBSYS=	none	4-byte name	Subsystem ID for DB2 analysis.
EDATE=	today's date	Julian date (YYYYDDD)	Ending date used with the SDATE parameters.
EXCLUDE_COMPILER=	none	8-byte name	Compilers in default table that are to be excluded from the analysis.
EXCLUDE_PGM=	none	8-byte name	Programs to exclude from the analysis.
INCLUDE_COMPILER=	none	8-byte name	Compiler to include in the analysis in addition to those listed in the default table.
PLI_INC=	N	Y or N	Include PL/I return codes 2000-2999 SMF records.
*Notes:			
1. For a system completion code (Snnn), <i>nnn</i> is a hexadecimal code 000-FFF.			
2. For a user completion code (Unnnn), <i>nnnn</i> is a decimal code 0000-4095.			
3. For a PL/I on-code (Rnnnn), <i>nnnn</i> is a return code 2000-2999.			
4. For an LE/370 condition code (Rnnnn), <i>nnnn</i> is return code 2000, 3000, or 4000.			

Table 2-1. Parameters for JCLCSMF2

Parameter	Default	Valid Range	Description
LE=	Y	Y or N	Include LE/370 return codes 2000, 3000, and 4000.
SDATE=	1950001	Julian date (YYYYDDD)	Starting date used with the EDATE parameter. Causes the program to ignore any records that have dates outside the SDATE to EDATE range. Compuware recommends using between 28 and 60 days of data.
SYSID=	all	4-byte system ID.	System ID.
LANGUAGE=	ENGLISH (mixed case)	ENGLISH USAUC JAPANESE	Language used to produce ABEND/SQLcode description and error messages.
SQL=aaa,b,c,d,e	aaa-none	000-999	Override or add to the defaults in the SQL error code table.
	b-N	1 character	P for positive SQL code. N for negative SQL code.
	c-none	1-4	Difficulty code for this SQL error code.
	d-none	Y or N	Applicability - whether to use this abend in calculations.
	e-blanks	62 characters	SQL error code description.
DASD_CYL_HOUR=	.005	.001 to 99999.9999	DASD cost per cylinder.
*Notes:			
1. For a system completion code (Snnn), <i>nnn</i> is a hexadecimal code 000-FFF.			
2. For a user completion code (Unnnn), <i>nnnn</i> is a decimal code 0000-4095.			
3. For a PL/I on-code (Rnnnn), <i>nnnn</i> is a return code 2000-2999.			
4. For an LE/370 condition code (Rnnnn), <i>nnnn</i> is return code 2000, 3000, or 4000.			

Table 2-2. Parameters for JCLCSMF3

Parameter	Default	Valid Range	Description
DIFFx=	x=1=10min 2=20min 3=30min 4=60min	1-999	Average amount of programmer time used to solve the corresponding abend without Abend-AID XLS.
PROGRAMMER=	50	.001 to 99999.9999	Hourly cost of programmer time, including benefits and overhead costs.
PRINTER_HARDWARE=	.0001	.001 to 99999.9999	Printer hardware costs per page.
PRINTER_PAPER=	.0075	.001 to 99999.9999	Printer paper cost per page.
PRINTER_SUPPLIES=	.0011	.001 to 99999.9999	Printer supplies cost per page.
REPORT=	ALL	1-14	<i>Refer to the note at the end of this table.*</i>
Average resources consumed:			
DASD_HOURS=	60	.1 to 9999.9	Average hours on DASD per online dump.
AVG_PRINTED_PAGES=	200	.1 to 9999.9	Printed pages per printed dump.
AVG_DUMP_CYL_DASD=	3.1	.1 to 9999.9	Average cylinders of DASD per online dump (3380 DASD).
The following three fields must total 100%:			
%DUMPS_NOT_PRODUCED=	0	0 to 100	% of abends with no dumps produced.
%DUMPS_ON_DASD=	50	0 to 100	% of abends with dumps on DASD.
%DUMPS_PRINTED=	50	0 to 100	% abends with printed dumps.
Report formatting parameters:			
COMPANY=	none	< 73 characters	Company name.
CURRENCY_LABEL=	\$	6 characters	Label used on currency displays.

Table 2-2. Parameters for JCLCSMF3

Parameter	Default	Valid Range	Description
DATE_FORMAT=	DDMMMYYYY	MM/DD/YY DD/MM/YY YYYYDDD YYYY/MM/DD MMDDYYYY DDMMMYYYY	Format dates in reports and displays.
DECIMAL_PLACES=	2	0-2	Number of decimal places for currency.
DECIMAL_SEPARATOR=	","(decimal point)	1 character	Decimal separator for currency.
LANGUAGE=	ENGLISH (mixed case)	ENGLISH USAUC JAPANESE	Language used to produce error messages and text for reports.
LINES_PER_PAGE=	60	10-60	Lines printed per page.
THOUSANDS_SEPARATOR=	","(comma)	1 character	Thousands separator for currency.
Output processing options:			
DB2_COST=	Y	Y or N	Include DB2 costs in cost savings analysis.
SYSTEM_COST=	Y	Y or N	Include system costs in cost savings calculations.
<p>*Note:</p> <p>Use the number shown next to the report when specifying a value for the parameter REPORT=.</p> <ol style="list-style-type: none"> 1. Cost Savings Results 2. Application Down Time 3. Cost Savings Calculations 4. Cost Savings Assumptions 5. SMF Analysis Statistics 6. Abend Activity, Sorted by Time Savings 7. Abend Activity, Sorted by Abend Type 8. Abends Activity, Sorted by Abend Code 9. Abends Grouped by Job Name 10. Abends Grouped by Program Name 11. Resources Consumed by Abending Jobs 12. Compiler and Language Processor Usage 13. DB2 Error Activity, Sorted by SQL Code 14. DB2 Activity, Sorted by Time Saved 			

Chapter 3. Installation

Installation Overview

The SMF Cost Analysis Tool is distributed on the Abend-AID XLS product tape. It is also distributed on a separate site-requested tape that contains three standard labeled files.

Sample JCL members referenced in the steps are included in the Abend-AID XLS installation library ABENDAID.SORCMAC from the product tape, and AASMF.SORCMAC from the separate site-requested tape.

If installing the SMF Cost Analysis Tool from the Abend-AID XLS product tape, ABENDAID.SORCMAC was downloaded as part of the Abend-AID XLS product installation procedures. If installing the SMF Cost Analysis Tool from the separate site-requested tape, AASMF.SORCMAC will be downloaded as part of the SMF Cost Analysis Tool installation procedure that follows.

ABENDAID.SORCMAC and AASMF.SORCMAC contain the following sample JCL members used for installation:

JCLCSMFL

Sample JCL to link the modules required to run the SMF Cost Analysis Tool program.

JCLCSMFD

For sites using Abend-AID for DB2 with the Abend-AID XLS recording table. Sample JCL to bind the DB2 plan.

If you are installing the SMF Cost Analysis Tool from the Abend-AID XLS product tape, skip to “Step 3. Link-edit the Object Modules” on page 3-3.

Step 1. Execute JCLCSMFF to Unload the First File

Note: This step is required if installing SMF Cost Analysis Tool from a site-requested tape.

Type the JCL as shown in Figure 3-1 to unload the first file, CW.AA.FILE1, from the tape containing the SMF Cost Analysis Tool. Execute this JCL to put JCLCSMFS into your JCL library for “Step 2. Allocate Libraries and Download the Tape” on page 3-2.

Figure 3-1. JCL Member JCLCSMFF

```

/* INSERT JOB CARD
*****
/*
/* JCLCSMFF
/*
/* THIS JCL UNLOADS CW.AA.FILE1 FROM THE SMF COST ANALYSIS TOOL
/* DISTRIBUTION TAPE INTO 'YOUR.JCL.LIBRARY' AS MEMBER JCLCSMFS.
/*
*****
//JCLCSMFF PROC JCLDSN='YOUR.JCL.LIBRARY',          <--- CHECK DSN
//              TUNIT='CART',                      <--- CHECK UNIT
//              TVOL='VOLSER'                      <--- SUPPLY VOLSER
/*
//UNLOAD      EXEC PGM=IEBUPDTE,PARM=NEW
//SYSPRINT   DD SYSOUT=*
//SYSUDUMP   DD SYSOUT=*
//SYSIN      DD DSN=CW.AA.FILE1,
//              DISP=OLD,
//              UNIT=&TUNIT,
//              VOL=SER=&TVOL,
//              LABEL=(1,SL),
//*           LABEL=(2,BLP),                      <--- BYPASS LABEL
//              DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SYSUT2     DD DSN=&JCLDSN,DISP=SHR
/*
//              PEND
//JCLUNLD    EXEC JCLCSMFF
/*

```

Step 2. Allocate Libraries and Download the Tape

Note: This step is required if installing the SMF Cost Analysis Tool from the site-requested tape.

The remainder of the tape consists of two files in IEBUPDTE format:

- **CW.AA.FILE2:** Installation library named AASMF.SORCMAC. This library contains sample JCL to assist in running the SMF Cost Analysis Tool program.
- **CW.AA.FILE3:** Object library named AASMF.OBJECT. This library contains the object modules. You can delete this library after the installation process is completed.

JCLCSMFS allocates and updates the SMF Cost Analysis Tool libraries and downloads the SMF Cost Analysis Tool distribution tape. Before executing JCLCSMFS, review the JCL for necessary modifications. You can change the dataset names to meet the particular standards of the installation. Remember that you must supply the appropriate volume serial number on the tape.

Figure 3-2. JCL Member JCLCSMF5

```

/*****
/*
/* JCLCSMF5  --  SMF COST ANALYSIS TOOL
/*
/* THIS JCL ALLOCATES AND UPDATES THE SMF COST ANALYSIS TOOL
/* LIBRARIES AND DOWNLOADS THE DISTRIBUTION TAPE.
/*
/*****
//CSMFUNLD PROC AAOBJ='AASMF.OBJECT',                <== CHECK DSN
//              AASORC='AASMF.SORCMAC',              <== CHECK DSN
//              DUNIT='SYSDA',                       <== CHECK UNIT
//              TVOL='VOLSER',                       <== CHECK VOLSER
//              TUNIT='CART',                        <== CHECK UNIT
/*****
/* ALLOCATE LIBRARIES
/*****
//ALLOC EXEC PGM=IEFBR14
//SYSUDUMP DD SYSOUT=*
/*
//AASORC DD DSN=&AASORC,
//          DISP=(,CATLG),
//          UNIT=&DUNIT,
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//          SPACE=(TRK,(15,1,15))
/*
//AAOBJ DD DSN=&AAOBJ,
//         DISP=(,CATLG),
//         UNIT=&DUNIT,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//         SPACE=(TRK,(15,1,15))
/*
/*****
/* DOWNLOAD THE DISTRIBUTION TAPE
/*****
//AASORC2 EXEC PGM=IEBUPDTE,PARM=NEW
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD DUMMY
//SYSIN DD DSN=CW.AA.FILE2,DISP=OLD,
//         UNIT=&TUNIT,
//         VOL=(,RETAIN,,,SER=&TVOL),
//         LABEL=(2,SL)
/* LABEL=(2,SL,EXPDT=98000) <== BYPASS TMS
/* LABEL=(5,BLP,EXPDT=98000), <== BYPASS LABEL
/* DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200) <== PROCESSING
//SYSUT2 DD DSN=&AASORC,DISP=SHR
/*
//AAOBJ2 EXEC PGM=IEBUPDTE,PARM=NEW
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD DUMMY
//SYSIN DD DSN=CW.AA.FILE3,DISP=OLD,
//         UNIT=&TUNIT,
//         VOL=(,RETAIN,,,SER=&TVOL),
//         LABEL=(3,SL)
/* LABEL=(3,SL,EXPDT=98000) <== BYPASS TMS
/* LABEL=(8,BLP,EXPDT=98000), <== BYPASS LABEL
/* DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200) <== PROCESSING
//SYSUT2 DD DSN=&AAOBJ,DISP=SHR
/*
//          PEND
//JCLCSMF5 EXEC CSMFUNLD

```

Step 3. Link-edit the Object Modules

Allocate the AASMF.LOAD load library and link-edit the object modules into it. Sample JCL is in member JCLCSMFL. Review the JCL to make any necessary changes.

Note: If you are installing the SMF Cost Analysis Tool from the Abend-AID XLS product tape, you have already allocated the load library as part of the Abend-AID XLS installation. Skip the allocate step and proceed to the link-edit step.

Figure 3-3. JCL Member JCLCSMFL

```

/*****
/*
/* JCLCSMFL  --  SMF COST ANALYSIS TOOL
/*
/* THIS JCL ALLOCATES THE SMF COST ANALYSIS TOOL LOAD LIBRARY
/* AND LINK-EDITS THE OBJECT MODULES.
/*
/*****
//CSMFLINK PROC AAOBJ='AASMF.OBJECT',                <== CHECK DSN
//              AALOAD='AASMF.LOAD',                <== CHECK DSN
//              AASORC='AASMF.SORCMAC',            <== CHECK DSN
//              DUNIT='SYSDA'                      <== CHECK DSN
/*****
/* ALLOCATE THE LOAD LIBRARY
/*****
//ALLOC EXEC PGM=IEFBRI4
//AALOAD DD DSN=&AALOAD,
//          DISP=(,CATLG),
//          UNIT=&DUNIT,
//          DCB=(RECFM=U,BLKSIZE=18432),
//          SPACE=(TRK,(45,15,15))
/*
/*****
/* LINK-EDIT THE OBJECT MODULES - NON-REENTRANT
/*****
//STEP1 EXEC PGM=IEWL,PARM='LIST,XREF',COND=(4,LT)
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//OBJLIB DD DSN=&AAOBJ,DISP=SHR
//SYSLMOD DD DSN=&AALOAD,DISP=SHR
//SYSLIN DD DSN=&AASORC(LINKCTL),DISP=SHR
/*
//          PEND
//JCLCSMFL EXEC CSMFLINK

```

Step 4. Bind the DB2 Plan

Note: Skip this step if you do not have Abend-AID for DB2 with the Abend-AID XLS recording table, AATAB.

Member JCLCSMFD contains the JCL to bind the DB2 plan. Review the JCL to make any necessary changes.

Figure 3-4. JCL Member JCLCSMFD

```

/*****
/**
/** JCLCSMFD -- SMF COST ANALYSIS TOOL
/**
/** THIS JCL BINDS THE DB2 PLAN FOR THE SMF COST ANALYSIS TOOL
/** DB2 ERROR ACTIVITY REPORT.
/**
/** EXECUTE THIS JCL ONLY IF YOU HAVE INSTALLED ABEND-AID FOR DB2
/** WITH THE ABEND-AID RECORDING TBLE.
/**
/** PLEASE FOLLOW THESE STEPS:
/**
/** 1. THIS JOB MUST BE EXECUTED BY AN AUTHORIZED DB2 USER.
/** 2. CHECK THE DSNAMEs FOR THE SORCMAC LIBRARY.
/** 3. CHECK THE DSNAMEs FOR THE DB2 LIBRARIES.
/** 4. CHECK THE SUBSYSTEM NAME FOR EACH DB2 SUBSYSTEM.
/** 5. CHECK PLAN NAME FOR PROGRAM DSNTIAD.
/** 6. IN THE GRANT, CHANGE "PUBLIC" IF NOT ALL USERS MAY EXECUTE
/** THE SMF COST ANALYSIS TOOL.
/** 7. RUN THIS JOB TO BIND AND GRANT ACCESS ALLOWING THE
/** ABEND-AID USERS TO EXECUTE IT.
/**
/*****
//BIND EXEC PGM=IKJEFT01,DYNAMNBR=20
//STEPLIB DD DSN=DSN310.DSNLOAD,DISP=SHR <== CHECK DSN
// DD DSN=DSN310.RUNLIB.LOAD,DISP=SHR <== CHECK DSN
//DBRMLIB DD DSN=AASMF.SORCMAC,DISP=SHR <== CHECK DSN
//SYSPRINT DD SYSOUT=*
//SYSDUMP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SYSTSIN DD *
DSN SYSTEM(DSN)
BIND PLAN(CSMFPLN) MEMBER(CSMFPLN) -
ACTION(ADD) -
VALIDATE(BIND) -
ISOLATION(CS) -
ACQUIRE(USE) -
RELEASE(COMMIT)
RUN PROGRAM(DSNTIAD) PLAN(DSNTIA31)
/**
//SYSIN DD *
GRANT EXECUTE ON PLAN CSMFPLN TO PUBLIC;
/**
//SYSPRINT DD SYSOUT=*
//SYSDUMP DD SYSOUT=*
//ABNLTERM DD SYSOUT=*

```


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