Advantage™ CA-PanAudit® Plus

Installation Guide

3.0

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Chapter 1

Installation

This chapter describes how to install CA-PanAudit Plus for batch. This process is intended for the experienced OS/390 or z/OS systems programmer who is familiar with SMP/E.

Installation Tape

The CA-PanAudit Plus installation tape has an external label identifying the operating systems as OS/390 and z/OS. The installation tape is a standard labeled tape. The layout of the tape is shown in the table on the following page.

Product Component Structure

The CA-PanAudit Plus system consists of a single base product. The SMP/E install process is designed to install all of the components into unique target and distribution libraries. The install always creates the target and distribution libraries.

Installation Notes

All CA-PanAudit Plus modules are linked AMODE=24, RMODE=24. No modules are reentrant; therefore, none can be put in the LPA.

Tape Layout Table

File #	File Name	Description
1 - 8	Not used	
9	CAI.SAMPJCL	Install JCL
10	Not used	
11	CAI.*xxxxxx*.FILE11	CAIIJMP modules
12	CAI.*xxxxxx*.FILE12	CAIIJMP CA-PanAudit modules
13	Not used	
14	Not used	
15	CAI.PAPL.INDLOAD	CA-PanAudit modules
16	CAI.PAPL.INDSRC	CA-PanAudit modules
17	CAI.PAPL.INDMAC	CA-PanAudit macros
18	CAI.PAUPLS.PDFFILE	Online documentation in Adobe Acrobat format (includes a search index)
19 - 24	Not used	
25	CAI.PAPL.BOOKSHLF	Online documentation in IBM BookManager format (includes a bookshelf and search index)
26	CAI.PAPL.BOOKS	Online documentation in IBM BookManager format (includes individual books)
27-31	Not used	
32	SMPMCS	MCS file defining SYSMODS
33-44	SMP/E Rel files	
45-49	Reserved	
50	Reserved	
51	Reserved	
52 - 99	Tape Marks	

Note: In the preceding table, *xxxxxx* identifies the CA-PanAudit genlevel.

Disk Space

Before installing CA-PanAudit Plus, review the following table for adequate space availability:

Data Set	Description	3380 Disk Space	Block Size
INDSRC	Direct SOURCE library	2 cylinders	3120
INDLOAD	Indirect LOAD library	4 cylinders	6144
INDMAC	Indirect macro library	83 tracks	3120
SAMPJCL	Sample JCL file	4 cylinders	3120
CAILIB	Target load library	10 cylinders	6144
CAISRC	Target source library	1 cylinder	3120
CAIMAC	Target macro library	83 tracks	3120
C$K30LLD	Distribution load library	10 cylinders	6144
C$K30SLD	Distribution source library	1 cylinder	3120
C$K30MLD	Distribution macro library	83 tracks	3120
SMPMTS	SMP MTS	2 cylinders	9040
SMPSCDS	SMP SCDS	2 cylinders	9040
SMPSTS	SMP STS	1 cylinder	9040
SMPLOG	SMP LOG	5 cylinders	32000
SMPLOGA	SMP LOGA	5 cylinders	32000
SMPTS	SMP PTS	210 blocks	3120
SMCSI	SMP CSI	8 cylinders	4096

Installing or Upgrading CA-PanAudit Plus

For each release of CA-PanAudit Plus, new product libraries and files are allocated. Therefore, the initial installation and upgrade procedures are the same.

The steps to install or upgrade CA-PanAudit Plus at your site are:

1. Unload CAIIJMP JCL and BookManager JCL from the tape.
2. Unload IBM BookManager files from tape.
3. Complete the installation worksheet.

4. Edit and run CAIIJMP to generate the install JCL jobs.
5. Run the install jobs.

Step 1: Unload CAIIJMP JCL and BookManager JCL

Unload JCL members CAIIJMP and BOOKMNGR from the product tape. You can use the following JCL as a sample to unload the file:

```
//UNLOAD    EXEC  PGM=IEBCOPY
//SYSPRINT  DD    SYSOUT=*
//TAPE      DD    DSN=CAI.SAMPJCL,UNIT=????,
//          DISP=OLD,VOL=SER=??????,LABEL=(9,SL)
//SAMPJCL   DD    DSN=ezt63.caiijmp.jcl,
//          DISP=(NEW,CATLG,DELETE),UNIT=SYSDA,VOL=SER=?????,
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120),
//          SPACE=(3120,(100,10,5),RLSE)
//SYSIN     DD  *
  COPY   INDD=TAPE,OUTDD=SAMPJCL
         SELECT MEMBER=((CAIIJMP,,R),                              X
                        (BOOKMNGR,,R))
/*
```

After executing the UNLOAD JCL job, the following members exist in your SAMPJCL file:

Member Name	Description
CAIIJMP	JCL to generate the SMP/E installation jobs for CA-PanAudit Plus. This job contains parameters which must be valued prior to execution.
BOOKMNGR	JCL to unload the CA-PanAudit Plus documentation set from the tape to produce IBM BookManager files.

A listing of CAIIJMP follows the Installation Worksheet section.

Step 2: Unload BookManager Files from Tape

The CA-PanAudit Plus documentation is provided in IBM BookManager format on the CA-PanAudit Plus installation cartridge in files 25 and 26.

You can use sample JCL member BOOKMNGR to unload the BookManager READ files using IEBGENER:

```
//BOOKMNGR JOB (account)
//*
//*********************************************************************
//*
```

```
//*  The CA-Panaudit Plus Book Shelf is on File 25 of the
//*  Distribution Tape.
//*  CAI.PAPL.BKSHELF    (SEQ FILE).
//*
//*  The CA-Panaudit Plus Guides are on File 26 of the
//*  Distribution Tape.
//*  CAI.PAPL.BOOKS      (AN UNLOADED PDS).
//*
//* These guides are provided in a form for viewing via BOOKMANAGER
//* READ under z/OS, OS/390, MVS, OS/2, OR DOS.
//*
//*
//* The JCL is divided into several steps.
//* Stepname: DOWNLOAD  - Downloads BOOKMANAGER files into a PDS
//*           BKSHELF   - Downloads the BOOKSHELF file
//*           BKINDEX   - Downloads the INDEX file
//*           STEP01-12 - Creates the individual BOOK Files
//*
//*
//* Edit the SET JCL statements below to conform to your site
//* standards.
//*
//* NOTE: Changing the BKMPFX variable changes the HLQ (High Level
//*       Qualifier of the BOOK Filename.
//*       Changing the BKMSFX variable changes the Suffix, or Low
//*       Level Qualifier of the BOOK Filename.
//*       The BOOKSHELF contains the name of each data set where a
//*       a BOOK resides. If the value of BKMPFX or BKMSFX is changed,
//*       then the same change must be made to the dataset names in
//*       the BOOKSHELF after this job is run.
//*       Example:  BKMPFX is set to 'CAI.PAPL'.  If you change
//*       this value, you must edit the BOOKSHELF to change
//*       all references of 'CAI.PAPL' to whatever value you
//*       specified for BKMPFX.
//*       If the value of BKMSFX is changed to something other
//*       than BOOK, then the low level qualifier of the book
//*       dataset names must also be changed.
//*
//* NOTE: This sample jcl wil run as is on MVS V4.1.0 and above.
//*       If you are running MVS V3.1.3 you will need to remove
//*       the SET statements below and customize the jcl manually.
//*
//*********************************************************************
//BKMPFX  SET  BKMPFX='CAI.PAPL.'     <== HLQ OF BOOK OUTPUT FILENAME
//BKMSFX  SET  BKMSFX='.BOOK'         <== DEFAULT BOOK DSN SUFFIX
//PREFX   SET  PREFX='CAI.PAPL.'      <== HLQ OF BOOK INPUT DATASETS
//DUNIT   SET  DUNIT=SYSDA            <== DASD UNIT
//DASDVOL SET  DASDVOL=xxxxxx         <== DASD VOLSER
//TUNIT   SET  TUNIT=3480             <== TAPE UNIT
//TVOL    SET  TAPEVOL=0O0105         <== TAPE VOLSER
//*
//SVBKMGR PROC MEMBER=
//*
//*  Unload each book to it's own dataset
//*
//BOOK1   EXEC PGM=IEBGENER
//SYSPRINT DD  SYSOUT=*
//SYSUT1   DD  DSN=&BKMPFX.BOOKS(&MEMBER),DISP=SHR
//SYSUT2   DD  DSN=&BKMPFX.&MEMBER.&BKMSFX,UNIT=&DUNIT,
//             DISP=(NEW,CATLG,DELETE),
//             DCB=(DSORG=PS,RECFM=FB,LRECL=4096,BLKSIZE=28672),
//             SPACE=(TRK,(180,5),RLSE),
//             VOL=SER=&DASDVOL
//SYSIN    DD  DUMMY
//*
//SVBKMGR PEND
```

```
//*
//* DOWNLOAD THE PANAUDIT PLUS BOOKSHELF
//*
//BOOKSHLF EXEC PGM=IEBGENER
//SYSPRINT DD  SYSOUT=*
//SYSUT1   DD  DSN=&PREFX.BKSHELF,UNIT=&TUNIT,DISP=OLD,
//             VOL=(,RETAIN,,SER=&TAPEVOL),
//             LABEL=(25,SL)
//SYSUT2   DD  DSN=&BKMPFX.BKSHELF,UNIT=&DUNIT,
//             DISP=(NEW,CATLG,DELETE),
//             DCB=(DSORG=PS,RECFM=VB,LRECL=66,BLKSIZE=27998),
//             SPACE=(CYL,(3,1)),
//             VOL=SER=&DASDVOL
//SYSIN    DD   DUMMY
//*
//* DOWNLOAD THE PANAUDIT PLUS BOOKS AND INDEX
//*
//DOWNLOAD EXEC PGM=IEBCOPY,REGION=2M
//SYSPRINT DD  SYSOUT=*
//SYSUT1   DD  DSN=&PREFX.BOOKS,UNIT=&TUNIT,DISP=OLD,
//             VOL=SER=&TAPEVOL,
//             LABEL=(26,SL)
//SYSUT2   DD  DSN=&BKMPFX.BOOKS,UNIT=&DUNIT,
//             DISP=(NEW,CATLG,DELETE),
//             DCB=(LRECL=4096,BLKSIZE=28672,RECFM=FB),
//             SPACE=(TRK,(700,3,5)),
//             VOL=SER=&DASDVOL
//SYSUT3   DD  UNIT=SYSDA,SPACE=(CYL,(3,3))
//SYSUT4   DD  UNIT=SYSDA,SPACE=(CYL,(3,3))
//SYSIN    DD  *
  COPY OUTDD=SYSUT2,INDD=((SYSUT1,R))
//*
//STEPINDX   EXEC SVBKMGR,MEMBER=CAPAU30I,BKMSFX='.BKINDEX'
//STEP01     EXEC SVBKMGR,MEMBER=PAU30OE
//STEP02     EXEC SVBKMGR,MEMBER=PAU30OI
//STEP03     EXEC SVBKMGR,MEMBER=PAU30OR
//*
```

The CA-PanAudit Plus documentation set consists of 1 sequential data set and 1 unloaded PDS file that contain the following:

- The bookshelf definition
- A search index
- The CA-PanAudit Plus guides

Note: See Downloading OS/390 or z/OS Files for Use on a PC, shown later, for a list of the CA-PanAudit Plus guides with their file names and descriptions.

Changing the Prefix in the Bookshelf Definition

The bookshelf definition (*prefix*.BKSHELF) contains the OS/390 and z/OS data set names BookManager uses to reference the other books. The original bookshelf definition uses CAI.MIJ10DOC as the prefix in those data set names. To use BookManager Read on OS/390 or z/OS, you must change the references to those data sets by replacing CAI.MIJ10DOC with the prefix used when you unloaded the files.

Downloading OS/390 or z/OS Files for Use on a PC

Perform the actions in this section if you want to download the OS/390 or z/OS files to a PC.

To use the PC versions of BookManager READ, ensure that the book files have been downloaded with a file extension of .BOO. The bookshelf must have an extension of .BKS, and the index should have an extension of .BKI.

The following table describes the sequential files that are provided on the installation tape and lists the commands you can issue to transfer them to a PC:

Name/Description	Format	File Transfer Command on PC
prefix.BKSHELF Bookshelf definition	Variable block ASCII CRLF	RECEIVE <*dir*>\CAPAU30O.BKS '*prefix*.BKSHELF'
prefix.CAPAU30O.BKINDEX Search index	Fixed block LRECL 4096 Binary	RECEIVE <*dir*>\CAPAU30O.BKI '*prefix*.CAPAU30O.BKINDEX'
prefix.PAU30OE.BOOK Messages Guide	Fixed block LRECL 4096 Binary	RECEIVE <*dir*>\PAU30OE.BOO '*prefix*.PAU30OE.BOOK'
prefix.PAU30OI.BOOK Installation Guide	Fixed block LRECL 4096 Binary	RECEIVE <*dir*>\PAU30OI.BOO '*prefix*.PAU30OI.BOOK'
prefix.PAU30OR.BOOK Macro Reference Guide	Fixed block LRECL 4096 Binary	RECEIVE <*dir*>\PAU30OR.BOO '*prefix*.PAU30OR.BOOK'

Step 3: Unload PDF Files from Tape

The CA-PanAudit Plus documentation is provided in Adobe PDF format on the CA-PanAudit Plus installation cartridge in file 18. Use the following procedures to unload documentation files in PDF format from the product tape.

Unloading the Archive File from Tape

OS/390 and z/OS

Use IEBGENER to unload the archive file from an OS/390 or z/OS tape to a sequential file. The file, your.paupls.sampjcl, contains the sample JCL:

```
//DLODPDF  JOB (########),'CA BOOK FILES',MSGCLASS=X,USER=userid,
//    CLASS=T,NOTIFY=userid
//*********************************************************************
//*
//*  MOUNT THE PRODUCT TAPE FOR THE JOB.
//*
//*********************************************************************
//*-------------------------------------------------------------------*
//*                    COMPUTER ASSOCIATES PDF DOCUMENTATION          *
//*                            COPYRIGHT (C) 1999                     *
//*                            COMPUTER ASSOCIATES INTERNATIONAL, INC.*
//*                                                                   *
//*           MEMBER:  DLODPDF                                        *
//*           FUNCTION: UNLOAD ARCHIVED LIBRARY CONTAINING            *
//*                       GUIDES IN ADOBE ACROBAT READER FORMAT.      *
//*-------------------------------------------------------------------*
//*           NOTES:                                                  *
//*                                                                   *
//*           1. TAILOR THIS PROCEDURE AND SUBMIT THE JCL TO UNLOAD   *
//*              THE PDF BOOK LIBRARY FILE FROM THE TAPE.             *
//*                                                                   *
//*              A. CHANGE XXXXXX TO THE NAME OF THE DASD VOLUME      *
//*                  ON WHICH TO UNLOAD THE PDF BOOK FILES.           *
//*                                                                   *
//*              B. CHANGE volser TO THE SERVICE PACK OF THE TAPE THE *
//*                 PDF BOOK LIBRARY FILE IS BEING UNLOADED FROM.     *
//*                                                                   *
//*           2. ONCE UNLOADED, USE A BINARY TRANSFER METHOD TO MOVE  *
//*              THE PDF ARCHIVE FILE TO A PLATFORM THAT SUPPORTS     *
//*              THE ADOBE ACROBAT READER SOFTWARE. THEN EXTRACT THE  *
//*               BOOKS AND OTHER FILES FROM THE LIBRARY.             *
//*                                                                   *
//*-------------------------------------------------------------------*
//DOWNLOAD  PROC TAPEVOL=volser, TAPE VOLSER
//            TAPEUNI=CART, TAPE DEVICE
//            UNIT=SYSDA, DASD UNIT NAME
//            DASDVOL=XXXXXX DASD VOLSER
//*
//*-------------------------------------------------------------------*
//*        UNLOAD THE BOOKS LIBRARY FROM TAPE
//*-------------------------------------------------------------------*
//BOOKS    EXEC  PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DSN=RETSYS.PAUPLS30.TGZFILE,DISP=(OLD,PASS),
//            LABEL=(18,SL),UNIT=&TAPEUNI,
//            VOL=(,RETAIN,,,SER=&TAPEVOL)
//SYSUT2   DD DSN=diskarchivename.TGZ,
```

```
//            DISP=(NEW,CATLG),UNIT=&UNIT,
//            SPACE=(CYL,(30,5),RLSE),VOL=SER=&DASDVOL
//SYSIN    DD DUMMY
//*
//*--------------------------------------------------------------------*
//DOWNLOAD PEND
//*
//STEP01     EXEC DOWNLOAD
```

UNIX and LINUX

At the command prompt, enter:

```
dd if= tapedevice of= archivename.tar.z
```

Moving Compressed Archive File to Another Platform

This step is optional.

Once unloaded, you can move the compressed archive file to a platform that supports the Adobe Acrobat Reader.

Use a binary file transfer program and download the compressed archive file to the target platform. For example, use FTP with the binary option or IND$FILE with no translation (for OS/390 and z/OS clients).

Restoring PDF Files and Directory Structure

Uncompress the archive file on the target platform.

Windows 9x

If available, use WinZip 7.0 or above. Save the restored files to the drive and directory of your choice.

Windows NT and 2000

Use one of the following methods:

If available, use WinZip 7.0 or above. Save the restored files to the drive and directory of your choice.

Enter the following at a command prompt:

```
gzip -d archivename.tgz
pax -r -f archivename.tar
```

Move the files to the drive and directory of your choice.

Note: gzip is a nonstandard utility freely and easily available from www.gzip.org. The pax (Portable Archive Interchange) utility is standard.

UNIX

Use the following commands:

```
uncompress archivename.tar.z
tar xvf archivename.tar
```

Move the files to the drive and directory of your choice.

OS/390 and z/OS USS

Use the following commands:

```
gzip -d archivename.tgz
pax -r -f archivename.tar
```

Note: gzip is a nonstandard utility freely and easily available from www.gzip.org. The pax (Portable Archive Interchange) utility is standard.

Move the files to the drive and directory of your choice.

LINUX

Use the following commands:

```
gzip -d archivename.tgz
tar xvf archivename.tar
```

Note: gzip is a nonstandard utility freely and easily available from www.gzip.org. The tar utility is standard.

Move the files to the drive and directory of your choice.

Reading Documentation Files

Start your Adobe Acrobat Reader with search capabilities to open the restored PDF files. You can find the Acrobat Reader at www.adobe.com.

Step 4: Complete Installation Worksheet

Step 1 unloads the single member CAIIJMP into the SAMPJCL pds. Execution of the CAIIJMP job generates the necessary JCL to install the CA-PanAudit Plus product. Prior to executing this job, you must specify the values of several parameters which define your SMP/E environment and the CA-PanAudit Plus options that you have purchased. These parameters are listed in the installation worksheet for this step.

The parameters are grouped into several categories:

- CA-PanAudit Installation Data Sets

  Installation of the CA-PanAudit Plus product unloads the tape into several installation data sets. These data sets are referred to as the indirect source, macro, and object data sets.

- CA-PanAudit SMP/E Parameters

  Installation Job 1 builds an SMP/E system for your CA-PanAudit Plus product. This includes the allocation of all the necessary SMP/E data sets and the creation of a global zone. The majority of the parameters are used by this job.

  You can see the IBM *SMP/E Reference Guide* for a detailed explanation of each parameter.

- Operating System and Site Parameters

  This section requires you to provide some site specific values.

Complete the installation worksheet before beginning the installation process.

The following pages list the installation parameters required for the execution of the CAIIJMP job followed by a listing of the CAIIJMP JCL.

Installation Worksheet

Use the worksheet together with the information provided in the CAIIJMP JCL to help you choose parameter values. You can review the descriptions of the installation jobs defined later in this chapter.

Description	Parameter Name	Value
Install tape unit type. Default is CART.	TAPE-UNIT	
Install tape volume serial number.	TAPE-VOL	

Description	Parameter Name	Value
Default disk unit type to be used throughout the install unless overridden. Default is SYSDA.	DEFAULT-UNIT	
Default disk volume serial number to be used throughout the install unless overridden.	DEFAULT-VOL	

CA-PanAudit Plus Installation Data Sets

Description	Parameter Name	Value
High Level Qualifier for CA-PanAudit Plus indirect source, object, and sample JCL data sets.	PAPL-HLQ	
Disk unit type for CA-PanAudit Plus indirect files: source, object, and sample JCL. Defaults to DEFAULT-UNIT value.	PAPL-UNIT	
Disk VOLSER for CA-PanAudit Plus indirect files: source, object, and sample JCL. Defaults to DEFAULT-VOL value.	PAPL-VOL	

CA-PanAudit Plus SMP/E Parameters

Description	Parameter Name	Value
High-level qualifier for CA-PanAudit Plus SMP/E files: SCDS, MTS, STS, LOG, LOGA.	SMP-HLQ	
Disk unit type for CA-PanAudit Plus SMP/E files. Defaults to DEFAULT-UNIT value.	SMP-UNIT	
Disk VOLSER for CA-PanAudit Plus SMP/E files. Defaults to DEFAULT-VOL value.	SMP-VOL	

Description	Parameter Name	Value
High-level qualifier for CA-PanAudit Plus SMP/E target and distribution data sets. The low-level qualifiers for target data sets are CAILIB, CAIMAC, and CAISRC. The low-level qualifiers for distribution data sets are C$K30LLD, C$K30MLD, and C$K30SLD.	SMPPAP-HLQ	
Disk unit type for CA-PanAudit Plus SMP/E target and distribution data sets. Defaults to DEFAULT-UNIT value.	SMPPAP-UNIT	
Disk VOLSER for CA-PanAudit Plus SMP/E target and distribution data sets. Defaults to DEFAULT-VOL value.	SMPPAP-VOL	

SMP/E CSI VSAM Data Set Parameters

Description	Parameter Name	Value
Specify the full data set name of the new CSI that is to be created or the data set name of an existing CSI to be used for the CA-PanAudit Plus installation. The low-level qualifier must be CSI.	CSI-DSN	
Disk VOLSER for the CSI data set if CSI-NEW = YES. Defaults to DEFAULT-VOL value.	CSI-VOL	
Specify the high level qualifier of PTS data set that is to be created (if CSI-NEW = YES) or of the existing PTS (if CSI-NEW = NO). Defaults to SMPEZT-HLQ if blank and CSI-NEW = YES.	SMPPTS-HLQ	
Specify the VSAM Control Interval free space of the CSI data set. Default is 10.	FRSPCI	
Specify the VSAM Control Area free space of the CSI data set. Default is 5.	FRSPCA	

SMP/E EXEC PGM=GIMSMP Statement

Description	Parameter Name	Value
Specify the SMP/E DATE format. Default = IPL.	DATE	
Specify the SMP/E language to be used for messages. Default = ENU.	LANG	
Specify the SMP/E PROCESS to be used if the CSI or PTS data sets are not available. Default is END.	PROCESS	
Disk unit type to be used for the SMP/E work data sets. Defaults to DEFAULT-UNIT value.	WORKUNIT	
Disk unit type to be used for the SMPTLIB data sets. Defaults to DEFAULT-UNIT value.	TLIB-UNIT	
Default disk VOLSER to be used for the SMPTLIB data sets. Defaults to DEFAULT-VOL value.	TLIB-VOL	

SMP/E Global Zone Options

Description	Parameter Name	Value
Indicate YES or NO if a new set of SMP/E processing options is to be defined. Default is YES.	SMPE-OPTIONS-NEW	
Specify the name of the SMP/E OPTIONS entry to be used for CA-PanAudit Plus.	PAPSMP-OPTIONS	
Specify the name of the SMP/E TARGET zone to be used for CA-PanAudit Plus.	PAPL-TGTZONE	
Specify the name of the SMP/E DLIB zone to be used for CA-PanAudit Plus.	PAPL-DLBZONE	

SMP/E Global Zone Utilities

If SMPE-OPTIONS-NEW=YES, provide values for the following parameters:

Description	Parameter Name	Value
Specify the name of the access methods services utility to be used by SMP/E. Default is IDCAMS.	AMS	
Specify the name of the assembler utility to be used by SMP/E. Default is ASMBLR.	ASM	
Specify the name of the compress utility to be used by SMP/E. Default is IEBCOPY.	COMP	
Specify the name of the copy utility to be used by SMP/E. Default is IEBCOPY.	COPY	
Specify the name of the linkage editor to be used by SMP/E. Default is IEWL.	LKEDIT	
Specify the name of the compress utility to be used by SMP/E after an X37 has been encountered. Default is IEBCOPY.	RETRY	
Specify the name of the update utility to be used by SMP/E. Default is IEBUPDTE.	UPDATE	
Specify the name of the SuperZap utility to be used by SMP/E. Default is IMASPZAP.	ZAP	

SMP/E Global Zone Subentries

If SMPE-OPTIONS-NEW=YES, provide values for the following parameters:

Description	Parameter Name	Value
Specify the primary space allocation (in tracks) for SMPTLIB. Default is 1000.	DSPRIM	
Specify the secondary space allocation (in tracks) for SMPTLIB. Default is 100.	DSSEC	
Specify the number of directory blocks allocated for SMPTLIB. Default is 50.	DSDIR	
Specify YES to indicate that SMP/E is not to delete global zone SYSMOD, HOLDDATA, SMPPTS entries or SMPTLIB data sets after an ACCEPT. If you specify NO, SMP/E will delete entries after the SYSMOD has been accepted. Default is YES.	NOPURGE	
Specify YES to indicate that SMP/E is not to delete global zone SYSMOD and MCS entries during RESTORE processing. If you specify NO, SMP/E will delete entries after the SYSMOD has been restored. Default is YES.	NOREJECT	
Specify a one-digit number to be appended to IEANUC0 to form the name of the nucleus load module saved during APPLY. Default is 1.	NUCID	
Specify the page length for SMPOUT, SMPRPT, and SMPTLIST data sets. Default is 60.	PAGELEN	
Specify the maximum number of subentries that can be present in any CSI entry. Default is 2000.	PEMAX	

Description	Parameter Name	Value
Specify YES if you want to save MTSMAC entries in the SMPMTS after affecting SYSMODs have been accepted. Default is NO.	SAVEMTS	
Specify YES if you want to save STSSRC entries in the SMPSTS after affecting SYSMODs have been accepted. Default is NO.	SAVESTS	

Operating System and Site Specific Parameters

Description	Parameter Name	Value
Specify the name of your system macro library.	SYS1-MACLIB	
Provide the valid information for your job cards. Enclose data in double quotes. See CAIIJMP JCL listing for examples.	OSJCARD1-OSJCARD6	

//JOB1-13 JOB OSJCARD1
// OSJCARD2
OSJCARD3
OSJCARD4
OSJCARD5
OSJCARD6
	OSJCARD1
	OSJCARD2
	OSJCARD3
	OSJCARD4
	OSJCARD5
	OSJCARD6	

Installation Tasks

Description		Parameter Name	Value
			Specify a valid name for your CA-PanAudit Plus installation jobs. Job names default to PAPLJ*x* where *x* = 1 through 15
JOB1	Allocate files	JOB1	
JOB2	Download tape files	JOB2	
JOB3	SMP/E RECEIVE	JOB3	
JOB4	SMP/E APPLY	JOB4	
JOB5	SMP/E ACCEPT	JOB5	
JOB6	TSTSUITE IVP job	JOB6	
JOB7	Customize JIF options	JOB7	

Maintenance Tasks

Description		Parameter Name	Value
			Job names default to PAPLJM*x* where *x* = 1 through 3
JOBM1	SMP/E RECEIVE	JOBM1	
JOBM2	SMP/E APPLY	JOBM2	
JOBM3	SMP/E ACCEPT	JOBM3	

CAIIJMP JCL

```
//     JOB CARD
//* CA-PANAUDIT PLUS    RELEASE 3.0
//* INSTALLATION TAPE FOR TSO MVS SYSTEMS
//*
//*********************************************************************
//*                                                                   *
//*   Run this job to produce CA-Panaudit Plus installation JCL.      *
//*                                                                   *
//*   Follow the instructions below to link CAIIJMP from the          *
```

```
//*   product tape, then execute CAIIJMP. The output of CAIIJMP       *
//*   is the JCL that you must execute to install the                 *
//*   CA-Panaudit Plus product.                                       *
//*                                                                   *
//*   After this job is executed, review and submit the generated     *
//*   JCL to install CA-Panaudit Plus.                                *
//*                                                                   *
//*                                                                   *
//*********************************************************************
//*                      CAIIJMP PROC
//*********************************************************************
//*
//*   This PROCEDURE consists of the following steps:
//*   . Scratch and create (catalog) the three datasets used during
//*     the installation process:
//*         JCLOUT
//*         PDSOUT
//*         FILE12
//*   . Link module CAIIJMP from the product tape into file PDSOUT.
//*   . Unload file12 from the product tape to disk FILE12.
//*
//*   . The final step executes CAIIJMP, which generates the install
//*     JCL for CA-Panaudit Plus. If this steps completes with
//*     errors, you can rerun this step repeatly without mounting
//*     the tape. Simply modify the jcl to only execute
//*     step CAIIJMP.
//*
//*********************************************************************
//*
//*  Before submitting this job for execution, you must provide
//*  values for the following parameters:
//*
//*  DISKUNT = Disk unit type; Default = SYSDA.
//*  DISKVOL = Disk volser of DISKUNT to be used.
//*  TAPEUNT = Tape unit type of product tape; Default = CART.
//*  TAPEVOL = Tape volser of the CA-Panaudit Plus product tape.
//*  JCLOUT  = Name of the PDS dataset to be created which is to
//*            contain the generated JCL for the installation.
//*            A single member, INSTJCL, is created in this PDS.
//*  PDSOUT  = Name of the PDS dataset to be created which is to
//*            contain the linkedit program CAIIJMP.
//*  FILE12  = Name of the dataset to be created which is to
//*            contain the contents of tape file12.
//*  MEMBER  = Specify the name of the single JCL member that is
//*            created in JCLOUT. Default = INSTJCL.
//*
//*
//*  CAIIJMP INPUT PARAMETERS
//*
//*  Provide values for the CAIIJMP parameters required for the
//*  CA-Panaudit Plus installation.
//*  See the instructions for step IJMPGO.
//*
//CAIIJMP PROC DISKUNT=SYSDA,
//             DISKVOL=??????,
//             TAPEUNT=CART,
//             TAPEVOL=??????,
//             JCLOUT='your.papl.install.jcl.pds',
//             PDSOUT='your.caiijmp.loadlib',
//             FILE12='your.caiijmp.file12',
//             MEMBER=INSTJCL
//*
//*****************************************************************
//*
//*   SCRATCH AND RECREATE THE DATASET THAT IS TO CONTAIN THE
//*   CA-PANAUDIT PLUS INSTALL JCL JOBS
```

```
//*
//*****************************************************************
//SCRATCH  EXEC  PGM=IEFBR14
//DD1    DD DSN=&JCLOUT,
//       DISP=(MOD,DELETE),UNIT=&DISKUNT,
//       SPACE=(TRK,(0,0))
//DD2    DD DSN=&PDSOUT,
//       DISP=(MOD,DELETE),UNIT=&DISKUNT,
//       SPACE=(TRK,(0,0))
//DD3    DD DSN=&FILE12,
//       DISP=(MOD,DELETE),UNIT=&DISKUNT,
//       SPACE=(TRK,(0,0))
//CRTELIB  EXEC  PGM=IEFBR14
//DD1    DD DSN=&JCLOUT,
//       DISP=(NEW,CATLG,DELETE),VOL=SER=&DISKVOL,
//       DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200),
//       UNIT=&DISKUNT,SPACE=(CYL,(1,1,20))
//DD2    DD DSN=&PDSOUT,
//       DISP=(NEW,CATLG,DELETE),VOL=SER=&DISKVOL,
//       DCB=(RECFM=U,BLKSIZE=6144),
//       UNIT=&DISKUNT,SPACE=(CYL,(1,1,5))
//DD3    DD DSN=&FILE12,
//       DISP=(NEW,CATLG,DELETE),VOL=SER=&DISKVOL,
//       DCB=(RECFM=U,BLKSIZE=8000),
//       UNIT=&DISKUNT,SPACE=(CYL,(1,1))
//*****************************************************************
//*
//*   UNLOAD AND LINK THE CAIIJMP PROGRAM FROM THE TAPE
//*
//*****************************************************************
//LINK     EXEC PGM=IEWL,PARM='LET,LIST,MAP,NCAL',REGION=512K
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD UNIT=&DISKUNT,SPACE=(CYL,(5,1))
//SYSLIN   DD DSN=CAI.CA&TAPEVOL..FILE11,DISP=(OLD,PASS),
//         UNIT=&TAPEUNT,VOL=(PRIVATE,SER=&TAPEVOL),LABEL=(11,SL)
//SYSLMOD  DD DSN=&PDSOUT,DISP=SHR
//*****************************************************************
//*      UNLOAD FILE12 FROM THE TAPE
//*****************************************************************
//UNLOAD   EXEC PGM=IEBGENER
//SYSUT1   DD DSN=CAI.CA&TAPEVOL..FILE12,DISP=(OLD,PASS),
//         UNIT=&TAPEUNT,VOL=(PRIVATE,SER=&TAPEVOL),LABEL=(12,SL)
//SYSUT2   DD DSN=&FILE12,DISP=SHR
//SYSUT3   DD UNIT=&DISKUNT,SPACE=(TRK,(5,1))
//SYSUT4   DD UNIT=&DISKUNT,SPACE=(TRK,(5,1))
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DUMMY
//*****************************************************************
//*
//*   EXECUTE THE CAIIJMP PROGRAM AND CREATE A SINGLE INSTALL JOB
//*   IN THE &JCLOUT DATASET.
//*
//*****************************************************************
//CAIIJMP  EXEC PGM=CAIIJMP,REGION=256K
//STEPLIB  DD DSN=&PDSOUT,DISP=SHR
//SYS001   DD DSN=CAI.CA&TAPEVOL..FILE12,DISP=(OLD,PASS),
//         UNIT=&TAPEUNT,
//         VOL=(,RETAIN,,,REF=*.LINK.SYSLIN),LABEL=(12,SL)
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DSN=&JCLOUT(&MEMBER),
//         DISP=SHR
//*****************************************************************
//*
//         PEND
//*
//*****************************************************************
```

```
//IJMPGO   EXEC CAIIJMP
//CAIIJMP.SYSIPT   DD *
* ****************************************************************** *
*                                                                    *
*  CAIIJMP INPUT PARAMETERS                                          *
*                                                                    *
* ------------------------------------------------------------------ *
*  OVERVIEW:                                                         *
* ------------------------------------------------------------------ *
*                                                                    *
*  The following list of parameters controls the installation of     *
*  CA-PANAUDIT PLUS. These parameters are used by CAIIJMP to         *
*  generate the installation JCL as a single member of a PDS.        *
*  After running this job, review the JCL member for accuracy,       *
*  verifying that the required components have been selected and     *
*  that the correct values have been substituted into the jcl        *
*  member.                                                           *
*                                                                    *
*  If you need to change any parameters, return to this job and      *
*  make any necessary adjustments. This job can be executed          *
*  repeatedly.                                                       *
*                                                                    *
*  Once you are satisfied with the generated JCL, break up the       *
*  JCL member into the individual jobs. Then execute each            *
*  job sequentially.                                                 *
*                                                                    *
* ------------------------------------------------------------------ *
*  PARAMETERS:                                                       *
* ------------------------------------------------------------------ *
*                                                                    *
*  This job contains many parameters which require a value.          *
*  Some already contain a default value.                             *
*  There are two parm values that have special meaning: NULL and     *
*  DEFAULT.                                                          *
*  NULL indicates that a parm value is not required.                 *
*  DEFAULT indicates that a default-value will be used for the       *
*  parm if DEFAULT is not changed to another value.                  *
*  A series of question marks indicates that there is no default     *
*  value for the parm and therefore one should be provided if the    *
*  particular parameter is applicable to your selected options.      *
*                                                                    *
*  You can consult the CA-Easytrieve Installation Guide for          *
*  additional information on each parameter.                         *
*                                                                    *
* ------------------------------------------------------------------ *
*  PARAMETER FORMAT:                                                 *
* ------------------------------------------------------------------ *
*                                                                    *
*  The format of a parameter line is:                                *
*  PARM-NAME (>= 1 SPACE) PARM-VALUE (>= 1 SPACE) PARM-COMMENT       *
*                                                                    *
*  In the preceding, PARM-NAME must be in column 1. PARM-COMMENT     *
*  may be deleted or shortened if PARM-VALUE requires more space.    *
*                                                                    *
* ------------------------------------------------------------------ *
*  NOTE!!!   COMMENT LINES                                           *
* ------------------------------------------------------------------ *
*                                                                    *
*  In this parameter file, a line with an asterisk in column 1       *
*  designates the record as a comment. A blank comment line          *
*  must start in column 1 as ASTERISK-blank-ASTERISK "* *".          *
*  Invalid COMMENT lines can result in execution errors and          *
*  misinterpreted parameter values.                                  *
*                                                                    *
* ****************************************************************** *
* *
```

```
TAPE-UNIT             CART        UNIT TYPE FOR INSTALLATION TAPE
TAPE-VOL              ??????      VOLSER FOR THE INSTALLATION TAPE
*                                   OF THE CA-PANAUDIT PLUS PRODUCT.
DEFAULT-UNIT          SYSDA       SPECIFY THE DEFAULT DISK UNIT TYPE
*                                   THAT IS TO BE USED THROUGHOUT
*                                   THE INSTALL.
DEFAULT-VOL           ??????      SPECIFY THE DEFAULT DISK VOLSER
*                                   TO BE USED THROUGHOUT THE INSTALL.
* *
* ********************************************************************
* *
*         ******************************************************
*         *    CA-PANAUDIT PLUS INSTALLATION DATASET PARAMETERS *
*         ******************************************************
* *
PAPL-HLQ              ????        HIGH LEVEL QUALIFIER FOR PAP FILES:
*                                  INDIRECT SOURCE, OBJECT, MACLIB,
*                                  SAMPJCL
PAPL-UNIT          DEFAULT        DISK UNIT   FOR PAP UNLOADED FILES
PAPL-VOL           DEFAULT        DISK VOLUME FOR PAP UNLOADED FILES
* *
* ********************************************************************
* *
*         ******************************************************
*         *        CA-PANAUDIT PLUS SMP/E PAREMETERS           *
*         ******************************************************
* *
* ********************************************************************
* *
SMP-HLQ               ????        HIGH LEVEL QUALIFIER FOR SMP FILES
*                                   @SMP-HLQ@.SMPSCDS
*                                   @SMP-HLQ@.SMPMTS
*                                   @SMP-HLQ@.SMPSTS
*                                   @SMP-HLQ@.SMPLOG
*                                   @SMP-HLQ@.SMPLOGA
SMP-UNIT           DEFAULT        DISK UNIT TYPE FOR SMP DATASETS
SMP-VOL            DEFAULT        DISK VOLUME FOR SMP DATASETS
* *
SMPPAP-HLQ            ????        HIGH LEVEL QUALIFIER FOR PAP SMP
*                                   TARGET AND DISTRIBUTION DATASETS
*                                  @SMPPAP-HLQ@.CAILIB     TARGET LOAD
*                                  @SMPPAP-HLQ@.CAISRC     TARGET SOURCE
*                                  @SMPPAP-HLQ@.CAIMAC     TARGET MACRO
*                                  @SMPPAP-HLQ@.C$A63LLD   DLIB LOAD
*                                  @SMPPAP-HLQ@.C$A63SLD   DLIB SOURCE
*                                  @SMPPAP-HLQ@.C$A63MLD   DLIB MACRO
SMPPAP-UNIT        DEFAULT        DISK UNIT TYPE FOR SMP TARGET AND
*                                   DISTRIBUTION DATASETS
SMPPAP-VOL         DEFAULT        DISK VOLUME FOR SMP TARGET AND
*                                   DISTRIBUTION DATASETS
* *
* ********************************************************************
* *
*        ************************************************
*        *                                              *
*        *       SMP/E CSI VSAM DATASET PARAMETERS      *
*        *                                              *
*        ************************************************
* *
* ********************************************************************
* *
CSI-DSN               ????        COMPLETE DSN OF THE CSI DATASET
*                                   WHETHER NEW OR OLD
*                                  THE LOW LEVEL QUALIFIER MUST BE CSI.
CSI-VOL            DEFAULT        DISK VOLUME FOR CSI DATASET
SMPPTS-HLQ         DEFAULT        HIGH LEVEL QUALIFIER FOR SMPPTS FILE
```

```
*                                 @SMPPTS-HLQ@.PTS
FRSPCI                 10         CSI CLUSTER CI FREESPACE
FRSPCA                  5         CSI CLUSTER CA FREESPACE
* *
* ********************************************************************
* *
*        ************************************************
*        *                                              *
*        *       SMP/E GIMSMP PARMS                     *
*        *                                              *
*        ************************************************
* *
* ********************************************************************
* *
DATE           IPL                SMPDATE; DEFAULT = IPL
LANG           ENU                LANGUAGE;DEFAULT = ENU
PROCESS        END                PROCESS ;DEFAULT = END
* *
WORKUNIT       DEFAULT            UNIT TYPE FOR SMP WORK DATASETS
*                                   DEFAULT = DISK-UNIT
TLIB-UNIT      DEFAULT            UNIT TYPE OF SMPTLIB DATASET
*                                   DEFAULT = DISK-UNIT
TLIB-VOL       DEFAULT            VOLUME ID OF SMPTLIB DATASET
*                                   DEFAULT = DISK-VOL
* *
* ********************************************************************
* *
*        ************************************************
*        *                                              *
*        *       SMP/E GLOBAL ZONE OPTIONS              *
*        *                                              *
*        ************************************************
* *
* ********************************************************************
* *
PAPSMP-OPTIONS     ??????          NAME OF THE SMP OPTIONS TO BE USED
*                                    (LIMITED TO 7 CHARACTERS)
PAPL-TGTZONE       ??????          NAME OF THE PAPL SMP TARGET ZONE
*                                    (LIMITED TO 7 CHARACTERS)
PAPL-DLBZONE       ??????          NAME OF THE CA-PANAUDIT SMP/E
*                                    DISTRIBUTION ZONE
*                                    (LIMITED TO 7 CHARACTERS)
* *
* ********************************************************************
* *
*        ************************************************
*        *                                              *
*        *       SMP/E GLOBAL ZONE UTILITES             *
*        *                                              *
*        ************************************************
* *
* ********************************************************************
* *
AMS                IDCAMS          ACCESS METHOD SERVICES = IDCAMS
ASM                ASMBLR          ASSEMBLER=ASMBLR
COMP               IEBCOPY         COMPRESS=IEBCOPY
COPY               IEBCOPY         COPY=IEBCOPY
LKEDIT             IEWL            LINK EDIT
RETRY              IEBCOPY         RETRY = IEBCOPY
UPDATE             IEBUPDTE        UPDATE = IEBUPTDE
ZAP                IMASPZAP        SUPERZAP = IMASPZAP
* *
* ********************************************************************
* *
*        ************************************************
*        *                                              *
```

```
*        *       SMP/E GLOBAL ZONE SUBENTRIES              *
*        *                                                 *
*        ***************************************************
* *
* ********************************************************************
* *
DSPRIM             1000           PRIMARY SPACE ALLOCATION FOR SMPTLIB
DSSEC              100            SECONDARY SPC ALLOCATION FOR SMPTLIB
DSDIR              50             NBR OF DIRECTORY ENTRIES FOR SMPTLIB
NOPURGE            YES            NOPURGE = YES OR NO
NOREJECT           YES            NOREJECT = YES OR NO
NUCID              1              IEANUC0 SUFFIX, DEFAULT=1
PAGELEN            60             PAGE LENGTH
PEMAX              2000           MAX NBR OF SUBENTRIES IN A CSI ENTRY
SAVEMTS            NO             SAVE MTS = YES OR NO
SAVESTS            NO             SAVE STS = YES OR NO
* *
* ********************************************************************
* *
*
*       ************************************************
*       *                                              *
*       *     OPERATING SYSTEM & SITE SPECIFIC PARMS   *
*       *                                              *
*       ************************************************
* *
* ********************************************************************
* *
SYS1-MACLIB          ????         NAME OF SYSTEM MACRO LIBRARY
* *
* ********************************************************************
* *
*                                                                    *
*  THE FOLLOWING OSJCARD PARMS ARE USED TO BUILD THE                 *
*  JOB CARD FOR EACH OF THE 8 GENERATED JOBS.                        *
*  THE JCL CARD DATA MUST BE ENCLOSED IN DOUBLE QUOTES.              *
*  THEY ARE SUBSTITUTED INTO THE JCL AS FOLLOWS:                     *
*                                                                    *
*      //JOB1-8 JOB OSJCARD1                                         *
*      // OSJCARD2                                                   *
*      OSJCARD3                                                      *
*      OSJCARD4                                                      *
*      OSJCARD5                                                      *
*      OSJCARD6                                                      *
*                                                                    *
*  EXAMPLE:                                                          *
*                                                                    *
*  OSJCARD1     "(ACCT INFO),'PAPL 3.0 SMP INSTALL',"                *
*  OSJCARD2     "CLASS=K,MSGLEVEL=(1,1),MSGCLASS=A"                  *
*  OSJCARD3     "/*ROUTE PRINT NODENAME.USERID"                      *
*  OSJCARD4     "/*ROUTE PUNCH NODENAME.USERID"                      *
*  OSJCARD5     NULL          JCL CARD AFTER JOBCARD 4               *
*  OSJCARD6     NULL          JCL CARD AFTER JOBCARD 5               *
*                                                                    *
* *
* ********************************************************************
* *
OSJCARD1           ??????         JOBCARD1 DATA
OSJCARD2             NULL         JOBCARD2 OPTIONAL CONTINUATION
OSJCARD3             NULL         JCL CARD AFTER JOBCARD 2
OSJCARD4             NULL         JCL CARD AFTER JOBCARD 3
OSJCARD5             NULL         JCL CARD AFTER JOBCARD 4
OSJCARD6             NULL         JCL CARD AFTER JOBCARD 5
* *
* ********************************************************************
* *
```

```
*                                                                     *
*  FOR THE FOLLOWING JOB NAME PARMS, SPECIFY ANY NAME TO              *
*  OVERRIDE THE DEFAULT NAME OF PAPLJX.                               *
*                                                                     *
* *
* ********************************************************************
* *
JOB1         PAPLJ1         JOB NAME FOR 'ALLOCATE FILES'
JOB2         PAPLJ2         JOB NAME FOR 'DOWNLOAD TAPE FILES'
JOB3         PAPLJ3         JOB NAME FOR 'SMPE RECEIVE'
JOB4         PAPLJ4         JOB NAME FOR 'SMPE APPLY'
JOB5         PAPLJ5         JOB NAME FOR 'SMPE ACCEPT'
JOB6         PAPLJ6         JOB NAME FOR 'PAPL TSTSUITE IVP JOB'
JOB7         PAPLJ7         JOB NAME FOR 'CUSTOMIZE JIF OPTIONS'
JOB8         PAPLJ8         JOB NAME FOR 'DSPLYOPT - SEE EZT OPTIONS'
JOBM1        PAPLJM1        JOB NAME FOR 'SMP/E MAINTENACE RECEIVE'
JOBM2        PAPLJM2        JOB NAME FOR 'SMP/E MAINTENACE APPLY  '
JOBM3        PAPLJM3        JOB NAME FOR 'SMP/E MAINTENACE ACCEPT '
* *
* ********************************************************************
* *
```

Step 5: Edit and Run CAIIJMP Member

Edit member CAIIJMP from your SAMPJCL library. Provide values for the parameters of the PROC and CAIIJMP.SYSIPT DD statements. The CAIIJMP input parameters are listed in this JCL member in the same order as described in the installation worksheet.

Most parameters require a value. Some parameters are dependent on the value of other parameters. This information is in the CAIIJMP member.

Set the values for the needed parameters in the CAIIJMP job. Submit the job for execution. Since parameter values are not validated by the CAIIJMP job, you must carefully examine the output from the execution of CAIIJMP. You can always rerun the CAIIJMP job after making modifications.

CAIIJMP Output

CAIIJMP produces a single member, INSTJCL, in the JCLOUT data set and an output listing. Examine the generated JCL.

Verify that each job contains a valid job card. Also, ensure that all parameter values have been properly substituted into the JCL in the format that you intend.

CAIIJMP Errors

If the CAIIJMP job encounters parameter errors, the error messages are printed in the listing file. The messages are printed after the parameter values section and before the JCL section of the printout. These messages are identified by the label $$ERR or INVALID.

If any errors are found, go back to the CAIIJMP JCL and make any necessary corrections. You can rerun the job as many times as necessary.

When you are satisfied with the output from CAIIJMP, you must edit member INSTJCL and separate it into its individual jobs.

Note: Run each job in the order as it appears in the INSTJCL JCL member.

Step 6: Run Install JOBs

Following is a summary of each install job:

Job#	Name	Description
1	Allocate Files	Allocate the data sets that are required for the install process. These data sets are the unloaded files from the tape and the new SMP/E data sets for CA-PanAudit Plus.
2	Download Tape	Download the product tape to the data sets allocated by Job1. These are the indirect source, object, and macro data sets.
3	SMP/E Receive	Execute the SMP/E RECEIVE command for the CA-PanAudit Plus product.
4	SMP/E Apply	Execute the SMP/E APPLY command for the CA-PanAudit Plus product.
5	SMP/E Accept	Execute the SMP/E ACCEPT command for the CA-PanAudit Plus product.

Job#	Name	Description
6	TSTSUITE IVP Job	Execute CA-PanAudit Plus program to verify installation.
7	Customize JIF Options	Assemble the CA-PanAudit Plus JIFOP macro, which generates a new JIF Options Table. Execute the SMP/E RECEIVE and APPLY for the USERMOD.

JOB 1: Allocate Files

This job allocates the following data sets:

```
@PAPL-HLQ@.INDSRC          -  indirect source
@PAPL-HLQ@.INDLOAD         -  indirect load
@PAPL-HLQ@.SAMPJCL         -  installation sample jcl
```

where you provide the value for the data set with the prefix @PAPL-HLQ@.

```
@SMPPAP-HLQ@.C$K30SLD      -  distribution source library
@SMPPAP-HLQ@.C$K30MLD      -  distribution macro library
@SMPPAP-HLQ@.C$K30LLD      -  distribution load library
@SMPPAP-HLQ@.CAISRC        -  target source library
@SMPPAP-HLQ@.CAIMAC        -  target macro library
@SMPPAP-HLQ@.CAILIB        -  target load library
```

where you provide the value for the data set with the prefix @SMPPAP-HLQ@.

```
@SMP-HLQ@.SMPMTS           -  SMP Macro Temporary Store
@SMP-HLQ@.SMPSCDS          -  SMP Save Control Data Set
@SMP-HLQ@.SMPSTS           -  SMP Source Temporary Store
@SMP-HLQ@.SMPLOG           -  SMP LOG Data Set
@SMP-HLQ@.SMPLOGA          -  SMP LOGA Backup Log
```

where you provide the value for the data set with the prefix @SMP-HLQ@.

```
@CSI-DSN@                  -  SMP CSI Vsam Data Set
```

where you provide the value for the data set with the prefix @CSI-DSN@.

```
@SMPPTS-HLQ@.SMPPTS        -  SMP PTS Data Set
```

where you provide the value for the data set with the prefix @SMPPTS-HLQ@.

```
@PAPLSMP-OPTIONS@          -  Global Zone Options Name
```

where you provide the value for the data set with the prefix @PAPLSMP-OPTIONS@.

```
@PAPL-TGTZONE@             -  Name of Target Zone for EZT+
```

where you provide the value for the data set with the prefix @PAPL-TGTZONE@.

```
@PAPL-DLBZONE@              -  Name of Distribution Zone for EZT+
```

where you provide the value for the data set with the prefix @PAPL-DLBZONE@.

An options entry is added to the global zone of the CSI with a name of @PAPLSMP-OPTIONS@. The options entry defines the utilities that are to be used by SMP/E. These utilities are specified with parameters @AMS@, @ASM@, @COMP@, @COPY@, @LKED@, @RETRY@, @UPDATE@, and @ZAP@.

A target and distribution zone are also added to the global zone with names that you specify with @PAPL-TGTZONE@ and @PAPL-DLBZONE@.

A ZONEDESCRIPTION of **CA-PanAudit Plus Release 3.0** is also added.

Parameters @DSPRIM@, @DSSEC@, and @DSDIR@ are used to define the space allocated for SMPTLIB data sets during SMP processing. These data sets are allocated with a prefix of @SMP-HLQ@.

For options NOPURGE, NOREJECT, SAVEMTS, and SAVESTS, a parameter value of NO means that the given option is not specified. A value of YES means the option is specified as named. For example, a parameter value of YES for @SAVESTS@, means that the global zone is defined with the SAVESTS option.

Execution of JOB1 should complete with a return code of 0.

JOB 2: Download Tape

All macro, source, and object members are downloaded to @PAPL-HLQ@.INDMAC, @PAPL-HLQ@.INDSRC, and @PAPL-HLQ@.INDLOAD, respectively. Sample JCL for user customization jobs is copied to @PAPL-HLQ@.SAMPJCL. Execution of JOB2 should complete with a return code of 0.

JOB 3: SMP/E RECEIVE

This job **receives** the SYSMODs for the CA-PanAudit Plus components that were selected from the tape. The CA-PanAudit Plus product consists of the following: sysmod-id: `C$K3000 - CA-PanAudit Plus base`.

This job should complete with a return code of 0.

JOB 4: SMP/E APPLY

This job **applies** the CA-PanAudit Plus SYSMODs, updating the target data sets.

Before submitting this job for execution, ensure that you have assigned an appropriate job class to support the longer running SMP/E APPLY function.

Execution of this job should complete with a return code of 0.

JOB 5: SMP/E ACCEPT

This job **accepts** the CA-PanAudit Plus SYSMODs, updating the distribution data sets. Before submitting this job for execution, ensure that you have assigned an appropriate job class to support the longer running SMP/E ACCEPT function.

This job completes with a return code of 0.

JOB 6: Installation Verification

Job 6 is similar to the sample job TSTSUITE in the SAMPJCL library. Run Job 6 to verify that CA-PanAudit Plus is correctly installed. The test JCL follows. Change all of the site-specific variables before you submit this JCL.

```
//PAPLJ6   JOB (acctno),'TEST DATA GEN',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//*****************************************************************
//*                                                               *
//*  This JCL will generate test data that can be used to run     *
//*  against the different routines in CA-PanAudit Plus. The      *
//*  second step of this job will run the ATTSAMP routine.
//*  Change all necessary information to conform to your site     *
//*  standards. If you are using a PDS for the macro file,        *
//*  verify that the option 'MACRO=PDS' is set in your            *
//*  CA-Easytrieve Plus options table before running this job.    *
//*                                                               *
//*    EXPECTED RETURN CODE:  00                                  *
//*                                                               *
//*****************************************************************
//TESTGEN  PROC
//STEP1    EXEC PGM=EZTPA00
//STEPLIB  DD DISP=SHR,DSN=your.panaudit.plus.CAILIB
//         DD DISP=SHR,DSN=your.easytrieve.plus.CAILIB
//PANDD    DD DISP=SHR,DSN=your.panaudit.plus.pds.CAIMAC
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//*****************************************************************
//*                                                               *
//*  If you are using CA-Panvalet for the macro file use the      *
//*  following DD statement:                                      *
//*                                                               *
//* //PANDD1 DD DSN=your.panaudit.plus.panvalet.macrolib,DISP=SHR*
//*                                                               *
//*  Change the DSN to your CA-Panvalet macro library name.       *
//*                                                               *
//*  Also include the following DD statement in the STEPLIB:      *
//*                                                               *
//*    //     DD DSN=your.panvalet.loadlib,DISP=SHR               *
//*                                                               *
//*  Change the DSN to your CA-Panvalet loadlib name.             *
//*                                                               *
```

```
//*  If you are concatenating datasets under the STEPLIB DD      *
//*  statement in the JCL, the dataset with the largest          *
//*  blocksize must be first in the list.                        *
//*                                                              *
//*  Verify that the option 'MACRO=(PAN,PANMODI)' is set in      *
//*  your CA-Easytrieve Plus options table in order to access    *
//*  the macros from the CA-Panvalet macro file.                 *
//*                                                              *
//**************************************************************
//EZTVFM   DD SPACE=(CYL,(10,10)),UNIT=SYSDA
//         PEND
//FILEGEN  EXEC TESTGEN
//TESTFIL  DD DISP=(NEW,CATLG,DELETE),DSN=test.data.suite,
//            SPACE=(TRK,(24,2)),UNIT=SYSDA,VOL=SER=xxxxxx,
//            DCB=(LRECL=30,BLKSIZE=3000,RECFM=FB)
//SYSIN    DD *
*
* GENERATE TEST FILE
*
LIST NOMACROS
FILE TESTFIL FB(30 3000)
  INVDATE   1 6 N
  DATEPAID  7 6 N
  INVNO    13 5 N
  AMOUNT   18 5 P 2
  REGION   23 2 N
  BRANCH   25 1 A
JOB NAME TESTGEN INPUT NULL
  %FILEGEN TESTFIL 10000  9 NOHEX
  %DATEGEN INVDATE MMDDYY 0 BETWEEN 010184 063084
  %DATEGEN DATEPAID MMDDYY 0 BETWEEN 020184 073084
  %NUMGEN INVNO SEQUENCE 1 9990 1
  %NUMGEN AMOUNT BETWEEN 10 10000
  %NUMGEN REGION CONSTANT '01,04,07,11,14'
  %NUMGEN BRANCH CONSTANT '1,2,3'
/*
//ATTSAMP  EXEC TESTGEN
//TESTFIL  DD DISP=SHR,DSN=test.data.suite
//SYSIN    DD *
*
* ATTSAMP WITH POPSIZE
*
LIST NOMACROS
FILE TESTFIL FB(30 3000)
  INVDATE   1 6 N
  DATEPAID  7 6 N
  INVNO    13 5 N
  AMOUNT   18 5 P 2
  REGION   23 2 N
  BRANCH   25 1 A
*
%POPSIZE1 TESTFIL
%POPSIZE2
%ATTSAMP1 TESTFIL POP-SIZE 90 5 5 3
%ATTSAMP2 NOFILE
/*
//
```

Installation Verification Output

```
          POPULATION COUNT OF FILE
          FILENAME: TESTFIL
          POPULATION SIZE IS      10000
```

```
                ATTRIBUTE SAMPLING REPORT
                    INPUT PARAMETERS
INPUT FILENAME                              TESTFIL
TOTAL POPULATION SIZE                        10,000
REQUIRED PRECISION                                5.00
REQUIRED CONFIDENCE LEVEL                        90
ERROR RATE                                        5.00
             SAMPLE RESULTS
SAMPLE PERCENTAGE REQUIRED                        0.51000000%
SAMPLE SIZE REQUIRED                             51
             SAMPLE FILE
NUMBER OF RECORDS PROCESSED                  10,000
NUMBER OF RECORDS REQUESTED                      51
NUMBER OF RECORDS IN SAMPLE FILE                 51
NO OUTPUT FILE WILL BE CREATED
```

JOB 7: Customize JIF Options – USERMOD C$KU001

Certain JIFSEL features are optional. The load module that specifies all options is JIFOPTS.

At installation, a model JIFOPTS module that contains all defaults is established. If your environment requires options other than JIFOPTS supplies, you must link edit a new JIFOPTS.

JIFPOPTS is an assembler macro that can be assembled and linked into the CA-PanAudit Plus executable library. You can link edit JIFOPTS as required after CA-PanAudit Plus installation, which is the only link-edit required whenever an option needs to be changed.

The source for the macro is in the CAISRC library and also in SAMPJCL as member JIFOP. There are three members related to JIFOPTS creation:

PAPLJ7—This is run during the install.

C$KU001 (from SAMPJCL)—This is an SMP/E USERMOD to allow changes after the install.

ASMJIFOP (from SAMPJCL)—This creates JIFOPTS for a non-SMP/E library.

Sample JCL to install the JIFOPTS option table follows:

Sample JIFOPTS Installation JCL

```
//PAPLJ7 JOB (40200000),'JONKA03',
// CLASS=A,MSGLEVEL=(1,1),MSGCLASS=X,NOTIFY=JONKA03
//*  ------------------------ JOB7 ------------------------
//*************************************************************
//*************************************************************
//*
//*   Install JIF Execution Options Module
//*
//*   Module JIFOPTS  must be installed as a USERMOD using SMP.
//*
//*   USERMOD ID = C$KU001
//*
```

```
//*************************************************************
//*
//*  Before submitting this job for execution, please review
//*  Section 5.3 in the CA-PanAudit Plus 3.0 Installation
//*  Manual, which documents the JIF Options Table.
//*
//*
//*  NOTE - you may need to change the name of the assembler
//*         program it your site does not use 'ASMA90'
//*
//*************************************************************
//*************************************************************
//JIFOPTS PROC TGTHLQ='RETSYS.CAIJMP.GN0O0105',
//             SMPHLQ='RETSYS.CAIJMP.GN0O0105',
//             CSIDSN='RETSYS.CAIJMP.GN0O0105.CSI',
//             PTSHLQ='RETSYS.CAIJMP.GN0O0105',
//             DFTUNIT='SYSDA',
//             TLIBUNT='SYSDA',
//             TLIBVOL='PANS10'
//*
//*************************************************************
//*
//*   STEP: ASM
//*         - ASSEMBLE JIF OPTIONS TABLE
//*
//*
//*************************************************************
//ASM       EXEC  PGM=ASMA90,
//          PARM='OBJ'
//SYSLIB   DD  DSN=&TGTHLQ..CAISRC,
//             DISP=SHR
//SYSUT1   DD  DSN=&&SYSUT1,UNIT=&DFTUNIT,
//             SPACE=(CYL,(10,5))
//SYSLIN   DD  DSN=&&OBJECT(JIFOPTS),  DO NOT MODIFY MEMBER NAME
//             UNIT=&DFTUNIT,
//             SPACE=(TRK,(10,5,2)),DISP=(NEW,CATLG),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//SYSPRINT DD  SYSOUT=*,DCB=(BLKSIZE=3509),
//             UNIT=(,SEP=(SYSUT1,SYSPUNCH))
//*
//*********************************************************************
//**
//**            APPLY USERMOD FOR JIF OPTIONS TABLE
//**
//*********************************************************************
//APPLY    EXEC PGM=GIMSMP,REGION=4096K,PARM='DATE=U',COND=(0,NE)
//*    EXPECTED RETURN CODE:  00
//SMPCSI   DD DSN=&CSIDSN,DISP=SHR
//SMPSCDS  DD DSN=&SMPHLQ..SMPSCDS,DISP=SHR
//SMPSTS   DD DSN=&SMPHLQ..SMPSTS,DISP=SHR
//SMPMTS   DD DSN=&SMPHLQ..SMPMTS,DISP=SHR
//SMPPTS   DD DSN=&PTSHLQ..SMPPTS,DISP=SHR
//SYSLIB   DD DSN=&SMPHLQ..SMPMTS,DISP=SHR
//SMPTLIB  DD UNIT=&TLIBUNT,VOL=SER=&TLIBVOL,DISP=OLD
//SMPLOG   DD DUMMY
//SMPLOGA  DD DUMMY
//TEMPOBJ  DD  DSN=&&OBJECT(JIFOPTS),DISP=(OLD,PASS)
//SMPHOLD  DD DUMMY
//*
//        PEND
//*
//*************************************************************
//*
//*    EXECUTE PROC
//*
//*************************************************************
```

```
//*
//JIFOPTS  EXEC JIFOPTS
//*
//ASM.SYSIN    DD  *
         JIFOP ALT1=,                                                  X
               ALT2=,                                                  X
               ALT3=,                                                  X
               ALT4=,                                                  X
               DATEFMT=MM/DD/YY,                                       X
               DSKTYP1=3380,                                           X
               DSKTYP2=3390,                                           X
               EXIT1=JIFEXIT1,                                         X
               EXIT2=JIFEXIT2,                                         X
               EXPLEN=32767,                                           X
               FILSIZE=32760,                                          X
               LENJTBL=32752,                                          X
               PNCHCLS=BK,                                             X
               RECLEN=32760,                                           X
               ROUTCDE=15,                                             X
               SID1=,                                                  X
               SID2=,                                                  X
               SID3=,                                                  X
               SID4=,                                                  X
               SMF30=NO,                                               X
               SPOLRCD=YES,                                            X
               STEPRCD=YES,                                            X
               TSO=YES
         END
/*
//*******************************************************************
//*
//*             APPLY USERMOD FOR JIF OPTIONS TABLE
//*
//*******************************************************************
//APPLY.SMPCNTL  DD *
  SET BDY(GLOBAL) OPTIONS(OPTIONS).
  RECEIVE     S(C$KU001) .
  SET BDY(CAITGT) OPTIONS(OPTIONS).
  APPLY       S(C$KU001)  REDO .
//APPLY.SMPPTFIN DD *
++USERMOD(C$KU001) .
++VER(Z038)  FMID(C$K3000) .
++MOD(JIFOPTS)    DISTLIB(C$K30LLD)   TXLIB(TEMPOBJ) .
//*******************************************************************
```

Considerations

Because JIFSEL automatically loads defaults, if you choose options other than the defaults in JIFOPTS, install CA-PanAudit Plus, then assemble and link edit the new options.

In the preceding sample JCL, the assembler opcodes, JIFOP and END, begin in column 10. Each keyword operand of the JIFOPTS macro corresponds to an option. The first operand begins in column 16 and can continue to column 71. Operands are separated by commas. An asterisk in column 72 designates continuation to the next statement. Operands cannot be continued across statements.

```
column
1     1                                                    7
0     6                                                    2
JIFOP STEPRCD=YES,                                         *
      EXIT1=JIFEXIT1
END
```

Selectable Options

Remember, you have to reassemble JIFOPTS only if you select options other than the defaults. Enter only the keyword operands of the options to be changed. The macro automatically assumes the default values for the rest. All rules pertaining to assembler macros hold. Acceptable options and keywords are the following:

`STEPRCD=`*xxx*

Specify whether SMF step details are collected and incorporated into the consolidated records. Valid values are YES (record step information) or NO (do not record step information).

Default: YES

`SPOLRCD=`*xxx*

Specify whether spool details are collected and incorporated into the consolidated record. Valid values are YES (record spool information) or NO (do not record spool information).

Default: YES

`SMF30=`*xxx*

Indicate the processing required for SMF type-30 records. Valid values are NO (no type-30 records are processed; process types 20, 04, 40, and 05) or YES (type-30 records are processed; do not process types 20, 04, 40, and 05). In either case, subtypes 02, 03, and 06 of the type-30 records are not processed.

Default: NO

`TSO=`*xxx*

Indicate whether TSO records are processed. Valid values are YES or NO.

NO Do not process TSO records.

YES Yes can have one of two meanings, depending on whether the SMF30=*xxx* parameter is set to YES or NO.

If SMF30=NO and TSO=YES, record types 34 and 35 are processed; if SMF30=YES and TSO=YES, record types 34 and 35 are ignored.

Default: NO

`DSKTYP1=xxxxxx`

Indicate the device type to be included in the DISK1 totals. A valid value is any disk device type identified as follows:

```
2220/2   2303     2311     2321     3333/2   3375
2301     2305/1   2314     3330/1   3340     3380
2302     2305/2   2319     3333/1   3350     3390
```

Default: 3380

`DSKTYP2=xxxxxx`

Indicate the device type to be included in the DISK2 totals. A valid value is any disk device type identified as follows:

```
2220/2   2303     2311     2321     3333/2   3375
2301     2305/1   2314     3330/1   3340     3380
2302     2305/2   2319     3333/1   3350     3390
```

Default: 3390

`DATEFMT=xx/xx/xx`

Indicate the date format to be used on all JIF reports. Valid values are either *DD/MM/YY* or *MM/DD/YY*.

You can determine the century from all dates using the following criteria:

- If the year is 70 to 99, then the century is 1900.
- If the year is 00 to 69, then the century is 2000.

Default: *MM/DD/YY*

`PNCHCLS=xxxxxxxx`

Specify the SYSOUT classes defined as punched output. Specify these classes using any one to eight alphanumeric character value, where each character is a SYSOUT class defined as punched output.

Default: BK

`EXIT1=modname`

Specify the name of the module to be invoked as user EXIT1. EXIT1 is discussed later in this chapter.

Default: JIFEXIT1

`EXIT2=`*`modname`*

Specify the name of the module to be invoked as user EXIT2. EXIT2 is discussed later in this chapter.

Default: JIFEXIT2

`FILSIZE=`*`xxxxx`*

Specify the estimated size of the file to be sorted. Minimum value is 19000. Maximum value is 32760.

Default: 32760

`RECLEN=`*`xxxxx`*

Specify the record length of the file to be sorted. Minimum value is 19000. Maximum value is 32760.

Default: 32760

`LENJTBL=`*`xxxxx`*

Specify the length of the job and step tables used for internal JIF processing. Installation with large numbers of Input/Output devices may experience ABENDS if this parameter is too small. Minimum value is 1024. Maximum value is 32752.

Default: 32752

`EXPLEN=`*`xxxxx`*

Specify the amount of GETMAIN requested. Installations with large numbers of Input/Output devices may experience ABENDS if this parameter is too small. Minimum value is 12288. Maximum is 32767.

Default: 32767

```
SID1= {ALL }
      {xxxx}
      {    }
```

Specify the alternate paths to be associated with corresponding real channel/unit addresses for the purpose of consolidating I/O counts. When you specify the four-character system ID, the real channel unit/alternate paths pairs indicated in ALT1 apply to that particular system. When you specify ALL, ALT1 must contain all real channel unit/alternate path pairs for all your system IDs. SID1 is used in conjunction with ALT1.

Default: null

`ALT1=(xxx,yyy,...)`

Specify a list of real channel unit/alternate path pairs of disk storage addresses for the CPU named in the SID1 parameter.

xxx represents the real channel/unit address.

yyy is the alternate associated with the real channel unit.

You can specify any number of pairs of units.

After using SID1=System ID with ALT1, you can specify three additional SID/ALT combinations:

- SID2/ALT2
- SID3/ALT3
- SID4/ALT4

If used, the options must be specified in numeric order (for example, specify SID3 only after you have used SID1 and SID2).

Default: null

After you run the install jobs and verify the results, CA-PanAudit Plus installation is complete. Verify that your CA-Easytrieve Plus options table is set to MACRO=PDS to access the macros. Use SAMPJCL file member DSPLYOPT. If you need to change the options table, see the CA-Easytrieve Plus installation documentation.

However, if you want to convert the macro library from a PDS to a CA-Panvalet or VSAM KSDS macro library, there is an additional step. The SAMPJCL library contains several jobs that will handle the conversion of the PDS macro library to either a CA-Panvalet or VSAM KSDS macro library.

CA-PanAudit Plus Macros

This section describes how to install the CA-PanAudit Plus macros in a CA-Panvalet macro library or a VSAM macro library.

CA-Panvalet Macro Library

If you are a present user of CA-PanAudit Plus and want to refresh your CA-Panvalet library, use the job REFSHPV from the SAMPJCL library.

If you are a new user and want to install the macros in a CA-Panvalet library, use the job INITPV from the SAMPJCL library. The INITPV job initializes the CA-Panvalet macro library, then loads the macros from the PDS macrolib. A ZERO (RC=0) return code is expected from the job run. If the return code is not zero, determine the cause of the problem, then rerun the INITPV job after deleting the PANDD1 data set or changing the DISP= parm from (NEW,CATLG) to SHR. Verify that the CA-Easytrieve Plus options table is set to MACRO=(PAN,PANMODI).

The JCL for INITPV follows. Make the following changes before submitting the JCL:

1. Change the JOB statement to conform to your installation standards including the user ID and passwords as appropriate for your security system.
2. Change the STEPLIB DD data set name to your CA-Panvalet load library name.
3. Change the PANDD1 DD data set name to your CA-Panvalet macro library name.
4. Change the INBPAM and INBSAM DD data set names to the name of the CA-PanAudit Plus PDS macro library.

```
//userid   JOB (acctno),'INITIALIZE PV MAC',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//CLEAR    EXEC PGM=PAN#4
//STEPLIB  DD DISP=SHR,DSN=your.PANVALET.loadlib
//SYSPRINT DD SYSOUT=*
//PANDD1   DD DISP=(NEW,CATLG,DELETE),VOL=SER=xxxxxx,
//         SPACE=(TRK,(65,5)),UNIT=SYSDA,DCB=(DSORG=PS),
//         DSN=your.panaudit.plus.panvalet.macrolib
//SYSIN    DD *
++CLEAR RECORDS=12,DATASETS=600
/*
//LOAD     EXEC PGM=PAN#1
//STEPLIB  DD DISP=SHR,DSN=your.PANVALET.loadlib
//INBPAM   DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//INBSAM   DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//PANDD1   DD DISP=SHR,DSN=*.CLEAR.PANDD1
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
++USING PAN0
++ADD *,DATA
/*
//
```

Note: CA-PanAudit Plus uses CA-Easytrieve Plus as its base product. See the CA-Panvalet *Getting Started* guide for a discussion of CA-Easytrieve Plus considerations.

VSAM Macro Library

If you are a present user of CA-PanAudit Plus and want to refresh your VSAM KSDS macro library, use the job REFSHVS from the SAMPJCL library.

If you are a new user and want to install the macros in a VSAM KSDS macro library, use the job INITVS from the SAMPJCL library. The INITVS job initializes the VSAM KSDS macro library, then loads the macros from the PDS macrolib. A ZERO (RC=0) return code is expected from the job run. If the return code is not zero, determine the cause of the problem, then rerun the INITVS job. Verify that the CA-Easytrieve Plus options table is set to MACRO=VSAM before running any CA-PanAudit Plus programs.

The JCL for INITVS follows. Make the following changes before submitting the JCL:

1. Change the JOB statement to conform to your installation standards including the user ID and passwords as appropriate for your security system.
2. Modify the IDCAMS job to define your VSAM KSDS macro file.
3. Modify the STEPLIB DD data set name to your CA-Easytrieve and CA-PanAudit Plus load library name.
4. Modify the MACFILE DD data set name to your VSAM KSDS macro library name.
5. Modify the SYSUT1 DD to the name of the CA-PanAudit Plus PDS macro library.

```
//userid   JOB (acctno),'INITIALIZE VS MAC',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//*****************************************************************
//*                                                               *
//*  This JCL is used to create the CA-PanAudit Plus macros in  *
//*  VSAM KSDS format. Change all necessary information to      *
//*  conform to your site standards.                              *
//*                                                               *
//*****************************************************************
//DEFCLUST EXEC PGM=IDCAMS
//*****************************************************************
//*  Define the cluster for the VSAM macro library              *
//*****************************************************************
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  DELETE your.panaudit.plus.vsam.macrolib
  DEFINE CLUSTER -
         (NAME(your.panaudit.plus.vsam.macrolib) -
         VOLUMES(xxxxxx) RECORDS(30000 500) -
         FREESPACE (5 5) -
         RECORDSIZE(110 110) -
         KEYS(30 0))
/*
//INITVSMC EXEC PGM=PAPLVMIP
//*****************************************************************
//*  Create a dummy record using 'SYSDATE' to initialize the    *
//*  VSAM macro file.                                             *
//*****************************************************************
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//MACFILE  DD DISP=SHR,DSN=your.panaudit.plus.vsam.macrolib
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
/*
```

```
//PNCHMCRO EXEC PGM=IEBPTPCH
//*************************************************************
//*  Convert the macros to a sequential file                  *
//*************************************************************
//SYSUT1   DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//SYSUT2   DD DISP=(NEW,PASS),DSN=&&TEMPMAC,
//            SPACE=(CYL,(10,5)),UNIT=SYSDA
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
  PUNCH TYPORG=PO
/*
//CONVMCRO EXEC PGM=PAPLADDV
//*************************************************************
//*  Load the macros into the macro file                      *
//*************************************************************
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//MACFILE  DD DISP=SHR,DSN=your.panaudit.plus.vsam.macrolib
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(2,2))
//INFILE   DD DISP=(OLD,DELETE),DSN=&&TEMPMAC
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
/*
//LOADVSMC EXEC PGM=PAPLMNT
//*************************************************************
//*  Display the directory using PAPLMNT                      *
//*************************************************************
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//MACFILE  DD DISP=SHR,DSN=your.panaudit.plus.vsam.macrolib
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(2,2))
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
++DIRECTORY
/*
//
```

SAMPJCL Library Members

Along with the INITPV and INITVS jobs, the SAMPJCL library contains the following sample jobs:

AMASPZAP	Contains the JCL to execute AMASPZAP.
ASMJIFOP	Contains all the JCL to compile and link the JIFOPTS options module.
BOOKMNGR	Contains all the JCL to download documentation in BOOKMANAGER format.
CMPLLINK	Contains all the JCL to compile and link edit a CA-PanAudit Plus program for later execution.
DLODPDF	Contains all the JCL to download documentation in PDF format.
DSPLYOPT	Displays all modified options in your CA-EASYTRIEVE options table.

EXECJCL	Contains all the JCL to execute a CA-PanAudit Plus mainframe program.
EXECJIF	Contains all the JCL to create a JIF consolidated record file and execute a CA-PanAudit Plus program to produce a report.
EXECLINK	Contains all the JCL to execute a CA-PanAudit Plus link-edit mainframe program.
JIFOP	Contains the source for the JIF options.
C$KU001	Contains JCL to install JIFOPTS as a USERMOD using SMP.
REFSHPV	Used to refresh or update a CA-Panvalet macro file to this release.
REFSHVS	Used to refresh or update a VSAM KSDS macro file to this release.
RELEASE	Contains the current release and genlevel information.
TSOCLIST	This is a CLIST to run CA-PanAudit Plus in a TSO environment.
TSTSUITE	Generates a sample test data file. This file verifies that CA-PanAudit Plus has been installed correctly.
VSMACMNT	Contains the JCL to execute the VSAM macro file maintenance program.

Modifications to the JCL in each job must be made to meet your site standards to run successfully on your system.

OS/390 and z/OS Maintenance Procedures (JOB M1, JOB M2, JOB M3)

When you run the CAIIJMP job, three SMP/E maintenance jobs are generated. These are JOBS M1, M2, and M3, which correspond to an SMP/E RECEIVE, an SMP/E APPLY, and an SMP/E ACCEPT. The JCL is generated with the appropriate parameter substitutions, except for the maintenance sysmod IDs. When a maintenance tape is available, you receive a letter that identifies the sysmod IDs for the various CA-Easytrieve Plus components. You must then provide the SYSMOD ID in the JCL that corresponds to the components installed at your site.

If you need an immediate fix for a severe problem, contact CA-PanAudit Plus support. Any APARS available through the support line must be applied to your CA-PanAudit product using the maintenance SMP/E RECEIVE job, SMP/E APPLY job, and SMP/E ACCEPT job.

OS/390 and z/OS Operating Systems

This section describes all files and JCL required to execute CA-PanAudit Plus in the OS/390 or z/OS operating system.

Files prefixed by SYS, KJ, and SORT are operating system-related files. Files prefixed by EZT are CA-Easytrieve Plus related. Files prefixed by PAN are macro file related. The EZT and PAN prefixes can be respecified by options WKDSPF and MACDDN.

OS/390 and z/OS Files

The following are the file names and descriptions of their use:

SYSIN

This file is required, except for execution-only operation.

Purpose—Source statement input plus optional data input.

Characteristics—Fixed-length, 80 bytes.

Considerations—Optional data input follows the END statement, which delimits the source program input.

SYSPRINT

This file is required.

Purpose—Compiler and default report output.

Characteristics—Fixed-length, 121 to 204 bytes.

PANDD1

This file is optional.

Purpose—Provides access to CA-Easytrieve Plus macros stored in a CA-Panvalet library. (If you are using a PDS or VSAM macro library, use file name PANDD.)

MASTER

This file is optional.

Purpose—Provides access to CA-Easytrieve Plus macros stored in a CA-Librarian library.

EZTVFM

This file is optional.

Purpose—Work file space for the CA-Easytrieve Plus Virtual File Manager.

Characteristics—DASD file, fixed-length, record length computed by VFM. Multiple extents allowed.

Considerations—VFM is used for work files during compilation, by report spool files, and by user VIRTUAL files during execution.

VFM attempts to buffer all data in storage. If there is insufficient storage to buffer all of the data, an EZTVFM file is required.

Note: The EZTVFM file must not span volumes.

You can define an EZTVFM file simply by specifying UNIT and SPACE information on a DD statement. The amount of space required is dependent on the amount of data processed by the VFM during execution. VFM maintains a 90 percent utilization of disk space; if the total number of bytes of data to be maintained by VFM at any one time is known, the formula for cylinder allocation of space is:

```
          bytes of data
-----------------------------
0.9 * track-length * trks/cyl
```

SORTWK*nn*

This file is optional.

Purpose—Provides sort work space for the SORT program.

Considerations—Work files are required only for those systems that do not provide dynamic allocation. If the number of sort work units supplied to CA-Easytrieve Plus on the SORT or PARM statement or in the options table is between 1 and 31, the DYNALLOC parameter of the OS/390 or z/OS SORT statement indicates dynamic allocation of work data sets.

SYSLIN

This file is optional.

Purpose—Output file for CA-Easytrieve Plus object modules, used as input to the linkage editor.

Characteristics—Fixed blocked 80/800.

SYSOUT

This file is optional.

Purpose—Sort message output.

Characteristics—As required by the sort utility. Normally assigned as SYSOUT=A.

STEPLIB

This file is optional.

Purpose—Supplies load modules required by CA-Easytrieve Plus and its options not available elsewhere.

SYSCTL	IDMS CV **Purpose**—Supplies control information to CA-IDMS central version.
SYSJRNL	IDMS local **Purpose**—Identifies the CA-IDMS journal file. The journal is usually a tape file.
SYSIDMS	IDMS **Purpose**—Identifies the CA-IDMS (release 12.0 and above) environment parameters.
IDMSDB	IDMS local **Purpose**—Identifies the areas comprising the database.
IDMSDICT	IDMS local **Purpose**—Identifies the dictionary to be used for library definitions.
SYSSNAP	This file is optional. **Purpose**—Provides error analysis printout. **Characteristics**—Variable blocked 125/882; normally, assigned to SYSOUT=A.
SYSUDUMP	This file is optional. **Purpose**—Abnormal error dump data set. **Characteristics**—Normally, assigned to SYSOUT=A.
CEEDUMP	This file is optional. **Purpose**—Dump data set when running with LE. **Characteristics**—Normally, assigned to SYSOUT=A.
userfiles	This file is optional. **Purpose**—Provides access to files described by CA-Easytrieve Plus FILE statements. **Characteristics**—As required by coding on the FILE statements.

The following list details the additional file requirements for CA-Easytrieve Plus when using the IBM Kanji/Chinese Sort/Merge Program Product:

KJSRTBL

This file is optional (used only with IBM Kanji/Chinese Sort).

Purpose—Defines the data sets containing Kanji sort tables.

Characteristics—Normally, an OS/390 or z/OS PDS containing load module members.

Considerations—Libraries are provided and maintained by IBM-supplied utilities.

KJSYSOUT

This file is optional (used only with IBM Kanji/Chinese Sort).

Purpose—Kanji/Chinese sort message output.

Characteristics—As required by the sort utility (normally: RECFM=FBA, LRECL=121,BLKSIZE=1210). It is normally assigned to SYSOUT=A.

The following details the additional requirements for CA-Easytrieve Plus when using the FACOM Kanji Sort/Merge Program Product:

KATTR

This file is optional (used only with FUJITSU Kanji/Chinese Sort).

Purpose—Defines the data sets containing Kanji sort tables.

Characteristics—Normally, an OS/390 or z/OS PDS containing load module members.

Considerations—Libraries are provided and maintained by FUJITSU-supplied utilities.

Chapter 2

CA-PanAudit Plus Operation

This chapter describes all JCL required for executing CA-PanAudit Plus.

Compile and Execute

The following sample illustrates the JCL necessary to compile and go with sort work files and EZTVFM work files. An example of this JCL is in the SAMPJCL library as member EXECJCL.

```
//userid   JOB (acctno),'EXECUTION JCL',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//*****************************************************************
//*                                                               *
//*  This sample JCL is provided as a skeleton to execute a       *
//*  CA-PanAudit Plus program. Change all necessary information   *
//*  to conform to your site standards. If you are using a        *
//*  PDS for the macro file, verify that the option 'MACRO=PDS'   *
//*  is set in your CA-Easytrieve Plus options table before       *
//*  running this job.                                            *
//*                                                               *
//*****************************************************************
//STEP1    EXEC PGM=EZTPA00
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//PANDD    DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//*****************************************************************
//*                                                               *
//*  If you are using CA-Panvalet for the macro file use the      *
//*  following DD statement:                                      *
//*                                                               *
//* //PANDD1 DD DISP=SHR,DSN=your.panaudit.plus.panvalet.macrolib*
//*                                                               *
//*  Change the DSN to your CA-Panvalet macro library name.       *
//*                                                               *
//*  Also include the following DD statement in the STEPLIB:      *
//*                                                               *
//*    //     DD DISP=SHR,DSN=your.panvalet.loadlib              *
//*                                                               *
//*  Change the DSN to your CA-Panvalet loadlib name.             *
//*                                                               *
//*  If you are concatenating datasets under the STEPLIB DD       *
//*  statement in the JCL, the dataset with the largest           *
//*  blocksize must be first in the list.                         *
//*                                                               *
//*  Verify that the option 'MACRO=(PAN,PANMODI)' is set in       *
```

```
//*  your CA-Easytrieve Plus options table in order to access    *
//*  the macros from the CA-Panvalet macro file.                 *
//*                                                              *
//****************************************************************
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//****************************************************************
//*                                                              *
//*  Include additional DD statements for any input or output    *
//*  files that your program uses. The following example         *
//*  program doesn't use any input or output files.              *
//*                                                              *
//****************************************************************
//SYSIN    DD *
* test program
DEFINE TODAY W 6 N
JOB INPUT NULL
  %GETDATE TODAY
  DISPLAY TODAY
  STOP
/*
//
```

Compile and Link Edit

The following sample illustrates the JCL necessary to compile and link edit a load module to be executed later. An example of this JCL is in the SAMPJCL library as member CMPLLINK.

```
//userid   JOB (acctno),'COMPILE & LINK',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//****************************************************************
//*                                                              *
//*  This sample JCL is provided as a skeleton to compile and    *
//*  link a CA-PanAudit Plus program. Change all necessary       *
//*  information to conform to your site standards. If you       *
//*  are using a PDS for the macro file, verify that the option  *
//*  'MACRO=PDS' is set in your CA-Easytrieve Plus options       *
//*  table before running this job.                              *
//*                                                              *
//****************************************************************
//STEP1   EXEC PGM=EZTPA00
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//PANDD    DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//****************************************************************
//*                                                              *
//*  If you are using CA-Panvalet for the macro file use the     *
//*  following DD statement:                                     *
//*                                                              *
//* //PANDD1 DD DISP=SHR,DSN=your.panaudit.plus.panvalet.macrolib*
//*                                                              *
//*  Change the DSN to your CA-Panvalet macro library name.      *
//*                                                              *
//*  Also include the following DD statement in the STEPLIB:     *
//*                                                              *
//*    //     DD DISP=SHR,DSN=your.panvalet.loadlib              *
//*                                                              *
//*  Change the DSN to your CA-Panvalet loadlib name.            *
//*                                                              *
```

```
//*  If you are concatenating datasets under the STEPLIB DD      *
//*  statement in the JCL, the dataset with the largest          *
//*  blocksize must be first in the list.                        *
//*                                                              *
//*  Verify that the option 'MACRO=(PAN,PANMODI)' is set in      *
//*  your CA-Easytrieve Plus options table in order to access    *
//*  the macros from the CA-Panvalet macro file.                 *
//*                                                              *
//**************************************************************
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSLIN   DD DISP=(NEW,PASS),DSN=&&CMPLLINK,
//            UNIT=SYSDA,SPACE=(TRK,(5,5))
//SYSIN    DD *
PARM LINK (progname (R))
*
* Enter your Panaudit Plus program here
*
/*
//LINKEDIT EXEC PGM=IEWL,PARM=('LET,LIST,MAP,XREF'),
//            COND=(0,GT,STEP1)
//SYSLIN   DD DISP=(OLD,DELETE),DSN=&&CMPLLINK
//SYSUT1   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSLMOD  DD DISP=SHR,DSN=your.program.loadlib
//SYSPRINT DD SYSOUT=*
/*
//
```

Execute a Compiled, Link-Edited Program

The following sample illustrates the JCL necessary to execute a previously compiled and link-edited CA-PanAudit Plus program. An example of this JCL is in the SAMPJCL library as member EXECLINK.

```
//userid   JOB (acctno),'EXEC PROGRAM',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//**************************************************************
//*                                                            *
//*  This sample JCL is provided as a skeleton to execute      *
//*  a previously compiled and linked CA-PanAudit Plus program. *
//*  Change all necessary information to conform to your       *
//*  site standards.                                           *
//*                                                            *
//**************************************************************
//STEP1    EXEC PGM=progname
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//         DD DISP=SHR,DSN=your.program.loadlib
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(10,10))
//**************************************************************
//*  Include additional DD statements for input and/or output  *
//*  files.                                                    *
//**************************************************************
//infile   DD DISP=SHR,DSN=your.input.data
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/*
//
```

Chapter 3

TSO Operation

CA-PanAudit Plus can execute in the TSO environment. Online execution is in TSO foreground using the TSO CLIST procedure from the SAMPJCL PDS. You must install CA-PanAudit Plus as described in the chapter "Installation."

Sample TSO CLIST

Use the following TSO CLIST sample to execute CA-PanAudit Plus:

```
PROC 0
FREE  FI(PANDD EZTVFM INPUT OUTPUT)
ALLOC FI(SYSIN)    DA('your.panaudit.plus.program') SHR
ALLOC FI(SYSPRINT) DA(*)
ALLOC FI(PANDD)    DA('your.panaudit.plus.macro.library') SHR
ALLOC FI(EZTVFM)   TR SP(5,5)
ALLOC FI(INPUT)    DA('your.input.file') SHR
ALLOC FI(OUTPUT)   DA('your.output.file') SHR
      ISPEXEC LIBDEF ISPLLIB EXCLDATA +
              ID ('your.easytrieve.plus.load.library' +
                  'your.panaudit.plus.load.library')
CALL 'your.easytrieve.plus.load.library(EZTPA00)'
```

TSO CLIST directs SYSIN input from your file that you have previously created to CA-Easytrieve Plus and directs SYSPRINT output from CA-Easytrieve Plus to your terminal.

The allocation for PANDD identifies your macro library. The allocations for INPUT and OUTPUT describe your input and output files. The CALL statement is used to load and invoke CA-Easytrieve Plus from the load library where it is installed.

Chapter 4

JIF Operation

The Job Information Facility (JIF) is a system for reporting on records obtained from the IBM System Management Facility (SMF).

Processing SMF-generated data for use in statistical analysis, cost accounting, and customer billing may become an application nightmare. JIF retrieves SMF records, consolidates them, creates files of SMF data, and produces reports on this data without the need for you to develop sophisticated application software to interface with SMF.

For most effective use of JIF, you must have knowledge of the SMF records and know the SMF parameters in effect at your installation. For additional information, see JIF Requirements on the following page.

JIF Capabilities

JIF gives you the capability to:

- Report on SMF record types 00, 04, 05, 06, 07, 20, 26, and 40. Optionally, report on record types 34 and 35, or type 30.
- Report on other SMF record types through the user exit facility.
- Consolidate the SMF data into job and, optionally, TSO session representations.
- Create an SMF data file tailored to your needs.
- Produce pre-formatted statistical reports using the supplied routines.
- Create customized reporting routines of your own with CA-Easytrieve Plus.
- Receive audit reports on your use of the JIF system.
- Report on SMF records generated before MVS/XA 2.2.0 or SMF records generated by MVS/XA 2.2.0 or MVS/ESA 3.1.3 and above.

JIF Requirements

The Job Information Facility executes on IBM 370, 303x, or 43xx series processors that are running System Management Facilities under VS1, VS2, MVS/XA, MVS/ESA, OS/390, or z/OS operating systems.

SMF is an optional part of the IBM operating system; its configurations and processing characteristics are set when SMF is installed. See the appropriate IBM System Management Facility guide for the types of options available at the time of SMF installation.

The records generated by SMF depend on your operating system and on options selected at the time of SMF installation. For example, SMF running in a VS1 environment does not record certain data or make distinctions that are recorded in a VS2 or MVS environment. Such distinctions do not appear in JIF files generated in a VS1 system.

For example, in reporting CPU time used, JIF uses three fields:

- CMTMCPU (total job CPU time)
- CMTMTCB (time under control of a task control block)
- CMTMSRB (time under control of a service request block)

The VS2 and MVS systems use all three time fields; however, VS1 does not distinguish between TCB and SRB time. As a result, JIF records the following:

For VS1:

```
CMTMCPU = CMTMTCB
```

For VS2 and MVS:

```
CMTMCPU = CMTMTCB + CMTMSRB
```

The MVS/XA 2.2.0 SMF option requires valid MVS/XA 2.2.0 SMF records. Likewise, the pre-MVS/XA 2.2.0 SMF default requires valid pre-MVS/XA 2.2.0 SMF records. Even though the SMF records may be different for different releases of MVS, the consolidated records built by JIF are identical in format. Therefore, the same CA-PanAudit Plus macros can be used against a consolidated record built from any level of MVS SMF record.

Facility Description

JIF has four components:

- JIFOPTS option module
- JIFSEL SMF data collector
- User exit facility
- JIFRDREX CA-Easytrieve Plus read input exit

JIFOPTS

The options module, JIFOPTS, provides information to JIFSEL indicating which of the SMF record types you want processed and the content of the consolidated record file to be produced, which provides a degree of customization in the consolidated file.

JIFSEL

JIFSEL processes the data produced by SMF, consolidating all SMF records for a job or TSO session into a single record. This record is then written to the consolidated file. JIFSEL selects both automatically and on the basis of the options you specify in JIFOPTS.

User Exit Facility

The user exit facility lets you further customize the consolidated file. Use the EXIT1 routine to select and the EXIT2 routine to process any additional SMF record types you want reported.

JIFRDREX

JIFRDREX, the read input exit of CA-Easytrieve Plus, reads the consolidated file, and then formats and presents a fixed-length record to CA-PanAudit Plus. The JIF routines can be used to generate reports on this file. For more information about read input exit, see the CA-PanAudit Plus *Macro Reference Guide*.

The following sections detail the JIFOPTS, JIFSEL, and user exit facility components.

JIFOPTS (JIF Options Table)

Certain JIFSEL features are optional. The load module that specifies all options is JIFOPTS.

At installation, a model JIFOPTS module that contains all defaults is established. If your environment requires options other than JIFOPTS supplies, you must link edit a new JIFOPTS.

JIFPOPTS is an assembler macro that can be assembled and linked into the CA-PanAudit Plus executable library. You can link edit JIFOPTS as required after CA-PanAudit Plus installation, which is the only link-edit required whenever an option needs to be changed.

The source for the JIFOPTS macro is in the CAISRC library and SAMPJCL library as member JIFOP. SAMPJCL contains two members that allow you to assemble the JIFOPTS table: ASMJIFOP (non-SMP/E) and C$KU001 (SMP/E). Sample JCL to install the JIFOPTS option table for these two members follows:

ASMJIFOP (non-SMP/E) Installation JCL

```
//userid   JOB (acctno),'COMPILE JIFOPTS',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//*****************************************************************
//*                                                               *
//*  This sample JCL can be used to recompile the options for     *
//*  JIF. Change all necessary information to conform to your     *
//*  site standards.                                              *
//*                                                               *
//*****************************************************************
//ASMOPT   EXEC PGM=IEUASM,PARM=OBJ
//SYSPUNCH DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSUT1   DD UNIT=SYSDA,SPACE=(TRK,5)
//SYSUT2   DD UNIT=SYSDA,SPACE=(TRK,5)
//SYSUT3   DD UNIT=SYSDA,SPACE=(TRK,5)
//SYSLIB   DD DISP=SHR,DSN=your.panaudit.plus.sampjcl.library
//SYSGO    DD DISP=(MOD,PASS),DSN=&&OPTTBL,UNIT=SYSDA,
//            SPACE=(80,(200,50))
//SYSIN    DD *
         JIFOP DSKTYP1=3380,DSKTYP2=3390,FILSIZE=32760,RECLEN=32760,
               LENJTBL=32752,EXPLEN=32767
         END
/*
//LINK1    EXEC PGM=IEWL,PARM=(XREF,LET,LIST,MAP,CALL),
//         COND=(4,LT,ASMOPT)
//SYSLIB   DD DISP=SHR,DSN=*.ASMOPT.SYSLIB
//SYSUT1   DD UNIT=SYSDA,SPACE=(CYL,(2,2))
//SYSLMOD  DD DISP=SHR,DSN=your.panaudit.plus.loadlib(JIFOPTS)
//SYSLIN   DD DISP=(OLD,DELETE),DSN=&&OPTTBL
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/*
```

C$KU001 (SMP/E) Installation JCL

```
//userid   JOB    (ACCT INFO),'CUSTOMIZE OPTIONS',
//   CLASS=x,MSGCLASS=x,MSGLEVEL=(1,1)
//*************************************************************
//*************************************************************
//*
//*   Install JIF Execution Options Module
//*
//*   Module JIFOPTS  must be installed as a USERMOD using SMP.
//*
//*   USERMOD ID = C$KU001
//*
//*************************************************************
//*
//*  Before submitting this job for execution, review the section
//*  JIFOPTS (JIF Options Table) in this chapter for a
//*  description of the JIF Options Table.
//*
//*
//*  NOTE - you may need to change the name of the assembler
//*         program if your site does not use 'ASMA90'
//*
//*************************************************************
//*************************************************************
//JIFOPTS PROC TGTHLQ='high.level.qualifier.target.libs',
//            SMPHLQ='high.level.qualifier.for.smp.datasets',
//            CSIDSN='name.of.smp.csi.dataset',
//            PTSHLQ='high.level.qualifier.for.smppts',
//            DFTUNIT='default.disk.unit',
//            TLIBUNT='disk.unit.type.for.tlib.datasets',
//            TLIBVOL='disk.unit.volser.for.tlib.datasets'
//*
//*************************************************************
//*
//*   STEP: ASM
//*        - ASSEMBLE JIF OPTIONS TABLE
//*
//*
//*************************************************************
//ASM       EXEC  PGM=ASMA90,
//          PARM='OBJ'
//SYSLIB   DD  DSN=&TGTHLQ..CAISRC,
//             DISP=SHR
//SYSUT1   DD  DSN=&&SYSUT1,UNIT=&DFTUNIT,
//             SPACE=(CYL,(10,5))
//SYSLIN   DD  DSN=&&OBJECT(JIFOPTS),  DO NOT MODIFY MEMBER NAME
//             UNIT=&DFTUNIT,
//             SPACE=(TRK,(10,5,2)),DISP=(NEW,CATLG),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//*
//*********************************************************************
//**
//**            APPLY USERMOD FOR JIF OPTIONS TABLE
//**
//*********************************************************************
//APPLY    EXEC PGM=GIMSMP,REGION=4096K,PARM='DATE=U',COND=(0,NE)
//*    EXPECTED RETURN CODE:  00
//SMPCSI   DD DSN=&CSIDSN,DISP=SHR
//SMPSCDS  DD DSN=&SMPHLQ..SMPSCDS,DISP=SHR
//SMPSTS   DD DSN=&SMPHLQ..SMPSTS,DISP=SHR
//SMPMTS   DD DSN=&SMPHLQ..SMPMTS,DISP=SHR
//SMPPTS   DD DSN=&PTSHLQ..SMPPTS,DISP=SHR
//SYSLIB   DD DSN=&SMPHLQ..SMPMTS,DISP=SHR
//SMPTLIB  DD UNIT=&TLIBUNT,VOL=SER=&TLIBVOL,DISP=OLD
//SMPLOG   DD DUMMY
```

```
//SMPLOGA  DD DUMMY
//TEMPOBJ  DD  DSN=&&OBJECT(JIFOPTS),DISP=(OLD,PASS)
//SMPHOLD  DD DUMMY
//*
//        PEND
//*
//************************************************************
//*
//*    EXECUTE PROC
//*
//************************************************************
//*
//JIFOPTS  EXEC JIFOPTS
//*
//ASM.SYSIN    DD  *                                          X
         JIFOP ALT1=,                                        X
               ALT2=,                                        X
               ALT3=,                                        X
               ALT4=,                                        X
               DATEFMT=MM/DD/YY,                             X
               DSKTYP1=3380,                                 X
               DSKTYP2=3390,                                 X
               EXIT1=JIFEXIT1,                               X
               EXIT2=JIFEXIT2,                               X
               EXPLEN=32767,                                 X
               FILSIZE=32760,                                X
               LENJTBL=32752,                                X
               PNCHCLS=BK,                                   X
               RECLEN=32760,                                 X
               ROUTCDE=15,                                   X
               SID1=,                                        X
               SID2=,                                        X
               SID3=,                                        X
               SID4=,                                        X
               SMF30=NO,                                     X
               SPOLRCD=YES,                                  X
               STEPRCD=YES,                                  X
               TSO=NO
         END
/*
//*********************************************************************
//*
//*            APPLY USERMOD FOR JIF OPTIONS TABLE
//*
//*********************************************************************
//APPLY.SMPCNTL  DD *
  SET BDY(CAITGT) OPTIONS(OPTIONS).
  APPLY       S(C$KU001)  REDO .
//APPLY.SMPPTFIN DD *
++USERMOD(C$KU001) .
++VER(Z038)  FMID(C$K3000) .
++MOD(JIFOPTS)    DISTLIB(C$K30LLD)   TXLIB(TEMPOBJ) .
//*********************************************************************
```

Considerations

Because JIFSEL automatically loads defaults, if you choose options other than the defaults in JIFOPTS, install CA-PanAudit Plus, and then assemble and link edit the new options.

In the preceding sample JCL, the assembler opcodes, JIFOP and END, begin in column 10. Each keyword operand of the JIFOPTS macro corresponds to an option. The first operand begins in column 16 and can continue to column 71. Operands are separated by commas. An asterisk in column 72 designates continuation to the next statement. Operands cannot be continued across statements.

```
column
1     1                                                  7
0     6                                                  2
JIFOP STEPRCD=YES,                                       *
     EXIT1=JIFEXIT1
END
```

Selectable Options

Remember, you have to reassemble JIFOPTS only if you select options other than the defaults. Enter only the keyword operands of the options to be changed. The macro automatically assumes the default values for the rest. All rules pertaining to assembler macros hold. Acceptable options and keywords are the following:

`STEPRCD=`*xxx*

Specify whether SMF step details are collected and incorporated into the consolidated records. Valid values are YES (record step information) or NO (do not record step information).

Default: YES

`SPOLRCD=`*xxx*

Specify whether spool details are collected and incorporated into the consolidated record. Valid values are YES (record spool information) or NO (do not record spool information).

Default: YES

`SMF30=`*xxx*

Indicate the processing required for SMF type-30 records. Valid values are NO (no type-30 records are processed; process types 20, 04, 40, and 05) or YES (type-30 records are processed; do not process types 20, 04, 40, and 05). In either case, subtypes 02, 03, and 06 of the type-30 records are not processed.

Default: NO

`TSO=xxx`

Indicate whether TSO records are processed. Valid values are YES or NO.

NO Do not process TSO records.

YES Yes can have one of two meanings, depending on whether the SMF30=*xxx* parameter is set to YES or NO.

If SMF30=NO and TSO=YES, record types 34 and 35 are processed; if SMF30=YES and TSO=YES, record types 34 and 35 are ignored.

Default: NO

`DSKTYP1=xxxxxx`

Indicate the device type to be included in the DISK1 totals. A valid value is any disk device type identified as follows:

```
2220/2   2303     2311     2321     3333/2   3375
2301     2305/1   2314     3330/1   3340     3380
2302     2305/2   2319     3333/1   3350     3390
```

Default: 3380

`DSKTYP2=xxxxxx`

Indicate the device type to be included in the DISK2 totals. A valid value is any disk device type identified as follows:

```
2220/2   2303     2311     2321     3333/2   3375
2301     2305/1   2314     3330/1   3340     3380
2302     2305/2   2319     3333/1   3350     3390
```

Default: 3390

`DATEFMT=xx/xx/xx`

Indicate the date format to be used on all JIF reports. Valid values are either *DD/MM/YY* or *MM/DD/YY*.

You can determine the century from all dates using the following criteria:

- If the year is 70 to 99, then the century is 1900.
- If the year is 00 to 69, then the century is 2000.

Default: *MM/DD/YY*

`PNCHCLS=`*`xxxxxxxx`*

Specify the SYSOUT classes defined as punched output. Specify these classes using any one to eight alphanumeric character value, where each character is a SYSOUT class defined as punched output.

Default: BK

`EXIT1=`*`modname`*

Specify the name of the module to be invoked as user EXIT1. EXIT1 is discussed later in this chapter.

Default: JIFEXIT1

`EXIT2=`*`modname`*

Specify the name of the module to be invoked as user EXIT2. EXIT2 is discussed later in this chapter.

Default: JIFEXIT2

`FILSIZE=`*`xxxxx`*

Specify the estimated size of the file to be sorted. Minimum value is 19000. Maximum value is 32760.

Default: 32760

`RECLEN=`*`xxxxx`*

Specify the record length of the file to be sorted. Minimum value is 19000. Maximum value is 32760.

Default: 32760

`LENJTBL=`*`xxxxx`*

Specify the length of the job and step tables used for internal JIF processing. Installation with large numbers of Input/Output devices may experience ABENDS if this parameter is too small. Minimum value is 1024. Maximum value is 32752.

Default: 32752

`EXPLEN=`*`xxxxx`*

Specify the amount of GETMAIN requested. Installations with large numbers of Input/Output devices may experience ABENDS if this parameter is too small. Minimum value is 12288. Maximum is 32767.

Default: 32767

```
SID1= {ALL }
      {xxxx}
      {    }
```

Specify the alternate paths to be associated with corresponding real channel/unit addresses for the purpose of consolidating I/O counts. When you specify the four-character system ID, the real channel unit/alternate paths pairs indicated in ALT1 apply to that particular system. When you specify ALL, ALT1 must contain all real channel unit/alternate path pairs for all your system IDs. SID1 is used in conjunction with ALT1.

Default: null

`ALT1=(`*xxx*`,`*yyy*`,...)`

Specify a list of real channel unit/alternate path pairs of disk storage addresses for the CPU named in the SID1 parameter.

xxx represents the real channel/unit address.

yyy is the alternate associated with the real channel unit.

You can specify any number of pairs of units.

After using SID1=System ID with ALT1, you can specify three additional SID/ALT combinations:

- SID2/ALT2
- SID3/ALT3
- SID4/ALT4

If used, the options must be specified in numeric order (for example, specify SID3 only after you have used SID1 and SID2).

Default: null

JIFSEL

JIFSEL has three functional phases during its execution: record selection, sorting, and data consolidation.

SMF Record Selection—During the record selection phase, JIFSEL loads JIFOPTS to determine which SMF record types are to be selected. JIF processes certain SMF record types based on defaults. Others are selected by your exit routines.

Each time an SMF record is read, JIFSEL determines if the record is selected for processing. If selected, JIFSEL builds a sort key in the record. The record is then passed to your operating system sort. If not selected, the program defined by the EXIT1 parameter of the JIF options table is invoked.

Depending on the action taken by your exit, the SMF record is either bypassed from further processing or forced into the processing stream. When a record is forced, JIFSEL builds the sort key, and the record is passed to your sort.

Sorting by Job or TSO Session—JIFSEL builds a 28-byte sort key from information in the SMF record. This sort is done for all records. The actual structure of the JIF sort key is discussed later in this chapter. You must consider the structure of the sort key when forcing some types of SMF records. The SMF records selected by JIFSEL or by your exit are sorted into a chronological order by JOB or TSO session.

Consolidating SMF Records—After the sort, JIFSEL collects the information from multiple SMF records into a single, consolidated record. For more information about consolidated record fields, see the CA-PanAudit Plus *Macro Reference Guide*.

During this phase of operation, JIF communicates with the program defined by the EXIT2 parameter in the JIFOPTS in order to process records selected by your EXIT1 routine. If EXIT2 is not specified, JIFSEL bypasses any records that are forced by EXIT1 when writing the consolidated record.

SMF Record Selection by JIFSEL

JIFSEL selects SMF records in three ways:

- By default
- Through parameters specified in the options macro
- By your exit routines

The record types selected by each of these techniques are shown in the following table:

JIFSEL Default	Options Macro	User Exit Facility
00, 04, 05, 06, 07, 20, 26, 40	30 (subtypes 01, 04, 05) (batch & TSO)	All other SMF record types

The JIFSEL Default column lists the SMF record types processed by JIFSEL.

The Options Macro column indicates additional record types that can be processed automatically by modifying parameters in the options macro. For example:

- Type 30 records can be processed instead of types 20, 04, 40, and 05.
- TSO data (types 34 and 35) can be processed.

The User Exit Facility column indicates the SMF record types you process by means of your exit routines.

Batch Environment

JIFSEL processes eight SMF record types from the batch environment:

SMF Record Type	Description
Type 00	IPL
Type 04	Step Termination (batch job)
Type 05	Job Termination (batch job)
Type 06	JES2 or JES3 Output Writer
Type 07	Lost Data
Type 20	Job Initiation (batch job)
Type 26	JES2 or JES3 Job Purge
Type 40	Dynamic DD

Optionally, you can process type 30 (common address space work area) records. For more information, see JIFOPTS (JIF Options Table) in this chapter.

TSO Environment

If option TSO=YES is in effect, JIFSEL processes the following SMF record types in addition to those listed previously:

SMF Record Type	Description
Type 20	TSO Job Initiation
Type 34	TSO Step Termination
Type 35	Logoff

Type 30 records can also be processed for TSO environments. Set the options macro parameter SMF30=YES and concurrently set TSO=YES.

SMF Record Content

The SMF data that JIFSEL extracts and the records in the consolidated file are derived from the SMF record sources described in the following table.

Definitions for and descriptions of these records can be found in IBM guides describing System Management Facilities (SMF).

SMF Record Type	Record	Record Contents
20	Job Initiation	Job name System identification User identification Programmer's name Accounting information (first 24 characters only)
04	Step Termination	Step name Program name Job name System identification Step start date and time Step termination date and time Step completion code Storage allocation Storage used Step CPU time (for MVS and above this represents SRB + TCB times) Step CPU time under SRB (MVS and above only) Step CPU time under TCB Device counts and EXCP counts for these devices Pageins and pageouts Number of address space swap sequences Number of VIO pageins and pageouts Number of service units Residence times Number of page seconds

SMF Record Type	Record	Record Contents
05	Job Termination	Job name System identification Job termination time and date Job start time and date Number of card images read by job Job priority Resident time Job input class Storage protect key Job CPU time (for MVS and above this represents SRB + TCB times) Job CPU time under SRB (MVS and above only) Job CPU time under TCB Job transaction active time Performance group number of last step
06	Output Writer	Job name System identification Sysout class Writer start date and time Time and date output was completed Number of logical records written Form number Approximate page count Logical device name
07	Data Lost	Number of Type 07 records processed during JIFSEL execution Date and time record loss began, for each 07 record processed Date and time records stopped being lost, for each 07 processed Number of records lost, for each 07 record processed
40	Dynamic D.D.	Information is equivalent to the data set parts of Type 04 records (device counts and EXCP counts for the @ devices).
30	Common Address Space Work Area	Information is the same as the record types it replaces: 20, 04, 05, and 40. SMF type 30, subtypes 01, 04 and 05 are processed in place of SMF types 20, 04, 05, and 40.

SMF Record Type	Record	Record Contents
34	TSO Step Termination	Essentially the same information as type 04 records Two additional fields are: -Number of lines of terminal output (number of TSPUTS issued) -Number of lines of terminal input @ (number of TGETS satisfied)
35	Logoff	Essentially the same information as type 05 records Two additional fields are: -Number of lines of terminal output (number of TPUTS issued) -Number of lines of terminal input (number of TGETS satisfied)
26	Job Purge	System identification Job name Job number Job class Job priority Number of input cards for job

JIF Data Sets

The JIF utility creates three data sets: the Consolidated Record File, the Audit File, and the Audit Report.

Consolidated Record File— The JIF Consolidated Record File contains one record for each job. If requested, each record can contain individual step and spool information.

Each record contains a 256-position user portion for data you include through exit processing.

Audit File— A record is created for the Audit File each time JIFSEL is executed. The record contains the input data set name, number of records read, Initial Program Load (IPL) records (SMF Type 00) read, data lost (SMF Type 07 records), and the number of records processed.

Audit Report— The JIF audit report is a report on the data recorded and stored in the JIF audit file.

Audit File

One audit file record is created each time you execute JIFSEL. The record contains four segments:

- A static portion where various count information is stored
- A data set section
- One IPL section for each SMF Type 00 record processed
- One lost data section for each SMF type 07 record processed

The layout of the audit file record is shown in the next section.

Audit Record Layout

The following are field definitions of the audit file. Descriptions of the field names are shown in the table immediately after this section. An asterisk indicates breaks between the four record segments described in the previous section.

```
FILE AUDIT
AUDATE            1        3     U     MASK ('99/99/99')
AUTIME            4        3     U     MASK ('99:99:99')
AUSMFDTF          7        3     U     MASK ('99/99/99')
AUSMFTMF         10        3     U     MASK ('99:99:99')
AUSMFDTL         13        3     U     MASK ('99/99/99')
AUSMFTML         16        3     U     MASK ('99:99:99')
AUCMDTF          19        3     U     MASK ('99/99/99')
AUCMTMF          22        3     U     MASK ('99:99:99')
AUCMDTL          25        3     U     MASK ('99/99/99')
AUCMTML          28        3     U     MASK ('99:99:99')
AUSMREAD         31        5     P     MASK ('ZZZZZZZZ9')
AUSMRJCT         36        5     P     MASK ('ZZZZZZZZ9')
AUSMFRCD         41        5     P     MASK ('ZZZZZZZZ9')
AUCMCREA         46        4     P     MASK ('ZZZZZZ9')
AUCMDEL          50        4     P     MASK ('ZZZZZZ9')
AUCMMOD          54        4     P     MASK ('ZZZZZZ9')
AUCMORPH         58        4     P     MASK ('ZZZZZZ9')
AUCMRRUN         62        4     P     MASK ('ZZZZZZ9')
AUSMDUP          66        4     P     MASK ('ZZZZZZ9')
AUSDUMY          70        1     A
AUOFFSM0         71        2     B
AUOFFSM7         73        2     B
AUDSTOT          75        2     B
AUSM0TOT         77        2     B     MASK ('ZZZZ9')
AUSM7TOT         79        2     B     MASK ('ZZZZ9')
*  VS_OCCURS FOR THE LENGTH OF THE LONGEST SINGLE ELEMENT
VS_              81        1     A     OCCURS  50
VS1_             VS_      50     A     INDEX   SUB1
AUDSNAM          VS1_     44     A
AUDSVOL          VS1_ +44  6     A
*
VS2_             VS_      12     A     INDEX  (SUB1, SUB2)
AUSM0SID         VS2_      4     A
AUIPLDT          VS2_ +04  3     U     MASK ('99/99/99')
AUIPLTM          VS2_ +07  3     U     MASK ('99:99:99')
AUSM0PT          VS2_ +10  1     B
AUSM0XX          VS2_ +11  1     A
*
VS3_             VS_      18     A     INDEX  (SUB1, SUB2, SUB3)
```

```
AUSM7SID        VS3_          4     A
AUTLOST         VS3_ +04      2     B
AULSTDT         VS3_ +06      3     U     MASK ('99/99/99')
AULSTTM         VS3_ +09      3     U     MASK ('99:99:99')
AULSFDT         VS3_ +12      3     U     MASK ('99/99/99')
AULSFTM         VS3_ +15      3     U     MASK ('99:99:99')
```

Audit Records Fields

The following table describes each field name in the audit record:

Name	Description
Static	
AUDATE	Date of run
AUTIME	Time of run
AUSMFDTF	Date of first SMF input record
AUSMFTMF	Time of first SMF input record
AUSMFDTL	Date of last SMF input record
AUSMFTML	Time of last SMF input record
AUCMDTF	Date of first consolidated record output
AUCMTFMF	Time of first consolidated record output
AUCMDTL	Date of last consolidated record output
AUCMTML	Time of last consolidated record output
AUSMREAD	Number of SMF records read
AUSMRJCT	Number of SMF records rejected
AUSMFRCD	Number of SMF records forced by EXIT1
AUCMCREA	Number of consolidated records created
AUCMDEL	Number of consolidated records deleted by your exit
AUCMMOD	Number of consolidated records modified by your exit
AUCMORPH	Number of consolidated records that are orphan records
AUCMRRUN	Number of rerun records
AUSMDUP	Number of duplicate data records
AUSDUMY	Reserved
AUOFFSMO	Offset of IPL section from the start of the record
AUOFFSM7	Offset of data lost section from the start of the record

Name	Description
AUDSTOT	Number of data set entries
AUDMOTOT	Number of IPL entries
AUSM7TOT	Number of data lost entries
Data Set	
AUDSNAM	Data set name of input file to JIFSEL
AUDSVOL	Volume serial number of the input file
IPL	
AUSMOSID	System identification of CPU experiencing IPL
AUIPLDT	Date of IPL
AUIPLTM	Time of IPL
AUSMOPT	SMF options in effect during JIFSEL execution
AUSM7SID	System identification of CPU from which data was lost
AUTLOST	Number of lost SMF records
AULSTDT	Starting date for lost records
AULSTTM	Starting time for lost records
AULSFDT	Finishing date for lost records
AULSFTM	Finishing time for lost records

Audit Report

The audit report is based on the audit record and is produced for each execution of JIFSEL. The report contains record counts, first and last dates and times of the SMF records processed, IPL information, and lost data information.

For a description and sample of the Audit Report, see the CA-PanAudit Plus *Macro Reference Guide*.

User Exit Facility

The User Exit Facility allows you to process SMF records not automatically processed by JIFSEL. There are two entry points in the User Exit Facility. Each has a specific function:

EXIT1 — Allows you to code your own routine to select any SMF records not processed automatically. The EXIT1 facility is an extension of the JIFSEL record selection process.

EXIT2 — Processes the records selected by your EXIT1 routine by extracting data selected by the EXIT1 routine and inserting it into the User Area section provided in the consolidation record. The EXIT2 facility is an extension of the JIFSEL consolidation function, which allows you to customize the record written to the consolidated file.

The exits are specified as parameters EXIT1 and EXIT2 in the JIFOPTS module. See the JIFOPTS section in this chapter.

EXIT1

The supplied EXIT1 default (JIFEXIT1) has no effect on the SMF record selection performed by the driver program. JIFEXIT1 is a one-instruction program that returns to JIFSEL each time it is called.

To process SMF record types not provided in JIFSEL or the JIF options table, you must write a program.

Calling EXIT1

Call EXIT1 with standard linkage conventions. You are responsible for saving the general purpose registers on entry and restoring them unaltered on return.

On entry to EXIT1, register 1 points to a parameter list containing the following addresses:

- 0(R1) for a length of 4 bytes contains the address of the SMF record about to be rejected by JIFSEL.
- 4(R1) for a length of 4 bytes contains the address of a 1-byte action flag field. On entry, this field contains a blank (x'40').

To force JIFSEL to accept an unknown SMF record and pass it to SORT, set the action flag field to F.

Writing the Exit Routine

The following is an example of an ASSEMBLER EXIT1 routine only and is not a supported portion of JIF:

```
RDREXIT  CSECT
         SAVE  (14,12)                        * SAVE REGISTERS.
         LR    2,15                           * BASE REGISTER.
         USING RDREXIT,2
         LR    14,13
         CNOP  0,4
         BAL   13,*+76
         DC    18A(0)
         ST    13,8(14)
         ST    14,4(13)
BEGIN    L     3,0(1)                         * STORE SMF REC. LOC.
         L     4,4(1)                         * STORE ACTION FLAG LOC.
*********************************************************************
* INSTALL USER SMF RECORD FORCE/SELECTION LOGIC HERE.            *
*********************************************************************
         B     NO
YES      MVI   0(4),C'F'                      * FORCE THE RECORD.
NO       L     13,4(13)                       * RESTORE THE REGS.,
         RETURN (14,12)                       * AND RETURN.
         END
```

Forcing Records at EXIT1

To force JIFSEL to accept an SMF record, you must set the action flag to an F.

Forced records passed to EXIT1 are returned to JIFSEL for sorting. JIFSEL builds a 28-byte sort key in each record based on certain assumptions regarding the structure of the SMF record.

JIFSEL assumes that the forced SMF record conforms to the structure shown in the table in Sort Key Structure. If it does not, the results of further processing are unpredictable.

Sort Key Structure

Records passed to EXIT1 are returned to JIFSEL for sorting. JIFSEL builds a 28-byte sort key in each record, using the following assumptions regarding the data structure of the SMF record:

bytes	DATA	FORMAT
31-34	Date reader recognized job card (OOYYDDDF)	Packed decimal; valid sign
27-30	Time reader recognized job card (1/100 sec)	4 bytes binary
19-26	Job name	8 bytes alphanumeric

bytes	DATA	FORMAT
15-18	System ID	4 bytes alphanumeric
11-14	Date SMF record moved to SMF buffer (OOYYDDDF)	Packed decimal, valid sign
7-10	Time record moved to SMF buffer (1/100 sec)	4 bytes binary

JIFSEL assumes that the forced SMF record conforms to the structure described in the previous table. If it does not, the results of further processing are unpredictable.

The SMF record types listed in the following table conform to the structure of the JIF sort key. These records can be forced into the JIF processing stream by your EXIT1 routine without changing their structure. Descriptions of these records can be found in the appropriate IBM System Management Facility guides.

SMF Type	Definition
10	Allocation recovery
14	Input or readback data set activity
15	Output, update, inout or outin data set activity
17	Scratch data set status
18	Rename data set status
25	JES3 device allocation
62	VSAM component or cluster status
63	VSAM entry defined
64	VSAM component or cluster status
67	VSAM entry renamed
68	VSAM entry renamed
69	VSAM data space defined, extended or deleted

EXIT2

The supplied EXIT2 default routine (JIFEXIT2) has no effect on the contents of the consolidated file or on any of the functions performed by JIFSEL. JIFEXIT2 is a one-instruction program and returns to JIFSEL each time it is called.

Four events cause EXIT2 to be invoked:

- Duplicate records
- Rerun records
- The presence of a record type unknown to JIFSEL (a record forced at EXIT1)
- The consolidated record is to be written

Each class of event is discussed separately. Your routine is written to accommodate each situation.

Writing the Exit

The following is an example of an ASSEMBLER EXIT2 routine only and is not a supported portion of JIF:

```
WTREXIT  CSECT
         SAVE  (14,12)
         LR    2,15
         USING WTREXIT,2
         LR    14,13
         CNOP  0,4
         BAL   13,*+76
         DC    18A(0)
         ST    13,8(14)
         ST    14,4(13)
BEGIN    L     3,0(1)            * CONSOL. RECORD LOCATION.
         L     4,4(1)            * ACTION FLAG LOCATION.
         L     5,8(1)            * SMF RECORD LOCATION.
         CLI   0(4),C'X'         * IS THIS A DUP RECORD CONDITION?
         BE    DUPLOGIC          * YES GO PROCESS DUPLICATE.
         CLI   0(4),C'F'         * IS THIS A FORCED RECORD CONDITION?
         BE    FORLOGIC          * YES GO PROCESS FORCED RECORD.
         CLI   0(4),C'R'         * IS THIS A RE-RUN CONDITION?
         BE    RRLOGIC           * YES GO PROCESS RE-RUN LOGIC.
         CLI   0(4),C'C'         * IS CONREC ABOUT TO BE WRITTEN?
         BE    CONLOGIC          * YES GO PROCESS USER AREA LOGIC.
*
* CONDITIONS NOT TESTED FOR WILL SIMPLY RETURN.
* ADD FUTURE CONDITION LOGIC HERE.
*
ENDWRTEX DS    0H
         L     13,4(13)          * RESTORE REGISTERS,
         RETURN (14,12)          * AND RETURN.
RRLOGIC  DS    0H
*
* INSTALL USER RE-RUN LOGIC HERE.
*
         B     ENDWRTEX
DUPLOGIC DS    0H
         LA    5,32(5)           * ADDRESS TO DATA AREA.
*
```

```
* INSTALL USER DUPLICATE LOGIC HERE.
*
         B     ENDWRTEX          * GOTO COMMON RETURN ROUTINE.
FORLOGIC DS    0H
         LA    5,32(5)           * ADDRESS TO DATA AREA.
*
* INSTALL USER FORCED RECORD LOGIC HERE.
*
         B     ENDWRTEX          * GOTO COMMON RETURN ROUTINE.
CONLOGIC DS    0H
*
* INSTALL USER LOGIC TO DETERMINE IF THE CONSOLIDATED RECORD ABOUT
* TO BE WRITTEN BY THE DRIVER SHOULD BE DELETED.
*
         B     ADDUSER           * GOTO ADD USER PORTION OF REC.
DELREC   MVI   0(4),C'D'         * SET ACTION FLAG FOR DELETE ACTION.
         B     ENDWRTEX          * GOTO COMMON RETURN ROUTINE.
ADDUSER  DS    0H
*
* INSTALL USER LOGIC TO DETERMINE IF USER PORTION OF CONSOLIDATED
* RECORD SHOULD BE ADDED.
*
*        B     MODIFY            * CONTINUE.
USERADD  DS    0H
         MVC   RCW(2),0(3)       * STORE THE CURRENT LENGTH OF RECORD
         LA    6,0(3)            * INITIALIZE WORK REGISTER.
         AH    6,RCW             * POINT TO LAST BYTE OF CON. RECORD.
         MVC   0(256,6),USERAREA * APPEND USER PORTION TO RECORD.
         SR    6,6               * CLEAR WORK REGISTER.
         LH    6,RCW             * INITIALIZE WORK REGISTER.
         AH    6,=H'256'         * INCREMENT LENGTH TO WORK AREA.
         STH   6,RCW             * RESTORE NEW LENGTH TO WORK AREA.
         MVC   0(2,3),RCW        * MOVE NEW RECORD LENGTH TO CONREC.
MODIFY   DC    0H
*
*
* INSTALL USER LOGIC TO DETERMINE IF THE CONSOLIDATED RECORD SHOULD
* BE ALTERED.
*
         B     ENDWRTEX          * GOTO COMMON RETURN ROUTINE
         DS    0H
RCW      DS    H
USERAREA DS    CL256
         END
```

Duplicate Records

Duplicate records occur if you have input the same SMF data sets. On entry to the EXIT2 routine, REGISTER 1 points to the following parameter list:

- 0(R1) for a length of 4 bytes contains the address of the consolidated record.
- 4(R1) for a length of 4 bytes contains the address of the action flag. This address contains the 1-byte alphanumeric character X, denoting that the call was made because of record duplication.
- 8(R1) for a length of 4 bytes contains the address of the SMF record determined to be a duplicate record.

The record passed from JIFSEL to your routine may not be complete if all necessary SMF record types for the job were not processed prior to invoking your routine. For this reason, do not modify the record passed to your routine.

The SMF record passed to your exit contains the 28-byte sort key immediately following the Record Descriptor Word. The first data byte is at location 33 of the record.

Rerun Records

Rerun records occur when jobs are processing and an event, such as a power loss or re-IPL, prevents SMF from recording a Type 05 (job termination) record.

On entry to the routine, REGISTER 1 points to the following parameter list:

- 0(R1) for a length of 4 bytes contains the address of the consolidated record.
- 4(R1) for a length of 4 bytes contains the address of the action flag. This address contains the 1 byte alphanumeric character R, denoting that the call to your routine was made because of a RERUN condition.
- 8(R1) for a length of 4 bytes contains the address of the SMF record that caused the rerun condition.

Your routine performs any logic that is applicable to a rerun situation.

When processing rerun records, you have the choice among having JIFSEL continue to build the consolidated records as if a rerun situation had not been encountered, or collecting all data as if it were run only once (the default), or having JIFSEL ignore the data from the first information group and begin building the consolidated record from the second run. You choose the second option by setting the action flag to a D.

The consolidated record may not be complete if all necessary SMF record types for the job have not been processed. For this reason, do not modify the record passed to your exit, or the results of further processing are unpredictable.

The SMF record passed to your routine contains the 28-byte JIF sort key immediately following the Record Descriptor Word. The first data byte is at location 33 of the record.

Forced Records

Forced records occur if you have forced SMF records at EXIT1. Once JIFSEL recognizes a forced record, your EXIT2 routine is invoked. When you pass the record back, no further processing is performed by JIFSEL on that record.

On entry to the EXIT2 routine, REGISTER 1 points to the following parameter list:

- 0(R1) for a length of 4 bytes contains the address of the consolidated record.
- 4(R1) for a length of 4 bytes contains the address of the action flag. This address contains the 1 byte alphanumeric character F, denoting that the call to your routine was made because of a forced record.
- 8(R1) for a length of 4 bytes contains the address of the forced SMF record.

The consolidated record passed from JIFSEL to the exit may not be complete if all necessary SMF record types for the job have not been processed at the time of the call. For this reason, do not modify the record passed to your exit, or the results of further processing are unpredictable.

The SMF record passed to your exit contains the 28-byte sort key following the Record Descriptor Word. The first data byte is at location 33 of the record that was passed.

Condition Prior to Writing the Consolidated Record

Prior to writing the consolidated record, JIFSEL calls your EXIT2 routine. This call allows you to add a 256-byte user section to the consolidated record and to modify the contents of the record.

If you modify the record passed to EXIT2, the record is flagged as having been modified.

On entry to EXIT2, REGISTER 1 points to the following parameter list:

- 0(R1) for a length of 4 bytes contains the address of the consolidated record about to be written.
- 4(R1) for a length of 4 bytes contains the address of the action flag. The byte stored at this address contains a C.

Before coding any logic in your exit, test the CMFLAG1 field (10th data byte in the consolidated record) for the letter O (orphan record). If this condition exists, the record contents are incomplete (one or more SMF record types needed to complete the consolidated record was not present during processing). If an O is not present, the record is complete, and you can process it accordingly.

It is your responsibility to add the 256-byte user area to the end of the consolidated record and update the record descriptor word to reflect the new length of the record. If you do not, the user portion of the record is not written.

JIF Execution JCL

Execution of JIF is a two-step process:

1. Execute JIFSEL, which creates the consolidated file.
2. Read the consolidated file and produce a report by invoking a CA-PanAudit Plus routine.

The following JCL illustrates this process. The first step executes JIFSEL to create the consolidated file and audit file from the SMF data. The second step executes CA-Easytrieve Plus and invokes a CA-PanAudit Plus routine. This JCL is supplied in the SAMPJCL library member EXECJIF.

```
//userid   JOB (acctno),'EXECUTE JIFSEL',MSGCLASS=X,CLASS=A,
//         REGION=2M,NOTIFY=userid
//*****************************************************************
//*                                                               *
//*  This sample JCL can be used to execute JIFSEL. The job       *
//*  creates an extract file that is used as input into the       *
//*  second step of this job. The second step executes a          *
//*  CA-Easytrieve Plus program to produce selected reports from  *
//*  the data in the extract file. If you are using a PDS for     *
//*  the macro file, verify that the option 'MACRO=PDS' is set    *
//*  in your CA-Easytrieve Plus options table before running      *
//*  this job.                                                    *
//*                                                               *
//*****************************************************************
//CRTECNSL EXEC PGM=JIFSEL
//*****************************************************************
//*  Create the consolidated record file. The output from this    *
//*  step is input into CA-Easytrieve Plus.                       *
//*****************************************************************
//STEPLIB  DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//PJPRINT  DD SYSOUT=*
//PJSORTIN DD DISP=SHR,DSN=your.smf.input.dataset
//PJAUDIT  DD DISP=(NEW,CATLG,DELETE),DSN=jif.audit.file.output
//            SPACE=(TRK,(1,1)),UNIT=SYSDA
//SORTOUT  DD DISP=(NEW,CATLG,DELETE),DSN=jif.consolidated.file
//            SPACE=(CYL,(10,5)),UNIT=SYSDA
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
```

```
//SYSIN    DD *
/*
//JIFRPTS  EXEC PGM=EZTPA00
//*****************************************************************
//*  Execute a CA-PanAudit Plus program to produce a report      *
//*  using the extract file as input.                            *
//*****************************************************************
//STEPLIB  DD DISP=SHR,DSN=your.easytrieve.plus.loadlib
//         DD DISP=SHR,DSN=your.panaudit.plus.loadlib
//PANDD    DD DISP=SHR,DSN=your.panaudit.plus.pds.macrolib
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//*****************************************************************
//*                                                               *
//*  If you are using CA-PANVALET for the macro file use the      *
//*  following DD statement:                                      *
//*                                                               *
//* //PANDD1 DD DSN=your.panaudit.plus.panvalet.macrolib,DISP=SHR*
//*                                                               *
//*  Change the DSN to your CA-PANVALET macro library name.       *
//*                                                               *
//*  Also include the following DD statement in the STEPLIB:      *
//*                                                               *
//*    //     DD DSN=your.panvalet.loadlib,DISP=SHR              *
//*                                                               *
//*  Change the DSN to your CA-PANVALET loadlib name.             *
//*                                                               *
//*  If you are concatenating datasets under the STEPLIB DD       *
//*  statement in the JCL, the dataset with the largest           *
//*  blocksize must be first in the list.                         *
//*                                                               *
//*  Verify that the option 'MACRO=(PAN,PANMODI)' is set in       *
//*  your CA-Easytrieve Plus options table in order to access     *
//*  the macros from the CA-PANVALET macro file.                  *
//*                                                               *
//*****************************************************************
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//EZTVFM   DD UNIT=SYSDA,SPACE=(CYL,(10,5))
//CONSOL   DD DISP=SHR,DSN=*.CRTECNSL.SORTOUT
//AUDIT    DD DISP=SHR,DSN=*.CRTECNSL.PJAUDIT
//SYSIN    DD *
%JIFREC YYNNNNNY
%OSJIFxx yyddd yyddd
/*
//
```

MVS/XA 2.2.0 Users

For users wishing to use MVS/XA 2.2.0 SMF records, append ,PARM='MVS(X220)', to the line that starts with, //STEP1 and verify that the SMF record input file contains only records from that release of MVS SMF. The default is pre-MVS/XA 2.2.0 SMF records so existing operational job streams run without modification.

```
//STEP1     EXEC  PGM=JIFSEL,PARM='MVS(X220)'
```

Pre-MVS/XA 2.2.0 SMF, or MVS/XA 2.2.0 SMF and later routines can both be used on a processor running pre-2.2.0, 2.2.0, or post-2.2.0 releases of MVS as long as the appropriate data for the level of JIF/SMF routines selected is used. Both sets of routines can be run on the same processor, as long as the previous parm is appended to the JCL.

MVS/ESA 3.1.3 Users

For users wishing to use MVS/ESA 3.1.3 SMF records, append ,PARM='MVS(E313)', to the line that starts with //STEP1 and verify that the SMF record input file contains only records from that release of MVS SMF. The default is pre-MVS/ESA 3.1.3 SMF records so that existing operational job streams run without modification.

```
//STEP1     EXEC  PGM=JIFSEL,PARM='MVS(E313)'
```

Pre-MVS/ESA 3.1.3 SMF, or MVS/ESA 3.1.3 SMF and later routines can both be used on a processor running pre-3.1.3, 3.1.3, or post-3.1.3 releases of MVS as long as the appropriate data for the level of JIF/SMF routines selected is used. Both sets of routines can be run on the same processor, as long as the previous parm is appended to the JCL.

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