



**Program Directory for
IBM Fault Analyzer for z/OS**

V6.1.0

Program Number 5655-P16

FMID HAB8610

for Use with
OS/390 Version 2 Release 10
z/OS Version 1 Release 1 or later

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Note!

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 21.

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1.0 Introduction

This Program Directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM Fault Analyzer for z/OS. This publication refers to IBM Fault Analyzer for z/OS as Fault Analyzer.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for Fault Analyzer.
- 3.0, “Program Support” on page 6 describes the IBM support available for Fault Analyzer.
- 4.0, “Program and Service Level Information” on page 7 lists the APARs (program level) and PTFs (service level) incorporated into Fault Analyzer.
- 5.0, “Installation Requirements and Considerations” on page 8 identifies the resources and considerations required for installing and using Fault Analyzer.
- 6.0, “Installation Instructions” on page 15 provides detailed installation instructions for Fault Analyzer. It also describes the procedures for activating the functions of Fault Analyzer, or refers to appropriate publications.

This Program Directory is intended for standalone installs. Do not use this Program Directory if you are installing Fault Analyzer with a SystemPac, ServerPac or CBPDO. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

1.1 Fault Analyzer Description

Fault Analyzer, which is part of the z/OS Problem Determination and Deployment Tools family of products, is targeted at application programmer abend analysis, but has a secondary use by CICS systems programmers for analysing CICS system failures.

Application development

As an application development tool, Fault Analyzer helps customers become more productive by reducing the time it takes to find the cause of problems leading to abnormal termination in application programs. This is done by identifying the point of failure, and providing relevant information related to this - all presented in an easily understood report.

Many different execution environments are supported, such as batch, CICS, IMS, DB2 and WebSphere, and programming languages like COBOL, PL/I, C and assembler. This is all done by the one and the same analysis engine, which is invoked by different exits depending on the type of environment in which the abend occurs. Or, if no abend has occurred, but a snap-shot of the execution environment is desired, then a program can perform a non-disruptive call to Fault Analyzer at any point in time.

The initial abend analysis takes place in real time, prior to the termination of the abending task. This produces an analysis report with the job output on the JES spool, and also creates an entry in a fault history file. The fault entry can later be used for viewing a copy of the real-time report, or for batch or interactive re-analysis. The latter is particularly useful if a compiler listing or side file was not available during real-time analysis, since by providing this during re-analysis, the offending source line of code can still be determined. Interactive reanalysis, using the ISPF interface, provides further advantages over that of batch re-analysis, as the user is able to perform a wide range of functions against the fault, such as viewing storage not otherwise presented in the report and optionally formatting it in accordance with unique data area mapping provided by the user.

A range of options and user exits are available to allow installations to tailor Fault Analyzer to their particular needs. However, emphasis is always placed on the ability to perform the task of diagnosing application problems without the need for users to have in-depth knowledge of these tailoring options.

CICS system dump analysis

As a CICS system dump analysis tool, Fault Analyzer is rapidly becoming the diagnostic tool of choice. This is due to the intuitive and comprehensive interactive analysis capability which eliminates the need for users to know and remember complex commands.

1.2 Fault Analyzer

FMID

Fault Analyzer consists of the following FMID:

HAB8610

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for Fault Analyzer is 5655-P16 and its feature number is 5812.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature numbers, and are not required for the product to function.

The program announcement material describes the features supported by Fault Analyzer. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is magnetic tape or downloadable files. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation Instructions" on page 15 for more information about how to install the program.

Figure 1 describes the physical tape.

NOTE!

If Fault Analyzer was shipped to you in a CBPDO, you will need to reference the CBPDO Memo To Users Extension for the physical tape layout of the Basic Machine-Readable Materials.

Figure 1. Basic Material: Program Tape

Medium	Feature Number	Physical Volume	External Label	VOLSER
3480	5812	1	FAULT ANALYZER z/OS	AB8610

Figure 2 describes the program file content for Fault Analyzer.

Notes:

1. The data set attributes in this table should be used in the JCL of jobs reading the data sets, but since the data sets are in IEBCOPY unloaded format, their actual attributes may be different.
2. If any RELFILES are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 2. Program File Content

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	27920
IBM.HAB8610.F1	PDS	FB	80	27920
IBM.HAB8610.F2	PDS	FB	80	27920
IBM.HAB8610.F3	PDS	U	0	6144
IBM.HAB8610.F4	PDS	FB	80	27920
IBM.HAB8610.F5	PDS	FB	80	27920
IBM.HAB8610.F6	PDS	FB	80	27920
IBM.HAB8610.F7	PDS	FB	80	27920
IBM.HAB8610.F8	PDS	FB	4096	24576
IBM.HAB8610.F9	PDS	VB	255	27998
IBM.HAB8610.F10	PDS	VB	1024	27998
IBM.HAB8610.F11	PDS	U	0	6144
IBM.HAB8610.F12	PDS	FB	80	27920

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for Fault Analyzer.

2.3 Program Publications

The following sections identify the basic and optional publications for Fault Analyzer.

2.3.1 Basic Program Publications

Figure 3 identifies the basic unlicensed program publications for Fault Analyzer. One copy of each of these publications is included when you order the basic materials for Fault Analyzer. For additional copies, contact your IBM representative.

<i>Figure 3. Basic Material: Unlicensed Publications</i>	
Publication Title	Form Number
License Information	GC18-9666

2.3.2 Optional Program Publications

<i>Figure 4. Optional Material: Unlicensed Publications</i>		
Publication Title	Form Number	Feature Number
Fault Analyzer User's Guide and Reference	SC18-9670	5812

2.4 Program Source Materials

No program source materials or viewable program listings are provided for Fault Analyzer.

2.5 Publications Useful During Installation

The publications listed in Figure 5 may be useful during the installation of Fault Analyzer. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at: <http://www.ibm.com/shop/publications/order>

<i>Figure 5. Publications Useful During Installation</i>	
Publication Title	Form Number
<i>IBM SMP/E for z/OS and OS/390 User's Guide</i>	SA22-7773
<i>IBM SMP/E for z/OS and OS/390 Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS and OS/390 Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS and OS/390 Messages, Codes, and Diagnosis</i>	GA22-7770
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770

3.0 Program Support

This section describes the IBM support available for Fault Analyzer.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before installing Fault Analyzer, you should review the current Preventive Service Planning (PSP) information. If you obtained Fault Analyzer as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

If the CBPDO for Fault Analyzer is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket" or obtain the current PSP from the web at <https://techsupport.services.ibm.com/server/390.psp390>

For program support, access the Software Support web site at <http://www-3.ibm.com/software/support/>

PSP Buckets are identified by UPGRADEs, which specify product levels, and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for Fault Analyzer are:

Figure 6. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
FAULTANALYZE	HAB8610	FAULT ANALYZER 6.1.0

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 7 identifies the component IDs (COMPID) for Fault Analyzer.

Figure 7. Component IDs

FMID	COMPID	Component Name	RETAIN Release
HAB8610	5655P1600	FAULT ANALYZER BASE	610

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of Fault Analyzer. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

4.1 Program Level Information

No APARs have been incorporated into Fault Analyzer.

4.2 Service Level Information

No PTFs against this release of Fault Analyzer have been incorporated into the product tape.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating Fault Analyzer. The following terminology is used:

- *Driving system*: the system used to install the program.
- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install Fault Analyzer.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 8. Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5647-A01	OS/390 V2.10.0
5694-A01	z/OS V1.01.0 or later
5655-G44	IBM SMP/E for z/OS and OS/390 V3.01.0 or later

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Fault Analyzer.

Fault Analyzer installs in the z/OS (Z038) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites

An installation requisite is defined as a product that is required and **must** be present or one that is not required but **should** be present on the system for the successful installation of this product.

A mandatory installation requisite identifies products that are required, without exception, or this product **will not install** on your system. This includes products specified as PREs or REQs.

<i>Figure 9. Mandatory Installation Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5647-A01	OS/390 V2.10.0
5694-A01	z/OS V1.01.0 or later

A conditional installation requisite identifies products that are **not** required for successful install but may resolve such things as certain warning messages at installation time. They include products that are specified as IF REQs.

Fault Analyzer has no conditional installation requisites.

5.2.2.2 Operational Requisites

An operational requisite is defined as a product that is required and **must** be present or a product that is not required but **should** be present on the system in order for this product to operate all or some of its functions.

A mandatory operational requisite identifies products that are required, without exception, or this product **will not operate** its basic function unless the requisite is met. This includes products specified as PREs or REQs.

Fault Analyzer has no mandatory operational requisites.

A conditional operational requisite identifies products that are **not required** for the basic function but are needed at run time for this product to utilize specific functions. They may include products specified as IF REQs.

<i>Figure 10. Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
Any of the following:		
5655-018	CICS/ESA V4R1	CICS abend analysis
5655-147	CICS/TS for OS/390 V1R3	CICS abend analysis
5697-E93	CICS/TS for z/OS V2R2 or later	CICS abend analysis
5655-M15	CICS/TS for z/OS V3R1	CICS abend analysis
5645-DB2	DB2 UDB for OS/390 V6	DB2 abend analysis
5675-DB2	DB2 UDB for z/OS and OS/390 V7	DB2 abend analysis
5625-DB2	DB2 UDB for z/OS V8	DB2 abend analysis
5655-B01	IMS V7	IMS abend analysis
5655-C56	IMS V8	IMS abend analysis
5655-J38	IMS V9	IMS abend analysis

5.2.2.3 Toleration/Coexistence Requisites

A toleration/coexistence requisite is defined as a product which must be present on a sharing system. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD at different time intervals.

Fault Analyzer has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

A negative requisite identifies products which must *not* be installed on the same system as this product.

Fault Analyzer has no negative requisites.

5.2.3 DASD Storage Requirements

Fault Analyzer libraries can reside on all supported DASD types.

Figure 11 lists the total space required for each type of library.

Figure 11. Total DASD Space Required by Fault Analyzer

Library Type	Total Space Required
Target	2751 tracks (3390)
Distribution	2216 tracks (3390)

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:
 - U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.
 - S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other Program Directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
 - E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets, please refer to 6.1.7, "Allocate SMP/E Target and Distribution Libraries" on page 18.

3. All target and distribution libraries listed have the following attributes:
 - The default name of the data set may be changed.
 - The default block size of the data set may be changed.
 - The data set may be merged with another data set that has equivalent characteristics.
 - The data sets SIDIALPA and SIDILPA1 **must** be PDS but all others may be either a PDS or a PDSE.
4. All target libraries listed have the following attributes:
 - The data set may be SMS-managed.
 - It is not required for the data set to be SMS-managed.
 - It is not required for the data set to reside on the IPL volume.

- The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.
5. All target libraries listed which contain load modules have the following attributes:
- The data set SIDIALPA **must** be in the LPA but none of the others are required to be.
 - The data sets SIDIMOD1 and SIDIAUTH **must** be in the LNKLST but none of the others are required to be.
 - The data set SIDIAUTH **must** be APF authorized but none of the others are required to be.
6. PTFs for Fault Analyzer are large and can cause space problems. Therefore, we have increased the sizes of the Target and Distribution Libraries above the standard sizing guidelines to reduce additional extent problems.

The following figures describe the target and distribution libraries required to install Fault Analyzer. The storage requirements of Fault Analyzer must be added to the storage required by other programs having data in the same library.

Note: The data in these tables should be used when determining which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 12. Storage Requirements for Fault Analyzer Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SIDIMOD1	LMOD	ANY	U	PDS	U	0	400	10
SIDIAUTH	LMOD	ANY	U	PDS	U	0	600	10
SIDIALPA	LMOD	ANY	U	PDS	U	0	5	5
SIDILPA1	LMOD	ANY	U	PDS	U	0	300	5
SIDISAM1	SAMP	ANY	U	PDS	FB	80	30	10
SIDIPLIB	PNL	ANY	U	PDS	FB	80	30	20
SIDIMLIB	MSG	ANY	U	PDS	FB	80	2	5
SIDISLIB	SKEL	ANY	U	PDS	FB	80	2	5
SIDITLIB	Table	ANY	U	PDS	FB	80	2	5
SIDIEXEC	EXEC	ANY	U	PDS	FB	80	5	10
SIDIBOOK	Book	ANY	U	PDS	FB	4096	1100	10
SIDIDOC1	Data	ANY	U	PDS	VB	255	250	10
SIDIMAPS	Data	ANY	U	PDS	VB	1024	15	5
SIDIIPVP	Data	ANY	U	PDS	FB	80	10	5

Figure 13. Storage Requirements for Fault Analyzer Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AIDIMOD1	U	PDS	U	0	750	60
AIDILPA1	U	PDS	U	0	20	5
AIDISAM1	U	PDS	FB	80	20	5
AIDIPLIB	U	PDS	FB	80	40	20
AIDIMLIB	U	PDS	FB	80	2	5
AIDISLIB	U	PDS	FB	80	2	5
AIDITLIB	U	PDS	FB	80	2	5
AIDIEEXEC	U	PDS	FB	80	5	10
AIDIBOOK	U	PDS	FB	4096	1100	10
AIDIDOC1	U	PDS	VB	255	250	10
AIDIMAPS	U	PDS	VB	1024	15	5
AIDIIPVP	U	PDS	FB	80	10	5

5.3 FMIDs Deleted

Installing Fault Analyzer may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install Fault Analyzer into separate SMP/E target and distribution zones.

Note: These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

5.4 Special Considerations

5.4.1 Recommended CICS maintenance

Recommended CICS maintenance applicable to your version and release of CICS is applied for the following APARS:

PQ38478 CICS/ESA® V4

PQ38479 CICS/TS

Having applied the PTF for the appropriate APAR, using the LE run-time option `TERMTHDACT (TRACE, CICSDDS)` will permit dump output for a CICS transaction to be directed to the CICS dump data set instead of the CESE transient data queue. This will help to reduce the number of trace table entries that are written following an abend, and therewith the risk of causing the trace table to wrap with subsequent loss of relevant diagnostic information.

5.4.2 PDSE-managed fault history files

Although you can use PDS-managed rather than PDSE-managed fault history files, it is recommended that PDSE data sets be used. This is because of their automatic space management and their superior directory integrity for shared usage. If your environment does not yet use PDSE data sets because System Managed Storage is not yet implemented in your MVS image, you may find it worth while installing the MVS APARs mentioned in information APAR II12221. APAR II12221 lists the MVS APARs required to make PDSE support available without implementing System Managed Storage.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Fault Analyzer.

Please note the following:

- If you want to install Fault Analyzer into its own SMP/E environment, a sample job, IDIALSMP, is provided. This job creates and initializes the SMPCSI and the SMP/E control data sets.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing Fault Analyzer

6.1.1 SMP/E Considerations for Installing Fault Analyzer

This release of Fault Analyzer is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 14. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

SUB-ENTRY	Value	Comment
DSSPACE	600,100,500	Space allocation for TLIB data sets.
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

Fault Analyzer uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When Fault Analyzer is installed, ensure that DDDEFs exist for the following libraries:

- CEE.SCEELKED
- CEE.SCEESPC
- ISP.SISPLOAD

Sample job IDIDDEF contains DDDEFs for these libraries. Please ensure that the names used in the job match those of your system.

Note: The DDDEFs above are used only to resolve the link-edit for Fault Analyzer using CALLLIBS. These data sets are not updated during the installation of Fault Analyzer.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install Fault Analyzer:

Figure 15. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
IDIALSMP	SMP/E	Sample job to define an SMP/E environment	IBM.HAB8610.F2
IDIRECEV	RECEIVE	Sample RECEIVE job	IBM.HAB8610.F2
IDIALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HAB8610.F2
IDIDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HAB8610.F2
IDIAPPLY	APPLY	Sample APPLY job	IBM.HAB8610.F2
IDIACCEP	ACCEPT	Sample ACCEPT job	IBM.HAB8610.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the relfiles to a work data set for editing and submission. See Figure 15 to find the appropriate relfile data set.

You may also choose to copy the jobs from the tape or product files by submitting the job below. Use either the //TAPEIN or the //FILEIN DD statement, depending on your distribution medium, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.HAB8610.F2,UNIT=tunit,
// VOL=SER=volser,LABEL=(3,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.HAB8610.F2,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
```

```

//OUT      DD DSNAME=jcl-library-name,
//          DISP=(NEW,CATLG,DELETE),
//          VOL=SER=dasdvol,UNIT=SYSALLDA,
//          SPACE=(TRK,(20,5,5))
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
           COPY INDD=xxxxIN,OUTDD=OUT
/*

```

In the sample above, update the statements as noted below:

If using TAPEIN:

tunit is the unit value matching the product tape.

volser is the volume serial matching the product tape.

If using FILEIN

filevol is the volume serial of the DASD device where the downloaded files reside.

OUT

jcl-library-name is the name of the output data set where the sample jobs will be stored.

dasdvol is the volume serial of the DASD device where the output data set will reside.

SYSIN

xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

6.1.5 Define SMP/E Environment (Optional)

Edit and submit sample job IDIALSMP to define the SMP/E environment for Fault Analyzer. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should issue a return code of zero and no error messages.

6.1.6 Perform SMP/E RECEIVE

If you obtained Fault Analyzer as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Fault Analyzer FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

You can also choose to edit and submit sample job IDIRECEV to perform the SMP/E RECEIVE for Fault Analyzer. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should issue a return code of zero and no error messages.

6.1.7 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job IDIALLOC to allocate the SMP/E target and distribution libraries for Fault Analyzer. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should issue a return code of zero and no error messages.

6.1.8 Create DDDEF Entries

Edit and submit sample job IDDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Fault Analyzer. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should issue a return code of zero and no error messages.

6.1.9 Perform SMP/E APPLY

Edit and submit sample job IDIAPPLY to perform an SMP/E APPLY CHECK for Fault Analyzer. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Enhanced HOLDDATA introduced ERROR HOLDS against FMIDs for HIPER APARs. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA (available at url <http://service.software.ibm.com/holddata/390holddata.html>). The FMID(s) should be installed regardless of the status of unresolved HIPERs, however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

There are two methods to complete an FMID installation where ++HOLDS for HIPERs exist for the FMID(s) being installed:

1. To ensure that all critical service is installed with the FMID(s), add the SOURCEIDs of PRP, and HIPER to the APPLY command. There may be PE or HIPER APARs that do not have resolving PTFs available yet. You need to analyze the symptom flags to determine if you want to BYPASS the specific ERROR HOLDS and continue the FMID installation.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(PRP,HIPER,...)
GROUPEXTEND .
```

This method requires more initial research, but will provide resolution for all HIPERs that have fixes available and are not in a PE chain. There may still be unresolved PEs or HIPERs which will require the use of BYPASS.

2. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDS against it. Note that not all ERROR HOLDS were bypassed, only the HIPER ERROR HOLDS. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

```
APPLY S(fmid,fmid,...)
BYPASS(HOLDCLASS(HIPER))
other parameters documented in the program directory...
```

This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs.

If you bypass any HOLDS during the installation of the FMID(s) because fixing PTFs were not yet available you can use the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink to be notified when the fixing PTF is available.

Once you have taken any actions indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

Note: The GROUPEXTEND operand indicates that SMP/E apply all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from APPLY CHECK: This job should issue a return code of zero and no error messages.

Expected Return Codes and Messages from APPLY: This job should issue a return code of zero and no error messages.

6.1.10 Post-Apply Tasks

Refer to the *Fault Analyzer User's Guide and Reference*, "Fault Analyzer Installation and Administration" section, for information about these tasks. These tasks include the installation of the exits that invoke Fault Analyzer, and unless they are performed, the IVP's will not work.

Once the SMP/E Apply is complete, a copy of the *Fault Analyzer User's Guide and Reference* in PDF format is available in IDI.SIDIDOC1(IDIUGPDF). This member may be copied via a binary file transfer to your local workstation as IDIUGPDF.PDF to be referenced by Adobe Acrobat Reader.

A BookManager version is available in IDI.SIDIBOOK(IDIUGBOO). This member may be copied via a binary file transfer to your local workstation as IDIUGBOO.BOO to be referenced by IBM Library Reader.

6.1.11 Verify the Installation of Fault Analyzer

The verification process is part of the Post-Apply Tasks above. Refer to the *Fault Analyzer User's Guide and Reference*, "Verifying the customization of Fault Analyzer" section, for information about the IVP's.

6.1.12 Perform SMP/E ACCEPT

Edit and submit sample job IDIACCEP to perform an SMP/E ACCEPT CHECK for Fault Analyzer. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Once you have taken any actions indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

Note: The GROUPEXTEND operand indicates that SMP/E accept all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from ACCEPT CHECK: This job should issue a return code of zero and no error messages.

If PTFs containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing will linkedit/bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder may issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references will not affect the executable system libraries.

Expected Return Codes and Messages from ACCEPT if no PTFs are being installed: This job should issue a return code of zero and no error messages.

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APAR numbers are provided in this document to assist in locating PTFs that may be required. Ongoing problem reporting may result in additional APARs being created. Therefore, the APAR lists in this document may not be complete. To obtain current service recommendations and to identify current product service requirements, always contact the IBM Customer Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

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Program Directory for IBM Fault Analyzer for z/OS, November 2005

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