

Advantage™ CA-Easytrieve® Plus Report Generator Toolkit

Installation Guide

2.0



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Installation

This chapter describes how to install CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit installation tape has an external label identifying the operating systems as OS/390 and z/OS. The installation tape is a standard labeled tape.

Product Component Structure

The CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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	CAISAMPJCL	Install JCL
10	Not used	
11	CAI.xxxxxx.FILE11	CAIIMP modules

File #	File Name	Description
12	CAI.xxxxxx.FILE12	CAIIMP CA-Easytrieve Plus Toolkit modules
13	Not used	
14	Not used	
15	CAI.EPTK.INDLOAD	CA-Easytrieve Plus Toolkit modules
16	CAI.EPTK.INDSRC	CA-Easytrieve Plus Toolkit modules
17	CAI.EPTK.INDMAC	CA-Easytrieve Plus Toolkit macros
18	CAI.EZTOOL.PDFFILE	Online documentation in Adobe Acrobat format (includes a search index)
19 - 24	Not used	
25	CAI.EPTK.BOOKSHLF	Online documentation in IBM BookManager format (includes a bookshelf and search index)
26	CAI.EPTK.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-Easytrieve Plus Toolkit genlevel.

Disk Space

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

Data Set	Description	3380	Block Size
		Disk Space	
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-Easytrieve Plus Toolkit

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

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

1. Unload CAIJMP JCL and BookManager JCL from the tape.
2. Unload IBM BookManager files from the 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=ept20.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),
                          (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-Easytrieve Plus Toolkit. This job contains parameters which must be valued prior to execution.
BOOKMNGR	JCL to unload the CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit documentation is provided in IBM BookManager format on the CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit Bookshelf is on File 25
/** of the Distribution Tape.
/** CAI.EPTK.BKSHELF      (SEQ FILE).
/**
/** The CA-Easytrieve Plus Toolkit guides are on File 26
/** of the Distribution Tape.
/** CAI.EPTK.BOOKS        (AN UNLOADED PDS).
/**
/** These guides are provided in a form for viewing via BOOKMANAGER
/** READ under 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
/**              STEP01-02 - Creates the individual BOOK Files
/**
/**
/** Edit the following SET JCL statements 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.EPTK'. If you change
/**        this value, you must edit the BOOKSHELF to change
/**        all references of 'CAI.EPTK' 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 will run as is on MVS V4.1.0 and above.
/**        If you are running MVS V3.1.3, you will need to remove
/**        the following SET statements and customize the jcl manually.
/**
/** *****
/**BKMPFX SET  BKMPFX='CAI.EPTK.'      <== HLQ OF BOOK OUTPUT FILENAME
/**BKMSFX SET  BKMSFX='BOOK'           <== DEFAULT BOOK DSN SUFFIX
/**PREFIX SET  PREFIX='CAI.EPTK.'      <== 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=0P0112          <== TAPE VOLSER
/**
/**SVBKMGR PROC MEMBER=
/**
/** Unload each book to it's own dataset
/**
/**BOOK1 EXEC PGM=IEBGNER
/**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 CA-Easytrieve Plus Toolkit Bookshelf
//*
//BOOKSHLF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=&PREFIX.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=&DASDVOL
//SYSIN DD DUMMY
//*
//* Download the CA-Easytrieve Plus Toolkit Books and Index
//*
//DOWNLOAD EXEC PGM=IEBCOPY,REGION=2M
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=&PREFIX.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))
//*
//STEPINDEX EXEC SVBKMGR,MEMBER=CAESP200,BKMSFX='.BKINDEX'
//STEP01 EXEC SVBKMGR,MEMBER=ESP200I2
//STEP02 EXEC SVBKMGR,MEMBER=ESP200R2
//*
```

The CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit guides

Note: See [Downloading OS/390 or z/OS Files for Use on a PC](#), shown later, for a list of the CA-Easytrieve Plus Toolkit 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
<i>prefix</i> .BKSHELF Bookshelf definition	Variable block ASCII CRLF	RECEIVE <dir>\CAESP200.BKS ' <i>prefix</i> .BKSHELF'
<i>prefix</i> .CAESP200.BKINDEX Search index	Fixed block LRECL 4096 Binary	RECEIVE <dir>\CAESP200.BKI ' <i>prefix</i> .CAESP200.BKINDEX'
<i>prefix</i> .ESP20OI2.BOOK Installation Guide	Fixed block LRECL 4096 Binary	RECEIVE <dir>\ESP20OI2.BOO ' <i>prefix</i> .ESP20OI2.BOOK'
<i>prefix</i> .ESP20OR2.BOOK Macro Reference Guide	Fixed block LRECL 4096 Binary	RECEIVE <dir>\ESP20OR2.BOO ' <i>prefix</i> .ESP20OR2.BOOK'

Step 3: Unload PDF Files from Tape

The CA-Easytrieve Plus Toolkit documentation is provided in Adobe PDF format on the CA-Easytrieve Plus Toolkit 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 tape to a sequential file. The file, *your.eztool.sampjcl*, contains the sample JCL:

```
//DLOPDF 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=CAI.EZTOOL.PDFFILE,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-Easytrieve Plus Toolkit product. Prior to executing this job, you must specify the values of several parameters which define your SMP/E environment and the CA-Easytrieve Plus Toolkit components that you have purchased. These parameters are listed in the installation worksheet for this step.

The parameters are grouped into several categories:

- CA-Easytrieve Plus Toolkit Installation Data Sets

Installation of the CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit SMP/E Parameters

Installation Job 1 builds an SMP/E system for your CA-Easytrieve Plus Toolkit 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	
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-Easytrieve Plus Toolkit Installation Data Sets

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

CA-Easytrieve Plus Toolkit SMP/E Parameters

Description	Parameter Name	Value
High-level qualifier for CA-Easytrieve Plus Toolkit SMP/E files: SCDS, MTS, STS, LOG, LOGA.	SMP-HLQ	
Disk unit type for CA-Easytrieve Plus Toolkit SMP/E files. Defaults to DEFAULT-UNIT value.	SMP-UNIT	
Disk VOLSER for CA-Easytrieve Plus Toolkit SMP/E files. Defaults to DEFAULT-VOL value.	SMP-VOL	
High-level qualifier for CA-Easytrieve Plus Toolkit 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 C0Z20LLD, C0Z20MLD, and C0Z20SLD.	SMPEPT-HLQ	
Disk unit type for CA-Easytrieve Plus Toolkit SMP/E target and distribution data sets. Defaults to DEFAULT-UNIT value.	SMPEPT-UNIT	
Disk VOLSER for CA-Easytrieve Plus Toolkit SMP/E target and distribution data sets. Defaults to DEFAULT-VOL value.	SMPEPT-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-Easytrieve Plus Toolkit installation. The low-level qualifier must be CSI.	CSI-DSN	
Disk VOLSER for the CSI data set. Defaults to DEFAULT-VOL value.	CSI-VOL	
Specify the high-level qualifier of PTS data set that is to be created. Defaults to SMPEPT-HLQ if blank.	SMPPTS-HLQ	

Description	Parameter Name	Value
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
Specify the name of the SMP/E OPTIONS entry to be used for CA-Easytrieve Plus Toolkit.	EPTSMP-OPTIONS	
Specify the name of the SMP/E TARGET zone to be used for CA-Easytrieve Plus Toolkit.	EPTK-TGTZONE	
Specify the name of the SMP/E DLIB zone to be used for CA-Easytrieve Plus Toolkit.	EPTK-DLBZONE	

SMP/E Global Zone Utilities

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

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 CAIJJMP JCL listing for examples.	OSJCARD1-OSJCARD6	
//JOB1-13 JOB OSJCARD1	OSJCARD1	
// OSJCARD2	OSJCARD2	
OSJCARD3	OSJCARD3	
OSJCARD4	OSJCARD4	
OSJCARD5	OSJCARD5	
OSJCARD6	OSJCARD6	

Installation Tasks

Description	Parameter Name	Value
		Specify a valid name for your CA-Easytrieve Plus Toolkit installation jobs. Job names default to EPTKJx where $x = 1$ through 7
JOB1	Allocate files	JOB1
JOB2	Download tape files	JOB2
JOB3	SMP/E RECEIVE	JOB3
JOB4	SMP/E APPLY	JOB4

Description	Parameter Name	Value
JOB5	SMP/E ACCEPT	JOB5
JOB6	EPTK IVP job	JOB6
JOB7	Customize JIF options	JOB7

Maintenance Tasks

Description	Parameter Name	Value
		Job names default to PAPLJMx 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-EASYTRIEVE PLUS TOOLKIT RELEASE 2.0
/* INSTALLATION TAPE FOR TSO MVS SYSTEMS
/*
/******
/*
/* Run this job to produce CA-Easytrieve Plus Toolkit
/* install JCL.
/*
/* Follow the instructions 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-Easytrieve Plus Toolkit product.
/*
/* After this job is executed, review and submit the generated
/* JCL to install CA-Easytrieve Plus Toolkit.
/*
/******
/******
/*              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-Easytrieve Plus Toolkit. If this step
/*   completes with errors, you can rerun this step repeatedly
/*   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 CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit installation.
/** See the instructions for step IJMPGO.
/**
/**CAIIJMP PROC DISKUNT=SYSDA,
/**          DISKVOL=?????,
/**          TAPEUNT=CART,
/**          TAPEVOL=?????,
/**          JCLOUT='your.eptk.install.jcl.pds',
/**          PDSOUT='your.caiijmp.loadlib',
/**          FILE12='your.caiijmp.file12',
/**          MEMBER=INSTJCL
/**
/*******
/**
/** SCRATCH AND RECREATE THE DATASET THAT IS TO CONTAIN THE
/** CA-EASYTRIEVE PLUS TOOLKIT 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))
/**CRTLIB 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))
```


Installation 1-19

```

*
* -----
* 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 components.
*
* See the CA-Easytrieve Plus Toolkit
* 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 previous, 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
* *                                     CA-EASYTRIEVE PLUS TOOLKIT
* 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-EASYTRIEVE PLUS TOOLKIT INSTALL DATASET PARMS
* * *****
* *
* EPTK-HLQ           ???          HIGH LEVEL QUALIFIER FOR EPT FILES:
* *                                     INDIRECT SOURCE, OBJECT, MACLIB,
* *                                     SMPJCL
* EPTK-UNIT          DEFAULT       DISK UNIT   FOR EPT UNLOADED FILES
* EPTK-VOL           DEFAULT       DISK VOLUME FOR EPT UNLOADED FILES
* *
* *****
* *
* * *****
* * CA-EASYTRIEVE PLUS TOOLKIT SMP/E PARAMETERS
* * *****

```

```

* *
* *****
* *
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
* *
SMPEPT-HLQ        ????      HIGH LEVEL QUALIFIER FOR EPT SMP
*                      TARGET AND DISTRIBUTION DATASETS
*                      @SMPEPT-HLQ@.CAILIB      TARGET LOAD
*                      @SMPEPT-HLQ@.CAISRC      TARGET SOURCE
*                      @SMPEPT-HLQ@.CAIMAC      TARGET MACRO
*                      @SMPEPT-HLQ@.C$A63LLD    DLIB LOAD
*                      @SMPEPT-HLQ@.C$A63SLD    DLIB SOURCE
*                      @SMPEPT-HLQ@.C$A63MLD    DLIB MACRO
SMPEPT-UNIT        DEFAULT   DISK UNIT TYPE FOR SMP TARGET AND
*                      DISTRIBUTION DATASETS
SMPEPT-VOL         DEFAULT   DISK VOLUME FOR SMP TARGET AND
*                      DISTRIBUTION DATASETS
* *
* *****
* *
*                      *****
*                      *
*                      SMP/E CSI VSAM DATASET PARAMETERS
*                      *
*                      *****
* *
* *****
* *
CSI-DSN            ????      COMPLETE DSN OF THE CSI DATASET
*                      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          *
*          *
*          *****
* *
* *****
* *
EPTSMP-OPTIONS      ??????      NAME OF THE SMP OPTIONS TO BE USED
*                               (LIMITED TO 7 CHARACTERS)
EPTK-TGTZONE        ??????      NAME OF THE EPTK SMP TARGET ZONE
*                               (LIMITED TO 7 CHARACTERS)
EPTK-DLBZONE        ??????      NAME OF CA-EASYTRIEVE PLUS
*                               TOOLKIT 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               IEBUGDTE        UPDATE = IEBUGDTE
ZAP                  IMASZAP         SUPERZAP = IMASZAP
* *
* *****
* *
*          *****
*          *
*          *          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),'EPTK 2.0 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 EPTKJX.
*
* *
* *****
* *
JOB1          EPTKJ1      JOB NAME FOR 'ALLOCATE FILES'
JOB2          EPTKJ2      JOB NAME FOR 'DOWNLOAD TAPE FILES'
JOB3          EPTKJ3      JOB NAME FOR 'SMPE RECEIVE'
JOB4          EPTKJ4      JOB NAME FOR 'SMPE APPLY'
JOB5          EPTKJ5      JOB NAME FOR 'SMPE ACCEPT'
JOB6          EPTKJ6      JOB NAME FOR 'EPTK IVP JOB'
JOB7          EPTKJ7      JOB NAME FOR 'CUSTOMIZE JIF OPTIONS'
JOBM1         EPTKJM1     JOB NAME FOR 'SMP/E MAINTENACE RECEIVE'
JOBM2         EPTKJM2     JOB NAME FOR 'SMP/E MAINTENACE APPLY '
JOBM3         EPTKJM3     JOB NAME FOR 'SMP/E MAINTENACE ACCEPT '
* *
* *****
* *

```

Step 5: Edit and Run CAIJMP Member

Edit member CAIJMP from your SAMPJCL library. Provide values for the parameters of the PROC and CAIJMP.SYSIPT DD statements. The CAIJMP 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 CAIJMP member.

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

CAIJMP Output

CAIJMP 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.

CAIJMP Errors

If the CAIJMP 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 CAIJMP JCL and make any necessary corrections. You can rerun the job as many times as necessary.

When you are satisfied with the output from CAIJMP, 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-Easytrieve Plus Toolkit.
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-Easytrieve Plus Toolkit product.
4	SMP/E Apply	Execute the SMP/E APPLY command for the CA-Easytrieve Plus Toolkit product.
5	SMP/E Accept	Execute the SMP/E ACCEPT command for the CA-Easytrieve Plus Toolkit product.
6	EPTK IVP Job	Execute CA-Easytrieve Plus Toolkit program to verify installation.
7	Customize JIF Options	Assemble the CA-Easytrieve Plus Toolkit 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:

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

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

```
@SMPEPT-HLQ@.C0Z20SLD  - distribution source library
@SMPEPT-HLQ@.C0Z20MLD  - distribution macro library
@SMPEPT-HLQ@.C0Z20LLD  - distribution load library
@SMPEPT-HLQ@.CAISRC    - target source library
@SMPEPT-HLQ@.CAIMAC    - target macro library
@SMPEPT-HLQ@.CAILIB    - target load library
```

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

@EPTKSMP-OPTIONS@	- Global Zone Options Name
-------------------	----------------------------

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

@EPTK-TGTZONE@	- Name of Target Zone for EPT
----------------	-------------------------------

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

@EPTK-DLBZONE@	- Name of Distribution Zone for EPT
----------------	-------------------------------------

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

An options entry is added to the global zone of the CSI with a name of @EPTKSMP-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 @EPTK-TGTZONE@ and @EPTK-DLBZONE@.

A ZONEDESCRIPTION of **CA-Easytrieve Plus Toolkit Release 2.0** 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 @EPTK-HLQ@.INDMAC, @EPTK-HLQ@.INDSRC, and @EPTK-HLQ@.INDLOAD, respectively. Sample JCL for user customization jobs is copied to @EPTK-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-Easytrieve Plus Toolkit components that were selected from the tape. The CA-Easytrieve Plus Toolkit product consists of the following:

sysmod-id: C0Z2000 - CA-Easytrieve Plus Toolkit base.

This job should complete with a return code of 0.

JOB 4: SMP/E APPLY

This job **applies** the CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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

```
//EPTKJ6 your jobcard information as specified in CAIIJMP
//*****
//*
//* Successful execution will display a message confirming that
//* the installation has been verified on the date the job is
//* run.
//*
//* Ensure that the option 'MACRO=PDS' is set in your
```

```
/* CA-EASYTRIEVE PLUS options table before running this job.      *
/*                                                                    *
/*      EXPECTED RETURN CODE:  00                                *
/*                                                                    *
/******
//IVP      EXEC PGM=EZTPA00
//STEPLIB DD DISP=SHR,DSN=your.eztpls.CAILIB
//          DD DISP=SHR,DSN=your.eztool.CAILIB
//PANDD    DD DISP=SHR,DSN=your.eztool.CAIMAC
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//EZTVFM   DD SPACE=(CYL,(10,10)),UNIT=SYSDA
//SYSIN    DD *
*
DEFINE DATEFLD    W 8 N
*
JOB INPUT NULL NAME IVP
%GETDATEL DATEFLD
*
DISPLAY 'THIS CA-EASYTRIEVE PLUS TOOLKIT 2.0 0112 INSTALLATION ' +
'WAS VERIFIED ON ' DATEFLD
STOP
/*
//
```

Note: Successful execution will display a message confirming that the installation has been verified on the date the job is run. For example, the correct output for JOB6 is the following if the job was run on September 13, 2001:

CA-EASYTRIEVE PLUS TOOLKIT 2.0 0112 INSTALLATION VERIFIED ON 09132001

JOB 7: Customize JIF Options - USERMOD C0ZU001

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.

JIFOPTS is an assembler macro that can be assembled and linked into the CA-Easytrieve Plus Toolkit executable library. You can link edit JIFOPTS as required after CA-Easytrieve Plus Toolkit 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:

EPTKJ7—This is run during the install.

C0ZU001 (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

```
//EPTKJ7 your jobcard information as specified in CAIIJMP
//*****
//*****
//*
//*   Install JIF Execution Options Module
//*
//*   Module JIFOPTS must be installed as a USERMOD using SMP.
//*
//*   USERMOD ID = C0ZU001
//*
//*****
//*
//*   Before submitting this job for execution, review
//*   the chapter JIF Operation in the CA-Easytrieve PLUS
//*   Toolkit 2.0 Installation Guide, which documents 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='@SMPEPT-HLQ@',
//          SMPHLQ='@SMP-HLQ@',
//          CSIDSN='@CSI-DSN@',
//          PTSHLQ='@SMPPTS-HLQ@',
//          DFTUNIT='@DEFAULT-UNIT@',
//          TLIBUNT='@TLIB-UNIT@',
//          TLIBVOL='@TLIB-VOL@'
//*
//*****
//*
//*   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
DSKTP1=3380, X
DSKTP2=3390, X
EXIT1=JIFEXIT1, X
EXIT2=JIFEXIT2, X
EXPLEN=32767, X
FILSIZE=32760, X
LENJTBL=32752, X
PNCHCLS=BK, X
RECLLEN=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(GLOBAL) OPTIONS(@EPTSMP-OPTIONS@).
RECEIVE S(C0ZU001) .
SET BDY(@EPTK-TGTZONE@) OPTIONS(@EPTSMP-OPTIONS@).
APPLY S(C0ZU001) REDO .
//APPLY.SMPPTFIN DD *
++USERMOD(C0ZU001) .
++VER(Z038) FMID(C0Z2000) .
++MOD(JIFOPTS) DISTLIB(C0Z20LLD) TXLIB(TEMPOBJ) .
//*****
```

Considerations

Because JIFSEL automatically loads defaults, if you choose options other than the defaults in JIFOPTS, install CA-Easytrieve Plus Toolkit, 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

`RECLN=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-Easytrieve Plus Toolkit installation is complete. Verify that your CA-Easytrieve Plus options table is set to MACRO=PDS to access the macros. 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-Easytrieve Plus Toolkit Macros

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

CA-Panvalet Macro Library

If you are a present user of CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit PDS macro library.

```
//userid   JOB (acctno),'INITIALIZE PV MAC',MSGCLASS=X,CLASS=A,
//          REGION=2M,NOTIFY=userid
//*****
//*
//* This JCL is used to create a CA-PANVALET macro library
//* from the installation PDS macro library. Change all
//* necessary information to conform to your site standards.
//*
//*****
//CLEAR    EXEC PGM=PAN#4
//*****
//* Clear the panvalet library
//*****
//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.eztool.panvalet.macrolib
//SYSIN DD *
++CLEAR RECORDS=12,DATASETS=600
/*
//LOAD EXEC PGM=PAN#1
//*****
//* Load the eztool pds macros to panvalet *
//*****
//STEPLIB DD DISP=SHR,DSN=your.panvalet.loadlib
//INBPAM DD DISP=SHR,DSN=your.eztool.pds.CAIMAC
//INBSAM DD DISP=SHR,DSN=your.eztool.pds.CAIMAC
//PANDD1 DD DISP=SHR,DSN=*.CLEAR.PANDD1
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
++USING PAN0
++ADD *,DATA
/*
//
```

Note: CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit PDS macro library.

```

//userid JOB (acctno),'INITIALIZE VS MAC',MSGCLASS=X,CLASS=A,
//      REGION=2M,NOTIFY=userid
//*****
//*
//* This JCL is used to create a CA-Easytrieve PLUS
//* Toolkit macro library 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.eztool.vsam.macrolib
DEFINE CLUSTER -
      (NAME(your.eztool.vsam.macrolib) -
      VOLUMES(xxxxxx) RECORDS(30000 500) -
      FREESPACE (5 5) -
      RECORDSIZE(110 110) -
      KEYS(30 0))
/*
//INITVSMC EXEC PGM=EPTKVMIP
//*****
//* Create a dummy record using 'SYSDATE' to initialize the
//* VSAM macro file.
//*****
//STEPLIB DD DISP=SHR,DSN=your.easytrieve.plus.CAILIB
//      DD DISP=SHR,DSN=your.eztool.CAILIB
//MACFILE DD DISP=SHR,DSN=your.eztool.vsam.macrolib
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//EZTVFM DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
/*
//PNCHMCRO EXEC PGM=IEBTPCH
//*****
//* Convert the macros to a sequential file
//*****
//SYSUT1 DD DISP=SHR,DSN=your.eztool.pds.CAIMAC
//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=EPTKADDV
//*****
//* Load the macros into the macro file
//*****
//STEPLIB DD DISP=SHR,DSN=your.easytrieve.plus.CAILIB
//      DD DISP=SHR,DSN=your.eztool.CAILIB
//MACFILE DD DISP=SHR,DSN=your.eztool.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=EZTPMNT
//*****
//* Display the directory using EZTPMNT
//*****

```

```
//STEPLIB DD DISP=SHR,DSN=your.easytrieve.plus.CAILIB
// DD DISP=SHR,DSN=your.eztool.CAILIB
//MACFILE DD DISP=SHR,DSN=your.eztool.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:

ASMJIFOP	Contains all the JCL to compile and link the JIFOPTS options module.
BOOKMNGR	Contains all the JCL to download documentation in BOOKMANAGER format.
DLODPDF	Contains all the JCL to download documentation in PDF format.
JIFOP	Contains the source for the JIF options.
COZU001	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.

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

Maintenance Procedures (JOB M1, JOB M2, JOB M3)

When you run the CAIJMP 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 Toolkit 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-Easytrieve Plus Toolkit support. Any APARS available through the support line must be applied to CA-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit 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 Toolkit 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 Toolkit 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:

$$\frac{\text{bytes of data}}{0.9 * \text{track-length} * \text{trks/cyl}}$$

SORTWKnn

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	<p>This file is optional.</p> <p>Purpose – Supplies load modules required by CA-Easytrieve Plus and its options not available elsewhere.</p>
SYSCTL	<p>IDMS CV</p> <p>Purpose – Supplies control information to CA-IDMS central version.</p>
SYSJRNL	<p>IDMS local</p> <p>Purpose – Identifies the CA-IDMS journal file. The journal is usually a tape file.</p>
SYSIDMS	<p>IDMS</p> <p>Purpose – Identifies the CA-IDMS (release 12.0 and above) environment parameters.</p>
IDMSDB	<p>IDMS local</p> <p>Purpose – Identifies the areas comprising the database.</p>
IDMSDICT	<p>IDMS local</p> <p>Purpose – Identifies the dictionary to be used for library definitions.</p>
SYS SNAP	<p>This file is optional.</p> <p>Purpose – Provides error analysis printout.</p> <p>Characteristics – Variable blocked 125/882; normally, assigned to SYSOUT=A.</p>
SYSUDUMP	<p>This file is optional.</p> <p>Purpose – Abnormal error dump data set.</p> <p>Characteristics – Normally, assigned to SYSOUT=A.</p>
CEEDUMP	<p>This file is optional.</p> <p>Purpose – Dump data set when running with LE.</p> <p>Characteristics – Normally, assigned to SYSOUT=A.</p>

userfiles	<p>This file is optional.</p> <p>Purpose – Provides access to files described by CA-Easytrieve Plus FILE statements.</p> <p>Characteristics – As required by coding on the FILE statements.</p> <p>The following list details the additional file requirements for CA-Easytrieve Plus when using the IBM Kanji/Chinese Sort/Merge Program Product:</p>
KJSRTBL	<p>This file is optional (used only with IBM Kanji/Chinese Sort).</p> <p>Purpose – Defines the data sets containing Kanji sort tables.</p> <p>Characteristics – Normally, an OS/390 or z/OS PDS containing load module members.</p> <p>Considerations – Libraries are provided and maintained by IBM-supplied utilities.</p>
KJSYSOUT	<p>This file is optional (used only with IBM Kanji/Chinese Sort).</p> <p>Purpose – Kanji/Chinese sort message output.</p> <p>Characteristics – As required by the sort utility (normally: RECFM=FBA, LRECL=121,BLKSIZE=1210). It is normally assigned to SYSOUT=A.</p> <p>The following details the additional requirements for CA-Easytrieve Plus when using the FACOM Kanji Sort/Merge Program Product:</p>
KATTR	<p>This file is optional (used only with FUJITSU Kanji/Chinese Sort).</p> <p>Purpose – Defines the data sets containing Kanji sort tables.</p> <p>Characteristics – Normally, an OS/390 or z/OS PDS containing load module members.</p> <p>Considerations – Libraries are provided and maintained by FUJITSU-supplied utilities.</p>

Toolkit Operation

This chapter describes all files and JCL required for executing Toolkit in the OS/390 and z/OS operating systems.

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 CA-Easytrieve Plus options WKDSPF and MACDDN. See the CA-Easytrieve Plus *Installation Guide* for all files and JCL required for executing CA-Easytrieve Plus.

OS/390 and z/OS JCL Examples

Compile and Execute

The following example illustrates the JCL necessary to compile and go with sort and external VFM work file.

```
//jobname    JOB accounting.info
//STEPNAME   EXEC   PGM=EZTPA00,REGION=512K
//STEPLIB    DD DISP=SHR,DSN=your.caeztool.cailib
//           DD DISP=SHR,DSN=your.caeztpls.cailib
//PANDD      DD DISP=SHR,DSN=your.caeztool.caimac
//SYSPRINT   DD SYSOUT=A
//SYSSNAP    DD SYSOUT=A
//SYSOUT     DD SYSOUT=A
//SORTWK01   DD UNIT=SYSDA,SPACE=(CYL,1)
//EZTVFM     DD UNIT=SYSDA,SPACE=(4096,(100,100))
//userfile   DD dd-parms
//SYSIN      DD *
...CA-Easytrieve Plus source statements...
```

Compile and Link Edit

The following example illustrates the JCL necessary to compile and link edit a load module to be executed later.

```
//jobname    JOB accounting.info
//STEPNAME   EXEC   PGM=EZTPA00,REGION=512K
//STEPLIB    DD DISP=SHR,DSN=your.caeztool.cailib
//           DD DISP=SHR,DSN=your.caeztpls.cailib
//PANDD      DD DISP=SHR,DSN=your.caeztool.caimac
//EZTVFM     DD UNIT=SYSDA,SPACE=(4096,(100,100))
//SYSPRINT   DD SYSOUT=A
```

```
//SYSLIN DD UNIT=SYSDA,SPACE=(400,(100,50)),DISP=(,PASS),
//      DSN=&&SYSLIN
//SYSIN DD *
PARM LINK(TESTPGM)...
...CA-Easytrieve Plus source statements...
//LKED EXEC PGM=IEWL
//SYSPRINT DD SYSOUT=A
//SYSLIN DD DSN=&&SYSLIN,DISP=(OLD,DELETE)
//SYSLMOD DD DSN=your.eztp.loadlib,DISP=SHR
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,5))
```

Execute a Compiled, Link-Edited Program

The following example illustrates the JCL necessary to execute a previously compiled and link-edited Toolkit program.

```
//jobname JOB accounting.info
//STEPNAME EXEC PGM=TESTPGM
//STEPLIB DD DISP=SHR,DSN=your.caeztool.cailib
//      DD DISP=SHR,DSN=your.caeztpls.cailib
//PANDD DD DISP=SHR,DSN=your.caeztool.caimac
//SYSPRINT DD SYSOUT=A
//SYSSNAP DD SYSOUT=A
//SYSOUT DD SYSOUT=A
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,1)
//EZTVFM DD UNIT=SYSDA,SPACE=(4096,(100,100))
//userfile DD dd-params
//SYSIN DD * (optional CARD input)
```

TSO Operation

CA-Easytrieve Plus Toolkit can execute in the TSO environment. Interactive execution is in the TSO foreground partition. This is accomplished by creating a TSO procedure CLIST. You must install CA-Easytrieve Plus Toolkit as described in the chapter “[Installation](#).”

Sample TSO CLIST

Use the following TSO CLIST sample to execute CA-Easytrieve Plus Toolkit.

```
PROC
ALLOC FI(SYSIN)    DA (*)
ALLOC FI(SYSPRINT) DA (*)
ALLOC FI(PANDD)    DA ('your.TKIT.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)TR SP(5,5)
CALL 'your.EASYTRIEVE.PLUS.loadlib(EZTPA00)'
```

TSO CLIST directs SYSIN input from your terminal to CA-Easytrieve Plus and directs SYSPRINT output from CA-Easytrieve Plus to your terminal.

The allocate for PANDD identifies your macro library. The allocates 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.

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 very easily 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](#).

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 preformatted 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, OS/390, 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 *Defining the Use of SMF* in the appropriate IBM SMF 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 OS/390 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 OS/390 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 OS/390:

`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 OS/390, the consolidated records built by JIF are identical in format. This means that the same CA-Easytrieve Plus Toolkit macros can be used against a consolidated record built from any level of OS/390 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. This 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 gives you the ability to 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 on.

Read Input Exit

JIFRDREX reads the consolidated file, then formats and presents a fixed-length record to CA-Easytrieve Plus Toolkit. The JIF routines can be used to generate reports on this file. For additional information on read input exit, see the [Macro Reference Guide](#).

JIF Options Table

JIFOPTS is an assembler macro that can be assembled and linked into the CA-Easytrieve Plus Toolkit executable library. You can link edit JIFOPTS as required after CA-Easytrieve Plus Toolkit installation. This 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 C0ZU001 (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
//*****
//*
//* Install Jif Options Table into a NON-SMPE Library          *
//*
//* 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=ASMA90,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.eztool.CAISRC
//SYSLIN DD DISP=(MOD,PASS),DSN=&&OPTTBL,UNIT=SYSDA,
//      SPACE=(80,(200,50))
//SYSIN DD *
//      JIFOP DSKTYP1=3380,DSKTYP2=3390,FILSIZE=32760,RECL=32760, *
//      LENJTBL=32752,EXPLEN=32767
//      END
/*
//LINK1 EXEC PGM=HEWL,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.eztool.loadlib(JIFOPTS)
//SYSLIN DD DISP=(OLD,DELETE),DSN=&&OPTTBL
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
/*
```

C0ZU001 (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 = C0ZU001
/**
/** *****
/**
/**  Before submitting this job for execution, review the
/**  chapter JIF Operation in the CA-Easytrieve Plus Toolkit
/**  2.0 Installation Guide.
/**
/**
/**  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
/** SMPMPTS  DD  DSN=&SMPHLQ..SMPMPTS,DISP=SHR
/** SMPPTS   DD  DSN=&PTSHLQ..SMPPTS,DISP=SHR
/** SYSLIB   DD  DSN=&SMPHLQ..SMPMPTS,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=NO
          END
/*
/******
/*
/*      APPLY USERMOD FOR JIF OPTIONS TABLE
/*
/******
//APPLY.SMPCNTL DD *
          SET BDY(CAITGT) OPTIONS(OPTIONS) .
          APPLY S(C0ZU001) REDO .
//APPLY.SMPPTFIN DD *
++USERMOD(C0ZU001) .
++VER(Z038) FMID(C0Z2000) .
++MOD(JIFOPTS) DISTLIB(C0Z20LLD) TXLIB(TEMPOBJ) .
/******
```

Considerations

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

In the previous section in the sample JCL for assembling and linking JIFOPTS, 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 card. Operands cannot be continued across cards.

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

Selectable Options

Remember, you must 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 - 3330/1

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 - 3350

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.

Default - MM/DD/YY

PNCHCLS=xxxxxxxx

Specify the SYSOUT classes defined as punched output. Specify these 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 section.

Default - JIFEXIT1

EXIT2=*modname*

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

Default - JIFEXIT2

FILSIZE=xxxxxx

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

Default - 19000

RECLN=xxxxxx

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

Default - 19000

LENJTBL=xxxxxx

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 - 1024

EXPLEN=xxxxxx

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 - 12288

SID1= $\left\{ \begin{array}{l} \text{ALL} \\ \text{xxxxx} \end{array} \right\}$

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 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 is done for all records. The actual structure of the JIF sort key is discussed later in this section. 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 additional information on consolidated record fields, see the [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 left-hand column lists the SMF record types processed by JIFSEL.

The middle 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 additional information, see [JIF Options Table](#).

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. Page-ins and page-outs. Number of address space swap sequences. Number of VIO page-ins and page-outs. Number of service units. Residence times. Number of page seconds.
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.

SMF Record Type	Record	Record Contents
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 DD	Information is equivalent to the dataset 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.
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 Audit Records Fields. An asterisk indicates breaks between the four record segments described previously.

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	
AULSTDY	VS3_ +06	3	U	MASK ('99/99/99')
AULSTTM	VS3_ +09	3	U	MASK ('99:99:99')
AULSFDY	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

Name	Description
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
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
AULSTDY	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 [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 JIFSEL's record selection process.
- EXIT2—Used to process the records selected by your EXIT1 routine. This consists of 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 JIFSEL's consolidation function. This 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 [JIF Options Table](#) earlier in this section.

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 only of an ASSEMBLER EXIT1 routine 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 the next section. 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	Packed decimal, valid sign
27-30	Time reader recognized job	4 bytes binary
19-26	Job name	8 bytes alphanumeric
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 SMF 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 a sample of an ASSEMBLER EXIT2 routine 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
RCW      DS    0H
      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 between having JIFSEL continue to build the consolidated records as if a rerun situation had not been encountered, 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. This is done 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 this is not done, 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-Easytrieve Plus Toolkit 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-Easytrieve Plus Toolkit routine.

```
//jobname JOB accounting.info
//STEP1 EXEC PGM=JIFSEL
//STEPLIB DD DSN=your.TOOL.KIT.loadlib,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSOUT DD SYSOUT=A
//PJPRINT DD SYSOUT=A
//PJSORTIN DD DSN=your.SMF.dataset,DISP=(OLD,KEEP),UNIT=TAPE,
// VOL=SER=xxxxxx
//SORTOUT DD DSN=JIF.consol.idated.file,DISP=(NEW,CATLG,DELETE),
// SPACE=(CYL,(10,10),RLSE),UNIT=SYSDA
//PJAUDIT DD DSN=JIF.audit.file,DISP=(NEW,CATLG,DELETE),
// SPACE=(TRK,(1,1),RLSE),UNIT=SYSDA
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,5)
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,5)
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,5)
/*
//STEP2 EXEC PGM=EZTPA00
//STEPLIB DD DSN=your.EASYTRIEVE.PLUS.loadlib,DISP=SHR
//PANDD DD DSN=TKIT.macro.library,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSOUT DD SYSOUT=A
//CONSOL DD DSN=JIF.consol.idated.file,DISP=SHR
//AUDIT DD DSN=JIF.audit.file,DISP=SHR
//EZTVFM DD UNIT=SYSDA,SPACE=(4096,(100,100))
//SYSIN DD *
%JIFREC YYNNNNNN
%OSJIFnn ...
/*
//
```

MVS/XA 2.2.0 Users

For users wishing to use MVS/XA 2.2.0 SMF records, append ,PARM= 'MVS(220) ' to the line that starts with //STEP1 and verify that the SMF record input file contains only records from those releases of MVS SMF. The default is pre-MVS/XA 2.2.0 SMF records, so that existing operational job streams run without modification.

Example:

```
//STEP1      EXEC  PGM=JIFSEL,PARM='MVS(220) '
```

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, given that the preceding 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(313)' to the line that starts with "//STEP1" and verify that the SMF record input file contains only records from those releases of MVS' SMF. The default is pre-MVS/ESA 3.1.3 SMF records so that existing operational job streams run without modification.

Example:

```
//STEP1      EXEC  PGM=JIFSEL,PARM='MVS(313) '
```

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.

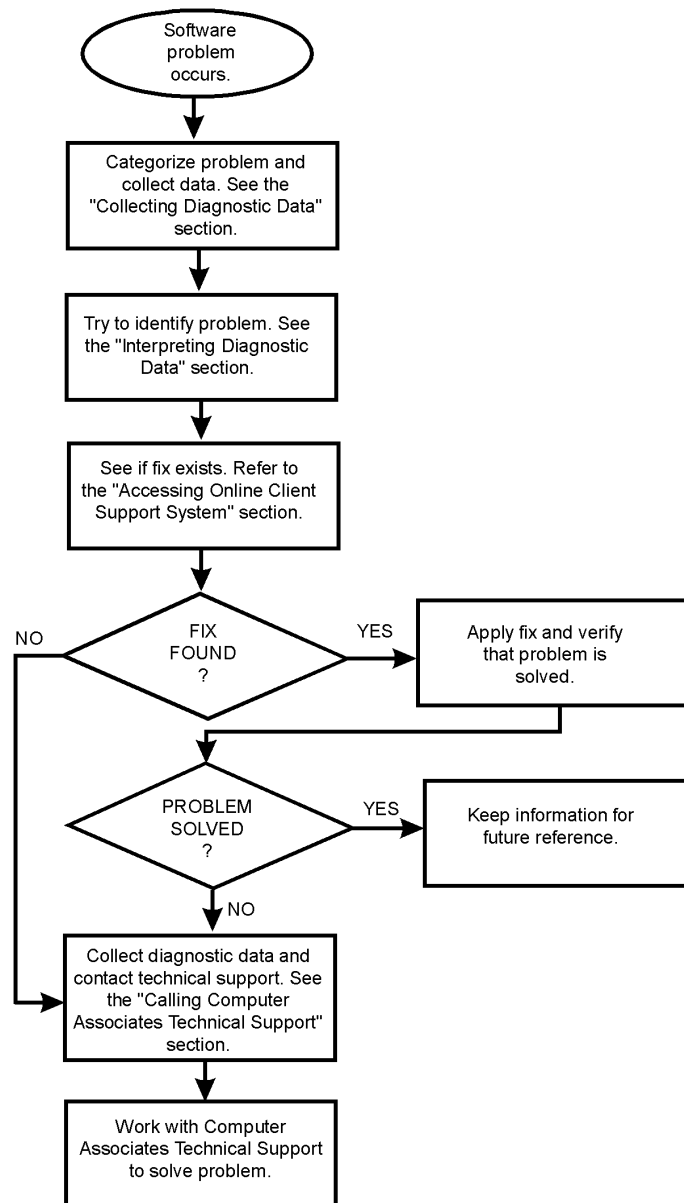
Troubleshooting

This chapter contains information about:

- Identifying and resolving problems
- Contacting Computer Associates Technical Support
- Receiving ongoing product releases and maintenance
- Requesting product enhancements

Diagnostic Procedures

See the following diagram for a summary of the procedures to follow if you have a problem with a Computer Associates software product. Each of these procedures is detailed on the following pages.



Collecting Diagnostic Data

The following information is helpful when diagnosing problems that might occur:

- Control statements used to activate your product
- JCL used to install or activate your product
- Relevant system log or console listings
- Relevant system dumps or product dumps
- List of other IBM or third-party products that might be involved
- Manufacturer, model number, and capacity of your hardware
- Numbers and text of IBM or Computer Associates error messages associated with the problem
- Names of panels where the problem occurs
- Listings of all fixes applied to all relevant software, including:
 - The dates fixes were applied
 - Fix numbers
 - Names of components to which fixes were applied
- Short description of problems

Interpreting Diagnostic Data

When you have collected the specified diagnostic data, write down your answers to the following questions:

- What was the sequence of events prior to the error condition?
- What circumstances existed when the problem occurred, and what action did you take?
- Has this situation occurred before? What was different then?
- Did the problem occur after a particular PTF was applied or after a new release of the software was installed?
- Have you recently installed a new release of the operating system?
- Has the hardware configuration (tape drives, disk drives, and so forth) changed?

From your response to these questions and the diagnostic data, try to identify the cause and resolve the problem.

Accessing the Online Client Support System

Computer Associates is making extensive use of the Internet for your benefit. We encourage you to use the Computer Associates Website at ca.com and the online support Website at esupport.ca.com. These sites provide extensive information about Computer Associates products and services, including:

- Service and support
- Product information and sales
- CA-World conference information
- Press releases
- Computer Associates user groups

StarTCC, the web-based portion of CA-TCC (CA-Total Client Care), gives you realtime, interactive access to Computer Associates product support information through the Internet. At esupport.ca.com, you can:

- Open new issues
- Browse or update your existing issues and enhancement requests
- Perform keyword searches
- Download solutions, PTFs, and important notices regarding Computer Associates products, maintenance, and documentation

Requirements for Using StarTCC

Following are the requirements to use StarTCC:

- You must be a Computer Associates client with a current maintenance agreement.
- You must register through the Computer Associates Web site.
- You must access the Internet with a browser that supports the HTML specification 2.0 or higher, such as Netscape Navigator 2.0 or higher or Microsoft Internet Explorer 3.0 or higher.

Browsers that meet the HTML requirement support the following functions, which are required for StarTCC:

- Secure Sockets Layer (SSL) to encrypt your transaction traffic
- Encrypted data records (known as cookies)
- HTML tables

StarTCC Security

StarTCC runs as a secured server (SSL). You might want to configure your browser to enable SSL. Guidelines for doing this are provided on the Computer Associates Technical Support page.

Accessing StarTCC

To access StarTCC, set your browser for esupport.ca.com. The StarTCC options are:

- StarTCC Information
- StarTCC Registration
- Access StarTCC

These options are described next.

StarTCC Information

Select the information option to view background information for StarTCC, details about the prerequisites, and instructions for configuring your browser. Be sure to review this section for updates or information not included here.

StarTCC Registration

Select the registration option to identify yourself to StarTCC. You must register before you can access StarTCC online. There are prompts for all required information, including your name, site ID, CA-StarTrak PIN, company name, email address, postal address, and desired password for accessing StarTCC.

Note: If you do not have a CA-StarTrak PIN, StarTCC provides one when you register.

Access StarTCC

Select the access option to begin using StarTCC. When prompted, enter your user ID and password. After your signon is validated, you can perform the following:

Open a new issue Open an issue for, or request an enhancement to, one of your Computer Associates products.

Browse your issues and enhancement requests
Display all issues for your site. The issues are grouped into three categories: Open, Closed, and Enhancement Requests (DARs).

Browse and/or download solutions
Specify criteria for selecting solutions, which you can then view or download.

Search the Computer Associates knowledge base

Specify criteria for searching the Computer Associates database for solutions, problems, and keywords that can provide you with immediate answers to your product support questions and concerns.

Update your StarTCC profile

Make changes to your default email address, phone number, and password whenever necessary.

Display your site's licenses

View a list of all the Computer Associates products for which your site is currently licensed.

Display StarTCC news items

View and download recently published solutions for Computer Associates products, instructions for downloading from StarTCC, and helpful information for using CA-StarTrak, StarTCC, or other Computer Associates products.

Accessing the Technical Support Phone Services Directory

The Computer Associates Technical Support Phone Services Directory lists each Computer Associates product and the telephone number to call for primary support for that product. To access the Support Phone Services Directory, set your browser for esupport.ca.com and click Contact Us.

CA-TLC: Total License Care

Many Computer Associates software solutions use license keys or authorization codes to validate your hardware configuration. If you need assistance obtaining a license key or authorization code, contact the CA-TLC: Total License Care group through esupport.ca.com.

Contacting Technical Support

For further technical assistance with this product, contact Computer Associates Technical Support at esupport.ca.com for a complete list of Computer Associates locations and phone numbers. Technical Support is available 24 hours a day, seven days a week.

If you are unable to resolve the problem, have the following information ready before contacting Computer Associates Technical Support:

- All the diagnostic information described in [Collecting Diagnostic Data](#).
- Product name, version number, operating system and genlevel.
- Product name and version number of any other software you suspect is involved.
- Release level and PUTLEVEL of the operating system.
- Your name, telephone number, and extension (if any).
- Your company name.
- Your site ID.
- A severity code. This is a number (from 1 to 4) that you assign to the problem. Use the following to determine the severity of the problem:
 - 1 A system down or inoperative condition
 - 2 A suspected high-impact condition associated with the product
 - 3 A question concerning product performance or an intermittent low-impact condition associated with the product
 - 4 A question concerning general product use or implementation

Generating a Problem Report

After a Computer Associates Technical Support representative has determined that your problem requires further investigation, you can use the following information to generate a problem report:

CAISERV Utility

The CAISERV diagnostic facility produces a problem report for you to fill out and send in with all problem documentation.

CAISERV also produces a short report on the Computer Associates products that you have installed. You should send this information to help Technical Support solve your problem.

To invoke CAISERV, execute the CAISERV PROC in your sample JCL library:

```
//      EXEC CAISERV,CAILIB='CAI.CAILIB',  
//      CAILPA='CAI.CAILPA',  
//      CAICICS='NULLFILE',  
//      SYSOUT=A  
//
```

Edit the JCL to your site's standards and submit the job.

This job produces a report similar to the following to SYSPRINT:

```

COMPUTER ASSOCIATES          PROGRAM STATUS REPORT          CAISERV-01 PAGE 01
CAISERV 1.0 8902PP00        OPSYS='MVS/370'                15 JUL 1997 12.10.31

*****
*
*                                COMPUTER ASSOCIATES PROBLEM REPORT FORM
*
*****
*
* CUSTOMER ID   : _____
* COMPANY NAME  : _____
*
* COMPANY ADDRESS : _____
*                _____
*                _____
*
* CONTACT NAME   : _____
*
* TELEPHONE NUMBER : _____ EXTENSION : _____
*
*****
*
*                                HARDWARE INFORMATION
*
* CPU MODELS, STORAGE SIZES AND CPU IDS
* CPU 1 : _____ CPU 2 : _____
* CPU 3 : _____ CPU 4 : _____
*
* DIRECT ACCESS STORAGE DEVICES
* DASD 1 : _____ DASD 2 : _____
* DASD 3 : _____ DASD 4 : _____
*
* TAPE DEVICES
* TAPE 1 : _____ TAPE 2 : _____
* TAPE 3 : _____ TAPE 4 : _____
*
*
*                                SOFTWARE INFORMATION
*
* OPERATING SYSTEMS
* OPSYS 1 : _____ OPSYS 2 : _____
* OPSYS 3 : _____ OPSYS 4 : _____
*
* OTHER SYSTEM SOFTWARE
* (VENDOR AND/OR IBM) _____
*
*****
*
*                                *
* PROBLEM SEVERITY              * PROBLEM TYPE
*
*****
*                                *
*                                *
*                                *
*                                *
*                                *
*                                *
*                                *
*                                *
*                                *
*                                *
*****

```

Fill in the form completely. This information will be logged into the Computer Associates Technical Support system and will be tracked from the time it is reported to the time it is closed.

[illegible]

```

COMPUTER ASSOCIATES                                PROGRAM STATUS REPORT                                CAISERV-01 PAGE 04
CAISERV 1.0 8902PP00                                OPSYS='MVS/370'                                26 SEP 1996 9.09.42

*****
*                                                                                               *
*                                                                                               *
*                                                                                               *
*                                                                                               *
*****

TLMS OPTIONS LISTING
CA-DYNAM/TLMS (5.5)                                GENLEVEL 9610TL550

GENERAL:
ALTCTR=D1      COMPANY=YOUR TLMS 5.5 COMPANY NAME
DATACTR=DC     DATEFMT=MM/DD/YYYY                PAGESIZ=58
VMFNAM =ASM.TLMSDV.VMF
VMFINAM=ASM.TLMSDV.VMF

TECHNICAL:
FORSPEC=YES    LOGID=240      LBLDTRY=YES      MACC=030
QSIZE=064      MSGPFX=CTS     SUBOVER=NO       SUBVOL=NO
SMS=NO         NSM=01         SCR=01           EDM=01
ROUTAUX=NO
ROUTINQ=YES    ( RT=14      UPD=YES      MSG=DEL      )

PROCESSING:
ABEND=24       BRKCHN=OPEN    CATDAYS=1        CATLG=
DISP=YES       DBLDRIV=NO     DBLTIME=000000  DSNSTD=YES
IDSNVER=NO
INPUT=YES      ( CHN=YES      BLP=YES      NL=YES      SL=YES      )
KDATE=MAX      KEYDD=REALDATE  MANUAL=YES     NOTLMS=CONT
OVERRIDE=NO    PROTECT=ALL     RECOVERY=ALTLOG SCRATCH=CDS
SERIND=YES     UNCATLG=YES     VSNPAD=        VSNREQD=YES

USER EXITS:
CLSEXIT=NO     CMDEXIT=NO     OPNEXIT=NO
RMPEXIT=NO     RPTEXIT=NO     SECEXIT=NO     TRSEXIT=NO
UPDEXIT=NO

SECURITY:
PROMPT=YES
SECURE=NO

```

The messages you might encounter when running CAISERV are:

CAPP999E INSUFFICIENT STORAGE TO PROCESS CAISERV

Reason:

Sufficient storage was not allocated to execute CAISERV.

Action:

Use at least 100 KB of storage for executing CAISERV.

(no number) ** PRODUCT CAISERV MODULE 'modulename' NOT ACCESSIBLE* :**

Reason:

Libraries are not properly concatenated.

Action:

Review and modify the JCL. Execute CAISERV.

Product Releases and Maintenance

Clients are requested to operate only under currently supported releases of the product.

Clients with current maintenance agreements also receive ongoing maintenance. When a new release of the system is available, a notice is sent to all current clients.

Requesting Enhancements

Computer Associates welcomes your suggestions for product enhancements. All suggestions are considered and acknowledged. You can use one of two methods to request enhancements:

- Contact your Account Manager who will initiate a Demand Analysis Request (DAR) for you.
- Enter your request through StarTCC, the Computer Associates Web-based, interactive support system at esupport.ca.com.

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